

RECENT FLOODING IN CALIFORNIA

(105-11)

HEARING
BEFORE THE
SUBCOMMITTEE ON
WATER RESOURCES AND ENVIRONMENT
OF THE
COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES
ONE HUNDRED FIFTH CONGRESS
FIRST SESSION

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RECENT FLOODING IN CALIFORNIA

WEDNESDAY, MARCH 19, 1997

U.S. HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON WATER RESOURCES AND
ENVIRONMENT,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:00 a.m. in room 2167, Rayburn House Office Building, Hon. Sherwood L. Boehlert (chairman of the subcommittee) presiding.

Mr. BOEHLERT. I think we're right on time, 10:00, and we're going to open up the hearing on a formal basis.

Welcome to the Water Resources and Environment Subcommittee. Today we meet to receive testimony on the New Year's floods in California and the many environmental and emergency policy issues left in their wake. We'll also learn about the more recent and devastating floods in States along the Ohio River.

Both of these natural disasters carry price tags in the billions of dollars. As we focus on flood policy, it is important to remember that this is an issue that is important to every region of the country.

In fact, roughly a year ago my own Congressional District in up-state New York experienced tens of millions of dollars in damage. Eight of my nine counties were declared disaster areas as a result of the heavy rains and rapid snow melt.

One of this subcommittee's most vital missions is to oversee the activities of the Federal Emergency Management Agency and the Army Corps of Engineers. When disaster strikes, the Nation turns to FEMA and the Corps, probably more than any other Federal agencies. Using their authorities under the Stafford Disaster Relief and Emergency Assistance Act and various water resources laws, these two agencies save lives, protect property, and restore hope. Let me tell you something: they do a very good job. That is based on personal experience.

Today we are honored to have James Lee Witt, the director of FEMA. Mr. Witt has done an outstanding job during his tenure at FEMA. He has improved our Nation's disaster response programs and he has also increased emphasis on prevention and hazard mitigation—themes all of us need to emphasize over and over again.

For those of you who are new members of this committee, I want you to know that I am an unabashed member of the James Lee Witt Fan Club, and if anyone would like to sign on for membership see me after the hearing.

We're also pleased Major General Russell Fuhrman, the Director of Civil Works, is able to join us. The Nation expects a lot out of the Corps. They must control floods and protect the human environment. At the same time, they must protect and respect the natural environment following various mandates under our Nation's environmental laws. Sometimes that's not easy.

This committee has grappled and will continue to grapple with these difficult issues. We hope the Water Resources Development Act of 1996, which includes critical flood control and watershed protection and environmental restoration missions for the Corps, will help set a smoother course for future policies and programs.

Effective flood plain management and flood control can alleviate human suffering, save taxpayer dollars, and respect the environment. The 1993 Mississippi flood, which caused over \$12 billion in damage, can be very instructive on how we should address flooding and flood plain management issues.

Following the Mississippi Flood, the famous Galloway Report provided detailed examples on how we can reduce flood losses and maximize the use of natural flood control measures.

Relocating people out of dangerous flood plains and restoring wetlands and other natural flood control measures must be considered in any comprehensive flood management program.

It is interesting to note—and I'll make reference to this during the hearing today—that there was a rather detailed article in this morning's "New York Times" on that very subject.

Today's hearing will address these and other issues raised by the recent flooding in California and the Central Valley. We'll here from Federal, State, and local officials about the damages, estimated in excess of \$2 billion, and the response efforts. We'll also hear about issues associated with levees such as maintenance and reconstruction and stream clearing.

Residents of the Central Valley will share some of their personal observations and experiences. In addition, a noted water resources expert and author, Professor Jeffrey Mount, will describe some of the facts and policy debates surrounding flood plain management and environmental protection in California.

And, of course, we will hear from Members of the California delegation. Representatives Herger, Fazio, and Pombo, among others, have taken a lead role in bringing these issues to the attention of this subcommittee—indeed, to the attention of the entire Congress—and they are to be commended for what they have done.

We don't always agree on every issue. We never will. But I tell you we always listen, and they are valuable sources of information.

I can assure you this: we do agree on the need for the Federal Government to help rather than hinder in times of disaster.

Now let me turn to the ranking democrat on the subcommittee, the gentleman from Pennsylvania, Mr. Borski.

Mr. BORSKI. Thank you, Mr. Chairman, and let me thank you for conducting this hearing. I also want to join with you in praising our FEMA administrator, James Lee Witt, who is, if not the finest, certainly one of the finest appointments by the Clinton Administration, and I think you'll agree, Mr. Chairman, is the best—simply put, the best FEMA administrator we've ever had.

We can all recall the devastating flooding which accompanied the arrival of the new year in California. As the subcommittee with jurisdiction over both flood damage reduction program of the Corps of Engineers and the disaster response program of the Federal Emergency Management Agency, the lessons learned from the California floods will aid the subcommittee in its oversight of both programs.

While often a hearing such as this is held to learn what caused the flooding, in truth we all know what caused the flooding—more precipitation fell in the river valleys than the river courses could handle. Flooding rarely gets more complicated than that.

What we can learn, however, is what steps we might take to minimize loss of human life and property during future floods and how we might improve our ability to respond to the needs of flood victims following a flood.

Flood damage reduction is not and never will be primarily a Federal responsibility. For example, in the California Central Valley there are approximately 6,000 miles of levees, but only 1,700 miles of levees are Federal project levees, and not all the project levees were Federally constructed. Over 4,000 miles of levees in California are completely outside any Federal levee program. Yet, when disaster strikes, the Federal Government has proven to be generous in its response—generous even in areas where hindsight indicates that people may have placed themselves at risk through overzealous development and inadequate protection.

The California floods indicate a continuing need to review the Federal, State, and local government role in reducing flood damages. While no one denies the need to adequately protect our existing urban areas, we must also consider the impacts future development can have on potential flooding. Every new development, every encroachment upon a traditional flood plain, and every loss of a wetland contributes to the potential for increased flooding downstream of the loss of these natural flood reduction areas.

There will be a comprehensive review of the flood damage reduction needs of the Central Valley area. I strongly recommend that the study review both the structural and non-structural needs of the area. Levees and dams, alone, are not the answer. While levees may be necessary, perhaps the rebuilding effort could move them back to allow for increased carrying capacity and improved natural storage.

Bypasses and wetlands restoration should also be included in the study, and State and local governments need to review land use patterns, as well.

However, nonstructural approaches do not need to wait until completion of the study. In the Water Resources Development Act of 1996, the Corps was given new authority to explore non-structural options following a flood rather than traditional rebuilding of levees. Because this authority can only be exercised at the request of a local sponsor, I hope the State and local interests will seriously consider this option to rebuilding levees as a tool in reducing the future risks of flooding.

Mr. Chairman, I look forward to hearing from our distinguished witnesses today.

Mr. BOEHLERT. Thank you very much.

Before we proceed with the first panel, I'd like my colleagues to know if they have any opening statements they can be included in the record at this juncture, but we'd like to proceed. We have a long hearing and a lot of important business to take on.

[The prepared statements of Ms. Tauscher and Mr. Wise follow:]

Rep. Ellen O. Tauscher
 Opening Remarks
 Hearing before the
 Subcommittee on Water Resources and the Environment
 on Recent Flooding in California
 March 19, 1997

Good Morning. I wish to thank Chairman Boehlert and Ranking Member Borski for convening this important hearing to receive testimony on the recent flooding in my state of California. The tragic floods killed eight people, damaged or destroyed almost 20,000 homes and have been estimated to cost more than \$1.8 billion in property damage.

I also wish to thank my colleagues from California for taking the time ^{to} share the experiences endured by their constituents. I think we can all agree that California needs a comprehensive flood management strategy that will minimize loss of life and property, save taxpayer dollars and protect and restore important and natural floodplain watersheds. *to avoid future disasters.*

Finally, I'm proud to thank the joint efforts put forth ~~from~~ ^{by} the FEMA and the Army Corps of Engineers. Both counties in my District, Alameda and Contra Costa, were declared major disaster areas and the assistance of the Corps and FEMA was indispensable to the people of the tenth Congressional District. In my view, State, local and federal agencies and governments, non-governmental stakeholders, and concerned members of the public must to work cooperatively, as they have in the CALFED process, to develop and implement better short- and long-term flood response coordination and funding.

Together, we can find common-sense solutions to protect development while respecting the natural resolve of our great river systems and safeguarding our constituents from future losses like those experienced during the January floods. I look forward to hearing the testimony of our esteemed witnesses, and I look forward to working together to resolve the issues we are faced with today. Thank you, Mr. Chairman.

BOB WISE
2d DISTRICT, WEST VIRGINIA

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Statement by Congressman Bob Wise
Before the Water Resources Subcommittee
March 19, 1997

Thank you Mr. Chairman. I am pleased to see James Lee Witt, Director of Federal Emergency Management Agency (FEMA) and General Russell L. Fuhrman, Director of Civil Works, U.S. Army Corps of Engineers (Corps) here today to discuss flood response and coordination efforts by FEMA and the Corps.

In the past year I have witnessed the damage floods can cause to life, property and land. Areas of West Virginia were declared federal states of emergency five times last year. A majority of these disasters were flood related. The "Floods of 96" inflicted severe damage to large areas of West Virginia. It caused overwhelming damage and destruction to our streams and rivers which affected life and property. Over \$79 million was spent by FEMA for disaster recovery.

Just as West Virginians were beginning to get back on their feet from last year's floods, another round of flooding occurred this year. For some, this flood inflicted even more severe damage than the previous floods. Sixteen counties were declared a federal state of emergency. It was like deja vu all over again. The devastation exceeded any I had previously witnessed. The damage to homes, roads, bridges and schools was extensive.

Mr. Witt, you and I recently toured the Second Congressional District of West Virginia together and saw damage and devastation first hand, as I have done in all of the previous floods. We traveled extensively throughout the hardest hit flood areas with volunteer firefighters and many other emergency response teams who were on the front line of rescue and protection in many of these communities.

It occurred to me after West Virginia suffered its second major flood, that more effort is needed to prevent flooding. Specifically, there need to be an undertaking to coordinate the

various agencies which have overlapping jurisdiction in flood management. Similar to today's hearing, I brought together many federal, state and local agencies in West Virginia who are involved in flood management for a series of meetings to design a long-term, systematic effort to control flooding. Representatives from various federal agencies attended these meetings including Rita Calvan, Region III Director for FEMA and Jack Goga, District Chief of Planning, from the Corps. The purpose of this effort was to: (1) develop a flood control plan for each county and region, (2) establish a priority list and timetable for completing each project, (3) assign responsibility to particular agencies for each project and (4) learn what funding is needed to develop a strategy for obtaining it.

These collective meetings were very successful. More than 800 people participated and about 100 flood control problems were outlined. These projects involved three different areas -- flood prevention, special permitting for clean-up and prevention efforts and a better warning system for area residents. Significant progress was made toward developing the most wide-ranging flood prevention strategy ever put together in the Second Congressional District. My hope is to continue to move this project forward and find real solutions to prevent severe flooding.

The time to assess what has, is and can be done to prevent any future flooding is now. The coordinated efforts of FEMA and the Corps is a step in the right direction. I am encouraged by their efforts to come here today and discuss how to effectively deal with flooding problems. I want to work with you and other appropriate officials in taking an active role in preventing any future flood damage.

Mr. BOEHLERT. It is my pleasure to welcome the first panel, consisting of four of our most distinguished colleagues from the State of California: Congressman Dick Fazio, Congressman Richard Pombo, Congressman Wally Herger, and Congressman George Miller.

Gentlemen, we're glad to have you here. We look forward to your testimony. Your entire statements will appear in the record. We would ask that you consider summarizing them. What I'd like to do is go in the order announced. Mr. Fazio, you are first.

TESTIMONY OF HON. WALLY HERGER, A REPRESENTATIVE IN CONGRESS FROM CALIFORNIA; HON. VIC FAZIO, A REPRESENTATIVE IN CONGRESS FROM CALIFORNIA; HON. RICHARD POMBO, A REPRESENTATIVE IN CONGRESS FROM CALIFORNIA; AND HON. GEORGE MILLER, A REPRESENTATIVE IN CONGRESS FROM CALIFORNIA

Mr. FAZIO. Thank you, Mr. Chairman. I appreciate you and Mr. Borski having this hearing, and I want to thank my colleagues for letting me go first so I can go in and deal on the Energy and Water Committee, which I know is one that this committee works closely with, in this case hearing from Mr. Pena at his first appearance as Secretary of Energy.

Since we began clamoring to have this hearing, we've had the devastating floods in the Ohio River Valley, and I would anticipate that Mr. Thune and Mr. Boswell and others are probably not looking forward to what is estimated to be one of the potentially most devastating flood seasons in the upper midwest. This is going to be the year of the flood in almost every corner of the country.

We know that FEMA, the Corps of Engineers, and others who will be providing testimony today are going to be stressed and diverted in their attention from one area to another as the crisis unfolds.

But I think for a moment we'd like to focus on the unique aspects of what happened in California. Our delegation has been attempting, working with our Senators, to develop an approach to remedying the problem we face and moving on and preventing it from occurring again.

You know we've already had estimated losses of around \$2 billion, 100,000 Californians have been displaced from their homes. We've lost nine lives. It has truly been a devastating experience, only mitigated by the fact that after one of the wettest Januaries in history we've had one of the driest Februaries, and in March so far we haven't had the devastating warm tropical storm come through that would loose one of the most significant snow packs we've had in recent years.

Much of the Sierra is at 200 percent of normal snow pack. We all hope we've gone through the worst. We may yet have some problems ahead of us, just as people in Utah and Colorado may have, with runoff from very, very large snow packs.

The President has or will today perhaps submit a supplemental that will significantly contribute to the solution of our problem, and I would say that problem really is to get back to a level of flood protection consistent with what we had at the beginning of this winter by next September. We need that funding so that emergency

recovery work can continue. We've already spent some \$50 million. We believe there's about \$200 million in the supplemental that will continue that work.

It's estimated by the Corps that we will have to spend in the neighborhood of \$250 million to perhaps \$300 million just to put the system back in place.

We also need to begin to follow on the emergency repairs, because not only do we want to get back to the level of protection we had before the flooding; if we can take advantage of opportunities to improve levees where we were already planning to over the next several years, we ought to do that because it will not only save us time, maybe further disaster relief, but certainly money.

And so what we'd like to do is to take advantage of some of the work the Corps was planning to do under the emergency conditions.

Obviously, one of our concerns is that the funds not come out of the annual budgets of the Corps and the Bureau of Reclamation, which are making progress on another—many other, frankly—important issues that will come before the Congress in the appropriations this year.

I would hope this committee would certainly provide as much support for that supplemental appropriations bill as possible, and we know that could get very complicated if it becomes a mandatory requirement for offsets, although I believe the Administration is sending up an urgent supplemental that will not require that. I hope the Congress will follow their lead on that.

Part of our problem, though—and maybe even more important problem for this committee's attention—is long-term. We need your help in identifying long-term solutions that are going to prevent these kinds of catastrophes from occurring in the future.

We had division in our ranks last year, but a significant number of our delegation fought for a project that we thought would offer perhaps the highest level of flood protection required for the city of Sacramento, the Auburn Dam. This committee knows it well. You chose not to support that. But that doesn't mean that there aren't many other proposals that may come before you that will have the same kind of impact on providing higher levels of flood protection for not just one community but many up and down the Central Valley of California.

We need to identify the problems we face in common and the best combination of solutions we can, and we need to have a delegation that supports it as broadly and in as bipartisan a fashion as we possibly can.

We've already talked to Martin Lancaster about initiating a comprehensive study similar to the Galloway study that you've already mentioned, Mr. Chairman. He's agreed to get started on that, and we certainly hope that can be done by reprogramming existing funds.

We obviously cannot move forward unless we're prepared to come up with the mix of solutions that will provide the kind of protection we need into the future.

The Administration is among many others supporting non-structural alternatives, and I agree that where non-structural ap-

proaches can provide the level of protection we need in the most cost-effective manner, we should pursue them.

We have opportunities on the Cosumnes River south of Sacramento, in the Lower San Joaquin River, perhaps in the area between Chico Landing and Red Bluff on the Sacramento River, where this kind of approach might be most effective.

But we already need to point out, Mr. Chairman, that we have a system of bypasses that are working very well in northern California, particularly on the Sacramento River, which are intended to prevent flooding and are doing the job effectively. We may need to develop that kind of bypass system more effectively on the San Joaquin River.

The point is, we are already using approaches which I think are consistent with some of the values that were described in the Galloway study.

There are other areas where proposals for meander belts and setback levees may, however, be too costly or impractical. We need to come at this with a pragmatic approach. We need to be willing to tailor our solutions to what may be the conditions on the ground.

I think we also have to look at off-stream storage where it's appropriate. There are several off-stream reservoir locations north of Sacramento: Sites Reservoir in Colusa County, which is not authorized but which is moving quickly up the list of priorities in the process because it has the potential of providing additional water to the delta; Cottonwood Dam, which is an old Corps project that is authorized but hasn't proceeded; Oat Creek, which is a Bureau project that is authorized that could provide some off-stream storage, and flood protection for the Northern Valley, as well as additional water to solve our delta quality issue.

We need to be willing to come together as a delegation and ask this committee for your assistance, perhaps in a new authorization down the road, to look once again at the Corps project levees and the problems that have been created around them.

I think we need to base all of our planning on the commitment of the State of California, perhaps to pass a bond act similar to the one that was passed in the last election cycle, specifically for flood protection, to help with local cost share.

We need to ask the Federal Government to provide assistance on those Corps project levees and perhaps on some additional levees, but I'm sure this committee will be quick to tell us that there are limits and restraints on our ability to ask for Federal help, but in some cases levees may have taken on increasing importance.

We have, I think, begun to work with consensus approach in California. We have \$143 million in this year's budget, placed there by the Administration, for the CALFED process. I'd like the process of dealing with our flood protection to be part and parcel of that.

We have the players at the table from one end of the political spectrum to the other. We're not going to get anything done unless we find consensus on every one of these issues.

It seems to me the kind of support that you gave us in the WRDA last year is the kind of support we'd like to get again in the future, but only if we can bring you not only some State money to the table but a delegation that isn't divided on these issues so that

we don't ask this committee to divide itself in its efforts to help California.

There are many people who will be appearing before you today who I've worked closely with on these issues, in addition to my colleagues—people like Charlie Hoppin, people like Jeff Mount—who will, I think, in their presentations show you the diversity of my own District, and one of the reasons why it's important for this delegation to continue to work to consensus so that we don't hand you a hot potato but an approach to a solution we can all get behind.

Mr. BOEHLERT. Thank you very much. We've come to expect diversity from California.

Mr. FAZIO. We've got to overcome it.

Mr. BOEHLERT. Moving right along in that tradition, may I please present to the committee Mr. Pombo.

Mr. POMBO. Thank you, Mr. Chairman. I don't know about your comment, but there is diversity on the panel, and I think that California represents a number of different interests, and I think that the people—my colleagues and the other people that are going to testify before you today represent some of the differing opinions that are out there.

I'd like to thank you for agreeing to hold this hearing on the flood damage in California and throughout the country that we have had.

I want to also take this opportunity to also thank the Federal agencies. I think it's well known that I have been highly critical of the different Federal agencies at times, but I can honestly say that, throughout the process that we went through with the floods in my District, that we received very, very few complainants about the job that they were doing, and they responded in an outstanding manner.

As a matter of fact, many times, as we were out on the levee banks looking at the damage and trying to do the flood fight, whether it was Army Corps or FEMA or other Federal agencies, they were right there hand-in-hand with the local residents fighting. I was impressed with the job that they did. I think they truly do need to be commended for the work that they did on our behalf.

I'd also like to recognize witnesses from my District that will testify later.

On behalf of San Joaquin County, Water Resources Coordinator John Pulver will address several flood issues that are important to San Joaquin County.

On behalf of the Sloughhouse Resources Conservation District will be its chairman, Bill Mosher. Mr. Mosher will discuss issues relating to private levees along Cosumnes River that Mr. Fazio mentioned in his testimony.

Both these gentlemen have been instrumental in providing me and my office with the necessary information on the flood disaster.

This Congress has its work cut out for it in the next few months. Damages from the California floods are expected to exceed \$2 billion. In my District, alone, San Joaquin County endured an estimated \$59 million in damage to homes, over \$12 million in damages to businesses, \$13 million to agriculture, and \$15 million to infrastructure. Of the area I represent in Sacramento County, the damages have not yet been finalized, but it is estimated that there

is over \$1 million in damage to homes, as well as an undetermined amount of damage to agriculture within the region.

I want to reinforce that all of these figures are purely estimates and more than likely will increase as the flood waters recede.

I understand that Congress will need to appropriate emergency supplemental funds for the flood response actions undertaken by the various flood agencies. This funding will be key in ensuring that California's flood victims get back on their feet; therefore, I urge members of the subcommittee to join me in supporting that supplemental bill.

However, we all need to recognize that flooding in northern California is far from over. Additional flooding is expected to begin this spring when the snow pack begins to melt. As Congressman Fazio earlier testified to, the flood area that I represent has a 200 percent of normal snow pack, and as that begins to melt we will have that come down on us, as well.

Many of the levees that broke during the past flood have been temporarily repaired. Some of them have not yet been repaired. As that snow pack begins to melt, it will again begin to flood within my District.

Officials from Sacramento County have informed me that they do not have the necessary resources available to repair the numerous breaks along Cosumnes River levee system. They have requested assistance from FEMA but were denied emergency funding because private levees are not eligible for Federal assistance.

The Army Corps of Engineers has explained that they, too, are prohibited from working on private levees unless there is a flood fight in progress.

In spite of the fact that the Cosumnes residents are in the process of forming a reclamation district, they are left with few, if any, options. The organization of a reclamation district will enable them to maintain and repair their levees, but it is a lengthy process and doing so will not answer their immediate needs. It is almost certain that these constituents will flood again, since the levee system has suffered catastrophic failure.

In the interest of protecting the lives and property of my constituents, I would like to press upon the subcommittee to assist in resolving this problem. I request that the subcommittee authorize language that will provide limited funding for one-time repairs to the failed levees in the Cosumnes River. Such an appropriation should be met with matching funds from the State, as well.

Once authorized, this bill could be included as part of the emergency supplemental bill.

I do not seek a Federal takeover of these levees; however, I do seek an immediate solution that addresses the dire needs of the residents along the river. Doing so will also prevent further degradation to wildlife and the environment.

Flood protection needs to be restored to this area.

This subcommittee, through its authorization, will provide great assistance in restoring such protection to the region.

The second issue I want to bring to your attention is of a much larger scope. As hard as it is to believe, it has come to my attention that a comprehensive flood study of the Sacramento and San Joaquin River basins has never been carried out. Despite the unknown

reasons for not doing such a survey before now, it is apparent that this must be done. Therefore, I additionally request that the subcommittee authorize funding for an independent, comprehensive study of northern and central California's flood control system. This, too, could be included as part of the emergency supplemental bill.

I believe such a review of the current flood control system in regards to this disaster will lead to recommendations for improvements that will reduce the risk of future flooding.

Furthermore, it may highlight areas of policy and regulation that need to be changed.

The findings of this study should not be intended to place blame, but rather to prevent future flooding that could be repeated if the study is not carried out.

In keeping with the need for a comprehensive review, private levees should not be overlooked by any study that seeks long-term solutions.

In closing, it is unfortunate that flooding has become a way of life for many communities throughout the country. As my constituents know, flooding at any level can be devastating. It is essential that this Congress pass an emergency bill with funding for urgent levee repair.

It is critical for the future, the economic future as well as the safety and well-being of the constituents in my District, that we come up with some long-term solutions to these problems. I think that many times Government regulation stands in the way of a long-term solution, and as we look at developing that long-term plan of how we're going to deal with this, it may also be necessary to review why we got into the situation to begin with.

I thank the chairman, the ranking member, and the subcommittee, again.

Mr. BOEHLERT. Thank you very much, Mr. Pombo. I appreciate your testimony.

Next we'll hear from Mr. Herger.

Mr. Herger, I'd like to commend you because you've sort of been, with your colleagues' support, the driving force to precipitate this hearing, so we welcome you and look forward to your statement.

You'll notice the Chair has been generous with your two colleagues on a bipartisan basis. Both of them exceeded their time. We permitted them because both of them had something very important to say, and we know you will, too.

Mr. Herger?

Mr. HERGER. Thank you, Mr. Chairman, ranking member, and other members of this committee. I will work to stay within my time.

I thank you for the opportunity to speak on behalf of California regarding the recent flooding. I'd like to begin by sharing a few statistics about the 1997 flood.

January 1997, brought the worst flooding in California's recorded history. Nine people were killed. Six were constituents from my own District. More than 120,000 people were evacuated from their homes, and more than \$1.6 billion worth of damage was suffered. Of the State's 56 counties, 48 were declared State and national dis-

aster areas. This includes each of the 10 counties within my own District.

Aside from the loss of life, probably the most disturbing statistic is the fact that this was the third 100-year catastrophic-level flood to hit California in the past 11 years.

The 1986 flooding caused \$400 million worth of damage. Fortunately, in that flood no lives were lost.

In 1995, 28 people were killed and \$1.8 billion worth of damage was caused by early and late winter floods.

One of the witnesses today will testify regarding at least one instance where the Federal Government has not delivered promised Federal relief from the disastrous 1995 floods.

I mention these facts to bring this issue into perspective. California has an absolute need to develop aggressive flood prevention programs. Our flood control system has failed three times in the past 11 years.

California also has an absolute need to define the responsibility of the Federal Government in maintaining California's flood control system.

The Federal Government took control out of local hands, then neglected its responsibility to maintain and repair the flood control system. It took control of levee construction permits, debris removal, upper watershed management, and waterway maintenance. This control should and must require accountability.

This accountability should come before, not after, the flood hits. When the water is rising and the levee is breaking, it is too late to begin meager efforts to hold everything in place.

The time to assume responsibility is when the sun is shining and when repair efforts will have life-saving effects.

When the recent floods hit, however, Federal agencies were caught unaware of emergency powers which allowed them to respond to flood situations. On January 17, 1997, the United States Fish and Wildlife Service and the Army Corps of Engineers executed a memorandum of agreement establishing an expedited procedure of review for flood repair activities.

This agreement was rescinded less than one week later when the Fish and Wildlife Service finally reviewed its own statutory powers and realized the law granted emergency authority to make repairs without prior consultation. Emergency powers defer such requirements until after the emergency has abated.

It is unclear how many flood activities were delayed until officials finally figured out what action could not be taken.

I suggest we take the opportunity of this hearing, Mr. Chairman and Members, to take a serious look at the devastation caused by January floods. We have a duty to find out what we are doing wrong, because something is wrong, Mr. Chairman, when a flood control system supposedly designed to withstand a once-in-a-century-type flood fails three times in a little more than a decade. We need to find what has contributed to the failure of the system and assign responsibility, no matter where it belongs.

Mr. Chairman, I want to thank you and this committee for holding this fact-finding hearing. I look forward to hearing the evidence presented today and hope it will be useful to this committee and the Congress as we look for ways to improve California's flood con-

trol system and to protect the lives, property, and communities of California residents.

Thank you.

Mr. BOEHLERT. Thank you very much, Mr. Herger.

Mr. Miller?

Mr. MILLER. Thank you, Mr. Chairman and members of the committee, for giving our delegation this time.

As my colleagues have pointed out, and as they have documented to you the extent of the damage and the tragedy, I want to join them in commending the Federal agencies that responded in such a quick fashion to the plight of individuals and families that were caught unaware by these floods.

These events again prove that we need to help people avoid the impact of high rainfall and rivers raging outside of their banks. What the floods do not prove, however, is that we need to build more dams and control flooding. The floods do not prove that enforcement of our laws on endangered species cause the floods, as easy as it is to blame that law. Nor do they compel the Federal taxpayer to restore all damage to structures that lie in the flood plains.

Obviously, we must respond to the immediate needs of Californians who have been affected by the floods and who require assistance to get their lives back together. Equally important, however, is how we respond to floods that have not yet happened. We need to start thinking now about how to handle these future floods in California.

I would hope that everyone concerned, including the State of California, the Federal agencies, local government, and our citizens, will see an opportunity to learn some of the important lessons from the January floods. We know we can learn from floods, as we saw in the response to the Mississippi River Basin floods in 1993, and that we can develop principles of hazard mitigation.

As the experts have stated, the California levees broke because there was too much water. The rains and the melting snow pack combined to push incredible volumes of water downriver. On this subject we probably agree that the levee system is outdated. The solution is where we diverge.

The traditional solution is simply to rebuild the straight, single-thread levee channels bigger and stronger. It's obviously a system that does not work. Instead, I believe we need to look at restoring channel complexity, adopting watershed management techniques such as flood plain management, wetland protection, and setback levees, so that we can catch the water where it falls instead of trying the push it downstream.

This is not all we need to look at, however. We need to look beyond the riparian issues to up-slope habitat, as well. Forest management policies that allow upstream clear-cutting and construction of logging roads on unstable slopes lead to erosion and slides that not only destroy valuable fisheries habitat but contribute to downstream floods, as well.

Two features of the Mississippi River Basin program come to mind. Perhaps they could produce significant benefits if implemented in California.

First, Federal agencies worked together to help flood victims who wished to relocate out of the flood plain to do so. Secondly, existing levee systems were re-engineered to ensure that they would maximize flood hazard reduction.

These steps might seem like common sense, but they require a new approach to emergency flood assistance. Instead of putting everything back the way it was before the flood, Federal agencies should be able to assist local communities to reduce the risk of high-water damage in the future.

Yet, in the wake of the California floods, some are calling for a new round of expensive and controversial dam construction. This seems somewhat silly when you consider the fact that California has a law on its books 3 years old now that restricts communities from managing their flood plains by requiring that they allow rebuilding in flood plains of multi-family dwellings destroyed by floods and other natural disasters.

A recent State legislative report has suggested that this law be repealed. It's incredible that we would pour hundreds of millions of dollars of Federal assistance into a State when the State says you can't use these other management tools inside of the flood plains.

Another way we might reduce the impact on future floods is to consider enacting legislation similar to the Coastal Barriers Resources Act for river flood plains. The premise of the Coastal Barriers Act is simple: if you want to build on undeveloped lands in flood zones, don't expect the Federal taxpayer to subsidize your construction.

The Coastal Barriers Resources Act denies Federal flood insurance and other Government assistance for new construction on undeveloped land in flood zones along our coast, but this does not apply to river watersheds. I would hope this committee would take a look at it.

As this committee meets today to review the California floods, a coalition of 15 organizations is announcing a set of five principles of California flood management and flood plain restoration. These principles are summarized as follows:

To restore the river systems and functions that improve flood management, while also bolstering the effectiveness of existing flood control systems.

To better manage the use of flood plains to minimize taxpayers' expense and maximize environmental health.

To manage the entire watershed to provide the most protection from floods in an environmentally sensitive way. Comprehensive efforts should be made to restore natural flood plain habitat and associated hydrologic functions to levels that take significant pressure off the crucial but minimum habitat available today.

State, local, and Federal agencies and governments, non-governmental stakeholders, and concerned members of the public need to work cooperatively to develop and implement better short-term flood response coordination and funding. The implementation for more innovative and comprehensive long-term alternatives should be facilitated and leveraged.

I think this is the kind of thinking that this committee hopefully will undertake as they think about providing this long-term protection. Simply suggesting that people can build in areas because we

think we can engineer 100-year flood protection I think would be the folly of the past, and I would hope that we would again, as Congressman Fazio and my colleagues have talked about, try to arrive at an independent assessment of this.

Assembly Speaker Bustamante and Senator pro tem Lockyear have asked the President for an independent assessment, and I think that would be helpful. I think also helpful is the suggestion also of the flood assessments of the Sacramento/San Joaquin Valley, and even inadequate mapping that exists today because, unfortunately, the Congress is not giving the agencies the kind of resources necessary to conclude the mapping that would help local planners and State agencies and the Federal agencies decide how best California can design its flood protection for the future.

Thank you, Mr. Chairman and members of the committee.

Mr. BOEHLERT. Thank you very much, Mr. Miller. And the delegation has not failed to live up to its advanced billing. There is diversity there. You have all contributed significantly to our deliberations, and I want to thank you for your appearances today.

Mr. Borski?

Mr. BORSKI. Mr. Chairman, I want to ask unanimous consent that the statement of Congressman Matsui be placed in the record at this point.

Mr. BOEHLERT. Without objection, so ordered.

My colleagues, we thank you very much.

Panel number two this morning consists of one person, Mr. James Lee Witt, director of the Federal Emergency Management Agency.

Mr. Witt, as you're taking your place, I would like to point out to my colleagues that the statements of the first panel all had high words of praise for the outstanding work of Mr. Witt and the FEMA agency, and we want to welcome you here this morning, and we look forward to your testimony.

Your entire statement, as usual, and all supplemental material that you'd care to submit for our consideration will be made part of the record at this juncture. We would ask that you might summarize your testimony and we'll get right at it.

TESTIMONY OF JAMES LEE WITT, DIRECTOR, FEDERAL EMERGENCY MANAGEMENT AGENCY, WASHINGTON, DC

Mr. WITT. Thank you, Mr. Chairman and members of the committee.

It is an honor for me to be here before you today and to speak to you about our recent disaster activities, especially in California. Having recently witnessed the trauma and devastation along the Ohio River, my remarks will also touch on some of those disasters.

As you know, the winter floods in California had a widespread devastating impact on that State. Over 100,000 residents were forced to evacuate their homes, and the American Red Cross sheltered over 20,000 people. To date, FEMA has accepted applications for assistance from over 21,297 California residents.

FEMA immediately responded to this incident by deploying experienced disaster response staff to the State and by authorizing the immediate emergency assistance that was required to repair utilities such as electricity and water, and to restore residential access

to affected areas, and to ensure that essential facilities and buildings were operational.

Forty-eight California counties are now included in the President's major disaster declaration. I will be reviewing the situation on a week-to-week basis rather than closing the disaster declaration period after all the emergency needs have been met.

Over 8,400 temporary housing assistance checks totaling \$13 million have been mailed to affected residents.

FEMA and the State have approved over \$6 million in individual family grant programs, which helps affected residents meet serious needs caused by disaster.

FEMA and the State of California have conducted numerous inspections for the public assistance grant program, resulting in over 990 damage survey reports. Over \$10 million in Federal funds have already been obligated to the State of California for public assistance projects.

I'm aware that we have had difficulties in effecting this move operation following the State-wide floods in 1995, and I have taken several steps to ensure that these difficulties are resolved.

In August 1996, I installed new leadership in the FEMA region nine disaster close-out center. Mr. John Swanson was charged with reducing the backlog of pending obligations, appeals, and reconsideration of damage assessments.

Over the next 4 months after he was put in that position, FEMA was able to make significant progress by reducing our backlog, better explaining FEMA policy, and communicating our rationale for funding decisions.

An important aspect of this effort to resolve outstanding issues was strengthening the partnership between FEMA, State, and local officials and Members of Congress in the affected areas.

At the present time, FEMA has obligated \$180.7 million to the State of California for previous flooding incidents. FEMA received approximately 19,885 damage survey reports from the 1995 flood events. Funds for 98 percent of the DSRs have been obligated, 330 remain. FEMA has received 1,074 funding decision appeals from the State, 274 of which are still being considered; 47 damage survey reports have been suspended pending further information from the applicants and environmental reviews.

In the current flooding incident, I have instituted numerous procedural changes to streamline the public assistance grant program. These procedures should minimize problems that have resulted during previous disasters in the State.

For example, to ensure better uniformity and consistency in damage inspections, more-intensive training programs are being conducted at the disaster field office. This training is being provided to both FEMA and California Office of Emergency Service personnel, regardless of their previous experience or training. It is to ensure that all inspectors are instructed in the same policies and procedures.

No Federal agency inspector was given a field assignment until he or she had been fully trained in the field, and the senior reviewers from other FEMA regions conducted on-the-job training for reviewers to ensure consistency.

Several measures were implemented to expedite damage survey reports review process. DSRs are reviewed in the field and all issues are resolved, to the greatest extent possible, in the field. Any issues that cannot be addressed in the field are jointly resolved with State officials in the disaster field office.

This process will ensure more-accurate DSRs from the field, faster processing and obligating of funding, and fewer re-inspections and appeals.

To immediately pay for emergency work, a procedure was implemented to expedite funding to local officials that were adversely affected by the disaster. Many communities were experiencing cash flow problems due to emergency actions taken during the flood-fighting phase of the response effort. This expedited process provides immediate funding for expenditures on emergency work such as debris removal.

Because of the number of damaged levees in this disaster, a levee working group was established to facilitate the coordinated review of all requests for repairs to levee and flood control works. This group provides a single review that takes into account the program resources, regulatory responsibilities of the member agencies.

The group includes representatives from the U.S. Army Corps of Engineers, the Natural Resources Conservation Service, FEMA, and the State of California.

Mr. Chairman, I'll have to continue to go on and summarize the rest of this, since my red light is on.

I have just recently been to Ohio, Kentucky, West Virginia, Tennessee, and Indiana, and the devastation there in those States is very bad—similar to what California has been hit with. We've already taken over 31,000 applications in the Ohio River Valley.

In one little community of Thelma that I was in, and Manchester, and Ripley in Ohio—in Thelma, that community basically had 600 homes destroyed and most of all the businesses. The water, literally, at the McDonald's restaurant, a 30-foot sign, the water was all the way to the top of the arch of the McDonald's sign.

Governor Voinovich, Governor O'Bannon, Governor Sundquist, and all the governors that I visited with—and I think you, Mr. Chairman, and many members of this committee—see that we all have to work stronger together in doing more preventive measures in mitigation to keep this type of devastation from happening in the future.

Thank you, Mr. Chairman.

Mr. BOEHLERT. Thank you very much.

Let me ask you first of all, FEMA is in the process of trying to encourage States to establish State trust funds so that the State funding is immediately available in the event of a natural disaster.

Did any of the States affected by the winter floods have such a fund? And, if so, did this fund offer these States any advantage over States that did not have such a fund?

Mr. WITT. Several of the States have a fund set up. West Virginia had set up a \$63 million rainy day fund. The advantage that it gave West Virginia, particularly these small communities across the State, is that West Virginia could go ahead and advance dollars to those local communities to help clean up and fight floods. And

then, as our teams went in after the disaster was declared, then there would be a reimbursement for those dollars.

But it made a big difference in West Virginia. When I was there and looked at that disaster, they had completely cleaned all their streets, they had completely started cleaning everything out of the businesses. The community could have a jump start on rebuilding and getting their community—

Mr. BOEHLERT. But do you have any problem in the reimbursement process, because if they clean it up how do they document what the damage was, and how do you—I mean, you just can't accept it at face value.

Mr. WITT. They do an assessment. They also take pictures. They also keep up with their time, overtime costs, and their equipment costs, and the hours that they operated that equipment.

Mr. BOEHLERT. So you don't really have any problem documenting it?

Mr. WITT. No, sir.

Mr. BOEHLERT. Because most mayors I know are very creative, and I've seen some interesting proposals on how to get reimbursed for certain things.

Mr. WITT. One thing, Mr. Chairman, we started in September 1996, particularly—and we put it in place in California in this flood—was we published a public assistance guide for local government to use, and it walks them through every aspect of a disaster and what they need to do and how they need to do it, and I think that, in itself, is making a big difference this time.

Mr. BOEHLERT. Are you having much success at convincing those States that don't have such a rainy day fund to institute one?

Mr. WITT. What we're looking at now, Mr. Chairman, is trying to redesign the public assistance program, and we're working on legislation to redesign this program because what we need to do is to expedite it, cut the red tape, make it user friendly to the local officials, yet still be accountable. Stop the intense review process. Make the decisions in the field with local officials.

But those States that work harder in implementing mitigation, those States that work harder in implementing a State disaster fund, then we're going to be looking at giving those States a better cost share in the disaster declaration as an incentive to do this.

Mr. BOEHLERT. That's wonderful. We'll work closely with you on that.

You do a lot of things right, and one of the things I like—because I've had first-hand experience when we had the disastrous flooding in my Congressional District—is after sort of the dust had settled you brought some of the local government officials to Washington, and, as I have had it reported to me, had sort of a round-table discussion with others from around the country, and your people listened. The professionals who are on the job daily here listened to the people from the local communities.

I know the feedback I got from a very colorful chairman of the board in one of my counties was that he thought it was extremely valuable. And I can tell everybody here this: when they first had the floods, this chairman of the board of one of my counties said, "I don't want any S.O.B. from Washington coming up here and telling me how we're going run this thing." And the S.O.B. from Wash-

ington came, and when all was said and done they were just absolutely amazed at the response they got from the Federal Government and the willingness to cooperate that was evident on the part of your entire team.

I want to commend you for that.

Let me—I've got some other questions, but I want to give other people a chance to participate, so let me turn to my colleague, Ms. Tauscher.

Ms. TAUSCHER. Thank you, Mr. Chairman.

Director Witt, I want to commend you for your help and your staff's help in California in my District, the 10th, in eastern Contra Costa County, which specifically benefitted from your quick assessment.

Congress has made changes to the Stafford Act to enhance flood damage reduction, yet your testimony seems to imply that current disaster response programs, even with those changes, are insufficient to achieve significant flood damage reduction.

Do you have any suggestions regarding additional legislative changes that FEMA may need to discourage unwise flood plain development and to reduce the cost of flood damage?

Mr. WITT. We are working now and in our budget for 1998 we are asking for \$50 million for a pre-disaster mitigation fund.

Of course, I asked OMB for \$500 million, but they thought that was a little high.

Ms. TAUSCHER. Sort of moved the decimal point?

Mr. WITT. Yes. But this is very important because we have been working with the private industry, the insurance industry, the Mortgage Lending Institute, the real estate industry, the Home Building Association, and I have had three round-tables with private industry to bring in the partnership to start looking at and working with communities in disaster-resistant communities concept, where all of us together in a partnership would help minimize the risk in those communities.

These programs—this program and the standards for this program will be in our proposed changes that we're going to be recommending.

Ms. TAUSCHER. In the President's budget request \$50 million for pre-disaster mitigation funds?

Mr. WITT. Yes.

Ms. TAUSCHER. Will this involve a legislative proposal, as well? Could you give the subcommittee more details, perhaps, on this proposal?

Mr. WITT. We're looking at some changes in the Stafford Act that hopefully we will have the language coming forward before July that we would highly recommend in changing some of the funding of the Stafford Act, changing the cost shares in the Stafford Act, and rewarding those States that do a better job, which I think is absolutely essential—

Ms. TAUSCHER. Yes.

Mr. WITT.—looking at helping the States to do more in mitigation. And now we're working with the States in developing a State-wide mitigation plan, a 409 plan, which will help them to prioritize those mitigation projects in that State before the disaster ever happens.

It's time for us to change what we're doing and how we're doing it. The only time we can do mitigation is after the disaster.

Ms. TAUSCHER. Right.

Mr. WITT. We have to start doing more pre-disaster. So there are a lot of changes that I think will make the program stronger, make our response capability and the States' capability stronger, so that's what we're looking at.

Ms. TAUSCHER. We look forward to seeing those proposals.

Thank you, Mr. Chairman.

Mr. BOEHLERT. Mr. Horn?

Mr. HORN. Thank you, Mr. Chairman.

Pursuing the issue of mitigation with you, I know your strong feelings on this and you've expressed those again this morning.

One of the things that we need to deal with is under the existing law—and Sacramento was certainly subject to that area, just as some parts of southern California, and I won't get into this in detail. I'm going to wait to discuss it with the Corps, primarily. But we faced the problem where some of these areas might have mandatory flood insurance under the current law imposed on these areas.

The irony is that hundreds of millions of dollars would be taken out of these areas, and the problems still wouldn't be solved, based on the recommendations and the level of authorization and appropriations.

The President's budget, as you know, when it came to civil works of the Corps, has not really funded these projects or recommended funding as much as they should be if you're going to get the job done, given where we are and what we've seen happen in Northern California.

So the question really is: to what degree do you think it would be appropriate, if you had to have any mandatory insurance, to have a trust fund where that money could go immediately out to finish the construction in these areas which would prevent—your point on pre-disaster—which would prevent future disasters and needs for the insurance? Is there some thinking we could do to change that law to get to your premitigation part, but using the insurance trust fund, if we had to use it?

I think it's a disaster for these areas if we impose it without moving this levee system. It has all been testified here of the problem of levees, and we can get to private levees in a minute, but what's your sort of gut reaction to that?

Mr. WITT. Congressman Horn, I would be more than happy to look at that with you and work with you on seeing what we could do with this.

I met with all of the Orange County mayors in my office a few months ago. There is a Corps of Engineers' project in Orange County, a drainage project, that was to be built within 2 years. Because of the lack of funding, it's going to stretch this project out over to 10 years. So it's going to force those communities in that area, because of the flood maps and where they are located, to buy flood insurance at a higher rate because they're in a different zone. They're put in a different zone.

One mayor told me in his community, alone, because of people requiring to buy flood insurance over that extended period of time

in a small community, it was going to take \$132 million out of that community just for flood insurance.

So it's important that we look at some way that we can do this.

Mr. HORN. Well, I agree with you. And one portion of the Natural Disaster Act that Mr. Mineta and Mr. Emerson co-authored and a lot of us joined them in providing for mitigation centers around the country that could spread the word, work with people hands-on to show them how you mitigate.

You've had a number of examples. I know you mentioned to me the West Virginia town where you moved the houses back from the flood plain and right near the water where there was no damage when the next flood came.

We have a lot of those examples in different parts of the country.

But how do you feel about having these types of centers that, in essence, would do what agricultural extension has done so well for farmers for 100 years in this country?

Mr. WITT. It may work. I'd be happy to look at it.

Mr. HORN. Because that would be funded, if we went ahead with the Natural Disaster Act, out of some of the receipts that are coming in, to really reduce and share the cost of insurance across the country.

Do you have any feelings on the value of those?

Mr. WITT. Of course, my problem when we were working with Congressman Mineta at that time, on the legislation that he was working with, my concern with that legislation at that time was the availability of the insurance, plus the affordability of the insurance.

Mr. HORN. Yes.

Mr. WITT. Just because it was available didn't necessarily mean that it was affordable and people would purchase it, so I had a serious concern about that.

The mitigation side of the legislation I strongly supported.

Mr. HORN. Good. I thank you, Mr. Chairman.

Mr. BOEHLERT. Thank you very much, Mr. Horn.

Mr. Blumenauer?

Mr. BLUMENAUER. Thank you, Mr. Chairman.

Mr. Witt, I wonder if you could just take us one step further. You've talked about pre-mitigation. I wonder if you could elaborate on the potential role that FEMA may have in actually preventing disasters.

We've got a lot of folks that are on the edge of losing their homes. You see repeatedly the folly that has occurred where people are messing with Mother Nature and we're now trying to play catch-up.

Is there a legitimate role for FEMA to move us a step beyond, to be more aggressive in actually preventing these disasters in the first place?

Mr. WITT. I think we've already begun to move to that next step, since the 1993 flood in the midwest. At that time Congressman Volkmer and several Members of Congress passed the 1993 legislation, the Volkmer bill, increasing the percentage of money from 10 percent to 15 percent of the overall cost of the Federal disaster for mitigation in a State.

In the 1993 flood we pulled the Federal agencies together to work with each of the nine States in a buyout/relocation program—a volunteer basis. It has been very, very successful. We've bought out over 10,000 pieces of property in the midwest on a buyout/relocation program that all the States participated in.

What was really good about it was the little community of Pattonsburg, Missouri, that I was at and Governor Carnahan was at, had flooded 31 times in its history. I never will forget the Mayor took me into City Hall and he kept showing me the high-water marks from each flood with shelves stacked up above the recent flood marks where he could store his papers, city papers.

That little town, all of us working together—FEMA, HUD, Corps of Engineers, the governor, the local community, all of us—we were able to help that community to relocate its 142 residents and 18 businesses where it will never flood again.

Valmar, Grafton, Illinois—all these communities that we worked in doing this, this flood that we're having right now, the flood waters in Grafton would have flooded all of those homes again, over 1,000 people in that community. But the Mayor said he wasn't worried about it this year because they would not get flooded.

In the 1995 flood in the Midwest, Illinois and Missouri, the same communities that we did a volunteer buyout program with were flooded again, but there was no one there to be flooded, and all the land reverted back to the city or county, whichever it was in, as open land use management. They could build a park or they could build jogging trails, and it was environmentally good, but it was good for the community, it was good for the Federal Government because it doesn't cost us any more disaster dollars. We don't have to spend taxpayer dollars repeatedly on this.

So I think we've taken that step, but I think we need to take it just a little bit further in doing the preventive measures before disaster strikes because we all know the high risk in certain communities across our country, whether it's a flood, earthquake, hurricane, or fire.

California has been hit with four floods, wildfires, and then the most costly disaster we've ever had in history, the Northridge earthquake, and all of this within 4 years.

We've seen time and time again retrofitting in an earthquake area makes a significant difference.

There was one home in Hollywood in the historical block that we were on, this one house—every house there had either major damage or was almost destroyed but this one house. This gentleman was standing in his front lawn when I went up there—and the First Lady was there. All the houses around him were almost totally destroyed. He never even had a single pane of glass broken in his house.

I said, "What did you do? Why did you not have any damage?" He said, "I went to the library and I checked out a FEMA OAS video tape and I spent \$1,000 and I retrofitted my house myself." He didn't even have a brick loosened in his chimney.

So we can do a lot, but it's important that we bring in the industry, we bring in our partners, and they are ready to step up and help us because I have met with them and they're very excited about this and they really want to get involved.

So I think we're ready to move to that next step, but we're going to need your help to help us get there.

Mr. BOEHLERT. Thank you very much. Would you make that videotape available for the subcommittee?

[Laughter.]

Mr. WITT. Yes, sir.

Mr. BOEHLERT. Thank you.

With that, I turn to the vice chair of the subcommittee, Mr. Thune.

Mr. THUNE. Thank you, Mr. Chairman.

Mr. Witt, it's a pleasure to have you before us today. I know that I, too, want to commend you for the great work that your agency has done in my State of South Dakota. I know you've been on the ground first-hand and have seen a lot of the damage that we've had from blizzards and what will be eventually flooding out there, as well. We're facing and anticipating repairing as best we can. I know your organization has had a number of people out there who are working diligently with us to see that that gets done.

I also want to compliment you on the work that you have done in the way of a partnership between State and local governments. I know our governor and Congressional delegation, our local governments, that you have worked very well with them, and we are very appreciative of that.

Just a couple of questions, if I might.

In the 1988 amendments to the Stafford Act, there was a provision that no geographic area would be precluded from receiving assistance under the act solely by virtue of an arithmetic formula or sliding scale based upon population.

In 1995, the GAO, in a report, stated that, "The number of homes destroyed or sustaining major damage might be expected to be larger in more-densely-populated areas than in less-densely-populated areas."

South Dakota, in fact, has rarely, I think, received individual assistance from FEMA, and the question I guess I would have is: might that fact be attributable in part to the criteria that, by its very nature, is sort of more prohibitive to rural areas?

As a follow up to that, could you explain how you determine eligibility and whether or not these factors adhere to the prohibition on a strict, quantifiable formula-type factor?

Mr. WITT. That's a very good question, Congressman. All the disasters that we declare we look at very closely with the States. The States submit—the governor makes the request for FEMA and to the President or to the President and we review it.

The disaster declaration is based on whether it is beyond the capability of State and local government to be able to respond. It has no bearing on whether it's a rural community or a populous community.

The impact to those communities in that State and to the individuals, if that impact is beyond their capability, then it absolutely is looked at and recommended to declare.

Mr. THUNE. Okay. But in terms of the individual assistance, that's not predicated on some formula that might disproportionately affect rural areas?

Mr. WITT. If it's—I believe it's—public assistance is \$1 per capita, and there's not a per capita figure for individual assistance.

Mr. THUNE. Okay. One other question. I understand that FEMA had to go through a number of procedural environmental-type requirements before providing assistance during the western flooding, including exclusions from NEPA—the National Environment Policy Act—completing some programmatic consultations on endangered species that could be affected by FEMA action, Clean Water Act, etc.

Some of these things—there's an agreement with the Advisory Council on Historic Preservation and others in order to comply with the National Historic Preservation Act.

Given your intention and desire to streamline the emergency assistance process, how does the delay and the administrative expense of meeting these requirements—how can that be diminished?

Mr. WITT. What we're doing at the present time is looking at how we can push the environmental review and the environmental assessment back down to the States where the States could do it in their State and in their disaster, similar to what HUD and other Federal agencies do now.

Right now the process at FEMA is that the environmental review and environmental impact statement is done by us, which takes too long, and it takes too much red tape.

So we are in the process of changing, trying to get the authority to push it down and let the States do the environmental impact study and the review, where we could go ahead and move much faster.

Mr. THUNE. Is there anything that this committee can do to assist with that? Is that something that you just need to get from—

Mr. WITT. We need to get our language worked up, and we're in the process. That's part of the process that we're changing in the public assistance program, hopefully.

Mr. THUNE. I, for one, would certainly like to work with you on that.

Mr. WITT. I would like to say, Congressman, I was in South Dakota a week ago Saturday, and, Mr. Chairman and members of the committee, it looked like you were flying into the North Pole.

Mr. THUNE. Yes.

Mr. WITT. There was snow still 10 and 15 feet deep around the homes.

Mr. THUNE. We have our work cut out for us.

Mr. WITT. Yes.

Mr. THUNE. We appreciate very much your help and look forward to working with you on that.

Thank you, Mr. Chairman.

Mr. BOEHLERT. You know, there are some who suggest, and we've had testimony before the subcommittee that would suggest we just sort of ignore environmental laws as we go forward in responding to disasters. That is not going to happen, nor should it ever happen.

It's a delicate balancing act, so I can appreciate the problem you have, and when you're trying to get the States to assume more of the responsibility I hope you're not in any way suggesting that

there should be any winking or nodding in terms of environmental law, because that is very important.

Mr. WITT. Not at all. A lot of States do their environmental impact statements and do their environmental review within their State, and within the Federal laws, and then we would look at it, as well.

But now, Mr. Chairman, it just takes too long to go through the process, and our team would be there in the State working with the State.

Mr. BOEHLERT. I understand. And you indicated you're going to have some suggestions for revision to the Stafford Act.

Mr. WITT. Yes.

Mr. BOEHLERT. I look forward to receiving your suggestions and working cooperatively with you.

Mr. Mascara?

Mr. MASCARA. Thank you, Mr. Chairman.

Mr. Witt, good to see you again. I'd like to commend you for the excellent job you're doing and the President's choice of you. You were in former local government, is that correct, from—

Mr. WITT. County judge for 10 years, Congressman. Yes, sir.

Mr. MASCARA. So then we have something in common. I served as a county commissioner in Washington County, Pennsylvania, and my District contains three rivers—the Monongahela, the Allegheny, and the Ohio—so I'm very familiar with problems associated with flooding.

My question is this—it's my understanding that the Corps will be restoring some damaged flood areas to a level of 25 years less than what it was originally assured that it would cover. So my question is this: do you have a seat at the table when these decisions are made with the Corps as they're trying to repair damage or restore areas that have been flooded?

Mr. WITT. We work with the Corps very closely, and the Corps has been a tremendous partner with us in everything that we've been able to do.

General Fuhrman, who is here today, is, I think, a tremendous asset for the Corps of Engineers in this country.

We do work with the Corps in emergency repairs. I'll go to the Corps and ask if this was something that we needed funded because of a flood fight or emergency repair, so we work very close with them.

As far as the Corps reducing a 25-year level, we're not involved in that.

Mr. MASCARA. I'm sure that question would be more appropriate for the general, but I was just wondering whether or not FEMA has a seat at the table, and do people from HUD and FEMA and the Corps sit down to talk about the problems around the country?

Mr. WITT. Yes, sir. The Office of Management and Budget now has created an inter-agency task force, which the Corps of Engineers are leading particularly in California now, looking at the levees in California.

We have a seat at the table working with them.

Mr. MASCARA. Thank you very much, Director.

Thank you, Mr. Chairman.

Mr. BOEHLERT. Mrs. Emerson?

Mrs. EMERSON. Mr. Witt, thank you for being here today. I know you've been to my District in Missouri on several occasions, as well.

Mr. WITT. Yes.

Mrs. EMERSON. It's right next to Arkansas.

Anyway, I wanted to follow up on something that you had talked about regarding trying to prevent disasters from happening.

I know that FEMA has in the past assisted other communities with building levees or building up, strengthening their levees, and I wanted to know what you believed your role should be in helping to repair or strengthen levees, particularly when communities might not be able to afford their cost share of that.

Mr. WITT. The levee policy that FEMA has in place I think probably covers, to the extent as much as FEMA should be involved in the levee business. We're not the experts on the levee business. The Corps of Engineers—

Mrs. EMERSON. Right.

Mr. WITT. So what we fund on public levees is flood fighting or debris clearance or emergency repairs that the Corps says to us that needs to be done.

Also, when we do fund emergency repairs on a levee up to a 5-year protection level, then they are required to have either joined the Natural Resource Conservation Service levee program or the Corps of Engineers levee program.

Mrs. EMERSON. So that, for example, when Mr. Thune's snow melts and comes down to our District, we've got some levees that really need to be strengthened because we've got an enormous disaster which ends up closing off a lot of our interstate highways coming way down into Arkansas.

Could we deem that to be an emergency repair that perhaps we could encourage FEMA to help get involved with, with the Corps leading the way?

Mr. WITT. If it is a Corps' levee—my understanding is that if it's a Corps of Engineers' levee or if it's a Natural Resource Conservation Service levee, then they have the authorization to make repairs.

Mrs. EMERSON. Okay.

Mr. WITT. But also let me say a lot of communities that I—you know, when in was in local government, as well as State and Federal, a lot of communities have local levee boards. Local levee boards in our State when I was there would basically tax themselves so much per acre, particularly of farm land, to make sure that those levees were maintained and the repairs were kept up and the flood gates would operate, and many times I have seen that levees deteriorate because levee boards do not meet or local levees are not maintained.

Mrs. EMERSON. Well, that is true, and I know that our levee boards have worked closely with your levee boards, but I think perhaps there are other circumstances that are involved—

Mr. WITT. Yes.

Mrs. EMERSON.—which are keeping our levees from being rebuilt.

Mr. WITT. Absolutely.

Mrs. EMERSON. Thank you.

Mr. BOEHLERT. Thank you very much.

Mr. Bateman?

Mr. BATEMAN. I'll pass.

Mr. BOEHLERT. All right. Mr. Horn, you had another question you wanted to ask?

Mr. HORN. Yes. Thank you, Mr. Chairman and Mr. Administrator.

I gave Mr. Witt a chart—and I think most Members have it—California flood vulnerability as of March 1997. I simply want to reference it while the administrator is here. I will pursue most of that with the Corps of Engineers.

But as we think of preventive measures to take and we look at this potential tragedy—and I don't want to in any way diminish what has happened in northern California. It's unbelievable and the question our colleague, Mrs. Emerson, was asking and I was asking is exactly the situation we need to deal with on a lot of these levees. And if we can recognize it as a Federal responsibility, it's going to save us a lot of grief later.

But in this case we're talking about comparing that little red space known as Los Angeles County on the Los Angeles River—we're talking about 82 square miles impacted versus the 290 square miles in northern California, but one-half million people are impacted compared to the 129,000 in northern California; 177,000 structures are impacted, compared to 18,500.

While they were devastated probably at many more than \$1.5 billion now estimated—it will probably be higher—Los Angeles estimates \$2.3 billion in damages if the rainfall was exactly like it was in northern California.

So we have weaknesses not only there but all over the Nation, as we know just from the questions of our colleagues, and we need, as you suggest, Mr. Witt, a proactive policy to get at these things while we have time, because it could be starting to flood now some place in America that you will be flying off to.

And so we get down to a real dose of preventive medicine that is needed here.

Mr. WITT. Congressman, I wholeheartedly agree.

Mr. BOEHLERT. Thank you very much.

Mr. Riggs?

Mr. RIGGS. Mr. Chairman, I just walked in, and I have to apologize to you and our colleagues for missing the earlier testimony and I guess I understand the introduction at the short organizational meeting which preceded the hearing, for which I thank you. I was testifying elsewhere.

But while we have a director here, let me just say this—and I promise I won't mention any DSRs in my Congressional District, but I do hope that we can put more of an emphasis on hazard mitigation. I intend to look very carefully at that part of your testimony, Mr. Director, because I think that is the way to go.

I'll reserve my other remarks, which have to do more with the appropriateness of development in this general Sacramento Valley area, much of which I think would be rightly considered—and don't get me wrong, because I am pro-development, but rightly considered to be flood plain. I'll address those to later panels.

But, Mr. Director, do you want to comment very briefly just on the emphasis on hazard mitigation and how it would apply, par-

ticularly in this area of northern California where, as you well know, we experience these recurring floods, it seems in recent years, every other year?

Mr. WITT. Congressman, I think it's very, very important, and I think we have documented it very well, that every dollar we spend on prevention and mitigation we save two dollars in future cost to the taxpayers. And you can just imagine the frustration and the lives it would save.

This recent flood we've had in the midwest and the tornadoes, there were 59 fatalities.

So it's important that all of us together focus and try to support the mitigation efforts and preventive measures that we all can identify very easily that we could do together, but it takes a Federal, State, and business partnership and all of us working together to make that happen.

Mr. RIGGS. How would you envision hazard mitigation funds being used in this area of northern California?

Mr. WITT. The State of California has a very good Office of Emergency Services. They have some very good people working in that and have done some really good things in mitigation, particularly in the retrofitting for earthquakes in California.

We can provide the mitigation dollars. The State that the disaster has affected, it's their responsibility, working with local government and prioritizing what mitigation projects they want to fund.

Mr. RIGGS. So in the case of California, that would be the Office of Emergency Services?

Mr. WITT. Yes, sir.

Mr. RIGGS. Working with local government?

Mr. WITT. Yes, sir.

Mr. RIGGS. Okay. Thank you, Mr. Chairman.

Mr. BOEHLERT. Thank you.

Mr. Director, before you leave I have one question that a friend of mine, Governor Wilson, has asked me if I would direct your way.

It's my understanding that on January 17th the governor asked for FEMA assistance in pumping out ponded water behind levees, water that may cause further levee breaks. When might FEMA respond to the governor?

Mr. WITT. Our staff has been working with the Office of Emergency Services in California on this issue, and they have a task force that is physically working now with them and the Corps of Engineers.

The pumping that the governor has aggressively done in the areas of the farm land, private property, I applaud the governor for doing that.

They asked me whether we could fund pumping. I sent a team out—the Corps of Engineers was part of this team, the State Office of Emergency was part of this team, and FEMA—to look at whether or not it was an eligible project, whether there was an endangerment of public health and safety if the pumping was not done, if there was a danger of breaching levees because eroding of saturated levees, water standing, would cause serious public safety problems in communities, as well as health problems, if that was a problem.

And the team that came back on that said that it was mostly farm land and it was not an eligible project for FEMA, so we are working in preparing a report back to the governor.

Mr. BOEHLERT. So I can tell the governor there will be a timely response?

Mr. WITT. Yes, sir.

Mr. BOEHLERT. We're talking days rather than weeks?

Mr. WITT. Yes, sir.

Mr. BOEHLERT. Okay. Fine. You don't always get the answer you want, but what you do want is an answer, so I can understand that.

Mr. WITT. Yes, sir.

Mr. BOEHLERT. We will have additional questions that we will submit to you in writing and would appreciate your usual cooperation in having timely responses.

[The information follows:]



Federal Emergency Management Agency

Washington, D.C. 20472

APR 10

The Honorable Sherwood L. Boehlert
 Chairman
 Subcommittee on Water Resources and the Environment
 Committee on Transportation and Infrastructure
 U S House of Representatives
 Washington, D C 20515

Dear Chairman Boehlert

This is in response to your March 19, 1997, letter to James Lee Witt, Director, Federal Emergency Management Agency (FEMA), in which you request that FEMA respond to the testimony of Michael Barry, Administrator, Plumas District Hospital (hereinafter referred to as the Hospital). Mr Barry presented his testimony during the Subcommittee on Water Resources and Environment Hearing on Recent Flooding in California. The Director asked me to respond to Mr Barry's concerns, since he is currently in the process of reviewing the Hospital's third appeal, and does not wish to compromise the integrity of the appeal process.

I regret that upon application, review, and first and second level appeals, FEMA has been, so far, unable to provide any funding for replacement of the Hospital's roof. However, as I am sure you are aware, FEMA is required to operate within the authority of its law and implementing regulations. Upon review of the initial determination, and the first and second level appeal responses, it appears that these decisions were reached pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P. L., 93-288 as amended, and Title 44 of the Code of Federal Regulations.

I also regret any confusion that occurred in the interpretation of FEMA's Region IX first appeal determination. FEMA in no way meant to imply that Mr Barry and other Hospital representatives were being untruthful in the disclosure of their information, or that they in any way generated the information to make the work an eligible item under the guidelines of the Public Assistance Program. As FEMA's Region IX Office explained in its appeal determination, the documentation submitted with the Hospital's initial request was considered to be more reliable than that submitted with the first appeal because "the first submittal was generated contemporaneously or closer in time to the loss than that submitted with the appeal."

Although the letter does go on to say that "the documentation submitted with the appeal was generated and obtained by the subgrantee specifically for the purpose of responding to FEMA's initial determination of ineligibility," this statement in no way was meant to imply that the Hospital had fabricated the material. In light of Mr Barry's testimony, we have recently been in communication with our Region IX Office to seek further

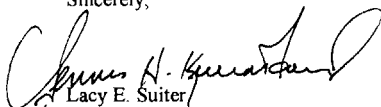
clarification of this statement. As with all new information presented during an appeal, the findings will be transmitted to the Director and taken into consideration during final review.

I wish that FEMA could respond more thoroughly to Mr. Barry's comments. However, until a determination has been reached on the Hospital's third appeal, it would be inappropriate for the Director, myself, or any member of our staffs to comment on the particular details directly related to the roof repair/replacement project.

I have enclosed with this letter, a copy of the Hospital's second appeal for the Subcommittee's hearing record. The second appeal presents a detailed analysis supporting FEMA's Region IX determinations, and addresses, I feel, Mr. Barry's criticism of FEMA's policy and determinations regarding the handling of Hospital's project.

If the Subcommittee should require additional information for its records, or would like additional information regarding FEMA's responsibility in providing Federal disaster relief and emergency assistance to State and local governments, please have a member of your staff contact our Office of Congressional and Legislative Affairs at (202) 646-4500.

Sincerely,



Lacy E. Suiter
Executive Associate Director
Response and Recovery Directorate

Enclosure



Federal Emergency Management Agency

Washington, D.C. 20472

MHI 2 3 1999

Mr. Richard Ray
Governor's Authorized Representative
Governor's Office of Emergency Services
Post Office Box 239013
Sacramento, CA 95823-9013

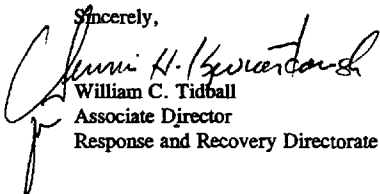
Dear Mr. Ray:

This is in response to your letter dated November 13, 1995, which forwarded a second appeal on behalf of the Plumas District Hospital. The subgrantee requests FEMA assistance to replace the roof of the hospital as a result of FEMA-0979-DR-CA.

As explained in the enclosed analysis, roof replacement is not justified. However, I have approved an eligible scope of work to include the roof membrane repairs which were completed in October 1993 in the amount of \$17,591. Insurance proceeds covered \$12,591 of the total cost of repairs, leaving an unreimbursed insurance deductible of \$5,000, eligible for FEMA funding.

Please inform the subgrantee of this determination. The Region is available to coordinate the preparation of a supplemental Damage Survey Report to obligate the approved funds. In the event that the applicant does not agree with this determination, a third appeal may be submitted to the Director pursuant to 44 CFR § 206.206(e).

Sincerely,



William C. Tidball
Associate Director
Response and Recovery Directorate

Enclosure

SECOND APPEAL ANALYSIS
FEMA-979-DR-CA
PA ID#063-91031; Plumas District Hospital
DSRs 79669, 04010, 04011
Roof Repairs and Replacement

BACKGROUND

Due to the severe winter storms, mud and rock slides, and flooding that occurred in January 1993, the President declared parts of California major disaster areas. The approved incident period for the disaster was from January 5 through March 20, 1993. On March 9, 1993, Plumas District Hospital (Hospital) initially requested federal disaster assistance from FEMA. The hospital, located in the Town of Quincy, was determined to be an eligible applicant for Public Assistance funding. On May 17, 1993, a FEMA and State inspection team visited the hospital, surveyed the damages, and prepared several Damage Survey Reports (DSRs).

DSR 79668 was prepared for Emergency Protective Measures around the hospital compound. This work included snow removal, preparing and placing sandbags, minor roof repairs, and de-icing. The DSR was approved in the amount of \$11,170.

DSR 79669 documented damage to the roof membrane and estimated \$13,500 for a roof repair consultant in order to develop a scope of work and determine the Office of State Health Planning and Development (OSHPD) requirements. The DSR also recommended replacement of propane control valves and wiring, disassembly of burner manifold and installation of new components, replacement of propane regulators, and replacement of the de-icing system. On December 15, 1993, DSR 79669 was denied for funding based on the determination that the damage occurred prior to the declared disaster. FEMA's decision was based on two items:

- the applicant's insurance carrier's Statement of Loss, which documented the "Date of Loss" as December 31, 1992; and
- a December 15, 1993, letter from the applicant to the State of California Governor's Office of Emergency Services (OES) referencing severe storms in December 1992 as the cause of roof damage.

On April 5, 1994, FEMA prepared two additional DSRs. DSR 04010 was prepared to cover the costs of "temporary roof repairs" in the amount of \$17,591, less insurance proceeds of \$12,591. The second DSR (04011) was prepared to cover the replacement of the 20,000 square-foot roof. Although the FEMA inspector recommended approval, he was apparently unaware of the previous FEMA determination that the roof damage occurred prior to the declared event. Both DSRs were subsequently denied for the above-referenced reason.

On January 18, 1995, the hospital submitted a first appeal for roof replacement to the Regional Director through OES. The appeal provided documentation in support of the applicant's claim

that the damages occurred during the declared incident, rather than prior to the incident period. The supporting documentation included a letter from the insurance carrier and a letter from the former Hospital Administrator both stating for the record that the roof damages occurred on or after January 5, 1993.

The Regional Director denied the first appeal on June 13, 1995, on the basis that the claimed roof damages could not be attributed to the declared incident, but to "the cumulative effects of time and wear and tear." The Regional Director further noted that the subgrantee's insurance company provided settlement for only roof repairs, not replacement, indicating that the replacement of the roof was not required as a result of the declared incident.

The subgrantee filed a second appeal through OES on July 26, 1995. The second appeal reiterates support of the date upon which the claimed damages occurred and provides a history of maintenance on the roof. The following discussion is based on a review of all available information submitted by the applicant, the State, and the FEMA regional office.

DISCUSSION

The central issue of this appeal is the cause of roof damage. Once the cause of damage is confirmed, FEMA can determine to what extent that damage is eligible for federal disaster assistance pursuant to the Stafford Act and FEMA's implementing regulations.

The appeal indicates that the major damage to the hospital roof was caused not by the snow itself, but from snow removal activities. Shovels and snow blowers were used to remove the significant amount of snowfall that accumulated on the roof. The snow removal project took place over several weeks as the snow continued to fall. The equipment, used primarily by temporary employees who were not familiar with the roof elevations or the placement of roof equipment, penetrated the roof and caused the damage. Roof damage caused by inexperienced temporary employees appears to have been unpreventable given the magnitude of the disaster event and the deployment of permanent (experienced) employees elsewhere on the property.

Given the above, FEMA must now determine the extent of eligible damages caused by the penetration of snow shovels and snow removal equipment. Pursuant to section 406 of the Stafford Act, eligible restoration costs are those necessary to restore a facility on the basis of the design of such facility as it existed immediately prior to the disaster.

According to the initial damage assessment found in DSR 79669, the hospital's roof membrane "was damaged during snow removal operations in combination with aging of roof materials." In September 1993, the subgrantee hired a contractor to repair the roof for \$17,591. This repair was performed at the insistence of the subgrantee's insurance company in order to prevent further building interior damage. The contractor's scope of repairs was quite extensive and included: preparation of damaged roof area, application of modified bitumen sheet roofing to the blistered and large punctured areas, and plastic cement and fiberglass webbing for less severely damaged areas. The contractor's description of "blistered" areas again is an

indication of aging roof materials. The applicant's insurance company paid for the roof repairs completed by the contractor, less a \$5,000 deductible. The insurance company did not cover roof replacement.

In response to a request for additional information regarding this appeal, the applicant has provided a letter dated April 10, 1996, from the insurance company which confirmed that "no other payments could be substantiated" under the policy, and that "replacement of the roof may be required due to causes not covered by the policy." Based on this letter, as well as the property loss coverage indicated in the policy, it appears that insurance proceeds were limited due to "cause" of damage, rather than policy funding limitations.

Based on the above-referenced roof condition and the fact that insurance proceeds only covered repairs, FEMA eligibility is limited to the scope of work performed by Van Dyne and Sons Roofing. The insurance company's limited settlement, i.e., repairs only, is consistent with FEMA's determination of eligible damages.

The initial DSR also documented \$3,082 in damage to roof items such as propane valves, regulator and wiring, the burner manifold, and the de-icing system. These items can be directly attributed to the disaster and the scope of repairs as identified on the DSR is eligible under the Public Assistance program. Because insurance proceeds fully covered these costs, however, there is no available funding.

The initial DSR also recommended a line item in the amount of \$13,500 for a roofing consultant to determine necessary repairs. According to the inspector's notes, "due to the amount of roof repairs needed, the applicant consulted with roofing companies who stated they could not offer bid(s) for repairs until a certified roofing consultant has analyzed, designed, and prepared plans and specifications for necessary repairs." The applicant provided two roofing consultant proposals, one dated March 4, 1993, and a second dated May 20, 1993. Upon review, the proposals far exceed the scope of work necessary to respond to disaster-related repairs. The proposals include investigation of design flaws, analysis of the existing roof system effectiveness, as well as potential improvements. These items are associated with the replacement of an entirely new roof system, rather than repairs necessary to restore the roof to its pre-disaster condition.

It must be noted that a DSR prepared in the field is an inspector's recommendation only and is subject to review and approval by the Public Assistance Officer and the Disaster Recovery Manager. Unfortunately, some recommendations may not be consistent with FEMA regulations and must be modified or denied. In this case, the cost of the roofing consultant to analyze and design plans and specifications for roof replacement cannot be justified.

CONCLUSION

In conclusion, eligible roof damage did result from the January 1993 disaster. However, due to the pre-storm condition of the roof, the scope of eligible work is limited to the repairs

performed in September/October 1993. The need for roof replacement is attributed to pre-disaster wear and tear, rather than the use of snow removal equipment damaged that occurred during the declared disaster.

The following summary outlines the above appeal determination.

DSR	Description	DSR Estimate	Insurance	Amount Eligible
79669	Roof Consultant; Replace propane valves, burner manifold, de-icing system	\$16,582	-\$3,082	\$0
04010	Roof repairs	\$17,591	-\$12,591	\$5,000
04011	Roof replacement	\$175,500	\$0	\$0
TOTAL ELIGIBLE				\$5,000.00

SECOND APPEAL
FEMA-979-DR-CA; PA ID#063-91031
Plumas District Hospital
DSRs 79669, 04010, 04011
Roof Repairs and Replacement

REFERENCES

<u>ITEM</u>	<u>DATE</u>	<u>DESCRIPTION</u>
1	4/10/96	Per FEMA second appeal request for additional information, Letter from Northbrook Insurance Company re: settlement limits
2	1/26/96	Region IX Regional Director (Mattingly) Memorandum to Associate Director (Tidball) forwarding Second Appeal
3	11/13/95	State of California Office of Emergency Services (OES) transmittal of subgrantee's Second Appeal
4	9/28/95	Plumas District Hospital letter to OES with additional information re: Second Appeal request
5	7/26/95	Plumas District Hospital Second Appeal of DSRs 79669, 04010, and 04011
6	6/13/95	Region IX First Appeal response (denied)
7	3/17/95	OES First Appeal request
8	1/18/95	Plumas District Hospital First Appeal
9	1/17/95	Plumas District Hospital Administrator letter re: Date of Loss
10	1/13/95	Northbrook Insurance Company letter re: Date of Loss
11	5/5/94	Region IX letter denying initial request for roof repairs/replacement
12	3/30/94	Roof Replacement Estimate from Advanced Roof Technology, Inc. (\$175,500)
13	3/1/94	Plumas District Hospital internal memorandum re: DSR history
14	12/15/93	Plumas District Hospital initial request for roof replacement

SECOND APPEAL
FEMA-979-DR-CA; PA ID#063-91031
Plumas District Hospital
DSRs 79669, 04010, 04011
Roof Repairs and Replacement

REFERENCES
(continued)

<u>ITEM</u>	<u>DATE</u>	<u>DESCRIPTION</u>
15	10/22/93	Van Dyne and Sons' Roofing letter to subgrantee re: repair warranty
16	9/14/93	Northbrook Insurance Company Statement of Loss
	2/3/93	Major Disaster Declaration Date
	1/5 - 3/20/93	Incident Period

<u>DSR</u>	<u>Inspection Date</u>	<u>"Papped" Date</u>
DSR 79668 - Emergency Protective Measures	5/17/93	8/21/93
DSR 79669 - Roof Membrane, Re-roofing Consultant	5/17/93	12/15/93
DSR 04010 - Temporary Roof Repair	4/5/94	5/16/94
DSR 04011 - Roof Replacement	4/5/94	5/16/94

Mr. BOEHLERT. With that, I want to thank you for your appearance this morning. I want to thank you for the good work your agency is doing. Keep up the good work.

Mr. WITT. Thank you, Mr. Chairman.

Mr. BOEHLERT. The next panel, panel three, is additional Federal witnesses consisting of: Major General Russell Fuhrman, who is the Director of Civil Works for the Corps, accompanied by Brigadier General Richard Capka, who is the Commander of the South Pacific Division; Mr. Warren Lee, Director, Watersheds and Wetlands for the Natural Resources Conservation Service; and Gerry Jackson, Deputy Assistant Director, Ecological Services, U.S. Fish and Wildlife Service, accompanied by Mr. Wayne White, who is field supervisor for the service out of Sacramento, California; and, finally, Mr. Lacy Suiter, Executive Associate Director, Response and Recovery Program, for FEMA.

Gentlemen, welcome. General Fuhrman, you're up.

TESTIMONY OF MAJOR GENERAL RUSSELL L. FUHRMAN, DIRECTOR, CIVIL WORKS, U.S. ARMY CORPS OF ENGINEERS, WASHINGTON, DC, ACCOMPANIED BY BRIGADIER GENERAL RICHARD CAPKA, COMMANDER, SOUTH PACIFIC DIVISION, U.S. ARMY CORPS OF ENGINEERS, SAN FRANCISCO, CA; WARREN M. LEE, DIRECTOR, WATERSHEDS AND WETLANDS, NATURAL RESOURCES CONSERVATION SERVICE, U.S. DEPARTMENT OF AGRICULTURE, WASHINGTON, DC; GERRY A. JACKSON, DEPUTY ASSISTANT DIRECTOR, ECOLOGICAL SERVICES, U.S. FISH AND WILDLIFE SERVICE, WASHINGTON, DC, ACCOMPANIED BY WAYNE WHITE, FIELD SUPERVISOR, SACRAMENTO, CA; AND LACY SUITER, EXECUTIVE ASSOCIATE DIRECTOR, RESPONSE AND RECOVERY PROGRAM, FEDERAL EMERGENCY MANAGEMENT AGENCY, WASHINGTON, DC

General FUHRMAN. Mr. Chairman and members of the subcommittee, I am General Russ Fuhrman, Director of Civil Works Army Corps of Engineers, and accompanying me today is General Rick Capka, commander of the South Pacific Division headquartered in San Francisco, California.

Presently, the Army Corps of Engineers is actively engaged in flood preparedness, flood fighting, and post-flood recovery operations across the country. As of today, the Corps has over 650 personnel directly engaged in these operations. Over 180 personnel from our South Pacific Division and our North Pacific Division are devoted to post-flood recovery and levee rehabilitation activities on the west coast.

We also have over 350 people actively engaged in flood response on the Ohio and Mississippi Rivers, and approximately 100 personnel involved in preparedness activities in the upper midwest.

We have spent approximately \$62 million so far on these efforts.

The Flood Control Act of 1917 provided for a comprehensive flood control system for the Central Valley of California that incorporated previously-constructed local levees into the Federal project of Corps-built levees. In many cases, these locally-built levees were not designed to the high standards of Corps' levees.

The local sponsor for this 1,700-mile levee system is the California Reclamation Board, which is responsible for the operations and maintenance.

When one of these levees is damaged in a flood event, its repair is a Federal cost with the sponsor providing lands, easements, rights-of-way, and borrow material.

There are also hundreds of miles of other levees in the Central Valley that do not meet Corps' standards and are not eligible for Corps assistance for repairs when damaged in a flood event.

During this recent flood, the flood control system within California functioned the way it was designed to operate. It prevented an estimated \$1.8 billion in damages that otherwise would have occurred had it not been there.

I am pleased to report that the Corps of Engineers undertook a very proactive approach to our flood-fighting and long-term recovery activities in the region. We exercised all available authorities to expedite the reinforcement of threatened levees and to close breaches in levees. We used emergency contracting procedures to issue letter contracts which resulted in contracts being awarded in a matter of hours.

Early in the flood event, the South Pacific Division established an internal task force to look at an orderly approach to follow on once the immediate flood fight was complete. The task force has worked effectively, in close cooperation with the California Department of Water Resources, and arrived at a work plan that would ensure that the State's most serious problems are handled in the proper sequence.

The Corps has developed a four-phased plan which addresses the flood problem to the flood fight to the long-term recovery.

Phase one was the emergency response piece.

Phase two is the initial recovery to the 25-year level of protection that was mentioned earlier. The purpose of this is to quickly provide some protection to get us through the remainder of this flood season.

The phase three work is the final restoration to the pre-flood level of protection. Our target is to complete this phase prior to the next flood season. As part of this effort we will look hard at alternatives to flood plain uses, in addition to levee rehabilitation.

Our phase four is the basin-wide comprehensive study that has been mentioned a couple of times, of systems and their adequacy of protection.

The Administration recently issued guidance to agencies on flood plain management and procedures for evaluation and review of levee repair and associated restoration projects. This guidance represents a change from the traditional practice of automatically rebuilding exactly what was lost in the flood event.

Recovery must now take a longer-term view of flood plain management and recognize that in many cases the wisest choice is not to rebuild what was there before but to perhaps move development out of the flood plain.

There are certainly many examples where replacing levees to their original condition is the wisest choice, given the density and value of the land and structures being protected. However, in the future we will arrive at such conclusions only after having fully

considered a range of alternatives, including non-structural ones and having consulted with involved agencies at all levels of Government, including State and local agencies.

The guidance established the inter-agency levee task force—this was also mentioned by Mr. Witt—to facilitate this coordination. It includes representatives from each Federal agency involved and appropriate State, tribal, and local agencies. General Capka, on my left, has been appointed the Corps lead for California.

Overall, we feel we have met the challenge presented by the flood of 1997 and are aggressively pursuing the reestablishment of the flood damage reduction system in northern California.

Mr. Chairman and members of the subcommittee, this concludes my statement. We'll be prepared to answer your questions.

Mr. BOEHLERT. Thank you very much, General. Let me stress that your statements in their entirety will appear in the record. We do appreciate any ability you might evidence to capsulize in 5 minutes or so what you want to say.

Mr. Lee.

Mr. LEE. Thank you, Mr. Chairman and members of the committee. I'm Warren Lee, the director of the Watersheds and Wetlands Division. I have a responsibility for our emergency watershed program within USDA.

Before I begin, Dr. Herschel Reed, who is our State conservationist in California, had planned to be here this morning to come before this committee and share his personal comments, but the flu bug got him and thus he was not able to be here.

Others have described the climatic events which led up to this flood. Let me share some of the impacts affecting the agricultural community.

The series of storms surrounding this flood had a significant impact on the agricultural community—the damages associated with the flood are estimated to exceed \$245 million—59,000 acres of crop land have been lost, and 95,000 acres of additional crop land have been damaged, with estimates exceeding \$90 million. The primary crops damaged include basically your orchard crops, walnuts, nursery, plus alfalfa, livestock and dairy, and many other varieties of specialty crops.

Many of the flooded areas are still under water. Water has become impounded behind the levees with no place to go.

If these areas are not dried out by the time the trees bud, the trees, themselves, may be lost, causing much greater-term and more expensive loss.

Most of the orchards which remain threatened are used to produce walnuts, peaches, apricots, apples, olives, etc. If it is necessary to replace these trees and vines, most varieties will take from seven to ten years to begin producing.

The NRCS in California has received over 100 requests for assistance to address flooding problems in streams, tributaries, and the smaller rivers that have been impaired as a result of the floods.

Of existing EWP funding, \$2.1 million was spent addressing 36 projects that posed the most threat to life or property. Officials are concerned that an appropriate level of protection for all of California waterways be restored by November 1, the beginning of the predicted rainy season.

Let me give you some examples of work we've completed in California. Using existing funds in the Deer Creek area of Butte County, six separate levee breaks were repaired under an EWP project to protect the town of Yountville from additional floods this season. This effort protected approximately 125 homes.

In Napa County, there was emergency work on five sites along the Napa River levee, preventing flooding in the town of Yountville.

Other projects have been quickly installed to protect homes, public utilities, business, and agricultural infrastructure from imminent danger.

In each of these projects, NRCS has the support of a local sponsor that provides 25 percent of the cost of the projects and agrees to maintain them.

In addition to the emergency watershed program assistance, which provides assistance to groups and public entities, we provide technical assistance for the emergency conservation program administered by the Farm Services Agency.

ECP is available to local individuals to address damages on crop land by removing debris and sediment and restoring crop land to the pre-flood condition.

USDA has received requests for ECP assistance in at least 20 counties in California.

For both the emergency watershed program and the emergency conservation program, the Administration is working closely with affected agencies to determine the damage needs, the estimated resources to meet them, and any need for emergency supplementing funds.

The Administration has recently sent—I believe last night—a detailed supplemental request for funding.

The lessons of the 1993 flood were hard won. The Administration's flood plain strategy goals are to share responsibility for flood plain management at all levels of government; to act sequentially to avoid, minimize, and mitigate flood and flood plain damages; and to organize better government responses to floods and flood plain needs.

As a result, in a February 18 memo to agencies, the director of OMB and the Chair of the Council on Environmental Quality issued guidance on flood plain management and procedures for evaluation and repair of levees. Rebuilding and recovery is now reviewed within a longer-term context of flood plain management.

Let me reflect back to the 1993 flood. One of the provisions that NRCS had at that time was the authority to purchase what we called "emergency wetland reserve program easements" for damages that were caused by that flood. Since that time, we've purchased nearly 80,000 acres from willing sellers. In some cases entire levee districts were abolished and that area now is serving as its original flood plain aspect.

NRCS is implementing this new strategy, reflecting the Government's interest in being efficient, fair, and responsive.

Under the Federal Agriculture Improvement and Reform Act of 1996, the Secretary of Agriculture has the authority now to purchase flood plain easements under the emergency watershed program nationwide. This new authority provides an opportunity to purchase easements when the long-term economic, social, and envi-

ronmental benefits of purchasing the easement are greater than the cost of repeated repairs to the same land. Where willing sellers are available, procurement of easements on this land will provide a more permanent solution.

Mr. Chairman, in essence of time I will cut my remarks and say that NRCS did respond with all available resources. We met the needs of the local communities within the jurisdiction that we have.

Thank you for the opportunity to be here.

Mr. BOEHLERT. Thank you very much. I do appreciate your consideration.

Finally, Mr. Jackson.

Mr. JACKSON. Thank you, Mr. Chairman, for the opportunity to be here today to discuss the recent flooding which has taken place in California.

As you mentioned, I am accompanied by Mr. Wayne White, who is supervisor of the Fish and Wildlife Service field office in Sacramento, California, and would be available to answer any specific questions as they may occur.

Mr. Chairman, the Fish and Wildlife Service is taking all measures necessary to expedite disaster response actions, including exercising our existing authorities under the Fish and Wildlife Coordination Act and the Endangered Species Act, to ensure that disaster response is not delayed as a result of fish and wildlife conservation actions.

In January of this year, the Service implemented the disaster provisions of the Endangered Species Act regulations for the California counties that we declared disaster areas.

These provisions allowed disaster response measures to be implemented immediately in the face of flooding without prior consultation with the Service.

In addition, on February the 19th of this year the Service issued a policy statement further clarifying and articulating our flood policy. The purpose of the policy statement was to provide clear guidance to Service personnel, to address the concerns expressed by disaster response agencies and local residents, and to reiterate that Fish and Wildlife conservation efforts would not hinder emergency flood response actions necessary to protect human lives and property.

This policy statement outlined the procedures that Service personnel will follow in evaluating the impacts from short-term repair of flood control facilities.

It was the Service's intention to make clear that any repair and replacement of a facility that serves a public purpose and is necessary to prevent the occurrence of such a natural disaster and to reduce potential loss of human life may proceed unimpeded, as long as the damaged facilities are repaired or replaced to substantially the same conditions as existed before the flood.

Mr. Chairman, I wanted to emphasize that the Fish and Wildlife Service did not reinterpret the Endangered Species Act or the regulations to exempt certain activities with flood response. We simply implemented the emergency provisions of section seven of the act and its regulations to address the immediate needs of the commu-

nities affected by the flood. This is standard procedure across the country in the wake of any disaster.

Regarding flood plain management, the Fish and Wildlife Service has both a short-term and a long-term approach. Our short-term goal is to achieve a rapid and effective response to damaged flood and flood plain management systems that will minimize the risks to life and property. The long-term goal of the Service is to work to develop cost-effective approaches to reducing future flood damages that are consistent with the need to protect important environmental and natural resource values that are inherent to the flood plain and adjacent lands.

We will continue to work cooperatively with Federal and State agencies, local communities, water management districts, and concerned citizens to examine long-term flood damage reduction measures.

Our hope is to achieve a flood control system that is based on reducing flood damages through cost-effective and, where appropriate, non-structural alternatives, while avoiding unwise development in the flood plain.

I'd like to take this opportunity, on behalf of the Service, to commend this committee and the 104th Congress for passing the Water Resources Development Act of 1996. This legislation includes provisions that authorized the Corps to begin analyzing potential non-structural alternatives to reducing future flood damages.

We believe the flood control systems of the future will depend on developing and implementing diversified approaches, including non-structural alternatives that take advantage of physical structures such as dams and levees, plus the natural and beneficial uses of flood plains to avoid damages and unwise development in flood-prone areas.

The Service looks forward to working with this committee and the Corps to address these opportunities and these challenges.

In closing, Mr. Chairman, we know that this will not be the last disaster that will affect human lives and property; therefore, I want to assure you that we are committed to continually improving our capability to respond to the needs of affected communities, businesses, and local residents before, during, and after natural disasters of all types.

We look forward to working with the committee to improve Federal disaster response, particularly the devastating floods that continue to affect our homes and our communities throughout this Nation.

We thank you for this opportunity and welcome any questions that you may have.

Mr. BOEHLERT. Thank you, Mr. Jackson.

Mr. Suiter, I know you're here as a resource for this panel. Did you have any statement you care to make?

Mr. SUITER. I don't believe I could improve on the director's statement. Thank you.

Mr. BOEHLERT. You're a diplomat.

[Laughter.]

Mr. BOEHLERT. General Fuhrman, you heard what the director has said about pumping the impounded flood water, and you know about the governor's interest in getting an answer to the letter he

directed to Mr. Witt. Do you currently have, in your view, sufficient authority, or do you need more authority in order to pump impounded flood waters behind a levee breach?

General FUHRMAN. The only authority that I have, Mr. Chairman, to pump impounded flood waters is during the emergency flood-fighting phase of the operation. Beyond that I do not have authority.

Mr. BOEHLERT. You do not have authority. Okay. Do you want the authority?

[No response.]

Mr. BOEHLERT. Do you want to pass on that one?

General FUHRMAN. I'll pass on that one.

Mr. BOEHLERT. After the 1986 flood, the Corps was directed to undertake the repair of the entire levee system in the Sacramento Basin flood control project. One of the levees that breached was one on the Feather River that was scheduled for repair and upgrade in 1998.

How many other levees in the system have not been reconstructed or repaired since the 1986 flood that might now be at risk? Do you have any estimate, a number? A few?

General FUHRMAN. I'll defer to the division commander on that one.

Mr. BOEHLERT. General?

General CAPKA. Mr. Chairman, after the 1986 floods, the Corps of Engineers undertook a study of the levees in the Sacramento Basin.

Mr. BOEHLERT. Right.

General CAPKA. And we have a five-phased project in order to handle the more than \$100 million worth of upgrades that were deemed appropriate.

Of that, we've had funds appropriated for more than half, close to 60 percent of the work, and the work in the Sacramento area, a populated and developed region, was completed.

We've now moved to the Yuba City, the Marysville area, and we have three other phases after that to complete.

But I would say we've completed more than 50 percent of that.

Mr. BOEHLERT. So you know what needs to be done; it's just time and money?

General CAPKA. Time and money. That's correct.

Mr. BOEHLERT. That's the old problem.

General CAPKA. Yes, sir.

Mr. BOEHLERT. Mr. Lee, what do you estimate will be the difference in cost between the proposed non-structural alternatives and a more traditional structural approach?

Mr. LEE. Our experience following the 1993 flood when we purchased Emergency Wetland Reserve Program Easements on 80,000-plus acres indicated the costs were equal to basically or less when considering the projected long-term costs. We had to cross that threshold first. If the cost to repair the damage and recover the land, remove the sediment, etc., was greater than the cost to actually build a levee up. That's when we purchased the easements from willing sellers.

So we believe, in many cases, that we can have a long-term solution equal to the cost of repairing the levee.

Mr. BOEHLERT. Okay. Fine. What I'm going to do now is turn to Mr. Mascara.

Mr. MASCARA. Thank you, Mr. Chairman.

I think you answered my question about the 25-year level of flood protection—that that's temporary.

General FUHRMAN. Yes, sir.

Mr. MASCARA. Because in some instances that was less than what the original design was made for.

Before I ask the question, I would want to refer you to page three of your testimony and the role of the Corps in operating its facilities. I see you mentioned, at least on three occasions that I can see, about locally-constructed levees, local sponsor for these levee systems, and the responsibility to a local reclamation district.

It appears to me—and I don't mean to be contentious—that somehow this might appear to be a Pontius Pilate, that somehow, although you're involved at this point and you gave us a good historical—maybe it was hysterical, I don't know—on the Flood Control Act of 1917 and took us back in time so that we might understand the problems associated with the flooding, some local and State officials assert that the severity of the flooding was perhaps worse than it had to be because of the inadequate maintenance of the levees.

From what I glean here from your statement on page three about being a local problem—I mean, how do you reconcile? It almost sounds like an oxymoron, that there's an internal contradiction here about who is responsible and who should pay for—and does your budget allow you to do those kinds of things?

General FUHRMAN. Sir, let me first say that within the levee system, we view ourselves as partners with the State and the locals in operating that levee system and working all the issues associated with it, and don't mean to imply that there's a local/Federal divide there. I think the working relationship is outstanding.

But when it comes to the daily maintenance and operation of the levees, that is a local responsibility as far as shrubbery removal and the mowing and upkeep of the grass and those sorts of things.

So if there are issues with regard to environmental-type or endangered species associated with the ability to do that, I would defer to the State of California and the folks that are responsible for that to answer that question.

Mr. MASCARA. In your opinion, do you think the State and local governments spent a sufficient amount of money to maintain these levees? Or do you have access to that information?

General FUHRMAN. I do not have access to that information, but I think it's fair to say that they suffer the same budget crunch that we all do and that they would like to spend a lot more than they do, as I would like to spend a lot more than I do on a number of our systems.

Mr. MASCARA. As I indicated earlier, I'm from southwestern Pennsylvania and have three rivers where I live, and on the Monongahela we have three dams, and there is a \$650 million project there. There have been cuts. One dam is near failure and could cause some very serious problems.

Are the cuts too dramatic to deal with problems, not only in California but in Pennsylvania and other areas around the country?

General FUHRMAN. As it is with anything, whether you're talking infrastructure in our cities or infrastructure in our flood control and navigation project, it's a challenge for us in these times, given the age of many of these systems, to make smart decisions and find the right economies out there to continue to maintain those in operation in safe standard.

We believe we are doing that and doing a good job of it, but it's a challenge.

Mr. WISE. Would the gentleman yield just for one second?

Mr. MASCARA. Yes.

Mr. WISE. I think what the general is saying nicely is it's time for capital budgeting. I just throw that in, Mr. Mascara.

Mr. MASCARA. Thank you. And I'm a co-sponsor, so I agree with my colleague, Mr. Wise.

Would anybody else want to chime in as it relates to local and State efforts in maintaining these levees? Had we done a better job, could we have avoided some of the problems associated with this flooding? Could it have been less dramatic?

[No response.]

Mr. MASCARA. I guess not. You did everything possible to avoid the damage.

Mr. LEE. I guess I think the obvious answer to that is yes, there are cases where improper levee maintenance has obviously aggravated levee stability. Gopher holes and tree roots and those kinds of things soon become paths for flood water to flow through. So the answer is yes.

Could we or the States have done a better job? Again, as the general indicated, there is conflicting need for those scarce dollars for everything.

Mr. MASCARA. Thank you, Mr. Chairman. Thank you, gentlemen.

Mr. HORN [assuming Chair]. Thank you very much.

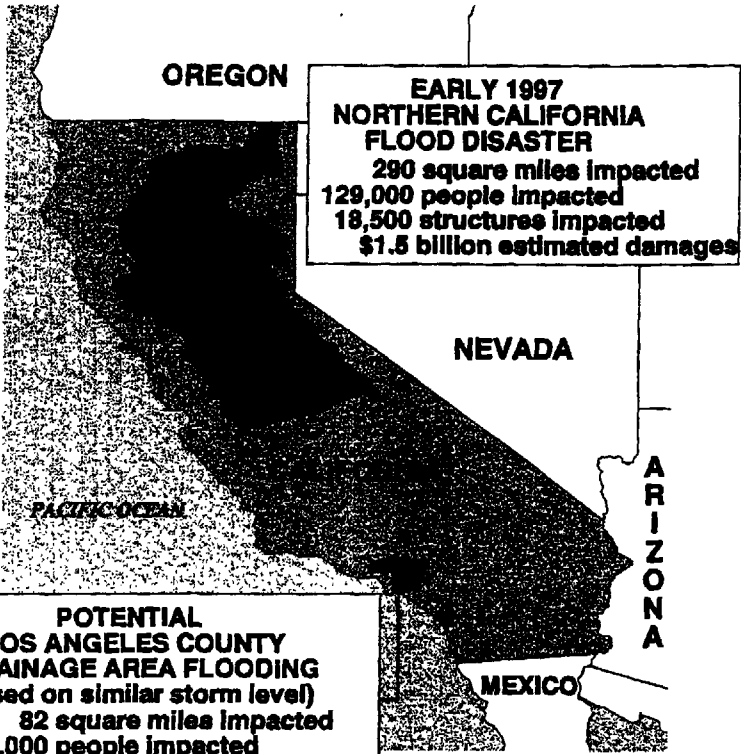
The next in order, based on the chairman's list, is myself, so Let me pursue a couple of questions.

The Corps—you heard me mention with Director Witt this chart, California flood vulnerability. Without objection, that's going to be put in the record at this point.

[The information follows:]

CALIFORNIA FLOOD VULNERABILITY

(as of March 1997)

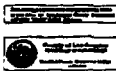


**EARLY 1997
NORTHERN CALIFORNIA
FLOOD DISASTER**
 290 square miles impacted
 129,000 people impacted
 18,500 structures impacted
 \$1.5 billion estimated damages

**POTENTIAL
LOS ANGELES COUNTY
DRAINAGE AREA FLOODING**
 (based on similar storm level)
 82 square miles impacted
 500,000 people impacted
 177,000 structures impacted
 \$2.3 billion estimated damages

COMPARE THESE IMPACTS
(per square mile)

	NO. CAL.	SO. CAL.
People	440	6,100
Structures	65	2,100
Costs	\$5 million	\$28 million



Mr. HORN. I think all of us on this committee, regardless of party, want to see every authority that the agencies represented here have stretched to its absolute limit to solve these problems, and you heard a lot of emphasis from a number of us on both sides on the need for mitigation but pre-disaster efforts.

This chart sort of reflects that, and I'd just like to sum it up that if we had a similar storm hit in southern California, exactly the same as it was a number of inches in the north, the area under a third as large as the impacted area that you see in northern California—namely, Los Angeles County—a half a million people would be impacted, 177,000 structures would be impacted, and an estimated \$2.3 billion in damages would occur.

So my question to the Corps is: what is the Corps of Engineers doing to prevent the same tragedy that has struck northern California from hitting the south? What are you doing in terms of works?

Let's take, as an example, LACDA, the Los Angeles County Drainage District project. Just to get on the record, what dollar amount did the Corps request for LACDA in the budget that the President submitted?

General FUHRMAN. I'll defer the question on what we're doing to General Capka.

General CAPKA. Mr. Horn, you're absolutely right. We do have concerns and flood control interest in the Los Angeles area. You've mentioned LACDA. We also have the Santa Ana River project and the attendant work there.

While I don't have the specific figures in front of me—and I will provide that for the record—

Mr. HORN. Do you remember approximately what it was?

General CAPKA. No, sir, I don't. I will have to provide that for the record.

Mr. HORN. It will be in the record at this point.

[The information received follows:]

The amount of money the Corps requested in its budget submission to the Office of Management and Budget for the Los Angeles County Drainage Area (LACDA) project was \$45,000,000. The 1998 budget the President submitted to the Congress requested \$11,700,000 for LACDA.

Mr. HORN. What was submitted by OMB was \$11 million, which is totally inadequate for that system. If this flood situation continues over the next year or two, you're liable to have—frankly, \$2.3 billion is probably an under-estimate. This was prepared, this chart, by the Los Angeles County Department of Public Works, which is the partner on this project with the Corps in seeing that it's developed.

What funds are needed, do you know, to obtain sufficient construction so mandatory flood insurance is not imposed on the thousands of residents along the river?

As I mentioned to Mr. Witt, hundreds of millions of dollars would be taken from this area if the axe came down on mandatory flood insurance, when maybe only \$100 million is needed to solve the problem.

He, himself, mentioned, when mayors have come in and pointed out the same situation nationwide in this area, the flood insurance

is a fine idea, but the first order of business ought to be to do the preventive things that would avoid having to use flood insurance.

It's a lot cheaper to do it up front on the preventive side than it is to take hundreds of millions of dollars out of an economy.

In the case of southern California, Los Angeles, it is an economy that has not recovered yet from the recession starting in March of 1988 when 400,000 aerospace workers were let go over the next couple of years.

So do you have any reaction to that as to what funds are needed to attain specific construction?

General CAPKA. Sir, what we have done with the budget ceiling we were given—and certainly the budget ceiling reflects the Administration's goal of achieving a balanced budget in the year 2002—but what we've done is we have allocated that budget ceiling to ensure that all construction projects proceed, so we do not have to stop work in the middle of a project.

However, I do not have enough funds, specifically for the Los Angeles County drainage area project or the Santa Ana, to construct at the optimum schedule, which I think is what you're referring to.

Mr. HORN. Right.

General CAPKA. How quickly could we do it? I would certainly need a lot more money in order to construct at the optimum schedule.

Mr. HORN. Let us get the figure in the record—

General CAPKA. I will.

Mr. HORN.—on both LACDA and Santa Ana, what is the optimum level the Corps could absorb in its annual construction program, and then what did you recommend to OMB? And put in what OMB recommended in the name of the President to the Congress. We need that laid out on the record because it will show, I think, that we're not doing enough on the construction side.

[The information follows:]

INSERT B

BUDGET AND CAPABILITY¹ FOR LACDA AND SANTA ANA PROJECTS

PROJECT	Corps FY 98 Request to OMB (000)	President's Budget Request (000)	FY 98 Capability (000)	FY 1999 Capability (000)	FY 2000 Capability (000)
Los Angeles County Drainage Area (LACDA)	\$45,000	\$11,700	\$40,000 ²	\$80,000	\$30,332
Santa Ana River Mainstem	\$49,900	\$52,900	\$61,100	\$38,000	\$15,400

¹ Although project and study capabilities reflect the readiness of the work for accomplishment, they are in competition for available funds and manpower army wide. In this context, the capability amount for a project by itself is without reference to the rest of the program. However, it is emphasized that the total amount proposed for the Army's Civil works program in the President's budget is the appropriate amount consistent with the Administration's assessment of national priorities for Federal investments and the objectives of avoiding large budget deficits and the serious adverse effect that government borrowing is having on the national economy. In addition, the total amount proposed for the Army's Civil Works program in the President's budget is the maximum that can be efficiently and effectively used. Therefore, while we could utilize additional funds for a project, offsetting reductions would be required in order to maintain our overall budgetary objectives.

² Estimated project costs dropped between the September 1996 OMB budget submission and the March 1997 capability estimate. Total project costs decreased from \$312 million to \$240 million. The revised cost estimate reflects significant savings due to the elimination of several project components, including several non-Federal Bridge relocations. Because the relocations were not needed, the local sponsor could not use the \$5 million this would have cost towards its 75-25 percent cost sharing ratio, and had to increase its cash contribution by that amount, thus reducing the Federal share of the capability amount for construction work that could be accomplished.

Mr. HORN. In the meantime, we face the axe of mandatory flood insurance which will, frankly, be the greatest hit on any community since Hiroshima. That's what it gets down to. And the damages will be unbelievable.

And, of course, I'd like to know, does the Corps have a priority schedule based on the effect on people as a way to figure out which projects get how much money?

General FUHRMAN. Are you talking about in the priorities of restoration or holistically overall projects, sir?

Mr. HORN. No. The priorities on construction. To what point does the number of people affected should something go wrong on the 100-year flood criterion or even the 200-year, that you take into account in the case of northern California the number impacted in that type of situation, the southern California. Sacramento is very much like the southern California situation.

Do you count people before saying, "Well, let's put several million in here this year"? Does it matter as to, if things go sour, the number of people that are affected?

General FUHRMAN. Congressman, it certainly does. The number and the severity of the possibility of a failure plays a very key role, along with a number of other issues, but a very, very key role in determining prioritization of resources.

Mr. HORN. For the record, let's get the figures for the Sacramento project, which has been going for a number of years, much similar to the southern California projects, for the LACDA project, and the Santa Ana project. And the staff might want to add on both sides some more, just to make it a comparison sheet. What's the amount of work the Corps can absorb in one year, two years, three years? What did they recommend? And what was recommended in the President's budget? Just lay out a nice comparison chart in your judgment as to the number of people.

Thank you.

[The information follows:]

INSERT C

FLOOD PROTECTION, BUDGET, AND CAPABILITY¹ COMPARISON TABLE

Project	Number of People Affected (000)	Corps FY98 Request to OMB (000)	President's Budget Request (000)	FY 1998 Capability (000)	FY 1999 Capability (000)	FY 2000 Capability (000)
Los Angeles County Drainage Area, CA	464	\$45,000	\$11,700	\$40,000 ²	\$80,000	\$30,332
Santa Ana River Mainstem, CA	3,000	\$49,900	\$52,900	\$61,100	\$38,000	\$15,400
Lower Sacramento Area Levee Reconstruction, CA	2 2	\$400	\$300	\$200,000	\$280	N/A
Marysville/Yuba City Levee Reconstruction, CA	100	\$9,000	\$7,300	\$9,300	\$2,115	N/A

¹ Although project and study capabilities reflect the readiness of the work for accomplishment, they are in competition for available funds and manpower army wide. In this context, the capability amount for a project by itself is without reference to the rest of the program. However, it is emphasized that the total amount proposed for the Army's Civil Works program in the President's budget is the appropriate amount consistent with the Administration's assessment of national priorities for Federal investments and the objectives of avoiding large budget deficits and the serious adverse effect that government borrowing is having on the national economy. In addition, the total amount proposed for the Army's Civil works program in the President's budget is the maximum that can be efficiently and effectively used. Therefore, while we could utilize additional funds for a project, offsetting reductions would be required in order to maintain our overall budgetary objectives.

² Estimated project costs dropped between the September 1996 OMB budget submission and the March 1997 capability estimate. Total project costs decreased from \$312 million to \$240 million. The revised cost estimate reflects significant savings due to the elimination of several project components, including several non-Federal bridge relocations. Because the relocations were not needed, the local sponsor could not use the \$5 million this would have cost towards its 75-25 percent cost sharing ratio, and had to increase its cash contribution by that amount, thus reducing the Federal share of the capability amount for construction work that could be accomplished.

Mr. HORN. We now have the gentleman from West Virginia, Mr. Wise, who is recognized.

Mr. WISE. I thank the gentleman. I might just note, you brought up a very, very important issue dealing with the manner in which the Corps is required to score projects, and the directive from OMB to the Corps of Engineers will just about make it impossible to do any kind of significant construction in this country.

I think I calculated, with what the Corps is allocated, that they'll get about one project a year underway, and that's why I might say a number of us, on a bipartisan basis on this committee, are circulating a letter to Chairman Kasich and also the Appropriations Committee asking them not to abide by the OMB concept.

The General obviously can't comment on this. He must represent the Administration policy. But I just think that this goes exactly in the opposite direction of what we're trying to do in this country.

If we're trying to promote growth, if we're trying to build projects that are necessary, whether for economic growth or, as I'm about to talk to the general about, for flood prevention and control, we can't have a fiscal policy that frustrates that.

What this would require, as I understand it, is essentially you've got to have everything in hand in order to be getting a start. It does not permit for incremental funding year-by-year as opposed to you have to have it banked.

So in the case of whether it's a \$229 million Marmet project which is necessary for commerce, or whether it's a flood control project, you have to have it in hand.

The reality is that with your budget you'll get one project started a year, and all the rest of us are going to stand in line waiting, waiting, waiting, and so there's a real need.

This is capital budgeting turned on its ear, and so there is a real need to do something about it.

That was my ad hominem comment.

General Fuhrman, I want to first thank you very much. You and the Vice President and James Lee Witt were in West Virginia, I believe, on the 2nd day of the flooding. Your presence was a morale booster. Even more significantly, your observation and personal action following that—2 days later West Virginia did get the Federal disaster declaration for individual assistance, and we were just approved for public assistance the other day.

So that means in the 16 counties in West Virginia, at least, we're beginning to recover, and I thank you and the efforts of the Corps, particularly the Huntington district, which has been very, very helpful in the Ohio Valley situation.

Let me bring up something that I brought up in the past with Mr. Witt, and indeed when he revisited West Virginia we talked about it at great length, and that is the issue of mitigation and what can be done.

The fact of the matter is I don't know what you have expended during this flood in West Virginia, but in the four floods last year in West Virginia FEMA has expended \$80 million to date. My observation is that this year, with this last flood just last week, FEMA will expend a minimum of \$20 million and probably as high as \$40 million. The devastation was even worse than anticipated.

The reality then is that in a little over a year we've spent \$120 million of Federal taxpayers' funds in West Virginia, and that essentially is just to put people back and to try and restore a situation when, for a significantly less amount, we could have made a capital investment and done something about mitigation.

Now, following last year, in the third flood, I believe, I convened five meetings, and what I did was to try and bring together every agency that was involved in flood prevention and flood control.

I was just making a quick note. I don't have them all, but it included: Natural Resource Construction Service with the United States Department of Agriculture, the Army Corps of Engineers, United States Geological Service, the Fish and Wildlife Service, and FEMA. On the State side there was the Department of Environmental Protection, the Department of Natural Resources, the Office of Emergency Services, the West Virginia National Guard, the West Virginia Department of Highways, and the West Virginia Soil Conservation Service. I've forgotten and left out the Federal EPA.

In every meeting I had somebody else that raised their hand and said, "I should be here, too."

I appreciate very much the Corps' participation in those meetings. What we were trying to do was to sit down, identify what the problems were in each county, and then put together a priority list. And that process needs to continue, but it needs to continue even more. It needs to continue because we don't have enough resources, as you've just testified, and also as I look at the USDA—United States Department of Agriculture—budget, we don't have enough resources in order to do what needs to be done. Therefore, we have to prioritize.

I would make this personal request to you. As I said I appreciate very much the participation by the Corps of Engineers at every one of our meetings. My District actually is served by three districts. My Congressional District is served by the Huntington District, the Pittsburgh District, and the Baltimore District. We appreciate their participation.

But I noticed something, and so what I would first ask is—when we bring these groups back together, if the Corps of Engineers would continue to be a very active participant, but even to go beyond that, to look for ways that we can expand across agency and jurisdictional lines.

Often there is overlapping jurisdiction between the Corps of Engineers and USDA and what they can do. Is there a way that we can actually divide up responsibility—one works on this project, one works on this project? Is there a way that we can do joint applications or joint permitting?

And so what I would request is, first of all, if you and the Corps have looked at ways of reducing these barriers, and whether we could work with you.

Second is that you would look at making West Virginia—we're a small State, but one that sure has been hit hard, and repeatedly—a trial State in this.

If I have any time left, I'd ask if you might comment briefly on what efforts are underway in that regard and what we can look forward to.

General FUHRMAN. Congressman, I fully agree with what you said with regard to the agencies working together. I think what you're seeing happening in California with the creation out of the White House of this inter-agency levee task force is a good start for that. The Corps is taking a very, very active role in the taskforce, and General Capka will be heading up our effort on that.

It's an effort to bring everyone together to the table at the front end to greatly reduce the bureaucracy, lay the issues out on the table early on, come to an agreement and then get on with solutions.

So, from my perspective, I am very positive about the direction we're going, and we ought to be applying the same principles to West Virginia and everywhere that we go back in and address these restoration efforts.

Mr. WISE. Thank you. And I just mention to the Chair, in my State—and this follows up on the Chair's observation. In my State, alone, \$120 million has been spent in the last 15 months on putting people back or trying to dig them out, when for a fraction of that cost we could have had honest to goodness flood prevention and mitigation in many areas that would have averted those dollars, and averted them year after year after year.

I look forward to working with the Chair on doing something about that.

Mr. HORN. Well, the gentleman, with his usual eloquence, has obviously hit a target that a lot of us agree with.

I'm reminded that three of us from the full committee went down on a survey in the spring on drug activity in the Panama Canal, Puerto Rico, and so forth. It's rather interesting what they're doing in trying to get a similar number of agencies that my colleague from West Virginia did, to get them all in a room on a regular basis, and it has been a lot to increase focus on the ultimate objective by getting the relevant agencies in the room.

I'd say to my colleague perhaps the Government Management Subcommittee of the Government oversight group can follow up on this also if you're not satisfied with having enough people in the room to go beyond the scope of this committee, because it's an excellent suggestion I think that the gentleman has pursued.

I now yield to Mr. Thune, the distinguished Vice Chairman of the committee, the gentleman from South Dakota.

Mr. THUNE. Thank you, Mr. Chairman.

I want to recognize the good work that the Corps has done in working, as well, with our State on a number of issues, not the least of which is the policy manual that governs the Missouri River, and that's an ongoing dialogue and one which we won't solve here today.

But just a couple of points, if I might, today. There are a couple of trouble spots, actually, in South Dakota, and one of which we will get into at a later time, and you have some people, I think, coming to our State next week to meet with some people from Pierre below the Oahe Dam. It has to do with flooding and sedimentation in the Missouri.

But the other issue has to do with the James River Basin. I have met with—your staff has been very helpful. Colonel Volz was up earlier this month to discuss that.

There are a number of things that have been suggested and have been agreed upon by both the James River Water Development District and people who live along the river in terms of solutions that would help the James not flow backwards and flood but actually flow downstream.

The problem, as it always is—and has been alluded to earlier today here—has to do with money.

According to the Corps, the money doesn't exist to help mitigate this program.

There are some trees. The dead trees are eventually going to fall in the river and it's going to make this problem even more—it's going to worsen it.

And so there are some things that have been suggested which I think would address many of these issues, and I fully empathize with the problems with funding and the need to live within the limitations that the Administration, the Congress have placed upon us, and in the interest of a balanced budget those are going to be high concerns and priorities.

The question I guess I would have for you is as follows: could you explain how the Corps goes about prioritizing its various function and how those priorities are reflected in the internal allocation of funding in terms of from the various issues and flash points around the country, how you determine which are the priorities?

General FUHRMAN. Are you referring to new project authorizations or operations and maintenance type of work, sir?

Mr. THUNE. I'm not so sure. I suppose perhaps both of you could address both. I'm not sure in which category this particular project would fall. My guess is it would probably be a—it's an ongoing operation and maintenance thing, but it also might be characterized as a project.

General FUHRMAN. From an operations and maintenance perspective, holistically we provide our divisions and our districts, from a national perspective, with a pro rated share of those monies and look to them down where the rubber meets the road to make the hard decisions on what gets done, what doesn't get done, and what are unfinanced requirements that they come back up to headquarters and try to see if we can find some additional funds for.

With regard to new construction and new authorizations, it is a holistic view looking across the country at first of all which projects have gone through the feasibility stage and have hit all the bench marks to be ready to be authorized for construction. It includes in many cases, whether we have a sponsor with money if there is a cost-sharing piece to it, which in many cases is the largest challenge out there—to find that sponsor that has the money to be able to put up the non-Federal cost share.

And then it's hard decisions that have to be made on a variety of factors of who gets what starts when and how quickly we go at those starts.

Mr. THUNE. I appreciate that. It seems to me, of course—and I guess I would hope that in the James River Valley area that we can, if the cost share is the issue, get that issue addressed. We'd like to get this prioritized, because I think it's going to be major costs down the road for a lot of us—local governments and individuals, as well as probably the Federal Government—and in my judg-

ment this is one of those areas where a little prevention would save us a lot of money in terms of a cure later on.

But we will continue to work with the Corps on that, and appreciate very much your help along the way already in terms of addressing upstream some of the issues that are hopefully going to mitigate some of the flooding downstream.

Thank you, General. And I thank the chairman.

Mr. HORN. I thank you. You're finished ahead of time.

The gentleman from Illinois, Mr. Poshard, is recognized.

Mr. POSHARD. Thank you, Mr. Chairman.

I apologize for having arrived at the committee hearing late, and I don't have any questions at this point in time. I probably am going to have some questions that I will submit in writing.

But just by way of comments, I think I would like to say this: my District in Illinois has experienced both the Mississippi flood situation, now the Ohio River situation. We've had flooding along the Embra River, the Wabash River, and I think the Cascasky at one time. And in every case under every circumstance the FEMA people have come in very quickly, done a marvelous job of responding, and the Corps has been at every location where we have had any compromising of the integrity of our levee system, have given us good advice, repaired it or helped us repair it in a very expeditious and a very comprehensive way. They're doing that right now in some of the river communities along the southeastern edge of my District.

I'm not trying to patronize anybody. I give out my share of criticism to agencies out here, and we probably do need some—I'm not totally familiar with the California situation. I'm certain we need some approaches there that may be more workable.

But I'll tell you, for my sense of things, these two agencies have worked well together. They have understood their appropriate roles and their cooperative roles in facing these situations. And I applaud them. They have, at least where I lived, I think been a deciding factor in saving a lot of lives and a lot of property that would not have been saved otherwise if these two agencies had not come to our help.

And so I just want to say that, Mr. Chairman, in passing because I think, you know, we work with the agencies out here and it's our responsibility for oversight, and so on. But, doggone it, there are times, too, when people need to know that they've done the right thing and done it well, and I want you to know that that's the way I feel about both agencies.

Mr. WISE. Would the gentleman yield?

Mr. POSHARD. Yes.

Mr. WISE. As the gentleman is so wont to do, he states it far more eloquently than I did, and I would also just like to echo his remarks.

Thank you.

Mr. HORN. The gentlewoman from Missouri, Mrs. Emerson, is recognized.

Mrs. EMERSON. General Fuhrman, hi. It's nice to see you again.

General FUHRMAN. Good seeing you again, ma'am.

Mrs. EMERSON. Thank you for being here.

I've got a question specifically leading back a little bit to what I had asked Mr. Witt. In Illinois, specifically the Miller City small levee, which is a private levee in Illinois across the river from my district, the FEMA funds went through the Illinois Department of Transportation to build up and to strengthen that particular levee.

Because those were Federal funds, if you will, fixing that levee, it now threatens the integrity of your own mainstream levee in the Mississippi, and your own people have said that this particular part of the levee is threatened and does need repair.

So I guess my question to you is: wouldn't it make sense to use Corps maintenance funds to strengthen that levee, since Federal funding, in fact, caused this problem to happen in our District?

General FUHRMAN. I'm not familiar with that particular issue, but we'll provide the answer for the record and go back and work that with the Lower Mississippi Valley Division.

Mrs. EMERSON. That would be great, because if, in fact, you can use your maintenance funds, since Federal funding caused that or threatens the integrity of your own mainstem levee, which threatens the—has the potential of threatening 350 to 500,000 people within southeast Missouri and Arkansas, we would just hope that you would seriously reconsider the funding part of this. Thank you.

[The information received follows:]

INFORMATION PAPER
COMMERCE TO BIRDS POINT LEVEE, MISSOURI
LEN SMALL LEVEE, ILLINOIS

ISSUE: Federally-funded restoration work on the Len Small Levee has strengthened it, such that the Mississippi River and Tributaries project Commerce to Birds Point Levee needs upgrading to safely pass design floods. It has been questioned whether local interests should provide lands, easements, and rights-of-way for the levee upgrading, as has normally been required for MR&T Mississippi River levee work.

STATUS:

a. Commerce to Birds Point Levee. As a result of the flooding situation in 1995, a hydraulic investigation of the Project Design Flood (PDF) for the Commerce to Birds Point reach was undertaken and completed in June 1996 by the Memphis District. The results of the investigation were approved by the Mississippi River Commission in September 1996. The purpose of the investigation was to determine the effects of the Len Small Levee on the PDF flowline, which in turn affects the Commerce to Birds Point Levee. The results of the investigation are that the PDF flowline has increased in this reach and that the Commerce to Birds Point Levee will need upgrades in levee height and seepage control features to safely pass the PDF. It is now evident that these upgrades are required due to the increased reliability of the Len Small Levee and the loss of conveyance area.

Both interim and permanent measures are planned for the Commerce to Birds Point Levee upgrade. Interim plans proposed for FY 97 include using clay gravel to raise the levee to the authorized height in several locations, and the installation of relief wells and temporary pumps in the most critical seepage areas along the levee. Current plans include measures to restore the levee crown to its original twenty-five foot width (the crown of the levee was considerably narrowed due to the emergency grade raise that was added during the 1995 flood), and appropriate slope and height adjustment based on the new PDF flowline. Additional relief wells will also be installed and additional pumping capacity provided at the Drinkwater Pumping Station to handle the additional seepage water. The estimated Federal costs are \$10-15 million with estimated local costs of about \$0.5 million for lands, easements, and rights-of-way; however, the Corps will continue to evaluate the final design for the levee and other related components to determine if design changes can be incorporated to reduce the cost without sacrificing the integrity of the levee. Levee District No. 2 of Scott County, Missouri is responsible for the non-Federal costs associated with modifying the levee. The last inspection of the Commerce to Birds Point Levee reach was performed on 13 November 1996. The levee and facilities were found to be in satisfactory condition.

b. Len Small Levee. WRDA 1996 extended the jurisdiction of the Mississippi River Commission (MRC) to include the Len Small Levee. This means the levee now lies within the

geographical area that is under the authority of the MRC. It does not mean that this levee is now part of the MR&T project. In addition, the House Committee on Transportation and Infrastructure on March 7, 1996 authorized the Corps to undertake a reconnaissance study to determine whether modifications of the recommendations contained in House Document 308, Eighty-eighth Congress, Second Session, are advisable at the present time, in the interest of flood control, navigation, and related purposes along the Mississippi River and its Tributaries with particular reference to that area along or affected by the Mississippi River in Alexander County, Illinois and Scott County, Missouri. Funding for this study effort is expected in FY 98.

BACKGROUND:

a. Commerce to Birds Point Levee. This MR&T levee is located on the west bank of the Mississippi River in Scott County, Missouri. It was designed to provide protection from the PDF. Levee failure would be catastrophic for Southeastern Missouri and Eastern Arkansas. During the flood of 1993, this reach of levee experienced extremely high stages on the upper ten miles due to the record stages at Cape Girardeau, Missouri. Although there were no major problems, heavy seepage was prevalent and numerous sand boils were found at the toe of the levee at Upper Mississippi River (UMR) mile 13. A water berm was constructed at the time to minimize sandboil action in this area. The flood of 1995 produced higher river stages on the Commerce to Birds Point Levee, even though the discharge was less, which indicated the Len Small Levee had an adverse effect on river stages in that reach. This resulted in near project flood conditions in this area, as well as heavy seepage throughout this reach of levee. Because of the potential of even higher stages, the decision was made to raise the upper ten miles of this levee using crushed limestone. Following flood fight activities, an investigation was initiated to determine the necessary measures to undertake to ensure the integrity of this levee.

b. Len Small Levee. The Len-Small Levee (Miller City Levee, Fayville, and Olive Branch Levee are other names used in the past) is located on the east bank of the Mississippi River in Alexander County, Illinois. It is an "open-end" levee, in that it does not provide a continuous barrier to Mississippi River flooding, because the levee's downstream terminus does not tie into high ground. Although it does not form a complete levee protection project, it does provide a degree of protection to the area. It also serves as a "deflection" levee by keeping the Middle Mississippi River from forming a cut-off and shortening the river length by approximately 20 river miles. In July 1993, the levee failed at approximately UMR mile 34, allowing a significant crossover flow area to develop. This crossover flow scoured a hole approximately 1 mile long and 1/4 mile wide, with depths exceeding 40 feet. One-fourth of the flow of the Mississippi River traveled approximately 5 miles across a bend and reentered the river between UMR miles 17 and 13. The Len Small Levee is not in the PL 84-99 rehabilitation program. An

eligibility inspection was performed by the Corps of Engineers during December 1993. It was determined that the existing levee system did not meet PL 84-99 criteria without extensive upgrading. Therefore, the Corps of Engineers did not repair this levee breach following the 1993 flood. The Federal Emergency Management Agency (FEMA) provided funds to the State of Illinois to repair the Len Small Levee. Repairs were cost-shared 90% Federal to 10% non-Federal, with the Federal portion being approximately \$3.1 million. The levee was restored to its original elevation. In the spring of 1994 another high water event caused this recently repaired section of levee to breach. FEMA again provided funds to the State of Illinois to restore the levee; however, the non-Federal portion of the cost-sharing was increased to 25%. The Federal cost was approximately \$3.5 million. The Corps provided technical assistance on the levee alignment and levee cross-section. Again, the levee was restored only to its original elevation. Following the 1994 Flood, the Corps restored the bankline between UMR miles 0 and 98.6, which includes the Len Small Levee reach, using Operation and Maintenance funds. No work was performed on the levee by the Corps. Although none of the levee repairs raised the levee height, they did increase the reliability (ability to withstand water against levee without breaching) of the levee. This is evidenced by the high water period in 1995 which saw no failure of the Len Small Levee, while similar stages in past years had resulted in levee failure.

SUMMARY: In executing the needed upgrades of the levee from Commerce to Birds Point, Missouri, under the authorized MR&T project, local interests are required to provide lands, easements and rights-of-way for main line levee construction. The Army Corps of Engineers will continue to work with the local sponsor to resolve problems and provide the authorized level of protection.

Mrs. EMERSON. I also have a question for Mr. Jackson.

I was obviously very pleased to hear that when an emergency situation prevails, that Fish and Wildlife does put people first.

But let me ask you a question: if, in fact, as we have the potential for a major disaster in our District and along the Mississippi River, wouldn't it make sense that with a potential for disaster that Fish and Wildlife might also waive some of the restrictions of the Endangered Species Act and other NEPA requirements in order to save people first?

Mr. JACKSON. Basically, what we're doing—and we're doing this more and more nationwide—is working up front with the Corps of Engineers and FEMA and the States and others, essentially so that we don't have to waive the Endangered Species Act.

The type of up-front coordination really has not resulted in any delays or really any impacts on the emergency activities implemented by those agencies.

Mrs. EMERSON. But I guess it's how you define an emergency or if you define it in advance of it happening, or whether, you know, actions, environmental impact statements, and the like can be sped up if, in fact, an impending disaster would occur.

Mr. JACKSON. Agreed. And I was not referring necessarily just to emergencies, because in advance that would not necessarily be an emergency situation.

Mrs. EMERSON. Yes.

Mr. JACKSON. But what we are finding is just this overall up-front involvement that we're having with the agency so we're actually sitting there at the table with them during the planning process.

We've been able to, I think, amongst us, really expedite, whether it's an EIS, a NEPA process, or whether it's a consultation. In fact, in many cases we have actually worked with the agencies to totally avoid not only impacts to listed species, but to avoid the need to even consult, just because we're made part of that planning process.

Mrs. EMERSON. But you would agree that it's more important to put people first?

Mr. JACKSON. Yes.

Mrs. EMERSON. Thank you.

Mr. Chairman, Mr. Pombo left a question for me. I wonder if I might have a couple extra seconds to ask his question?

Mr. HORN. Please go ahead.

Mrs. EMERSON. Okay. And this goes to General Fuhrman again, and I'm going to ask you this on behalf of Congressman Pombo from California.

Could you please describe for the committee how the Corps plans to initiate its proposed comprehensive basin investment in California? What criteria did the Corps use to select existing projects for reprogramming? Once the local cost share is found, will these reprogrammed projects be fully funded by the Corps so they can begin immediately?

General FUHRMAN. Let me just say a couple of things holistic about it, and then I will turn it over to General Capka to give some specifics. And many of the details we may want to provide for the record.

But we're reprogramming \$100,000 to lay out the program of study in this fiscal year, with another \$300,000 Federal dollars to be matched by State dollars to get the comprehensive study going. And then we'll carry that piece into fiscal year 1998, where it's envisioned to cost in the neighborhood of \$4 million.

Let me turn it over to General Capka to give a few specifics as far as scope.

General CAPKA. As General Fuhrman mentioned, we needed to reprogram money in order to meet that fiscal year 1997 bill so we can get the study started very quickly.

We had some projects in California that, because of a number of reasons, one of which was not having the local cost share available to proceed with the project, allowed us to defer that project. We captured that money and identified it for reprogramming in order to pay for this particular study that you referred to.

But in no case did we intentionally or have we slowed a project down for the sole reason of supporting this particular study.

Mrs. EMERSON. Okay. Thank you very much.

Mr. HORN. I thank the gentlewoman.

Next is our distinguished colleague from California, Mr. Riggs.

Mr. RIGGS. Thank you, Mr. Chairman. And let me say good afternoon to all the witnesses on this panel, but especially General Capka, and tell him how much we're looking forward to working with him closely, particularly the two districts under his command that oversee Corps of Engineers matters in my Congressional District and very important projects that the general and I have visited on, like the deep water dredging and port development project on Humboldt Harbor in the northern end of my District, and in the southern end of my District the Napa River flood control and alluvial watershed project—very important projects.

But I want to come back and focus on the Central Valley floods, and I'd like to really, with this panel and the next panel, direct my comments and questions to the preventable nature of these particular floods—that is, to what extent were these floods preventable, and to what extent could the \$2 billion in damages have been mitigated?

Mr. Chairman, I'd like to submit for the record an article from "Insight" magazine entitled, "Regulatory Dam Burst as California floods rage," and just briefly quote from this article.

It says that, as we've heard here this morning, that these floods, which caused the temporary evacuation of more than 100,000 people, destroyed hundreds of homes were, in the opinion of many of these residents in these communities, preventable, and they placed the blame for flooding "squarely on the regulatory zeal of the Federal and State agencies, including the U.S. Fish and Wildlife Service, the Bureau of Reclamation, and the Army Corps of Engineers, their zeal to enforce environmental regulations.

"Such regulations have impeded levee repair, forced the suspension of the regular dredging of river bottoms and, say area residents, placed a ridiculous amount of pressure on them to satisfy enforcement of the Endangered Species Act, ESA, all the while slowly putting their existing environment at risk.

"Instead of funds going for needed levee repairs and dredging, huge amounts of money, instead, have been used to provide habitats for endangered species such as the fairy shrimp and beaver.

"According to one estimate by the California Reclamation Board, half of the delays and 30 percent of all levee repair costs are for environmental mitigation fees dictated by State and Federal regulators. Of the nearly \$70 million appropriated for levee repair during the last year, alone, more than \$20 million went to tree planting."

I guess this would be trees that are planted on the tops of levees to protect wildlife habitat for endangered species, which might have been better spent in maintaining their structural integrity.

Two other comments that I want to insert or quote from this article before my question. One is from a man by the name of Bill Jennings of Delta Keeper. He says, in response to the legislation by Congressmen Pombo and Herger, who testified on the first panel—I believe that they have a bill that would permanently alter the ESA to deal with the issue of levee repair.

In response to their proposed legislation, this man, Mr. Jennings, says, "This action is not surprising, considering the fact that Representative Pombo has been a vociferous opponent of the protection of endangered species for many years. Levees are an important source of wildlife habitat, and if the ESA was waived on the repair we would all be much poorer for it."

Compare his comment to a comment by a man by the name of Jim English, general manager of the San Juan water district in the Central Valley. He says, "Think about it. When these levees broke, they rushed over agricultural land, picking up herbicides and petrochemicals. Chemicals have been mixed in combinations that wouldn't happen in nature, and animal feces have been mixed in with that water. This is a huge, huge problem and will probably take years to sort out."

So I guess my question, gentleman, is—

Mr. HORN. I assume the gentleman wants the article to go in the record?

Mr. RIGGS. Yes.

Mr. HORN. Without objection, so ordered.

[The information submitted follows:]

Nation: Environmental Protection

Regulatory Dam Bursts as California Floods Rage

By Gayle M.B. Hanson

Golden State ranchers have had their fingers in the policy dikes since the waters began soaking their land. They lay the blame for the huge flood damage directly on the shoulders of environmental regulators.

Alex Hildebrand has been ranching in California's Central Valley since 1962, and he claims never to have seen anything to rival the winter floods that have inundated much of the state's northern interior counties since the beginning of the year. The deluge from the New Year's storms put his ranch under 8 feet of water and now, nearly eight weeks after the rains that forced him and his wife to scramble for their possessions in the middle of the night, he still isn't sure when he'll be able to return home.

But Hildebrand remains certain of two things: The torrents of water that did close to \$2 billion in damages in the region were unlike anything he had ever seen, and the disaster could have been prevented.

"There is only one way to describe this flooding," says the rancher. "Biblical. The forces of nature have simply overwhelmed us. The problem is the levees. Most are too narrow and haven't been upgraded since the sixties. The water starts leaking through and bubbling up in boils around the levee and when it collapses it is awesome. When we left our home a little after 2 a.m. it sounded like Niagara Falls."

But if the floods were of Old Testament dimensions, Hildebrand and a growing number of others claim that it wasn't the Lord who was to blame for the damage to hundreds of thousands of acres of land, causing evacuation of more than 100,000 people and destroying hundreds of homes. No, Hildebrand is joined by many in these ranching communities in laying the blame for the flooding squarely on the regulatory zeal of the federal and state agencies — including the U.S. Fish and Wildlife Service, the Bureau of Reclamation and the Army Corps of Engineers — in enforce environmental regulations.

Such regulations have impeded

levee repair, forced the suspension of the regular dredging of river bottoms and, say area residents, placed a ridiculous amount of pressure on them to satisfy enforcement of the Endangered Species Act, or ESA, all the while slowly putting their existing environment at risk. Instead of funds going for needed levee repairs and dredging, huge amounts of money instead have been used to provide habitats for endangered species such as the fairy shrimp and beaver. According to one estimate by a member of the California Reclamation Board, half of the delays and 30 percent of all levee-repair costs are for environmental mitigation fees dictated by state and federal regulators. Of the nearly \$70 million appropriated for levee repair during the last year alone, more than \$20 million went to tree planting.

"We wanted to do \$300,000 worth of work on channel clearance," says Hildebrand. "The trouble is the government wanted \$3 million in mitigation. They continue to ratchet you. They won't allow you to maintain the floodway. The river bottoms have come up about 8 or 9 feet because they haven't been dredged in

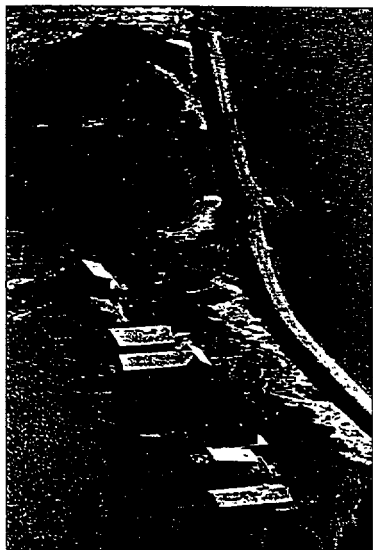
years. And that's a big problem."

Hildebrand and others have been complaining for years to largely deaf ears about the regulatory climate. But the scale of the devastation wreaked by the California floods has raised the issue of whether money used to plant trees on the tops of levees to provide wildlife habitats for endangered species might have been better spent in maintaining their structural integrity.

Republican Rep. Richard Pombo, who represents much of the flood-stricken area, long has been a force for rewriting the ESA. An outspoken conservative, he finds himself with a most unusual ally: none other than the state's stalwart Democratic senator, Dianne Feinstein.

On a visit to the flood regions, Feinstein expressed her disbelief upon learning of the regulatory morass facing local ranchers. The senator, a liberal who has been a big supporter of environmentalists, was, after all, the sponsor of the still-controversial Desert Protection Act. Little wonder that she stunned local residents with her pronouncements.

"The Delta is the No. 1 infrastructure problem in the state. We must strengthen those levees.... Levees are



The levees weren't dry: Sole protection from rising waters.



Though a nonprotected species, dairy cows are shown the way to higher ground.

not habitat. Levees should not be habitat. The levee is there to stop water," she declared in a speech before county residents that left some farmers scratching their heads in wonder. "The first thing we need to get is some relief from these agencies and their regulations. Second, we need to get reimbursements out to those who are eligible for them as soon as possible," she declared.

If area ranchers seemed pleased by the senator's pledge to work with Pombo to find permanent relief from the regulatory morass they face, some are bitter about the years in which they worked hard to maintain the levee system — only to have regulators step all over them.

Frank Allegre has worked in the trucking and construction industry in the Central Valley for decades and on more than one occasion has come up against environmental regulators. At one point he reinforced the levees on his ranch with concrete — and found himself being fined \$150,000. "They told me at the time that either I had to pay the fine or go back in and remove the concrete," he recalls. "Frankly, I'm ready to take the concrete out and let the land wash into the river."

Another time he offered to dredge the Mossdale River back to his main ranch, only to be told that his offer to do the job for nothing would end up costing him a bundle. "I met with the Corps of Engineers and offered to dredge it exactly the way they advised," Allegre tells Insight. "But the process of getting a permit cost me \$40,000 before I just threw in the towel. I mean, I had offered to do something for nothing, and all of a sudden it was costing me money."

Ironically, since the January flood-

ing Allegre has been working around the clock reinforcing levees throughout the region. This time, however, he has nothing to fear from regulators as presidentially declared disaster areas are immune from regulatory enforcement. But if California Republican Rep. Wally Herger and Pombo have their way, the ESA permanently will be altered to deal with the issue of levee repair.

The legislation they have proposed would shorten the process required before performing such work, including eliminating some public hearings and other steps. "We want to get the job done as soon as possible," says Mike Hardiman, a senior staffer in Pombo's office. "We need to shorten the time."

Pombo's legislation already has come under fire from some environmental groups, including DeltaKeeper, an organization aligned with the San Francisco-based Bay-Keeper.

"This action is not surprising, considering the fact that Representative Pombo has been a vociferous opponent of the protection of endangered species for many years," says Bill Jennings of DeltaKeeper. "Levees are an important source of wildlife habitat and if ESA was waived on the repair, we would all be much poorer for it."

The trouble is that while Jennings' position may have appeared attractive to many in the days before the flood, the scope of the problem in California may serve, once and for all, to illustrate the ludicrousness of the regulatory

environment and force permanent changes. Ironically, the challenge to the ESA comes at a time when one of the nation's largest environmental organizations has admitted the failure of the ESA in terms of protecting endangered species. A report issued by the Environmental Defense Fund, or EDF, in late December urged that rather than use a regulatory hammer to beat landowners into submission, a better approach would be to recognize their efforts to maintain stewardship of their property and to reward them accordingly.

"Of the endangered species that live entirely on private lands, only 3 percent are improving," says David Wilcove, senior ecologist and coauthor of the EDF report. "There is enormous potential for the Endangered Species Act to encourage landowners to create, restore and enhance habitat on their land and reward them for doing so."

Among the EDF proposals is a "safe harbor" program through which landowners who agree to enhance habitat on their property are given an iron-clad assurance that they will not be subject to additional land-use restrictions as a result of good work.

"The safe-harbor program is evidence that, with some creative thinking, both endangered species and private landowners can benefit from

the Endangered Species Act," Wilcove says.

When forces as unlikely as Feinstein and Pombo align themselves on the same side of an issue, something indeed may begin to happen.

The problem is that for the hundreds of thousands of Californians who have seen their homes and livelihoods washed away in the deluge, the help comes too late. As for the environmentalists who backed the regulatory morass, their "victory" in achieving protection for endangered species may have resulted in a huge environmental disaster.

"Think about it," says Jim English, general manager of the San Juan Water District. "When those levees broke they rushed over agricultural land, picking up herbicides and petrochemicals. Chemicals have been mixed in combinations that wouldn't happen in nature. And animal feces have mixed in with the water. This is a huge, huge problem and will probably take years to sort out."

The scope of the problem may serve to illustrate the ludicrousness of the regulatory environment.

Mr. RIGGS. Thank you.

And, by the way, just so you know, for the later panel I'm going to also insert another article in the record that talks about all of the development that is proposed for these flood-prone areas, which appears to be one massive flood plain or flood basin.

Again, it comes back to my concern that we simply cannot keep writing, if you will, a blank check to pay for the damages that result from these periodic floods, these natural disaster episodes that we know are going to occur.

So, given that, first of all, let me ask to what extent does present law, specifically the ESA—this is to the two generals—to what extent did that affect your ability to respond expeditiously and efficaciously to these floods?

General FUHRMAN. Congressman, first of all, from an emergency response perspective, the Endangered Species Act is waived during that phase of the operation, so the simple answer there is it had no impact.

With regard to your question on how did it affect the maintenance and repair of the levees prior to the flood from my Corps perspective, the ones that I'm responsible for maintenance and repair—and none of those or very few of those are in the California basin. I have some on the Mississippi. There it is not a substantial issue. I would defer to the California Reclamation folks that operate and maintain those levees on a daily basis to answer your question as far as those impacts go.

Mr. RIGGS. General, let me ask you, do you think some of the estimated \$120 million that the Corps will spend in implementing and enforcing the Endangered Species Act could be better spent, given what we've learned from these floods? I mean, could some of those funds—should they have been, instead, reprogrammed for levee repair and the structural maintenance of these?

I mean, you know the nature of the flooding there. You know that we still have not found or identified a long-term flood control solution for that whole basin, and that when we ultimately do the cost may be prohibitive to taxpayers. But do you think some of this money should be spent?

General FUHRMAN. I think it's a balance, sir. Again, not knowing the genesis of those numbers and what particular projects or what's behind those figures, I can't comment on them.

But generally, as you take a look at projects that we construct, one needs to take a look at the impact on the environment and come to an agreement between all parties on what is appropriate mitigation for any impact that we have on the environment out there, and ensure that that is reasonable. We need to ensure that it's reasonable and not outrageous.

Mr. RIGGS. I've probably run over my time, but I want to see if any of the other witnesses would like to respond to this particular question. I think it's incredibly important. Again, I worry that we don't focus enough on trying to prevent and mitigate these disasters.

Mr. JACKSON. Congressman, let me comment.

To underline General Fuhrman's point relative to balance, I think that is the mantra of all of the agencies. We hear you loud and clear. We are aware of those contentions. We do take those

very seriously because that is the perception out there in some quarters, and in those cases perception becomes reality, and so we have spent quite a bit of time trying to run to ground those particulars and to find those facts.

Quite frankly, we have not found in our investigation the fact that the Endangered Species Act in any way really led to any of the damage that has occurred, the flooding, etc.

And, again, these areas are very important habitat—provide very important habitat for any number of species, both listed under the Endangered Species Act and others.

I think we have a longstanding tradition, in working with all the agencies, to try to find replacement for that habitat, but typically that is something that is worked out during that—usually during a very informal consultation process.

And the mitigation really does not hold up the actual repair work or the mowing, etc.

Mr. RIGGS. Mr. Chairman, if you would allow me one other follow-up question—you would acknowledge though, would you not, sir, that this system—and I think it's a patchwork system of dikes and levees that were really first created by man, and that they were created to basically protect productive agricultural lands—again, these are man-made. This is man-made habitat, if you will, the purpose of which is to protect productive agricultural lands, not necessarily to create habitat for endangered species.

Mr. JACKSON. Let me respond. Much of these areas obviously were, you know, important and vital wildlife habitat previously and, in effect, where those dikes have been constructed was at one time important riparian zones.

What essentially we have done is we have moved some of those natural levees that are found in the flood plains close to the river system because, you know, we are developing or we are farming in some of those flood plain areas now.

And the fact in California, for example, where we have lost approximately 95 percent of our wetlands, these riparian areas and those associated wetlands with that have become just extremely vital to Fish and Wildlife, so we're always looking for opportunities so that we don't have a net loss in habitat.

Mr. RIGGS. Thank you, Mr. Jackson.

Thank you, Mr. Chairman.

Mr. HORN. I thank the gentleman.

Did the gentleman for Oregon have any questions?

[No response.]

Mr. HORN. Well, we thank all of you on the panel, Generals Fuhrman and Capka, Mr. Lee, Mr. Jackson, Mr. White, Mr. Suiter. Thank you very much for coming and sharing this information.

General FUHRMAN. Mr. Chairman, if I just might have one final word, from the Members of Congress, at least, I appreciate the praise for FEMA and for the Corps and for all of us Federal partners up here in our response, but I would just like to say, from my perspective, having visited many of these and been associated with flood fights for a long time, the real heroes of these operations are the State, local, and private individuals out there that operate these flood prevention facilities on a day-to-day basis, and some of those will be testifying before you here shortly.

We're glad to be able to do our piece, but those folks are the real heroes out there.

Mr. HORN. Well, we certainly agree with those comments, General. We've seen that time and again throughout the country, and we thank you for mentioning that.

So this panel will be replaced now by panels four and five: Mr. Douglas Wheeler, the secretary of the California Resources Agency, will be the first witness, and we have three guests that represent the aspects of local districts and hospitals and engineering firms within the flood area.

If Mr. Hastey, Mr. Smith, and Mr. Barry will come up along with Mr. Mosher, Mr. Pulver, Mr. Hoppin, and Mr. Mount, we will proceed with the next panel when we've responded to this vote.

There is a vote on the floor. We have 15 minutes to get there—now about 12 minutes. We will be back after that. Sorry to delay you, but these things happen between the Floor and committee work.

Thank you.

We're in recess for about 20 minutes.

[Recess.]

Mr. HORN. The committee will come to order.

Our first witness today on the panel of Californians that are close to the subject will be Mr. Brent Hastey from Marysville, California, a member of the Yuba County Board of Supervisors.

We know, Mr. Hastey, that the flood area certainly hit your county in great degree, and we look forward to hearing from you.

As you all have heard, we put your statement in the record just after the introduction, and if you could summarize it in 5 minutes we'd be most grateful.

TESTIMONY OF BRENT HASTEY, YUBA COUNTY BOARD OF SUPERVISORS, MARYSVILLE, CA; MIKE SMITH, PRESIDENT AND GENERAL MANAGER, MHM ENGINEERING, MARYSVILLE, CA; R. MICHAEL BARRY, ADMINISTRATOR, PLUMAS DISTRICT HOSPITAL, QUINCY, CA; WILLIAM M. MOSHER, CHAIRMAN, SLOUGHHOUSE RESOURCES CONSERVATION DISTRICT, ELKGROVE, CA; JOHN PULVER, WATER RESOURCES COORDINATOR, SAN JOAQUIN COUNTY, CALIFORNIA; CHARLIE HOPPIN, CHAIRMAN AND DIRECTOR, CALIFORNIA-ARIZONA WATERMELON GROWERS ASSOCIATION, YUBA CITY, CA; AND JEFFREY F. MOUNT, PROFESSOR AND CHAIR, DEPARTMENT OF GEOLOGY, UNIVERSITY OF CALIFORNIA, DAVIS, CA

Mr. HASTEY. Thank you, Mr. Chairman. And thank you for this opportunity to address this committee regarding the New Year's flooding experience in Yuba County.

As the third district supervisor for Yuba County, past president of Reclamation District 784, and member of Governor Wilson's Flood Emergency Action Team, I have been actively involved in identifying flood issues and concerns and providing recommendations for relief and assistance for our local community.

The 1997 New Year's floods have had a significant impact on me, personally, because my family has seen this flood disaster firsthand. We lost our home and our orchards as a result of this disaster.

I have been working with my friends and neighbors as we rebuild our lives for the second time since 1986. We are very angry. We have waited patiently since 1986, and we do not understand why our failing levee system has not been fixed. Our community has had over 800 homes damaged or destroyed, and damage estimates are in excess of \$36 million. The five largest employers in Yuba County have gone under water.

Property owners and businesses are struggling financially to stay in Yuba County. The county is frustrated in its efforts to address immediate repair and restoration needs and to prevent additional flood damage to all levees.

The question to date has been: who has the responsibility for this? And what does the Federal Government consider timely response?

Now the question is asked: how many people have to die before the levees are fixed? One death in 1987, six or three in 1997. We pray that that is enough.

Federal funding needs to be appropriated immediately for adequate repair and restoration of our levees.

I can't begin to describe the feeling of frustration in our emergency operations center following the levee break as we waited for the Corps of Engineers to arrive. We were at the mercy of the flood waters.

At 8:10 p.m. on January 2, the Federal river levee failed. At 4:00 a.m. the following morning the Corps was on the scene, 8 hours after the levee failure. On a good day I can drive to their Sacramento headquarters from my house in 40 minutes. An 8-hour response is too long when my friends and neighbors are running for their lives.

Once on the scene, a contract negotiator for the Corps began negotiating contracts. At 6:00 a.m., representatives from Reclamation District 784 requested the Corps consider measures to fight the flood, such as closing holes in the railroad tracks and the possibility of breaching the Bear River, as it was obvious the teacup we live in would fill up and spill over.

He informed us that his only responsibility was to negotiate this contract and he would do nothing else. He did not tell them whom to call or whom to see in the Corps with their concerns.

At 5:00 p.m. on January 3rd the decision was made to breach the river levee to allow water out. Twenty hours for this decision was too long. The Bear River had over-topped and the system failed.

Because the Corps and the Department of Water Resources took too long to decide what to do, we now have miles of levee to repair instead of two well-defined breaks.

On January 22, once again the people of Yuba County were flooded, this time by the breaches on the Bear River levee. Between the 2nd and the 22nd there were over 18 days of good weather. Still, the breaches on the Bear levee were not fixed.

Decisions must be made to protect people, not just when it is convenient for the bureaucrats. The Corps and DWR should be required to place liaison officers in each emergency operating center during a flood event so communication can take place.

The State of California has promised financial assistance to ensure county governments have the ability to address expenses and

disaster-related losses. We hope the Federal Government will continue to provide ongoing assistance. Private employers that have been damaged during the flood should be, likewise, assisted.

We must give consideration to areas suffering repeat disasters. We must establish a partnership between all levels of government in disaster response, recovery, and preparedness. Counties are in desperate need of financial assistance to address future pre-disaster mitigation programs.

It is our recommendation to increase Federal funding levels for long-term repair, stabilization, and maintenance for publicly-and privately-maintained levees, expedite repairs and maintenance for publicly-and privately-maintained levees, expedite repairs and maintenance on priority projects, and initiate an adequately-funded comprehensive assessment program to determine the integrity of levees throughout the Central Valley.

U.S. Department of Agriculture has previously provided replacement nursery stocks to farmers. USDA should re-initiate this program to assist the replacement of trees damaged by flood waters. USDA should also consider utilizing funds available through its various soil conservation programs to assist farmers recover and protect topsoil.

New water projects must be developed for the purpose of flood control. Projects on the Yuba River, Bear River, Cottonwood Creek, and Sites Reservoir would provide greater flood control flexibility for the State water project and the Central Valley project.

I would only hope that, as we are able to be better prepared for disasters such as fires and earthquakes, we never experience another flood in Yuba County. We need to begin to work together side by side proactively. We must meet the needs of the people we serve. They deserve nothing less.

Thank you, Mr. Chairman, for this time. I'm available for questions.

Mr. HORN. We thank you for that very thorough and detailed statement. We will ask staff to send this testimony to the Corps of Engineers and have them give a reply—which I'd like too, without objection, insert at this point in the record—in relation to how you saw the events versus what their decision-making was, given the times you've stated there, because you certainly have a right to a concern on that situation.

[The information received follows:]

RESPONSES TO BRENT HASTEY'S TESTIMONY

TIMELINESS OF CORPS RESPONSE

Yuba County sustained the largest levee break in California. The 1500-foot break along the Feather River occurred at approximately 8:10 p.m. on January 2. When the call from Yuba County came into the state flood center, which was also staffed by Corps emergency operations and State of California Department of Water Resources (DWR) personnel at the time, the information given was that a break in the Feather River had flooded a very large area and that access was difficult. The area ultimately flooded was approximately 20 square miles, with depths reaching 15 feet in some places. State Highways 70, 99, and all other access roads were cut off completely from the south end of the levee break as were the access roads for over six miles to the north of the levee break.

After failing to obtain information on accessing the break site by land, DWR and the Corps decided that driving to the site through flood waters in total darkness would place them in danger. Air transport was requested from the National Guard out of Mather Field in Sacramento. The National Guard, at that time, stated that a helicopter could be provided at 10:00 p.m. for the DWR/Corps staff. However, the Guard was involved with rescue operations in that area and was unable to provide the helicopter until 3:30 a.m. In the time between 8:10 p.m. and 3:30 a.m., the Corps and DWR staff reviewed maps of the area and began to analyze the available information to develop a preliminary scope of work. This information was used to develop several strategies to close the breached levee.

DWR and the Corps personnel arrived at the break at 4:00 a.m., quickly assessed the situation, and designed a scope of work which was awarded that day. Normal response time is within minutes or a couple of hours depending on the specific situation. In this one instance, access to the location could not be identified by local officials, during the first few dark hours of the flood event.

Between January 2 and January 22, a stretch of good weather followed. Repairs to the break started immediately. It took crews working 24-hours a day, seven days a week, over six weeks to complete, at a cost of over 11 million dollars.

BREACHING THE FEATHER RIVER LEVEE AND REPAIR OF THE BEAR RIVER LEVEE

The Feather River break had flooded over 800 homes in a 20 square mile area. This flooded area had no outlet through which the flood water could drain. As a result, the water ponded up against other levees. On January 3, state and local representatives made the decision to breach a levee downstream and attempt to drain this 20 square mile area. The Corps of Engineers is not allowed to instruct local officials to intentionally breach levees. This must be a local decision made by the owners of the levee. By the time the local and state officials had made the relief cuts, the water had taken its own natural course over another downstream levee and was draining into the adjoining Bear River.

The only drain for this entire 20 square mile area was the two natural breaks in the Bear River. At the request of DWR and the local reclamation district, the Corps awarded a contract but postponed filling the breaks as the water was continuing to drain from the town into the Bear River. Had we gone ahead and filled in those breaks immediately, there would still be several feet of water in that town today. Mike Smith, the engineer for Reclamation District 784, publicly thanked the Corps for sequencing the closure of the Bear River for this very reason.

DECISION NOT TO PUMP FLOOD WATERS

Another means of removing ponded water would have been pumping it out at a cost of \$50,000 per day. That pumping cost would have been paid by the reclamation district or the state. Thus, sequencing the closure saved the local county or the state hundreds of thousands of dollars and removed the water much faster than pumping alone. After the water level receded below the drainage point, the two 470-foot breaks were filled in on February 14, 1997.

PARTNERSHIPS DURING THE FLOODS

The Corps of Engineers was one player in the response to the flooding and its aftermath. Among the other players were the Yuba county Emergency Operations Center, DWR, the National Guard, and the Federal Emergency Management Agency (FEMA). When the emergency was recognized, the Yuba County Emergency Operations Center immediately called the DWR for assistance. When DWR determined that their capacity to provide assistance was surpassed, they asked the Corps for emergency assistance under Public Law 84-99, as per protocol first established in a Memorandum of

Understanding between the Corps and the State in 1956. To speed the process of such requests for assistance, the Corps had placed personnel in the state flood center where the requests originate. As outlined above, the Corps swiftly moved into action, although Corps and DWR personnel could not gain access to the Feather River levee break site for many hours. FEMA immediately responded to the California floods by deploying experienced disaster response staff to the state and by authorizing the immediate emergency assistance required to repair utilities, restore residential access to affected areas, and ensure that essential facilities were operational.

PLANNING FOR FUTURE FLOOD EVENTS

The Corps is currently conducting proactive planning efforts under its Flood Plain Management Services program, and has proposed to the Congress a new Sacramento-San Joaquin Basin Comprehensive Study. The study involves a comprehensive overview of the flood risk from a system-wide perspective. A system-wide mathematical predictive hydrologic/hydraulic water management model will be constructed. If this kind of model had been in place, the extent of flooding could have been predicted. The goal of the Study is to identify structural, nonstructural and integral environmental measures options. Plans generated from the Study could provide increased flood damage reduction at a higher degree of predictability with respect to system performance during a major flood event. Partners with the Corps will include the state of California, resource agencies, interested parties and the general public. The Corps' Interagency Levee Task Force for the area will play an integral part on the Study.

CORPS' FOLLOW UP TO THE JANUARY FLOODS IN YUBA COUNTY

On March 24, 1997, the Sacramento District held a lengthy meeting with the Yuba county supervisor and several of his staff to discuss our emergency work plan and what further flood control assistance we can provide his county. The meeting went very well. The Corps will continue to provide additional assistance to Yuba County over the coming months and years. As demonstrated by our fast response on over 43 other flood fight emergencies during the New Year's storm, the goal of the Army Corps is to respond immediately to requests for assistance and to participate in the path towards recovery.

Mr. HORN. Our next witness is Mr. Mike Smith, the president and general manager of MHM Engineering in Marysville, California.

Mr. Smith?

Mr. SMITH. Mr. Chairman, members of the subcommittee, my name is Mike Smith. I'm a registered civil engineer and I provide engineering services to numerous levee districts, including Reclamation District 784 in Yuba County where the Feather River levee broke on January 2, 1997.

The levee system in northern California was built over the last century by basically dredging the silts and sands from the floodway and constructing berms on each side of the river channel. The soils were not selected because of their engineering characteristics as good construction materials for levees, but because they were readily available. The resulting sandy, highly-porous levees seep and leak water. The ground on which the levees sit is also subject to seepage.

When the rivers are high, the levees and the ground they sit on becomes saturated, resulting in a significant reduction in the structural integrity of the levee.

Seepage moving through levees can also cause internal erosion of the levee. These factors, in combination or separately, can lead to the catastrophic failure of a levee. It is highly probable that these factors played a major role in the Feather River levee failure on January 2nd.

One might imagine that levee failure is caused by floodwaters overtopping a levee. While this can happen and frequently does in many parts of the Nation, it is important to note that our levees typically fail because of a lack of structural stability, not overtopping.

Our levee system was constructed by the Federal Government, is generally owned by the State of California. Numerous local districts such as RD 784 provide routine maintenance under the authority of the State of California.

Without substantial improvements to the levees, we can expect to have more failures. Yuba County has experienced two floods from levee failures in the last 11 years. Because of the flood of 1986, the Corps of Engineers was directed to undertake the repair of the entire levee system in the Sacramento flood control project. The section of levee on the Feather River that failed on January 2, 1997, was scheduled for reconstruction in 1998, 12 years after the 1986 flood and one year too late to prevent the 1997 flood.

Prior to the January 1997 flood, there were a number of ongoing efforts to restore and improve the reliability of the levee system which protects Yuba and Sutter Counties. These efforts need the continued support of the Federal Government.

It is recommended that the current program for reconstruction of levees as identified in the Corps' 1990 Sacramento River flood control system evaluation, Marysville Yuba City area report be completed.

It is recommended that the 1991 Corps of Engineers' feasibility study to identify and support higher levels of flood protection for Yuba County be completed.

It is also recommended that the Corps review the design concepts of the proposed levee reconstruction project in light of what can be learned from the January flood to ensure that the goal of adequate structural stability has been achieved.

The proper maintenance of levees and flood control channels has become increasingly difficult due to State and Federal environmental laws and regulations. The floodways have become, in many places, so overgrown with trees, brush, and undergrowth, as well as the buildup of silts and gravel deposits, that the channel capacity is significantly reduced and we can no longer expect the floodway to handle its intended design flow.

In Reclamation District 784, before starting the Corps of Engineers' levee reconstruction project that was to provide increased levee strength to the section of levee that failed in January, an 80-acre site had to be created at a cost of \$1.9 million to mitigate for 43 elderberry bushes found on the levee system. This is an example of how the implementation of the environmental regulation both delays and increases the cost of a vitally-needed levee repair project.

It is recommended that Congress and Federal agencies review and, where appropriate, amend Federal regulations, including the Endangered Species Act, that prohibit or impede the repair and maintenance of levees and flood control channels.

Levees and flood control channels are essential infrastructure and need to be primarily managed and maintained as such. Other uses, such as wildlife habitat, can be accommodated but should have a secondary priority.

In addition, the Corps of Engineers assumed the responsibility of the California Debris Commission, which included channel maintenance of the Yuba River through dredging and accumulated gravels. Funding needs to be provided and environmental regulations need to be modified that allow the regular maintenance of the Yuba River, including extraction of gravels.

I would like to express my appreciation for the opportunity of testifying before the subcommittee, and I'm available now or in the future to answer any questions.

Thank you.

Mr. HORN. Well, we thank you, Mr. Smith. That was very helpful testimony.

Our next witness is Mr. R. Michael Barry, the administrator of the Plumas District Hospital in Quincy, California.

Mr. BARRY. Good afternoon, Mr. Chairman and members of the subcommittee. I'm here to give testimony on the problems and delays we've experienced with FEMA.

Our disaster occurred January 1993 and is still not resolved. It started snowing and didn't stop until we had 6 feet of very heavy, wet snow. When the snow on our roof reached 2½ feet, we started removing it so the roof would not collapse. We hired temporary employees and used 24 prisoners, for a total of 30 people on our roof removing snow.

After the snow stopped, the heavy rains came.

Because we started removing snow at a very early stage, our metal corrugated roof structure and metal roof supports were not damaged; just the insulation and membrane on top of the roof.

We requested assistance from FEMA in March 1993. Our insurance company covered patching the leaks, but not the damage done by the snow removal equipment.

Once the roof membrane had been punctured by shovels and snow blowers put on the roof, the water got under the membrane and our roof never dried out. At night the water under the roof membrane would freeze and cause the membrane to blister up and open the patches and expand the breaks in the membrane.

Rain and hot weather during the summer had a similar effect.

The FEMA survey team came in May 1993. They were very helpful and they told us it was their opinion that replacing our insulation and roof membrane and so on was definitely eligible and we should have no problems getting the money from FEMA.

The next year, May 1994, we got a letter from FEMA, which is Exhibit 1, saying, "Unfortunately, we are prevented from funding repairs to the hospital roof because the damage did not occur during the instant period."

A temporary employee was hired by our insurance company because they were so overwhelmed with damage claims, and he made a mistake on the damage report, and he put a date of December 31, 1992, as the date the damage occurred. The FEMA instant period started January 5th.

We appealed the decision because our roof was not damaged until we started removing snow on January 9th, which was 4 days after the instant period started.

Then we received another letter from FEMA in June 1995, which is Exhibit 2, which basically says we're not telling the truth, that FEMA believed the temporary insurance company's employee, and that we had generated the new information in our last letter because of being declared ineligible.

The letter gave an additional new reason by Regional Director Shirley Mattingly that our roof damage "cannot be attributed to the disaster event, but instead results from cumulative effects of time and wear and tear."

She must have assumed that our roof was an old one. She didn't know that the roof had been completely replaced only nine years before and should have lasted at least 15 years, because our previous roof lasted for 25.

In November 1995 the Governor's Office of Emergency Services sent a second appeal to Regional Director Mattingly, which is Exhibit 3. The letter said, "It is extremely improbable that our documents would be generated as charged by FEMA specifically for the purpose of responding to FEMA's denial."

The letter also said, "Contrary to FEMA's assertion, this roof has been exceptionally well maintained and the underlayment and overlayment would not need replacement had it not been for the damages caused by the storm, as well as the penetrations made by shovels used by many people over several weeks to remove the snow, and it was imperative that the snow be removed to prevent collapse of the roof. Delay was unthinkable."

November 1996 the Governor's Office of Emergency Services sent our third appeal to Shirley, and it's Exhibit 4.

It is our experience that the people at FEMA responsible for handling our claim spent their time and energy looking for any reason

to deny our claim rather than evaluating the facts, reviewing the documentation provided to them by their own people who visited the people, plus the information provided to them by the Governor's Office of Emergency Services.

A process that takes over 4 years, hours of time, pounds of paperwork, and is still not resolved needs to be fixed. Your assistance will be greatly appreciated.

Thanks for your consideration.

Mr. HORN. We thank you for laying out that record. Your letter, as well as Mr. Smith and Mr. Hasteys', and all letters that have complainants such as that with records and times and dates and people, will be sent to FEMA to get a response from them to insert in this hearing record. I don't know if it will be too much help four years after the fact, but FEMA has, I know, done a good job of generally moving much faster than they did ten years ago or five or six years ago.

Certainly, I would think that they would want to deal with the problems in the system that are a problem.

Now, perhaps the people that have already rejected it will be asked to do the letter for the administrator coming back here because they're the ones that know something about the problem, and usually human beings, no matter where they are, don't admit much self blame, so we might be going through the same circle again.

But we will try to follow up on it and staff counsel will certainly do that.

Our next witness is Mr. William M. Mosher, the chairman of the Sloughhouse Resources Conservation District in Elk Grove, California.

Mr. MOSHER. Mr. Chairman, I, too, would like to thank you for the opportunity to speak here today. I'd like to state for the record that I receive no Government dollars in the forms of grants, contracts, or subsidies.

What I'd pretty much like to address is kind of what happened along the Cosumnes River because we're a pretty unique river system.

I know at the time that the weather forecasters had been reporting these three storms coming in out of the Hawaii area. It was going to be warm wain. They were calling it the "Pineapple Express."

I know that the people in the town of Wilton really didn't know what was coming. It was the agricultural community who watches the river and lives along the river that pretty much knew that we were in for trouble.

On New Year's Day we were all out watching the river. We were watching it rise. We saw it coming up faster than we'd ever seen it before. We evacuated horses and other livestock. We got our sandbags and we were ready to protect our levees.

Starting the next morning, on January 2nd it was farmers and ranchers and their friends and neighbors who saved Jackson Highway when the water started going over it with sandbags. Jackson Highway is the State highway that goes through the area.

Up and down the river, again, farmers and ranchers and their neighbors were out doing everything they could to protect their levee system.

In 1986, which was the highest recorded water that we ever had, the Cosumnes levee still had three or four feet to the top of the levee system, and in this flood the water went right over the top.

The highest recorded water in 1986 was supposedly 40,000 cubic feet per second. In this flood it was over 90,000 cubic feet per second.

So we were dealing with a tremendous amount of water. To compound the problem, the Cosumnes river is what some people call "free and natural" and other people call "dangerous and uncontrolled." There are no dams. There is no flood control. There are no overflows. The water comes straight down and heads our way, and it heads into a channel that has not been maintained for my lifetime.

When my grandfather was starting out as a young boy on land along the river, as a farmer he would go out and he could take care of the problems that occurred in the channel. We owned to the center of the river. There was a tree that had fallen over and was starting a wash into the banks and into the levee. He removed the tree. He removed the sand and gravel.

That has not happened. The sand and gravel has built up in the bed of the river three and four deep. In some places there are sandbars. Floodwater coming down is coming into this clogged channel and it really had no choice but to be pushed up and over the banks and over the levees.

I know that in one case my neighbor's son almost lost his life. He was on one of those little four-wheel-drive gators trying to get sandbags up to the top of the levee, and if that hadn't run out of gas the young man would have been on top of the levee when it gave way and he would have lost his life trying to save it.

So there was a lot of local effort on levees that are well-maintained. Most farmers and ranchers take care of the levees to the best of their ability.

Our hands are hampered in a lot of ways. One of the things that we've always done is burned the levees every year to make sure that we could remove any burrowing rodents, and what has happened now is they're trying to eliminate all agricultural burning, so I can't complete that function.

Our hands are tied on really making any repairs to the channel, itself. I know that the reclamation district that is in the area, Reclamation District 800, their employee was ordered out of the river. Should he ever return with his bulldozer trying to free the blockage he would be put in jail.

And so we have done what we could on a local level. We turned to the USDA for their emergency watershed program. We were turned down because they've claimed the watershed was too large for that particular program. They turned us over to the Army Corps of Engineers.

The Army Corps of Engineers turned us down for assistance because they said that the river levees are privately owned and were not built to their standards to begin with.

We went to the county and the county informed us that they were broke because the state took away all their money.

So we were turned down by pretty much everybody we talked to, including a couple requests to FEMA.

As of this week we have re-submitted an application to FEMA for help one more time. One of the reasons that they stated we were turned down is that there was ineligible applicant. This time the Sloughhouse Resources Conservation District has agreed to be the eligible applicant, and we hope, with help here today, that we can get some funds and get these levees fixed, and hopefully take care of the problem in the real short term while we're in the flood stage and then come up with some long-range solutions which include an Army Corps study to come up with a long-range plan that's going to take care of and eliminate the problem of flood on the Cosumnes.

Thank you.

Mr. HORN. Well, we thank you, Mr. Mosher. That's very helpful. Again, that will be referred to the appropriate agencies that have been mentioned for commentary inserted in the record at the same point as your exhibits.

Our next witness is Mr. John Pulver from San Joaquin County, where he's the water resources coordinator.

Welcome, Mr. Pulver.

Mr. PULVER. Thank you very much.

My responsibilities in San Joaquin County include the flood plain management and channel maintenance. San Joaquin County is located in the central part of California at the confluence of the Sacramento and San Joaquin Rivers. In addition, we have channels that come off the western slopes of the Sierras that drain through our county and eventually flow out through the delta into the ocean.

Mr. HORN. I might say I thank you for mentioning that for the record. As a Californian, I happen to have been in every one of your cities over time, and you are in the most beautiful part of the state.

Mr. PULVER. I certainly would agree with that.

In San Joaquin County we have 54 reclamation districts that have the primary responsibility for the levee maintenance and flood plain activities. There are, in addition, 17 irrigation districts and 7 cities.

In a flood fight effort, the reclamation districts are limited by the amount of funds they have available to them, as well as the county is limited by the lack of funds, as well.

We do have the support of the State and Federal Government to come in and help us deal with flood issues. They have the resources but do not have the local presence, so it creates a very difficult management situation and a credit to our Office of Emergency Services to get the personnel and materials to the right places to limit the flood damage that does occur.

Our losses in the January flooding were approximately \$100 million. Of that loss, probably \$60 million was private damage, \$22 million was business, which includes agricultural losses, and then \$15 million was public facilities that were lost.

We're working with the Federal Emergency Management Agency, the Federal Highway Administration, and the Small Business Administration to obtain support or help in recovery from that flood effort.

In review of the flood emergency, two items stand out as major concerns to San Joaquin County. They are the need for a higher structural design standard for levees which protect urban areas, and the need for greater degree of certainty that the levees will function as designed.

Urban areas behind levees should receive a higher level of protection due to the substantial benefits that can be accrued from those levees.

The failure of the levees in San Joaquin County has historically not been due to overtopping but has been due to structural failure of those levees.

To existing levees, they can be retrofit with an impervious core or otherwise strengthened to provide a greater degree of protection, and thereby eliminate or reduce the substantial damages that might occur.

The maintenance of the levees is made extremely difficult through the regulations that must be met by the U.S. Fish and Wildlife Service and the California Department of Fish and Game. These regulations lead to the growth material that impacts the carrying capacity of the levees and the intrusion of burrowing animals into the levee structure.

Both of these situations cause weak points that lead to increased seepage to the levees and their danger of failure.

If the opportunity for uninhibited maintenance is allowed to be performed, flood losses could be reduced by ensuring that the levees would function as designed in emergency.

It is possible that mitigation for environmental impacts caused by the existence of the levees could be partially mitigated in some other location while not jeopardizing the flood-carrying capacity of the levees.

Currently, in order to comply with the restrictions imposed, we are only allowed to perform in-channel maintenance between July 1 and October 15. The maintenance of over 200 miles of channels is extremely difficult to be performed in that short period of time.

The local responsibility as part of the participation in the Federal project is to provide that maintenance. These maintenance requirements are overseen by the State of California.

We often feel as though we are in the middle of two contradicting State requirements. In addition, if the weeds are not cut along the channels they cause a potential fire threat to the surrounding area. The fire marshall requires this cutting. Our challenge is to perform this function within the environmental requirements.

It has been an honor and pleasure for me to be here and to provide this information. I am available for any questions now and in the future that you might have regarding our flood-related activities in San Joaquin County.

Mr. HORN. I thank you, Mr. Pulver. That was excellent testimony. Again, you just stated a problem that relates to the State of California. What are you doing to bring those parties together, before we go to the next witness? Is the State well aware of that contradiction and conflict?

Mr. PULVER. They are aware of the conflict. The bottom-line requirement is put on the county or the actual people charged with

the maintenance to resolve the issue, and so we are attempting to do that.

Mr. HORN. Okay. We'll get into that in the general questioning, but I don't know if we have much authority to really ask the State of California what they're going to do about it. We can ask Federal agencies that. But we'll try and see just what they're doing, based on your testimony.

Our second-to-the-last witness or third-to-the-last actually will be Mr. Charles Hoppin of Yuba City, California, which was greatly affected by that flood.

Mr. HOPPIN. Mr. Chairman and your sole remaining subcommittee member, I appreciate the opportunity to speak before you today. I suppose my only regret is the rest of your subcommittee has not seen fit to wait and listen for those of us who—

Mr. HORN. Let me just interrupt that. I'm sorry it always looks that way to people, and in my private life before being elected in 1992 I testified as expert witness or something for numerous panels in the Senate and the House, and I know it's frustrating, but the problem is that each of us had probably four things we were supposed to be doing each hour, and I decided I was going to skip about 16 things, since I came in, I think, around 9:30 this morning, just to sit through this because of the importance it is to California.

The problem is not that people don't want to be here. They've got demands of party caucuses where the leadership wants to meet with them, and we've got 100 demands every day, and we just can't make it all the time.

But, let's face it, with a large committee like this, I used to be exactly like our colleague from Oregon here as a freshman. I'd be here, one other freshman would be here, and the ranking democrat and the chairman—or in those days the chairman and the ranking republican.

But all I can say is they aren't sitting snoozin' somewhere. They're working. But we wish they'd decide this was one of the things they had to do. But often you have two or three equals. They've got constituents pouring in every day also.

So thank you. They will read the transcript. We furnish the transcript to everybody, and we'll certainly let them know. And those that are here usually have the most say in mark-up anyhow.

Mr. HOPPIN. That's great. I didn't mean to insinuate that they didn't have a busy schedule, sir.

I'm Charlie Hoppin, as you mentioned. I farm over 2,000 acres of vegetable and grain in the Meridian area in Sutter County, California. My operation employs up to 100 people annually and I've farmed in Sutter County for the past 30 years. I'm also proud that my family has farmed in the Sacramento Valley since 1849.

The January 2nd flood, which covered our area of approximately 25,000 acres of prime farm land, was surrounded by 100-year levees. I think it's important, after hearing previous testimony, to make this committee aware that this area is not a designated flood plain and, in fact, has not been flooded since 1940.

Up to 25 percent of our flooded area still remains under water, with approximately 400 acres of my own land in this area also under water. The balance of my land, which I have reclaimed much of through my own efforts of pumping and excavation, still remains

unfarmable because of saturation, siltation, and damage to our infrastructure.

Although my livelihood has been tremendously impacted, as well as the livelihood of all of my employees, I would be very short-sighted to stand before you today and feel slighted or singled out by any natural disaster.

To understand the potential of our January floods was put into perspective by Mr. David Kennedy, Department of Water Resources director for the State of California, who stated that if the December storms had continued for another 12 hours, quite possibly thousands of lives would have been lost in the State of California and the majority of the Sacramento Valley would have, in fact, been underwater. It only cites that even with today's technology, nature still has an awesome power of destruction at her disposal.

I'm fortunate that my vocation allows me to touch and work hand-in-hand with nature on a daily basis. It also allows me to be what I would consider a working conservationist, and something I'm very proud of, which is to be a steward of the soil.

However, I feel the 1997 flood could have undoubtedly been prevented, and I don't think that that prevention would have required Star Wars technology.

We need to have a workable balance between the endangered species problems, maintenance, and repair of channels of our levees.

The Meridian flood flooded at night and killed the majority of wildlife and plants in a 25-square-mile area. This basically has destroyed the balance of nature in our area—something that we've all worked very hard to maintain.

When procedures are delayed for years by redundant studies, we've lost the common sense to build our levee systems in the first place. We have to be reminded that the majority of our levees were built in the early portion of this century, when Fresno scrapers and mules preceded Caterpillar tractors and John Deeres, and hand-held transit preceded laser-guided systems. However, more importantly, it was a time, I believe, that common sense preceded bureaucracy.

I think it is imperative that we value the habitat that has been created in a secondary manner by the waterways and levees, that Congress should not allow created habitat to compromise the intent and integrity of our manmade wonder. It was designed to conserve and deliver water, while protecting the entire population of northern California from flood and havoc.

A good example is the Sutter Wildlife Refuge in the Sutter bypass. It allows mid-channel growth of trees and brush. This restriction of water undoubtedly contributed to the flood of 1997 in my area.

I feel it is important that Federal agencies follow the same common-sense cultural practices in flood plains, be it refuges or mitigation areas, that private landowner neighbors have followed for decades.

I believe it is important we proceed with vigor to repair the known problem areas and to prevent so-called "100-year floods" from recurring on a regular basis.

These 100-year floods threaten the backbone of California's economy and much of its population.

Assuming that Congress and the appropriate Federal agencies recognize the need for immediate repairs, while concurring very wholeheartedly with Congressmen Fazio and Herger, I would conclude that we need to come up with some kind of a Cal-Fed advisory panel to reassess the levee systems in our State. I feel this group should also include business interests in California, as well as a representative from a responsible environmental group such as the Environmental Defense Fund.

It has been my experience that when concerned parties in any issue are allowed to work together as equals, seemingly insurmountable problems can be readily resolved.

I would urge Congress to work with the State of California and its citizens to restore the most magnificent water system in the world.

Thank you very much. I hope I finished on a lighter note than I started, sir.

Mr. HORN. We appreciate your testimony. Again, where we can we'll send it to the appropriate agencies and that will be added to the record where your letter already is.

Our last witness before we get to Secretary Wheeler is Mr. Jeffrey Mount, professor of geology, University of California, Davis. Welcome.

Mr. MOUNT. Thank you. I'm delighted to be here.

I want to introduce myself. I'm very different than the other members of this panel. I am a professor of geology at UC Davis. I have recently published a book called "California Rivers and Streams," and, like any academic, it's always, you know, "Read my book." So I want to give this book to the committee because it does give a more lengthy description of what I'm going to talk about today.

I also want to mention that I'm a member of the Muir Institute for the Environment, which is a UC Davis program, and, as of yesterday, appointed to the system-wide UC task force on flooding. As I say, just yesterday I found that out.

The points I want to get to are two-fold, especially after listening to the comments today.

First, I want to talk a little bit about the lessons learned. I think we are not focusing on the lessons that we have learned from this flood.

Second, what I'd like to do is just give sort of a "Reader's Digest" version of some of the solutions that we might be considering.

The first lesson that we have to learn is we can't prevent flooding. We have to get over that. There is some mind set that says that somehow we can prevent flooding. Our systems of dams—we've spent more than 100 years trying to prevent flooding in California, and we cannot. We have to move beyond that.

Secondly, one of the issues that was not discussed today is multi-purpose dams. Multi-purpose dams in California fulfill one purpose, and that's water supply. They do not do a very good job of reducing floods.

Thirdly, levees fail. Figuratively and literally, levees fail. It is appropriate, when we think about this as to why levees fail. There

are, of course, the engineering constraints that cause levees to fail during high flows, but there are other aspects.

We ask levees to do too much. We place them against rivers. We basically divorce rivers from their flood plains and attempt to restrict these flows to a narrow channel.

By restricting these flows to a narrow channel, you essentially elevate the flood elevation. You elevate the *stage*. And so it is no wonder that you have catastrophic flooding associated with levees.

But most of all the point I want to get across about a lesson learned is something we should be discussing. We're locked into what I like to call a "cycle of serial engineering." What I mean by that is that we've colonized the flood plain in California, depending on basically agricultural levees, and these urban centers have sprung up throughout central California directly in harm's way. But we've depended on those levees, and then later a system of multi-purpose dams.

Each time there is a flood, we have what we're going through basically right now, and usually the call, the traditional call, is for more levees and more dams.

The point is: they will not prevent flooding.

And the downside of this is that they will stimulate further growth in harm's way. There are more than 20 new communities being proposed in the Central Valley, alone. It's the fastest-growing region in our State.

Worse yet, we know that some time early in the next century the Central Valley is likely to become more urban than rural.

But most of this is taking place in harm's way, and I think that's an important lesson we have to learn from this.

Some solutions? I wouldn't be an academic if I didn't offer my suggestions for solutions.

First of all, there is no one-size-fits-all approach. That is the old way we used to manage floods. That is, we used to develop large, silver bullet solutions. We will build Shasta Dam and that will prevent flooding. We will build Oroville and that will prevent flooding. We will build Folsom and that will prevent flooding. It won't.

So the old approach won't work. What we need is a more-integrated approach. That approach basically involves breaking out of this cycle of serial engineering, and that is getting away from the traditional approach of just erecting new levees or building larger levees and new dams.

What I suggest is what I like to call the "three harm rule." All of this, of course, is put in my testimony.

First, stay out of harm's way.

Second, get out of harm's way.

Third, do not harm.

Briefly I'll outline what I mean by that.

Stay out of harm's way. We are asking too much of our flood plains. We can look upon our flood plains as a place to store floods, but we're not storing floods there, we're colonizing those flood plains.

Right now, with the current government structure, we are not preventing people from building in harm's way, and what we're essentially doing is trying to make up after they have built in harm's way. So we're putting ourselves at risk, and I will argue—I don't

have the time to argue at length—that the root of our problem is the 100-year flood plain. It's a slavish devotion to a line in the sand which is nothing more than a statistical best guess, and it is probably exacerbating flood damage.

Secondly, get out of harm's way. I think the present tilt that FEMA is making toward mitigation rather than disaster relief is a very positive approach. Flood-proofing, elevation of structures, for example, re-operation of our so-called "multi-purpose dams," that's one way to get out of harm's way.

And then, third, do no harm. Get away from this approach of crowding rivers with levees. Back off the rivers. Work with the rivers rather than against them.

What I mean by that is setback levees, properly placed, can be an effective flood control mechanism. Notice I say "properly placed." It also can preserve agricultural land in the Central Valley because you will not urbanize inside those levees—at least I'd hope you wouldn't urbanize.

Bypass systems—we have one of the world's best bypass systems in the Sacramento system. It didn't prevent flooding, by the way, but it's one of the best. We need one on the San Joaquin system.

Third—and this is the hardest part—step back and take a look at your system. We cannot afford to build a bullet-proof flood control system, so we must make some decisions about where failure should occur in the system, and this is what I call a "circuit breaker" approach. It keeps the house from burning down.

We need to choose some areas that will be flooded in the extreme, rare events, and we've got to stop urbanizing in those places, and the best places, of course, are agricultural land because the cost is less.

So I'm actually a great proponent of preserving agricultural land in the Central Valley as a flood control mechanism.

I am probably out of time, so thank you.

Mr. HORN. Well, please finish. Don't worry about the time.

Mr. MOUNT. Actually, my concluding remark would simply be: stay out of harm's way, get out of harm's way, and do no harm. This is the secret to breaking out of this cycle.

We talk about all kinds of societal cycles, whether it's the cycle of poverty, or whatever. In this case it's a cycle of engineering, this serial engineering. The way to break out is this kind of approach rather than new dams and larger levees.

That's it. Thank you very much.

Mr. HORN. Well, we deeply appreciate that testimony. I'm going to yield to the ranking democrat. He just got elected to Congress and he's already ridden up—how many have we got on your side? Twenty-five members? He's now the ranking democrat. As he says, it's scary.

The gentleman from Oregon.

Mr. BLUMENAUER. Thank you, Mr. Chairman.

Dr. Mount, I very much appreciate your testimony. Mr. Chairman, I hope that we can have some of our colleagues directed towards the full testimony, because it seemed to me that it's something that we don't hear in this setting.

I am struck by the fact that people are coming here talking about the fact that we have had three 100-year floods in the last 11

years. One of our colleagues said we ought to follow through on this wherever it leads, because I think the evidence is pretty compelling that there has been a huge investment in this area and it's not making it better. It's making it worse. And if we're not careful it's just going to compound it.

The up side is that this isn't something that's unique to northern California. I mean, people are wondering why they're having flood of the century every other year in Europe because they've shortened the Rhine 50 miles and they've channelized it.

I'm curious if you can elaborate for a moment on how we would actually have the objective analysis that would lead us to hopefully an independent assessment of what works and what doesn't.

You have alleged that you're instantly suspect because you've published a book and have some opinions on it. Nobody that has come before us is without either strong personal feelings, even if it's for "common sense" solutions. Do you have a sense of how we can get an independent assessment that might help provide the framework for decisionmaking?

Mr. MOUNT. Well, I have been accused of being a hopeless optimist. Maybe that's why I work at the university. But the Galloway Report which was done for the Mississippi floods, that is the report that was never formally adopted.

Now, that actually took a relatively independent view and made a number of strong, important recommendations. We need the same kind of thing for the floods of California. We're going to need them in Ohio, as well. We're going to need them probably in the Mississippi Basin again after the snow begins to melt.

Those kind of independent oversight reports are extremely important. Obviously, the University of California has put together a task force which is going to look at this issue and can make comment on this issue, but I'm optimistic that because we now have national attention on this and we are abandoning the slavish devotion to just building more dams and more levees, that we can get an independent review on this.

But, you know, basically I leave it up to you to make those kinds of calls.

Mr. BLUMENAUER. If I may just—

Mr. HORN. Please.

Mr. BLUMENAUER. The notion that somehow we will solve this problem by an additional engineering solution occurs to me to be similar to taking care of a problem of being overweight by letting your belt out.

Do you have a sense of some areas where engineering has given way to solutions, as you suggested, being in harmony with the river, some—god forbid me using this term—"reasonable" land use planning and control over urbanization, and some controlled flooding as options? Are there areas that you can point to where that has been done?

Mr. MOUNT. I'm ashamed to say this, but Europe is way ahead of us on this, and Europe has been taking a complete second look at the way they handle floods.

All of the things you mentioned—the point I wanted to make—and this relates to Europe—is no one solution is going to work. It actually takes an integrated watershed-wide approach.

I realize that's a buzzword we hear all the time, but it's true. It is, in fact, true.

Local solutions—acting locally and local solutions make the whole problem worse, and worse for everybody involved.

So it is watershed-wide approaches, again. It is allowing a river to recolonize its flood plain. It is stronger land use planning hammers.

See, in the Central Valley, as you're both obviously quite aware, there is a great deal of money involved in this and there is a great deal of pressure to develop on these nice, flat places which are in harm's way, so it is a politically very difficult task to encourage local agencies to have stronger land use planning hammers to keep people out of the flood plain or keep people out of harm's way.

And it gets even worse than that, and it comes back to this 100-year flood plain and the insurance, because so much is being done just to meet that little requirement of 100-year flood plain, as if you imagine somebody who lived outside that 100-year flood plain was safe and the person who lives five feet inside it is not.

It's this black-and-white approach which is actually making the problem much worse than it is making it better.

Mr. BLUMENAUER. Mr. Chairman, thank you.

Dr. Mount, I appreciate your comments.

One of the things that I found very interesting in the testimony is the reference to the half life of our memory on these events, that it's sort of an issue of first impression, and we have to re-learn the lessons over and over again.

I hope that, through the work of this committee, we can do work on the other half of our infrastructure. We're looking at the transportation infrastructure. I'm hoping we can look at the green infrastructure in terms of waterways where we can come up with a balanced, integrated approach that will be similar to ISTEA and will be a model that will save money, improve the quality of life, and be in harmony with nature, rather than trying to build our way out of these problems.

I appreciate your testimony. I found it very useful.

Mr. HORN. I think the gentleman has a very good point, and we look forward to you working with the chairman and myself and others on this committee who are worried about these questions.

May I say, since you mentioned—is it Dr. Mount or—

Mr. MOUNT. Yes.

Mr. HORN. Okay, Dr. Mount, having been a university president I'm sensitive to this, but it wasn't on the list. What you had to say on the urbanization of the San Joaquin Valley, we've already seen it, and the Sacramento Valley. I want to include at this point in the record, without objection, an article from the "Los Angeles Times" that got into this issue and what are the projections for population of the San Joaquin Valley. It is truly astounding.

Of course, what it means is that more people from Los Angeles or wherever who decide to get out of urban, problem-ridden America into the nicer small towns of America and small cities will mean we're losing a tremendous bit of agricultural land in the process.

But when the children decide not to stay on the farm and go off and become lawyers—heaven help us—and doctors and engineers

and political scientists and anthropologists, and even geologists, then the farm is sold.

When you've got people that want to build 500 homes at a sweep, which is what is happening in the Central Valley now, or 100 or 200 around Fresno, it's changing the way of life in the major industry of the State, which is agriculture, believe it or not. Most of our friends in the midwest don't realize that we are the number one agricultural State, and that's due to the land and getting the land in production.

Let me start on a few questions here.

We mentioned the 100-year flood criteria. Dr. Mount, have you had a chance to examine that criteria that the Corps has, because I'd like the professor like you to put it in simple English that all of us can understand on this committee, because we have trouble figuring out how that formula works. Maybe you can give us Geology I.

Mr. MOUNT. First of all, in defense of the Corps, they no longer call it the "100-year flood plain," and that is because of the misconceptions that are associated with the 100-year flood plain.

There is a myth out there that the flood that will occupy an area of the flood plain—the so-called "100-year flood plain"—occurs once every 100 years. Of course, we've all heard we've had 11 100-year floods.

A 100-year flood is nothing more than a statistical best guess, literally a statistical best guess of a size of a flood that would have a certain probability of occurring; that is, it is a 1-in-100 probability that any year, whether it's next year or the year after, 10 years from now, whatever, in any year you will have a flood of that size.

But, unfortunately, what happened is so many people then came up with the idea that that's the 100-year flood, then I'll be able to live in this spot for 100 years without ever experiencing a flood, and nothing could be further from the truth, as we've seen just in the last 11 years in California.

But the important thing to keep in mind is it is a statistical best guess. I over-use that term, but I want you to know that in California, where our database is very small—that is, our total record is no more than 100 years on any of these basins—that is the statistical base that—

Mr. HORN. Except for tree rings, I assume.

Mr. MOUNT. Right. And what the tree rings are telling us is that we go through great cycles in climate in California.

Where are we in that cycle? Because the 100 years that occurred previously may tell us nothing about what's going to happen in the next 100 years, which is what I think we're finding out, by the way, right at the close of this century is that climate goes in cycles in California.

But the 100-year flood doesn't acknowledge that so-called "100-year flood."

Mr. HORN. Well, would you say, just based on the statistical probability, that what we've seen happen on what the witnesses are all living in, would that easily qualify as the 100-year flood?

Mr. MOUNT. I also, too, don't like to call it the 100-year flood. I would call what we saw this winter, especially along the Cosumnes

River, as an extremely rare event, but that doesn't mean it won't occur next winter and that doesn't mean it won't occur within 5 years.

Mr. HORN. No. You can have 10 in a row.

Mr. MOUNT. Right.

Mr. HORN. Or sporadically 20 in a century.

Mr. MOUNT. Exactly.

Mr. HORN. But the scope of what the engineers' prediction model is, is it a certain percent of the flood plain is to be occupied by water, or what?

Mr. MOUNT. Okay. Actually, no. What a great question. I'll tell you, the 100-year flood plain literally is a line which is drawn across the flood plain, which in many cases has nothing to do whatsoever with the flood plain.

Rivers have made flood plains. They've spread out over the millennia and spread their waters across a flood plain and made them flat. That's what makes them flat in the first place.

The 100-year flood plain, that line is just a line which is drawn across the flood plain. It actually doesn't define anything. There's no geomorphic, no geologic reason to draw this line. This line is just based on a guess of how much water is going to come through, the probability of how much water is going to come through the river and how far it would spread across the flood plain.

The problem is that when we erect levees like we have in the Sacramento system we draw that so-called "100-year flood plain" inside the boundary of the levees. I mean, there is no flood plain. There is no such thing as a 100-year flood plain in major portions of the Sacramento Valley.

But you need only look at that map and here came the so-called "100-year flood," and look what happened. It flooded outside the 100-year flood plain, which I think is part of the problem.

Mr. HORN. One of the other factors, FEMA is depending on maps when they impose mandatory flood insurance.

Mr. MOUNT. Right.

Mr. HORN. Which Sacramento has been struggling with and Los Angeles has been struggling with various types of zoning to have a reduced fee when you begin the so-called "AR zone," and if you get in early you can continue to have it, but meanwhile tremendous economic damage is being done to you in the resale of your house and everything else.

Do you think those maps have any real relation to what might happen in looking at it from a statistical probability point of view?

Mr. MOUNT. I would argue that anyone who lies within the mapped 100-year flood plain is at risk. Period. You are at risk of flooding.

The question actually arises about small engineering approaches which attempt to shrink the size of the 100-year flood plain just to get those houses out of it, and that in the long run is risky.

Again, that's one of the lessons that was learned in this.

Mr. HORN. Well, in the Los Angeles River, where we all thought we were doing good 30 or 40 years ago, our predecessors, we have built a wonderful high-velocity tunnel to the sea where they can dump everything in the Long Beach harbor, which has to be cleaned regularly because of things coming 20 and 30 and 50 miles

upstream. And obviously in that case, where the flood plain lines are now drawn, you have a half a million people that would have to give up their homes. And there are some that want that. Let them put up the money and pay a fair market value. Maybe a lot of people will take it and go up to Oregon and Washington and Idaho and Utah and continue to raise the cost of housing up there—

Mr. BLUMENAUER. Oregon.

Mr. HORN. Oregon, in particular. That's right.

We can take that—what is it? I think 300 million acre feet pour into the Pacific off the Columbia River. Just think, if we brought that down the eastern side of the Sierra Nevada Mountains into southern California, we'd solve everybody's problem and keep the building trades happy for 30 years.

Anyhow, let me yield to my colleague. We'll alternate questioning, and then Mr. Riggs I guess will be after that.

Go ahead.

Mr. BLUMENAUER. I have no more questions, Mr. Chairman.

Mr. HORN. All right. The gentleman from California, Mr. Riggs? And then we'll alternate until we've got the questions out of our system.

Mr. RIGGS. Thank you, Mr. Chairman. I again want to thank this panel of witnesses for hanging in there, as I know the hearing has gone a little late.

The first thing I want to ask is I want to ask Supervisor Hasteley if he ever got a response to the concerns he raised regarding the actions or, as the case might have been, inaction on the part of the Corps of Engineers.

You cite in your testimony that the Corps—that you believe that the Corps may have actually, by its actions, exacerbated the flood damages, and you specifically cite an 8-hour response time, when the commute under normal conditions would be 40 minutes; a lack of initial action and single focus on negotiating a contract with Nordic Industries; 11 hours to make the decision to breach the Feather river levee to allow the water that was backing up to leak out; and a failure to act between February 2nd and 22nd, in which you contend there were 18 days of good weather.

Have you gotten a response from the Corps of Engineers to your concerns?

Mr. HASTELEY. I've gotten a response in that the helicopter broke down and they had to get another helicopter, though they were flying in from Sacramento, which is 40 miles away. I haven't gotten a response other than from General Capka I've been told that we probably should have had a liaison officer there, or someone that we could speak to.

In our situation, although I think the Corps has done wonderful work in other parts of the county, in Yuba County they truly failed miserably.

There was no one to talk to. There was no one dealing with the locals who knew where the water was going to go who we could deal with, and the negotiator that they sent had one focus, and that was to negotiate this contract.

To be bluntly honest, it was a poor contract to be negotiating. He was negotiating a contract that would bring rock in from both ends,

knowing—and the locals knew full well that the Bear River was going to break and that one end that they were delivering rock to and the roads they were building were going to be gone.

The response from the Corps was they sent their very best engineers to devise this problem. I'm not sure—that makes us a little nervous when that was their best engineers that devised that plan.

Mr. RIGGS. I appreciate your comments.

I now want to turn to this whole question of land planning. I realize that this is a very sensitive issue because land planning decisions obviously should be made locally by elected officials. They are, if you will, the land use policy decision-makers.

However, I couldn't help but notice over the weekend a very extensive article in the "San Francisco Examiner" Sunday that is headlined, "Unreliable levees, no barrier to developers." It goes on to talk about a number of developments—very interesting graphic used here—to locate six proposed major projects all in the Central Valley, San Joaquin and Central Valley area.

The article says—it talks about one particular development that would be home to 35,000 people, as I understand it. These would be long-haul commuters to Sacramento, if you will, called "Plumas Lakes." It just happens to be in the area of the worst single incident of this flood where the Feather River burst a levee on the night of January 2nd, inundating 15 square miles of farm land, killing three people, causing \$200 million in damage, and forcing 80,000 people from their homes.

It cites this as a fairly typical example of some of these other developments that are planned up and down the Central Valley from Marysville to Fresno.

It then goes on to say that—and, of course, much of this has historically, as you well know, been productive agricultural land. It says, "In place after place, the high water inundated or threatened low-lying farm land, where local officials have given the green light for large-scale urban development, housing tracts, new cities—" entire new cities—"and even in one case a fantastic complex of four Disneyland-sized amusement parks.

"If everything that has already been approved—" I'm assuming that these are approved and entitled projects—"if everything that had already been approved had been built, as many as 200,000 more people would have been at risk, according to a review of planning documents collected by "The Examiner."

And then it goes on to talk about where all these projects are.

Chairman Horn I think alluded to this concern, as well. Again, we're the last people to want to intrude in what is, I stipulate, the quintessential local issue, or the issue of the quintessential issue of local control, but, gentlemen, what is going to happen here? I mean, this is very worrisome. I think these floods, the floods of December 1996, and January 1997, really should be for all of us, as elected policy decision-makers, a wake-up call.

So I'd like to get your response from anybody on this panel who cares to comment about it.

And I'll introduce for the record, Mr. Chairman, this particular article and the graphic, because the graphic, by the way, talks about the nature and the location of the project, and then it has

a notation regarding the impact of these storms on this particular area.

I cited one, Plumas Lakes in Yuba County, so I'm assuming Supervisor Hastey is familiar with this project. The impact of the 1997 storm, as I mentioned, and portions also flooded in the 1986 levee collapse—a new city for 9,000 people called Mossdale Village in Lathrup—I hope I'm pronouncing that right—is approved but tied up in a lawsuit. Impact of the 1997 storm, evacuated when levees leaked.

Another area, Gold Rush City in San Joaquin County, new city for 20,000 people, the four Disneyland-sized amusement parks I mentioned, 10,000 hotel rooms to accommodate four million annual visitors. Impact of the 1997 storm, flooded.

There are several other projects, as well.

So where are we going here, because obviously there isn't enough money in the Federal Treasury to come along after the fact and try to repair the damage of the flooding.

Again, it relates back to this issue Chairman Horn talked about, which is the conversion of traditionally productive agricultural land into essential large-scale housing tracts and instant suburbia.

Mr. HORN. I'm going to have to interrupt the gentleman. I'd like that in the record. Without objection, it will be put in the record.

[The information follows:]

San Francisco Examiner

Sunday, March 16, 1997

METRO

Unreliable levees no barrier to developers Planners insist upgrades will be made, but critics fear Valley's entire system is at risk

Lance Williams
EXAMINER STAFF

SEE ALSO SIDEBAR (DEVELOPMENTS PLANNED FOR FLOOD-PRONE AREAS)

OLIVEHURST, Yuba County - When the developers and politicians look south at the rice fields and prune orchards along the Feather River, they envision big things:

Housing tracts. Strip malls. Industrial parks. A bustling new city for 35,000 people.

But the helicopter pilots who began their emergency fly-overs at dawn Jan. 3 saw something quite different: a vast, muddy lake, 15 feet deep and 3 miles across.

This was the site of the worst single incident of the Great California flood of 1997 - when the Feather River, swollen to a depth of 77 feet, burst a problem-plagued levee on the night of Jan. 2, inundating 15 square miles of farmland.

The disaster killed three people, caused \$200 million in damage and forced 80,000 people from their homes.

But bad as it was, the disaster might have been far worse if the proposed new city of Plumas Lakes had been built before the waters rose.

The development, intended to serve long-haul commuters to Sacramento, was approved by the county supervisors here in 1993, but construction is not yet under way. More than two months after the levee burst, portions of the site still had water standing to the depth of eight feet.

The flooding at the Plumas Lakes project area is a scene that was repeated up and down California's great Central

Valley, from Marysville to Fresno, during January's flooding.

In place after place, the high water inundated or threatened low-lying farmland where local officials have given the green light for large-scale urban development - housing tracts, new cities and even, in one case, a fantastic complex of four Disneyland-sized amusement parks.

If everything that has been approved had already been built, as many as 200,000 more people would have been at risk, according to a review of planning documents collected by The Examiner.

The Plumas Lake plan is "a total disaster," says Walter Cook, who lost a 15-acre walnut orchard, along with house and outbuildings, in the January deluge.

"I don't think you should build a subdivision in a sinkhole," he says. "It's an area that floods every time a levee breaks, and the more people who move in there, the more heartache you will create. People will be homeless. People will lose everything. And the developers who build it will be long gone."

Levee safety questioned

Local officials and developers insist that the projects they plan will be safe: levees will be upgraded to protect the new cities from future floods, they say.

"It is definitely thought that no one would go down there and develop anything until levee improvements are under construction," says Jim Manning, Community Development Director for Yuba County.

But development proponents make that claim even as some flood experts have begun an agonizing reappraisal of the safety of the state's levees, a 6,000-mile network of earthen walls and dikes that protect some 900,000 Californians from flooding.

The levees took an extraordinary battering in January: floodwater broke through in more than 80 places in the Valley, inundating about 250 square miles of farmland and towns, causing \$1.5 billion in damage.

To some experts, the real lessons of the flood may be that

the levee system is simply not capable of protecting the rapidly urbanizing Valley at times of flood.

"The levee system isn't designed to protect property, it's mainly just designed to protect agricultural land, which is well suited for periodic flooding, anyway," says Erik Vink, California director for the American Farmland Trust, which works to conserve farmland.

Ann Riley, a former state Department of Water Resources scientist now with Berkeley's Coalition to Restore Urban Waters, says:

"We have allowed people to inhabit high-risk areas behind levees that aren't necessarily structurally sound, and the price tag to rebuild the entire levee system is absolutely prohibitive."

Given the staggering costs of this year's floods, many experts say California should try to minimize the impact of future deluges by turning to an approach that plans for occasional high water and diverts it from populated areas.

"You can't remove all the houses that are there, but you can direct flood water into bypasses, purchase key sites of land and direct the flows there," says Riley.

For the Central Valley, the experts envision relocating some levees, buying easements across low-lying farmland to restrict development and creating one or more new flood-control channels like Sacramento's Yolo bypass, a broad swath of lowland that is farmed in summer but carries high water away from the city during storms.

Such ideas imply that the state would restrict development in flood-sensitive areas. And that raises the hackles of local officials, who jealously guard their power to control zoning, and of home builders and real estate investors, who fear loss of their property rights.

At a legislative hearing convened in January by state Sen. Barbara Lee, D-Oakland, a California Association of Realtors lobbyist said his organization found the idea of imposing new limits on development in flood-prone areas repugnant. The California Building Association's spokesman said his group would fight such restrictions.

"I told the committee that taking away somebody's property rights was repugnant to us," says CAR lobbyist Stanley Wieg.

But Douglas Vogl of Fresno's San Joaquin River Committee says: "County supervisors are permitting developers to build structures in areas where nature dictates nothing should be built. This is not in the public interest, because property owners look to the public purse to make them whole when natural disaster strikes."

Assistant U.S. Interior Secretary John Garamendi, a former San Joaquin County legislator, says:

"It is insanity to build in these flood zones, and for cities and counties to allow it is dead wrong."

The conflict between development and flood safety is being played out up and down the Valley. Among the hot spots:

Gold Rush City. In 1989 the farming community of Lathrop, on the San Joaquin River south of Stockton, became a city.

Soon after that, Norman Jarrett, a visionary South African developer, pitched the new city council on a \$4 billion real estate project to be built around four Disneyland-style amusement parks - one of them with a '49ers theme.

More than 8 million people would visit "Gold Rush City" each year, the developer claimed in promotional material. The project would also include "a super-regional shopping center," three golf courses, an auto speedway with a grandstand for 120,000 racing fans, a sports arena for ice hockey or basketball, a hotel complex with 10,000 rooms, industrial parks and, finally, homes for 20,000 people.

Attracted by the promise of 30,000 new jobs and \$90 million in annual tax revenues, the city council enthusiastically rezoned a 5,500-acre riverside tract for the project. "Gold Rush City will put Lathrop on every tourist's itinerary," said Mayor Apolinar Sangalong.

The city council also rezoned some farmland to accommodate Mossdale Village, a residential project for 9,000 people. If everything is built, Lathrop's

population of 9,000 will triple, and much of the open space between Stockton and Manteca will be urbanized.

Gold Rush City hit a snag last year when the California Farm Bureau Federation joined the Sierra Club in a lawsuit challenging the rezoning.

Project opponents said they were horrified by the plan to pave over the prime agricultural soils on the Stewart Tract, an island at the east end of the San Joaquin River Delta where Gold Rush City would be relocated.

Another hitch came Jan. 5, when levee breaks on the lower San Joaquin River downstream of where it was joined by the flood-engorged Tuolumne put much of the farmland west of Lathrop under water - including the site of Gold Rush City.

Two months later, portions of the development area are still flooded. The developer and Lathrop city officials told the Manteca Bulletin that the 1997 flood was irrelevant; long before Gold Rush City is built, massive levee improvements will be made to keep the project dry, they said.

But project opponent Eric Parfrey says that could shift flooding downstream to the city of Stockton, where January's high water put great pressure on levees, forcing the evacuation of one new 1,300-unit housing development.

Also, flood experts believe it is vital to keep Stewart Tract undeveloped to ease the impact of future floods, says Rudolph Platzek, author and regional planner.

"If we are to build a San Joaquin River bypass equivalent to the Yolo Bypass to take the pressure off the levees, it will need to pass right through Gold Rush City," he says.

The upper San Joaquin River bed. Since 1947, the massive Friant Dam in the foothills east of Fresno has allowed the state to divert more than 90 percent of the water away from the channel of the upper San Joaquin River into a series of irrigation canals.

As a result of diversions, the river through the bluffs below the dam has run at only a trickle in all but the rainiest of seasons.

That has emboldened officials of the City of Fresno and Madera and Fresno counties to begin rezoning stretches of the riverbed for residential development.

So far, the Fresno City Council has approved "Scout Island," a subdivision for 11 upscale homes in the riverbed, and Fresno County supervisors have approved a 100-unit river bottom tract. Upstream, Madera supervisors have given approval for developing "Rio Mesa," a sprawling new city for 90,000 people. A 250-acre portion of that development, dubbed "Riverbend Ranch," abuts the river bottom.

Primary flood protection for the projects, all still unbuilt, is supposed to be provided by the enormous dam that impounds Sierra runoff into Millerton Lake.

But in January, the warm storms melted the Sierra snowpack, filling Millerton and forcing uncontrolled releases from the dam. The San Joaquin roared to life through the Fresno bluffs, wrecking a trailer park in the river bottom and surging past the sites of the subdivisions.

After the storm passed, local flood officials joined with preservationists to urge the City Council to enact an emergency building moratorium in the river bottom. They argued that the City Council needed to study public safety issues before issuing building permits, but the effort failed.

Councilman Ken Steitz accused proponents of hyping the flood danger, telling the Fresno Bee: "They were using that to deny somebody (the right) to build on their own property."

Yuba City-Marysville. The Feather River downstream from its junction with the Yuba has been the site of six major floods in the past half-century.

Worst of all was the so-called "Gum Tree" break shortly after midnight on Christmas Eve 1955, when a levee that had been spouting geyser-like leaks for more than eight hours finally ruptured, flooding a vast agricultural area and killing 38 people.

In the 41 years since then, the state has spent millions upgrading the levees, and it's a good thing. Today, the former farmland at the foot of the very levee that gave way

in 1955 is a checkerboard of subdivisions. All the projects were approved by the Yuba City Council in the past five years.

"One of them is called River Run, and it's aptly named," says Sutter County Supervisor Dick Akin, "because in 1955, the river ran right through where the development is now. It's a risky place to put homes, right on a levee."

Akin says opponents cited flood danger in an attempt to derail the projects, but the City Council approved them anyway. Voters later rejected two bond issues to build a high school in the area after opponents argued that the new school would eventually be wrecked by flooding, he said.

Many home buyers in the new tract are new to the area and "didn't realize what they were buying, until this winter," Akin says. Most of the year, the Feather is a placid stream, and if you've never seen it at flood, you can't imagine how powerful it can become, he says.

In the flood of 1997, leaks developed along the levee near Gum Tree, but the structures held. Instead, the break occurred downstream and on the opposite bank, above the Plumas Lake site.

Community Development Director Manning says the officials who approved the new town didn't feel it was necessary to make flood safety a development requirement, because developers would want that as much as anybody.

"I don't know that we would need to make it a requirement of anybody to have levee improvements before spending millions of dollars on an investment at risk," he said. "People are going to go, 'Wasn't this under 15 feet of water in 1997?' Developers don't make all that money by not being clever."

But Richard Meehan, a Palo Alto engineer and flood expert, has studied the area's three most recent flood disasters - the 1955 and 1997 levee breaks, and another break in 1986 that caused \$500 million in damage. He doubts levee upgrades will solve the problem.

Meehan says the levees are built far out on the flood plain, atop an underground layer of gravel that is the river's prehistoric channel. In the trial of a lawsuit

filed in connection with the 1986 flood, he testified that, when the Feather is at flood, water can move through the gravel far landward, undermining even the best-constructed levee.

"There definitely is a land-planning issue here," he says.

Tomorrow: Flood control in future.

Mr. HORN. We have a problem, not of the Chair's making, since he learned about it 4 minutes ago.

The Coast Guard subcommittee is going to begin a hearing in here at 2:00, and that will mean all of our wonderful questions that we were going to ask you eyeball-to-eyeball will have to be submitted to you in writing.

The one basic question I'd like to hear from each of you but I can't do it on the record today, but it will become part of the written record, is: in your judgment, what's the best way to solve the problem? And if you wouldn't mind sharing your thoughts in a succinct paragraph, I would be most grateful for that, and that will go in the record without objection at this point.

I also want to get into the problems, one way or the other, of the structural failures in levees as being the problem more than the overtopping, and what we mean by that, and I would welcome your thoughts and I would have the staff ask the Corps of Engineers for their thoughts.

And I'm also concerned about the policy that the Corps says if it's a private levee, "Sorry, we're not really involved," and yet the fact that we had private levees built saved the Federal Government and the Corps and the Congress and the taxpayers a lot of money. I think somewhere we've got to work through that policy and try to make some sense out of it.

I would simply ask you, Dr. Mount, does that come in hard cover as well as paperback, that fine book of yours?

Mr. MOUNT. That fine book of mine. Yes.

Mr. HORN. Well, if it mentions the Paharo River on which my homestead abuts in San Benito County, I will buy a copy and write you a check. I want to read that book, provided the Paharo River is somewhere in there.

Did you get into the Paharo River?

Mr. MOUNT. I went to graduate school in Santa Cruz, so—

Mr. HORN. Well, you know where the Paharo River is, then.

Okay, now we're going to have to close this out.

Mr. Wheeler was going to be back, and I'd like his deputy, Raymond D. Hart, the deputy director of the Department of Water Resources, to at least come at the table, present his statement—don't read it. We'll just put it in the record.

And if you can summarize it in about 5 minutes or so I think my friend, Mr. Coble, will give us that time, but then we've got to close it off automatically. And that will be the last witness, and all the rest will be written questions.

TESTIMONY OF RAYMOND D. HART, DEPUTY DIRECTOR, CALIFORNIA RESOURCES AGENCY, SACRAMENTO, CA

Mr. HART. Mr. Chairman, members of the subcommittee, thank you. I'm Raymond Hart. I'm the deputy director of the Department of Water Resources in California. I'm responsible for flood management in California, and I was directly involved in managing the flood response in California during the January event.

I will submit for the record Secretary Wheeler's remarks. Unfortunately, he had pressing business and couldn't be here.

I'd also like to submit for the record these maps that were given to you earlier. There are four of them.

Mr. HORN. Without objection, they will be inserted in the record.

Mr. HART. And, if I may make a few remarks, the flood that we experienced in January was, indeed, truly a record event. It covered most of the Central Valley, as compared to the 1986 floods, which were really the American and Feather Basins, and the 1995, which was very localized in several different areas of the State but not nearly as widespread as this one.

All our major reservoirs were taxed. Most of them had record flows into them. And the reservoirs in most cases reduced by over half the peak flows that were released downstream, so if the reservoirs had not been there, there would have been tremendous damage well beyond what the Corps' estimates would have been.

The non-structural things that you've heard about today I think make sense where people are not currently living. Where people are living, such as in Sacramento and Los Angeles, it's certainly not practical to think about moving all these people out.

I'd like to get down to the final remarks so I can save your time.

There are several things that are of concern to us.

One, we need to see a supplemental appropriation to fund the following: \$300 million for the full cost of levee repairs to be undertaken to bring the system back to capacity by November; \$381 million to fund the Federal share of highway repair, which will require a waiver of \$100 million per disaster cap; at least \$200 million to repair our damaged public facilities and ongoing assistance to flood victims; and reauthorize and fund the tree assistance program administered by the Department of Agriculture.

In addition to supplemental appropriations needed, we ask that the Congress do the following—

Mr. HORN. What was that agriculture number?

Mr. HART. It's the tree assistance program.

Mr. HORN. Okay. You don't have a dollar figure on it?

Mr. HART. No, I do not. Support, repair of the damaged levees to their full height and section under the Corps emergency repair authority. Under their phase three program you heard about earlier, they're going to be bringing them back up to the full capacity. The problem is that during this winter we were very fortunate we had six dry weeks that basically took us out of extreme flood emergency for, I think, the remainder of this year. However, if we'd had another large event, not having that 100-year flood protection, particularly north of Sacramento, it would have been devastating.

I think the policy needs to be reviewed as to what can be done for emergency repairs and what constitutes an emergency.

The Corps has a lot of difficulty moving once the water has receded, even though there may be reoccurring flooding.

Continue to support a policy that expedites environmental permitting for the levee repairs, which only requires mitigation to the post-flood level habitat. We've already had habitat mitigation requirements on the two levee repairs up in the Sacramento Basin, both the Feather and the Sutter—basically those areas were under water and damaged, yet there is habitat requirement for mitigation.

Examine the policy of the Federal Emergency Management Agency that does not distinguish between crop year losses and the

long-term investment values of agricultural infrastructure, especially with orchards and vineyards.

California's crops are extremely valuable. It's not the row crop type of things that you just plant from year to year; the investment takes years to develop, and then when it's wiped out by the flood, which is a rare one, it will take them 5 to 10 years to reestablish the investment.

Mr. HORN. That's an excellent point. Having grown up with an orchard, I know what you mean.

Mr. HART. In conclusion, the State recognizes the need for a comprehensive approach to the problem of flooding. It is prepared to do its part in taking remedial action.

The FEAT Report—which is the Flood Emergency Action Team—will identify structural and non-structural solutions to deal with flooding in California.

We look forward to working with the Federal Government in developing a flood control system that is less subject to these devastating floods and which recognizes limitations imposed by the physical reality of a large river prone to erratic hydrology.

The Army Corps of Engineers' proposal to review non-structural responses and conduct basin-wide studies in principal California watersheds—although I caution the amounts of money we're talking so far, I think are inadequate to do the job. The Corps spent nearly \$12 million investigating the American Basin. The \$2 million to study the entire San Joaquin/Sacramento Delta obviously will require substantially more than a few more million dollars.

The State has already taken the initiative on the Cosumnes River through establishment of a task force. Local levees obviously are a problem.

I think you're correct in your observation that they put in a tremendous investment and the public did not have to pay, yet the public did benefit from it. Interstate 5 and Highway 99 were protected by these levees, and now are at risk to flooding, which obviously impacts the commerce of California.

Mr. HORN. It would certainly be helpful if the State government rounded that whole theory out with the value of the levees and so forth, that we had something in our hands.

I remember the Imperial Irrigation District has several billion dollars worth of irrigation and levees in that area that have been done since 1900, and we ought to be able to make that point.

Mr. HART. We'll put something together for you.

I appreciate the opportunity to be here today, and we certainly stand ready to answer any of your questions.

Mr. HORN. You've done a brilliant job, Mr. Hart. You can go home proud that you've laid out some of the key recommendations. We're sorry we couldn't give you more time, but I didn't know the room was to move at 2:00.

Mr. HART. I understand.

Mr. HORN. We're about as close to 2:00 as we'll get, so thank you very much. We thank the staff, whose names will be in the record, since that's the tradition we have in Government reform, who helped do what, so there will be a section in your transcript on the professional staff that prepared the hearing.

We thank you, and with that this is adjourned.

[Whereupon, at 2:05 p.m., the subcommittee was adjourned, to reconvene at the call of the Chair.]

PREPARED STATEMENTS SUBMITTED BY MEMBERS OF CONGRESS AND WITNESSES

Plumas District Hospital

1065 Bucks Lake Road

Quincy, California 95971

(916) 283-2121

March 19, 1997

THE SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT HEARING ON RECENT FLOODING IN CALIFORNIA

TESTIMONY OF R. MICHAEL BARRY, ADMINISTRATOR OF
PLUMAS DISTRICT HOSPITAL, QUINCY, CALIFORNIA.
QUINCY, CALIFORNIA IS LOCATED IN THE SIERRA
NEVADA MOUNTAINS, (NORTH EASTERN CALIFORNIA).

Good morning Mr. Chairman and Members of the Subcommittee on Water Resources and Environment. I am here to give testimony on the problems and delays we have experienced with The Federal Emergency Management Agency, (FEMA). Our disaster occurred during the snow storms of January, 1993 and is still not resolved.

It started snowing in January of 1993 and it didn't stop until we had six feet of very heavy snow. When the snow on our roof reached two and a half feet we started removing it so our roof would not collapse. We hired temporary employees and were able to use twenty four prisoners for a total of 30 people on the roof removing snow. The snow became so compacted we had to chop it into cubes, put the cubes on plastic sheets, pull the sheets to the edge of the roof and push them off. After the snow stopped the heavy rains came. Water leaked through the damaged roof membrane through out the hospital. We put hoses in the crawl space between the ceiling and the roof to catch the water and drain it through the ceiling into sinks or large plastic garbage cans. Because we started removing snow at a very early stage our metal corrugated roof structure and metal roof supports were not damaged.

We requested assistance from FEMA March 9, 1993. Before we could be eligible for assistance we had to exhaust all the funds available from our insurance company. Our insurance coverage covered patching the leaks but would not pay for the damage done to the roof by the snow removal equipment. After the roof

PAGE 2

was patched there was no way to stop the roof leaks. Once the roof membrane had been punctured by shovels and snow blowers water got under the membrane and our roof never dried out. At night the water under our roof membrane would freeze and cause the membrane to blister up and open the patches or expand the breaks in the membrane. Rain and hot weather during the summer had a similar effect.

The FEMA survey team visited our hospital May 17, 1993. They were very helpful. It was their opinion that replacing our insulation, roof membrane and repairing roof vents, air conditioning supports and etc. was definitely eligible and we should have no problems getting the money from FEMA.

August 16, 1993 we received a letter stating that our claim was being held up pending receipt of our insurance information which we had already submitted.

Our insurance company paid \$29,045.01 in September and our roof was patched.

We received a letter dated May 5, 1994 from FEMA, (Exhibit 1), saying, "Unfortunately, we are prevented from funding repairs to the hospital roof because the damages did not occur during the incident period...". A temporary employee hired by our insurance company made a mistake on his damage report and put December 31, 1992 as the date the damage occurred to our roof. The FEMA incident period was January 5, 1993 to March 20th. We appealed the decision because our roof was not damaged until we started removing snow on January 9th.

We received a letter from FEMA dated June 13, 1995, (Exhibit 2), which basically says we were not telling the truth, that FEMA believed the temporary insurance company's employee and that we "generated" the new information in our last letter because of being declared ineligible. The letter gave an additional new reason by the FEMA Regional Director Shirley Mattingly that our roof damage "cannot be attributed to the disaster event, but instead results from the cumulative effects of time and wear and tear." She must have assumed that our roof was an old one. She did not know that our roof had been completely replaced only nine years before and should have lasted at least fifteen years.

November 13, 1995 the Governor's Office of Emergency Services sent a second appeal to Regional Director Shirley Mattingly, (Exhibit 3). The letter said it is extremely improbable that our documents would be generated, as charged by

PAGE 3

FEMA, specially for the purpose of responding to FEMA's denial! The letter also said, "Regarding FEMA's latest determination for denial of costs (facility not maintained), FEMA has no basis for their decision, as the Subgrantee used a systematic and exhaustive maintenance program for this facility." "Contrary to FEMA's assertion, this roof has been exceptionally well maintained and the underlayment and overlayment would not need replacement had it not been for the damages caused by the 979-DR storm, as well as the penetrations made by shovels used by many people over several weeks to remove the snow. As it was imperative that the snow be removed to prevent collapse of the roof, delay was unthinkable!"

November 20, 1996 the Governor's Office of Emergency Services sent our Third Appeal to Regional Director Shirley Mattingly. (Exhibit 4).

It is our experience that the people at FEMA responsible for handling our claim spent their time and energy looking for any reason to deny our claim rather than evaluating the facts and reviewing the documentation provided to them by their own people who visited our hospital plus the information provided to them by the Governor's Office of Emergency Services. A process that takes over four years, hours of time, pounds of paper work and still is not resolved needs to be fixed. Your assistance will be greatly appreciated. Thank you for your consideration.



Federal Emergency Management Agency

Region IX
 Building 103
 Presidio of San Francisco
 San Francisco, California 94129

MAY -5 1984

EXHIBIT 1

Mr. Richard Ray
 Governor's Authorized Representative
 Office of Emergency Services
 2800 Meadowview Road
 Sacramento, CA 95822-1499

Dear Mr. Ray:

Subject: Request for Supplement - DSR 79669
 FEMA-875-GR, P.A. 043-91031
 Subgrantee: Plumas District Hospital

This is in response to your letter dated January 21, 1984 which transmitted the subgrantee's request for a supplement to DSR 79669 (Plumas District Hospital Roof).

Regulations state that for work to be eligible it must be required as the result of the major disaster event. Unfortunately, we are prevented from funding repairs to the hospital roof because the damage did not occur during the incident period or are not a direct result of events that occurred during the incident period. We regret to inform you that supplemental DSRs 04010 and 04011 will be processed as ineligible.

DSR 79669 was made ineligible as evidence indicated that the roof was damaged prior to the incident period of January 5, 1982 through and including March 20, 1982. The inspector was unaware of this when he wrote supplemental DSR 04010 (Temporary Roof Repair) and supplemental DSR 04011 (Re-roof).

Sincerely,

M. P. Rubin
 M. P. Rubin, Director
 Response and Recovery Division



Federal Emergency Management Agency

Region IX
 Building 108
 Presidio of San Francisco
 San Francisco, California 94129

JUN 13 1995

EXHIBIT 2

Mr. Al Kelly
 Governor's Authorized Representative
 Governor's Office of Emergency Services
 Public Assistance Section North
 7100 Bowling Drive, Suite 340
 Sacramento, CA 95832

Dear Mr. Kelly:

Subject: First Appeal - DSR 79669/04010/04011 (Plumas District
 Hospital Roof)
 FEMA-979-DR, P.A. 063-91031
 Subgrantee: Plumas District Hospital

This is in response to your letter dated March 17, 1995 which transmitted the subgrantee's appeal of FEMA's determination that costs associated with repairs or replacement of the Plumas District Hospital roof (Damage Survey Report (DSR) 79669/04010/04011) were ineligible because the work is not required as the result of the disaster.

FEMA's initial determination was based on the Sworn Statement in Proof of Loss filed with the Northbrook Property and Casualty Insurance Company in early January 1993 which provided December 31, 1992 as the date of loss. This December date of loss is confirmed in the subgrantee's letter of December 15, 1993 to Richard Ray in which the original damage is attributed to "severe storms in December 1992".

We believe that the documentation submitted in support of the subgrantee's request for assistance is more reliable than that submitted by the subgrantee with its appeal. The reasons for this are (i) the first submittal was generated contemporaneously or closer in time to the loss than that submitted with the appeal, and (ii) the documentation submitted with the appeal was generated and obtained by the subgrantee specifically for the purpose of responding to FEMA's initial determination of ineligibility.

More importantly, however, replacement of the roof (as opposed to repair of the roof) cannot be attributed to the disaster event, but instead results from the cumulative effects of time and wear and tear. As clearly stated in the subgrantee's December 15, 1993 letter to your office, "Based upon prior and current experience, further roof and ceiling damage will continue to occur with every significant rain storm..." The subgrantee's contractor also notes in its letter of October 23, 1993 the "worn roof membrane". This basis is further supported by the fact that were replacement required as a result of storm damage, it is expected that these costs would be covered by insurance and that FEMA would cover the unreimbursible losses, that is the deductible, only. Instead, the "Proof of Loss" indicates loss or damage of approximately \$34,000 and the insurance company provided insurance proceeds only for the repair of the roof. While it may make sense for the subgrantee to replace its roof to better prevent future losses/damage, only repair work appears to have been required (and covered) as a result of the December storm damage.

Please advise the subgrantee of this determination and notify them that a second appeal may be submitted in accordance with Title 44 of the Code of Federal Regulations, §206.206(d). Any appeal must be in writing and submitted no later than 60 days after the subgrantee's receipt of notice of this denial.

Please contact me directly at (415) 923-7100 if I can provide further assistance, or your staff may contact Mr. Nick Nikas at (415) 923-7250.

Sincerely,


Shirley Mattingly
Regional Director



DISASTER ASSISTANCE BRANCH
PUBLIC ASSISTANCE SECTION
Governor's Office of Emergency Services
Post Office Box 239013
Sacramento, California 95823-9013
916-364-2044 Fax 916-364-2016



November 13, 1995

EXHIBIT 3

Richard Krimm, Associate Director
Federal Emergency Management Agency

Through: Shirley Mattingly, Regional Manager
Region IX
Building 105
Presidio of San Francisco
San Francisco, CA 94129

Dear Ms. Mattingly:

Subject: Second Appeal: Damage Survey Reports
(DSR) 79669/04010/04011
FEMA-979-DR, P.A. 063-91031
Subgrantee: Plumas District Hospital

Attached is a letter dated July 26, 1995, from the Plumas District Hospital (hereinafter known as Subgrantee) appealing the Federal Emergency Management Agency's (FEMA) denial of their first appeal regarding funding for the replacement of the hospital roof damaged by the snow during the 979-DR winter storm of 1993. Also attached is a letter from the Subgrantee dated September 28, 1995, supplying additional information in support of their appeal.

The snowfall in the winter of 1993 was excessive and destructive. So much so, that the President declared a major disaster area for several counties in northern California, including Plumas County. The incident period established by FEMA for this disaster was January 5, 1993 through March 20, 1993. The roof of the hospital sustained major damage from shovels used in continual snow removal activities from January 7, 1993, to January 15, 1993. The original inspector was unable to estimate the cost of the roof repair, and recommended that the Subgrantee engage the services of a consultant. Subsequently the Subgrantee contracted with Advanced Roof Technology, Inc. to perform this task. It was determined that damages were so extensive that the roof system would be unable to withstand another typical northern California winter and that it was necessary to replace the roof.

The Office of Emergency Services (OES) and FEMA are in agreement that the Subgrantee meets the criteria for public assistance. Unfortunately, our organizations are in conflict over whether the Subgrantee is eligible for the specific costs involved in replacing the Subgrantee's roof system. FEMA has concluded that the Subgrantee is ineligible for funding.

FEMA/Plumas District Hospital
 November 13, 1995
 Page Two

FEMA first disallowed the Subgrantee's claim for roof replacement based on "Project site damages occurred prior to the disaster incident period." They denied it after the Subgrantee's First Appeal, on the basis that the damages "...resulted from the cumulative effects of time and wear and tear."

In addressing FEMA's first reason for denying costs (date of damages), substantial documentation was submitted supporting the fact that the damages were incurred during the incident period. The error made early in the application stage - quite possibly by a clerical employee - was corrected, and the actual date the damages were incurred was submitted by the inspector, the insurance company, the former hospital CEO, and the Subgrantee themselves.

Title 44 of the Code of Federal Regulations (CFR Section 206.202(d)(1)) states, "...the inspectors will identify the eligible scope of work and prepare a quantitative estimate for the eligible work." According to the DSR narrative, the inspector checked the Subgrantee's labor records and conceded that all appeared to be in order. Since the Subgrantee is subject to the *Single Audit Act*, it is extremely improbable that their documents would be generated, as charged by FEMA, specifically for the purpose of responding to FEMA's denial! The Subgrantee has grave concerns regarding FEMA's implication that they would fabricate information to make their claim eligible.

Regarding FEMA's latest determination for denial of costs (facility not maintained), FEMA has no basis for their decision, as the Subgrantee used a systematic and exhaustive maintenance program for this facility. The roof on this facility was installed in 1983 as a 15-year roof, but would last much longer with proper maintenance. The basic metal decking and structural integrity is in excellent condition, and needs no repairs. Every year on a monthly basis the Subgrantee cleans the roof scuffers and, prior to each rainy season, they do extensive field checks on all roof penetrations. The roof is kept free of debris at all times. Additionally, every three years the Subgrantee resurfaces the roof with an aluminum asphalt base emulsion paint.

Contrary to FEMA's assertion, this roof has been exceptionally well maintained and the underlayment and overlayment would not need replacement had it not been for the damages caused by the 979-DR storm, as well as the penetrations made by shovels used by many people over several weeks to remove the snow. As it was imperative that the snow be removed to prevent collapse of the roof, delay was unthinkable!

Of further consideration is the apparent fact (per the DSR itself) that the FEMA inspector was not accompanied by an OES inspector. *CFR 44, Section 206.202*, states, "Damage surveys are conducted by an inspection team (emphasis only). An authorized local representative accompanies the inspection team..." The fact that this inspection took place without benefit of OES's input or on-site observation leaves serious questions in the minds of both OES and the Subgrantee.

FEMA/Plumas District Hospital
November 13, 1995
Page Three

CFR 41. Section 206.223(a), states "To be eligible for financial assistance, an item of work must: (1) Be required as the result of the major disaster event, (2) Be located within a designated disaster area, and (3) Be the legal responsibility of an eligible applicant." The work involved in this issue incontrovertibly meets all requirements for assistance. It is imperative that the hospital roof be replaced for the safety of patients, as well as the hospital staff, and to prevent internal damages during the rainy season.

Based on this information, OES advocates that FFMA reconsider their denial of the costs involved. The Subgrantee has exercised good faith effort by seeking needed assistance and appealing FEMA's denial.

If you have further questions or comments concerning this matter, please contact Ruth Jondrejack at (916) 262 1765.

Sincerely,



RICHARD RAY

Governor's Authorized Representative

Attachment

cc: Michael Barry, Plumas District Hospital
Carol Scotti, OES Program Manager I
Jami Byers, OES Area Coordinator

rj/plumas.hos

STATE OF CALIFORNIA

PETER WILSON, Governor



DISASTER ASSISTANCE BRANCH
PUBLIC ASSISTANCE SECTION
Governor's Office of Emergency Services
Post Office Box 210963
Sacramento, California 95823-9013
916-364-2044 Fax 916-364-2016



November 20, 1996

James Lee Witt, Director
Federal Emergency Management Agency

Through: Shirley Mattingly, Regional Director
Federal Emergency Management Agency
Region IX
Building 105
Presidio of San Francisco, CA 94129

EXHIBIT 4

Dear Ms. Mattingly:

Subject: Third Appeal of Damage Survey Report 7966904011
FEMA-979-DR, P.A. 063-91031
Subgrantee: Plumas District Hospital

The Governor's Office of Emergency Services (OES) is forwarding the enclosed letter dated August 1, 1996, from the Plumas District Hospital (hereinafter known as "Hospital") appealing the Federal Emergency Management Agency's (FEMA's) denial of its second appeal regarding funding for the replacement of the hospital roof damaged during the 979-DR winter storm of 1993.

The snowfall in the winter of 1993 was extremely severe and destructive. As a result, the President declared a major disaster area for several counties in northern California, including Plumas County. FEMA established the incident period of January 5, 1993, through March 20, 1993. The roof of the hospital sustained major damage from shovels used in condal snow removal activities from January 7, 1993, to January 15, 1993. Two FEMA inspectors recommended securing a consultant's opinion because they could not arrive at an estimated cost. Subsequently, the Hospital contracted with Advanced Roof Technology, Inc. to perform this task. It was determined that damages were so extensive that the roof system would be unable to withstand another typical northern California winter and that it was necessary to replace the roof.

The OES and FEMA are in agreement that the damage to the Hospital meets the criteria for public assistance, and that the damage incurred by the hospital roof was within the declared disaster time frame (see FEMA's analysis of second appeal). Unfortunately, our organizations are in conflict over whether the Hospital is eligible for the specific costs involved in replacing the hospital roof. FEMA has concluded that the Hospital is ineligible based on its determination that "... the need for roof replacement is attributed to profligate wear and tear, rather than the use of snow removal equipment damage that occurred during the declared disaster."

FEMA/Phumas District Hospital
November 20, 1996
Page Two

The OES believes that FEMA has no basis for this determination. The hospital roof was only nine years old, and had been meticulously maintained prior to the snowstorm of the 979-DR event. The basic metal decking and structural integrity is in excellent condition and needs no repairs. Each year the Hospital cleans the roof scufflers and, prior to each rainy season, they do extensive field checks on all roof penetrations. The roof is kept free of debris at all times. Additionally, every three years the Hospital resurfaces the roof with an aluminum asphalt base emulsion paint. The excellent pre-disaster condition of the roof is substantiated by the contractor, as well as the Hospital's maintenance records.

Contrary to FEMA's assertions, the underlayment and overlayment would not need replacement had it not been for the damages caused by the 979-DR storm, as well as the penetrations made by shovels used by many people to remove the snow. The Hospital has included samples of the roof, taken before and after the incident, for FEMA's inspection. It is evident that the roof needs replacement, and this replacement cost is eligible for FEMA funding. The insurance adjuster stated that the roof may need replacing "due to other causes." The contractor who did the temporary repair work stated that, due to the extent of damage that was done by the snow removal equipment, "...we are unable to provide any warranty for the repair work."

Furthermore, the Hospital has included a letter from Advanced Roof Technology responding to their request for an evaluation of the roof. It is glaringly evident from their response that the damage was inflicted during the period of snow removal, and not from prior wear and tear as concluded by FEMA.

Additionally, FEMA's argument that eligibility is based on "...the fact that insurance proceeds only covered repairs" is invalid. The insurance company is not governed by the *Code of Federal Regulations (CFR)* as it relates to restoring facilities to pre-disaster design and function. The function of the roof is to keep water from penetrating it and damaging the interior of the building.

The OES also has concerns regarding the fact that the FEMA inspector arrived at the Hospital site without a State representative. The inspection took place without benefit of OES' input or on-site observation, and is contrary to existing practices within the Region IX field operations. Thus, no dialog between the inspectors took place to resolve any possible differences of opinion.

FEMA/Plumas District Hospital
November 20, 1996
Page Three

OES, as Grantor for the State of California, supports the Hospital in its appeal, and requests that FEMA fund the roof replacement and the fees charged by the roof consultant. *CFR 44, Section 206.226(d)(2)*, states that if a damaged facility is not repairable, "...approved restorative work may include replacement of the facility."

If there are further questions or comments concerning this matter, you may contact Ruth Jendreck of my staff at (916) 464-0762.

Sincerely,



RICHARD KAY

Governor's Authorized Representative

Enclosure

cc: Plumas District Hospital
Jani Byers, OES Area Coordinator

ij/plumas.bos

Testimony by Hon. Vic Fazio
Subcommittee on Water Resources and Environment
Committee on Transportation and Infrastructure
California Floods
March 19, 1997

Chairman Boehlert, Ranking Member Borski, and subcommittee members,

Thank you for scheduling this important hearing. Since our tragic flood event in January, we have worked together in a bipartisan manner to draw attention to the significant needs of California and the necessary recovery efforts. I appreciate the opportunity to appear before the committee today.

My message today is simple: we've got a problem, and we need your help.

The problem comes in two parts. First, California has experienced a devastating flood, and we need your help in getting back to normal. Nine lives have been lost, nearly \$2 billion in damage has occurred, and over 100,000 Californians were forced to flee their homes.

The President has submitted an emergency supplemental appropriations request. We need that assistance for a variety of reasons: First, so that the emergency recovery work can continue to go forward. Second, so that *after* the Corps of Engineers and others have made the necessary emergency repairs, those agencies can go forward this summer with additional work that will take us back to the level of protection we had before the floods. Third, we need these funds so they don't have to come out of the annual budgets of the Corps, the Bureau of Reclamation and others, which are making progress on other important projects.

I would value the support of all the committee's members for that supplemental appropriations request.

But as this committee knows, the second part of our problem is long-term. We need your help in identifying the long-term solutions that will prevent lives from being lost and catastrophic damages in the future.

Last year, the California delegation fought vigorously for one project we believed would offer the highest level of flood protection for the City of Sacramento -- the Auburn Dam. The committee in its wisdom decided that was not to be. However, our problem has not gone away, and no river city in America faces a greater threat of flooding than Sacramento.

Now, in view of the 1997 floods, we need to reassess our situation and identify new solutions -- the best solutions for tomorrow.

I've written Assistant Secretary of the Army, Martin Lancaster, to initiate a comprehensive study similar to the Galloway study conducted after the Mississippi River floods, and he has agreed to reprogram funds to get such a study started this year. Only such a comprehensive study can determine just how extensive our needs are and perhaps identify the mix of solutions that will provide the protection we need into the future.

The Administration is supporting non-structural alternatives, and I agree that where non-structural approaches can provide the level of protection we need in a cost-effective manner, we should pursue them. In fact, in northern California our system of bypasses -- the planned flooding of agricultural lands to help accommodate high winter river flows -- worked as intended to prevent flooding in the Sacramento area.

But there are other areas where proposals for meander belts, setback levees or the like, may be costly or impractical. We don't want to force a solution to fit a problem -- that only creates more problems in the future.

I have been an advocate of considering off-stream storage where it is appropriate. There are several possible off-stream reservoir locations north of Sacramento such as Sites, Cottonwood and Oat Creek that may be cost-effective investments that can increase our flood protection while giving us additional water supply flexibility. They don't present the environmental problems associated with an Auburn Dam, and at least one of them has been authorized for many years. Certainly these possibilities should be investigated and given serious consideration, and we may need the committee's assistance in this area.

How can we make sure we make the right decisions and move forward with comprehensive solutions?

I believe that we have a great model at work right now -- the so-called CALFED initiative. As you know, CALFED is a federal-state partnership to address environmental restoration in the Bay-Delta area of California. The people of California approved a \$995 million bond issue last fall to fund environmental restoration projects and to pay for the state share of appropriate federal projects. The Administration has now proposed \$143 million for fiscal year 1998 to support this initiative.

CALFED has involved a compelling set of urban, agricultural, business and environmental stakeholders to identify possible solutions, decide upon individual projects, and move quickly ahead to implementation. Naturally, as we address the need for environmental restoration of the Bay-Delta, we have discovered that flood control is clearly involved in our decisions about water supply and water quality. I believe that the CALFED process is one we must build upon to bring a comprehensive approach to the many water problems that challenge our state.

In closing, I appreciate the committee's attention to California's needs in the past, especially its inclusion of needed projects in the Water Resources Development Act of 1996, and I appreciate the committee's willingness to investigate the new demands placed on us by our catastrophic flood event. I look forward to working with you here and in the Appropriations Committee to bring about the solutions that make sense for California and for the American taxpayer.

DEPARTMENT OF THE ARMY

COMPLETE STATEMENT
OF
MAJOR GENERAL RUSSELL L. FUHRMAN
U.S. ARMY CORPS OF ENGINEERS, DIRECTOR OF CIVIL WORKS

BEFORE THE SUBCOMMITTEE ON
WATER RESOURCES AND THE ENVIRONMENT
OF THE
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
UNITED STATES HOUSE OF REPRESENTATIVES

ON

THE CALIFORNIA FLOODS OF JANUARY 1997

WASHINGTON, D.C.
MARCH 19, 1997

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE

INTRODUCTION

I am Major General Russell Fuhrman, Director of Civil Works, U.S. Army Corps of Engineers. Accompanying me today is Brigadier General Richard Capka, Commander, South Pacific Division, headquartered in San Francisco, California.

Thank you for inviting the Department of the Army to testify at this important hearing on the Federal response to the California Floods of January 1997. I am pleased to be here representing Martin Lancaster, Assistant Secretary of the Army for Civil Works. These floods have had disastrous effects on California, and the same series of storms has caused serious flooding along rivers and streams in Washington, Oregon, Idaho, Nevada, and Montana.

The U.S. Army Corps of Engineers played, and continues to play, a significant role in flood response and recovery efforts. In discussing our role, I will address the following areas:

- a description of the flood,
- role of the Corps in operating its facilities.

- role of the Corps in emergency management actions.
- Administration's guidance on levee repair and associated restoration.
- Fiscal Year 1997 supplemental appropriations,
- and finally, some reflections on the flood event.

Although I will be addressing only the U S Army Corps of Engineers role in this statement, it should be noted that other Department of Defense organizations also provide significant support during disasters. The Corps also responds to requests for support from other Army Major Commands or military installations, and the Department of Defense. I will only address our civil works response in this testimony.

A DESCRIPTION OF THE FLOOD

Beginning shortly after Christmas of last year and continuing into January, the west coast was subjected to a series of warm, sub-tropical storms dubbed "The Pineapple Express." Over the next several weeks, runoff from the unprecedented storms caused flooding along the Sacramento and San Joaquin River basins, high water in the Delta in California, and flooding in other river basins in the Pacific Northwest. These storms also dumped snowfall in the Sierra Nevada and at higher elevations elsewhere in the Pacific Northwest. One hundred eight counties in California, Nevada, Oregon, Washington, and Idaho were declared disaster areas by the President. Forty-eight of those counties were in California where property damage exceeded \$1.7 billion.

This storm system differed from the west coast storms of 1986 and 1995 in that every major basin in the region was hit, and hit hard. Inflows on the Sacramento River at Shasta Dam, 100 miles north of Sacramento, California, corresponded to a 125-year event. Storm frequencies of 190-years and 65-years respectively were experienced at Oroville Dam on the Feather River and at Folsom Dam on the American River in the Sacramento area. South of Sacramento, a 110-year event at Camanche Dam took place, adding to the flood waters in the San Joaquin River. In the San Joaquin Basin itself, four reservoirs experienced events ranging from 125-year to 180-year frequency. High flows in all of California's Central Valley rivers stressed the flood control system from Modesto in the northern portion of the valley to Bakersfield in the south. In Nevada, flows from the Truckee River in Reno reached 21,000 cubic feet per second, a 150-year event.

ROLE OF THE CORPS IN OPERATING ITS FACILITIES

The Corps of Engineers' involvement in the flood damage reduction system in California's Central Valley began with the Flood Control Act of 1917, which provided for a comprehensive flood control system that incorporated previously constructed local levees into the Federal project. Inclusion was based on location, adequate height, cross section, maintenance and past performance. In most cases, neither subsurface investigations nor rigorous engineering designs were performed when these locally constructed levees were built. These levees and those subsequently constructed to Federal standards comprise a system of protection approximately 1700 miles in length, 1100 miles in the Sacramento River basin and 600 miles in the San Joaquin River basin. These are known as "project levees." The local sponsor for this levee system is the California Reclamation Board which is responsible for operations and maintenance. The Reclamation Board frequently transfers this responsibility to a local Reclamation District. When one of these levees is damaged in a flood event, its repair is a Federal cost with the sponsor providing lands, easements, rights-of-way, and borrow material. I should point out that there are hundreds of miles of other levees in the Central Valley that do not meet Corps standards and are not eligible for Corps assistance for repairs when damaged in a flood event.

Congressionally authorized flood damage reduction projects are operated to fulfill their various authorized purposes. Every Corps of Engineers flood storage reservoir has an approved Water Control Plan and a Water Control Manual that prescribes how the project will operate individually and in unison with other projects in that basin to reduce flood damages. If changes to the manual are needed, public meetings are held to discuss the proposed change. Using the manual, personnel in Corps district Reservoir Control Centers implement the Water Control Plan. The purpose of the plan is to maximize the beneficial uses of reservoir storage.

Reservoirs are typically drawn down to a low level in anticipation of spring rains and snow melt. When a downstream control gage reaches, or is forecast to reach, flood stage where serious damage would begin to occur, reservoir releases are reduced in order to impound the floodwater and lower river stages. For medium to large floods, the outflow may be cut to minimum flow, but the river may still rise above flood stage at the control point due to flows into the river from uncontrolled tributaries downstream from the dam. As the water level in the reservoir rises, the project outflow is increased to avoid completely filling the reservoir, if possible. Allowing the reservoir to fill before the storm ends is not sound engineering practice, because once the reservoir is full, its outflow can no longer be completely controlled. When this happens, high inflows to the reservoir can pass unregulated over the spillway, such as occurred at Painted Rock Dam on the Gila River, Arizona, in 1993. In no case, however, is the outflow ever greater than the natural inflow.

After the river peaks and begins to fall, the reservoir discharge is increased to begin regaining reservoir storage space with which to control any ensuing flood. Release rates are controlled so as to never produce flows greater than those which were already experienced in

order to not cause further damage. This increase in reservoir releases during the recession phase of the flood may give the appearance that we are contributing to the flood, while in fact we are regaining storage space in order to be able to react to a subsequent storm. During the flood event, we do not know with certainty how intensely the rain will fall, how long the storm will continue, how much rain will fall on the basin, or how soon another storm may occur. Weather forecasters can only give us predictions based on their current observations.

During this recent flood, the flood control system within California functioned the way it was designed to operate. It prevented an estimated \$1.8 billion in damages that otherwise would have occurred. Where levee breaches did occur, in most cases they were caused by flood flows greater than the levee was designed to withstand. Of the 32 breaches reported in project levees, only two locations were identified where failure occurred below the design level. The continued high water is causing further saturation of the levees, which increases the probability of failure or substantial damage due to seepage or erosion.

After the 1986 floods, the Corps initiated a major study effort known as the Sacramento River Flood Control System Evaluation. Some items of work from this study have been authorized and are funded for construction. Primarily, this work is levee improvements. There are several other Corps flood damage reduction efforts underway in the Central Valley at various stages of completion. These studies are looking at levee raising, channel widening and straightening, and potential reservoir sites. Some levee improvements in the Sacramento area were recently authorized in the Water Resources Development Act of 1996 as a part of the authority for the American River Project.

ROLE OF THE CORPS IN EMERGENCY MANAGEMENT ACTIONS

The U. S. Army Corps of Engineers' response and recovery activities are conducted under various congressional authorizations. Principal among these are Public Law 84-99, which authorizes the Secretary of the Army to establish the Flood Control and Coastal Emergencies Program; and Public Law 93-288, commonly known as the Stafford Act, which is the principal authority for the Federal Emergency Management Agency.

CORPS PUBLIC LAW 84-99 AUTHORITY

Under Public Law 84-99, as amended, the Corps of Engineers may undertake a broad range of preparedness and response activities in reaction to floods and coastal storms. These include advance measures to alleviate flood threats, flood fighting, rescue and emergency relief activities during a flood event, and rehabilitation of flood control and Federally authorized and constructed shore protection works which have been damaged or destroyed by floods or coastal storms. Public Law 84-99 also provides authority to conduct preparedness activities for all other types of natural disasters, such as earthquakes; to provide emergency supplies of drinking water

for human consumption when a community's water source is contaminated; and to assist in supplying water to drought impacted areas. Further, the Corps is authorized to provide essential services to preserve life and protect property in flood impacted areas, for up to 10 days, subsequent to a Governor's request for a Presidential disaster declaration under the Stafford Act

The South Pacific Division has already provided direct flood fighting assistance, flood fighting supplies, technical support and emergency contracting services to the State of California during the flooding that ravaged the State in January. Significant flood fighting activities the Corps engaged in included reinforcing the Sutter Bypass levee on the Sacramento River, stabilizing the levee break at the Feather River near Olivehurst, California, construction of an emergency levee to protect the town of Meridian, California, and construction of emergency seepage berms along levees on both the San Joaquin and Sacramento Rivers and their tributaries. We continue to be active in California in the recovery phases of this operation.

I am pleased to report that the Corps of Engineers undertook a very proactive approach to our flood fighting and long-term recovery activities. We exercised all available authorities to expedite the reinforcement of threatened levees and to close breaches in levees and we used emergency contracting procedures to issue letter contracts for the many flood fighting operations. These expedited contracting procedures, which in many cases resulted in contracts being awarded in the matter of a few hours, were used many times during the flood fighting phase.

The Corps regularly provides technical assistance to levee districts and other public sponsors to assist them in operating and monitoring the conditions of their flood control project. As river stages increase to where there is water against the river side of the levee for an extended period of time, the levee becomes saturated and the possibility for under seepage, sand boils and other forms of potential structural failure of the levee increases. The Corps provides technical assistance to assist local levee patrols to recognize the warning signs and to identify potential areas of weakness or failure. During the California floods, Corps personnel assisted levee districts in conducting levee patrols, constructing sandbag ring levees around sand boils, sandbagging to raise low points in levees, and addressing other seepage problems that developed.

Early in the flood event, the South Pacific Division established an internal task force to look at an orderly approach to follow once the immediate flood fight was completed. The task force has worked effectively in close cooperation with the California Department of Water Resources and arrived at a work plan that would ensure that the State's most serious problems are handled in proper sequence.

The Corps has developed a four-phase plan which addresses the flood problem from the flood fight to the long-term recovery. The first phase (Emergency Response) is the flood fights executed by our Emergency Operations teams in coordination with the State emergency response organizations. To date, 32 Phase I, Emergency Response projects have been completed at a cost of \$21.8 million. As the waters recede and we get a closer look at more levees, there may be

work required that will be accomplished under subsequent phases. Future storms, or an abnormally fast snow melt, could cause us to return to Phase I emergency response operations.

Phase II (Initial Recovery) provides essential interim flood protection for the remainder of the storm season. We maximize use of reservoir flood control space and initiate standard levee rehabilitation that is sufficient to provide 20-25 year level of protection. Twelve Phase II, Initial Recovery projects were completed by the first week in March at a cost of \$34.6 million.

We have begun efforts to identify the complete scope of Phase III (Final Restoration) requirements. Phase III work will restore pre-flood level of protection. Our goal is for final levee rehabilitation projects to be completed by November 1997, before the next flood season. As part of this effort, we will take a hard look at alternatives to floodplain uses in addition to levee rehabilitation. The Water Resources Development Act of 1996 amends Public Law 84-99 to allow the use of nonstructural alternatives to levee repair. We will be examining the possibility of buying out the development in a floodplain rather than rebuilding the levee in conjunction with OMB CEQ guidance, the local sponsor, and other Federal agencies including Fish and Wildlife Service.

Our Phase IV (Long Term) effort will have as its main focus, a basin-wide comprehensive evaluation of systems and their adequacy of protection. As we have done following other significant flood events, we will assess flood damage and flood reduction alternatives. We will look at flood proofing, flood warning systems, and solutions that can be implemented at the local level. We have initiated a floodplain management technical services response effort as the first part of Phase IV. Evaluation of reservoir flood control allocation, nonstructural measures, improvements to by-passes and floodways, and a hydraulic model study are also scheduled for the comprehensive study. We will perform in-depth consultation with other Federal agencies, and State and local interests, as well as partner with CALFED in this effort.

The Corps also has established procedures that allowed us to continue work from flood fights to interim repairs on damaged levees uninterrupted, while shifting from flood fight to initial rehabilitation funding sources. This aggressive approach enabled Phase I and Phase II repairs to be initiated and completed in a very compressed period of time. We have been aggressive in the use of state-of-the-art technology, utilizing Global Positioning System (GPS) equipment, Geographic Information Systems (GIS) software, and geographic data sets from other agencies. Global positioning programs were used that allowed us to pinpoint levee failures and greatly facilitate our inspection, analysis, project preparation and documentation.

Currently, the Corps of Engineers is aggressively pursuing Phase III of this program and is working diligently to restore the pre-flood level of protection for all eligible flood control works. I am pleased to report to the members of the Committee that the level of cooperation among and between all concerned Federal, State, and local agencies in response to this unprecedented flood emergency was singularly outstanding. Our early dialogue with the State

Director of Water Resources, the State Office of Emergency Services, the Regional Director of Fish and Wildlife Service and the Federal Emergency Management Agency contributed in significant measure to the efficient, well-coordinated and timely response to the flood emergency. Now that we are well into our restoration phase and levee rehabilitation, I believe that this spirit of cooperation will continue as we focus all of our resources on the most pressing issue in our emergency recovery operations.

FEDERAL EMERGENCY MANAGEMENT AUTHORITY

Another aspect of our response is our work for the Federal Emergency Management Agency (FEMA), conducted under Public Law 93-288. This Act authorized FEMA to direct Federal agencies to utilize available personnel, supplies, facilities and other resources to provide assistance in the event of a major disaster or emergency declaration. Under the Federal Response Plan developed by FEMA and the 27 signatory agencies, the Corps of Engineers has been designated the responsible agent by the Department of Defense for supporting FEMA by providing public works and engineering support to States in response to major disasters. Once the Federal Response Plan is activated, FEMA may task the Corps of Engineers through mission assignments, with an array of support requirements. This may include technical advice and evaluations, engineering services, construction management and inspections, emergency contracting, emergency power, emergency repair of water supply, waste water, and solid waste facilities, and real estate support. Mission assignments to the Corps of Engineers all emphasize the emergency technical and construction support capabilities of the Corps of Engineers. In carrying out these assignments, we can apply all of the resources available throughout the Corps of Engineers nationwide, as well as tap the resources of other Federal agencies and, through contracting, the assets of private industry.

During this Pacific Northwest flood, the Corps, pursuant to requests from FEMA under Public Law 93-288, was able to provide immediate and timely support to State and local governments. Based on a combination of Federal and State assessments, the Corps of Engineers responded to numerous missions in support of the States of California, Idaho, and Nevada. In California, the Corps of Engineers received FEMA missions to provide support in the following categories; emergency supplies, debris removal, and staffing of the Emergency Support Function #3 (Public Works and Engineering) element in the Disaster Field Office with a total funding amount of \$724,000.

Although our work under the Public Law 93-288 authority cannot be implemented until a Federal emergency declaration and FEMA mission assignments are made, we remain prepared in anticipation of taskings. In-house training and the experience and expertise gained in carrying out the Corps of Engineers civil works mission keep Corps personnel prepared for disaster response and recovery.

ADMINISTRATION'S GUIDANCE ON LEVEE AND ASSOCIATED RESTORATION

More than in the past, the recovery phase of this flood will recognize that the problem of flood damage is not caused entirely by floods, but by our often unwise use of floodplains. In response to the Midwest flood of 1993 and subsequent floods, the Administration has worked to improve the Nation's flood and floodplain management policy to reduce the loss of life and property caused by floods, and to restore the natural resources and functions of floodplains. The Administration issued, "Sharing the challenge: Floodplain Management in the 21st Century," (commonly known as the Galloway Report) detailing how this could be accomplished. The goals have been to share responsibility for floodplain management at all levels of government, to act sequentially to avoid, minimize, and mitigate flood and floodplain damage, and to organize better governmental response to floods and floodplain management needs.

With these goals in mind, the Administration recently issued guidance to agencies acting upon applications for levee repair and associated restoration of damages incurred as a result of floods of 1996 and 1997. In a memorandum to agencies dated February 18, 1997, the Director of the Office of Management and Budget and the Chair of the Council on Environmental Quality issued the guidance on floodplain management and procedures for evaluation and review of levee repair and associated restoration projects. In line with similar guidance released after the 1993 Midwest flood, this guidance represents a change from the traditional practice of automatically rebuilding exactly what was lost in a flood event. Recovery must now take a longer-term view of floodplain management and recognize that in many cases the wisest choice is not to rebuild what was there before, to place it once again in the path of the next flood, but to perhaps move development out of the floodplain or purchase easements as the best way to reduce future damages.

The guidance established several new procedures. I will emphasize two of them here that have been successfully used following the Midwest flood of 1993 to improve floodplain management practices and reduce subsequent flood damages. First, the Army Corps of Engineers serves as lead agency to ensure that Interagency Levee Task Forces are established during flood events to include representatives from each involved Federal agency and appropriate State, Tribal, and local agencies. The overall goal of the Interagency Levee Task force is to achieve a rapid and effective response to damaged flood and floodplain management systems that minimize risk to life and property, while ensuring a cost-effective approach to flood damage mitigation and floodplain management, as well as the protection of important environmental and natural resource values. Brigadier General Capka has been appointed as the lead Corps official for this effort in California. In addition to the Corps, other Federal agencies participating in the Interagency Levee Task Force include the Departments of Agriculture, Commerce, Housing and Urban Development, Interior and Transportation, the Environmental Protection Agency, Small Business Administration, and the Federal Emergency Management Agency.

Second, in making plans for levee and associated repair, the Task Force will consider nonstructural alternatives and design modifications that could reduce flood damages, lower long-term cost to taxpayers, and improve the environment. These alternatives may include acquisition or "buyout" of floodplain development or retirement of agricultural lands. Removing most types of development from the floodplain reduces flood damages from the inevitable next flood and eliminates the need for expensive structural measures to control flood waters. This approach is consistent with recent actions by Congress in the Water Resources Development Act of 1996 which amends Public Law 84-99 to emphasize consideration of nonstructural alternatives.

Having said that, I do not want to leave the impression that this Administration believes that structural measures are no longer considered reasonable solutions to flood damages. There are certainly many examples where replacing levees to their original condition is the wisest choice, given the density of development and value of the land and structures being protected. However, in the future, we will arrive at such conclusions only after having fully considered a range of alternatives, including nonstructural ones, and having consulted with involved agencies at all levels of government, including State and local agencies.

FISCAL YEAR 1997 EMERGENCY SUPPLEMENTAL APPROPRIATIONS ACT

The President is considering and will soon send to Congress a supplemental appropriation request for emergency levee rehabilitation, flood related response and recovery operations for the California flooding as well as funds for other flood response and recovery operations.

While we continue to be involved in flood response and recovery operations in California, we have had to address flooding elsewhere in the Nation. The Corps has already been engaged in flood emergency operations along the Ohio and Mississippi Rivers this month. The potential for additional flooding is very high particularly in the upper Missouri River basin, the Red River of the North in North Dakota and Minnesota, and the Pacific Northwest, all of which have significantly above average amounts of snowpack. I have already authorized advance flood fighting measures in South Dakota, North Dakota, and Minnesota to prevent predicted flooding from snow melt runoff.

We are prepared to continue to be proactive in assisting States' emergency organizations in all areas when flooding may occur.

REFLECTION ON THE FLOOD EVENT

Overall, we feel we have met the challenge presented by the California Floods of 1997 and are aggressively pursuing the re-establishment of the flood damage reduction system in northern California.

A number of things worked very well during the flood. The Corps flood control projects, consisting of reservoirs and levees, worked as designed and withstood the test of this flood. The water control plans for the reservoirs were very beneficial in guiding our response to these unprecedented conditions. The Emergency Operations Centers at Corps Headquarters, districts, and divisions functioned very well during the crisis providing timely responses to needs in the affected area. Our volunteer program was also a great success, providing a pool of over 300 individuals from across the Corps who were willing to go to the stricken area and join in the flood fight.

In closing, I would like to take the opportunity to recognize the heroic efforts of local communities and citizens, the States, National Guard units, and all of the Federal agencies that participated in the flood fighting activities during this event. The Army Corps of Engineers was an integral part of this effort and I am proud to be associated with the dedicated people, both military and civilian, of the Corps of Engineers.

Mr. Chairman, and other members of the Subcommittee, this concludes my statement. Thank you for this opportunity to discuss the vital role of the U.S. Army Corps of Engineers in the California Floods of January 1997 response and recovery effort. Brigadier General Capka and I will be pleased to answer any questions you may have.

Sacramento Area Flood Control Agency
Testimony for the Record
Water Resources and Environment Subcommittee
Committee on Transportation and Infrastructure
Rayburn House Office Building
March 19, 1997, 10:00 AM, Room 2167

Mr. Chairman, the Sacramento Area Flood Control Agency (SAFCA) appreciates the Committee's efforts to have hearings on the very serious flooding problems in the Central Valley of California. SAFCA was formed after the devastating floods of 1986 in the Sacramento area. Because of vigorous flood control efforts by SAFCA since 1986, and a stroke of luck with weather patterns in the recent flooding events, the area of SAFCA responsibility was saved from significant damage in 1997. A slight change in the storm track could or perhaps would have overwhelmed current flood protection facilities in Sacramento.

While we do not for a moment diminish the severity of flooding of many of our neighbors in the Central Valley and the importance of removing the flood risk, the fact remains that the Sacramento area has the densest population and development in the Central Valley and remains at an extremely high risk of disaster.

Members of SAFCA have taken the initiative to begin developing adequate protection. We have repaired many levees, built some new ones, and raised others to reduce the flood threat. We have also arranged with federal officials to make more flood control space available in Folsom Dam. This was a particularly critical element in averting disaster in January. But we are nowhere near achieving the

SAFCA Testimony

March 19, 1997

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ultimate goal of a high level of flood protection for this area of very high level risk. We continue to need all possible assistance to achieve a safe level of protection.

In addition to the work already done, we hope to have other activities under way soon. The Water Resources Development Act of 1996 authorized improvement of many miles of levees, telemetering gauges, and a flood warning system along the American River. These are referred to as the "common elements" because they are recognized to be essential necessary ingredients in any of the potential long term solutions to Sacramento's serious flooding problems, but they are not in any way sufficient to solve the problem. In addition, WRDA 96 authorized continued reoperation of Folsom Dam to provide additional flood protection and other work on repairing levees is authorized under other authorities to help alleviate the near term danger. We are working with the Congress to ensure adequate levels of funding for these efforts and others in FY98.

Notwithstanding these efforts, there is still a critical need to develop and implement a long term strategy for a high level of flood protection for the Sacramento area. This is because the American River has demonstrated on five separate occasions since 1950 its ability to produce higher flows than were anticipated in the design of Folsom Reservoir. Even with near-term levee improvements described above, Folsom Dam as currently configured is not capable of controlling the American River. Uncontrolled American River flows jeopardize Sacramento, the State Capitol, and the center of State government. Efforts are still

SAFCA Testimony

March 19, 1997

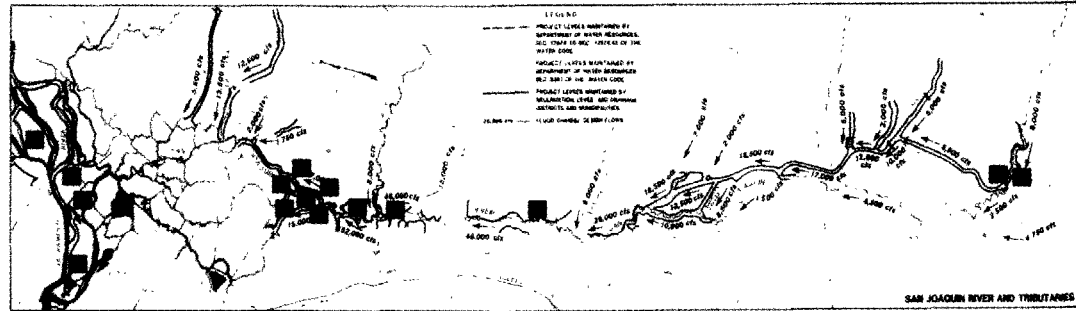
Page 3.

underway to remove water from portions of California which were flooded last January, and except for good planning and good luck, Sacramento would face the same condition. In short, the most basic operations of the governing structure of the world's seventh largest economy would be devastated.

Additionally, uncontrolled American River flows jeopardize the integrity of the Central Valley flood control project below the confluence of the Sacramento and American Rivers. Uncontrolled flows threaten levees along the lower Sacramento River, the Yolo Bypass, and in the Delta. Over the next thirty years there is nearly a one in three chance of uncontrolled American River flows. Any evaluation of the flood control needs of the Central Valley must recognize the importance of controlling the American River and preventing a disaster in Sacramento.

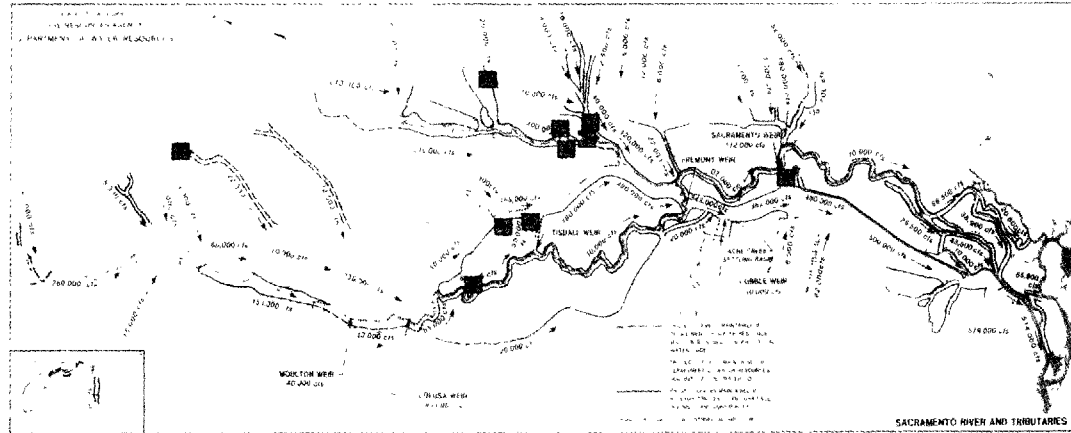
We thank you very much for this opportunity to express our views and look forward to working with you and the Committee to meet the flood control needs of the Central Valley.

San Joaquin River System January 1997 Levee Problems

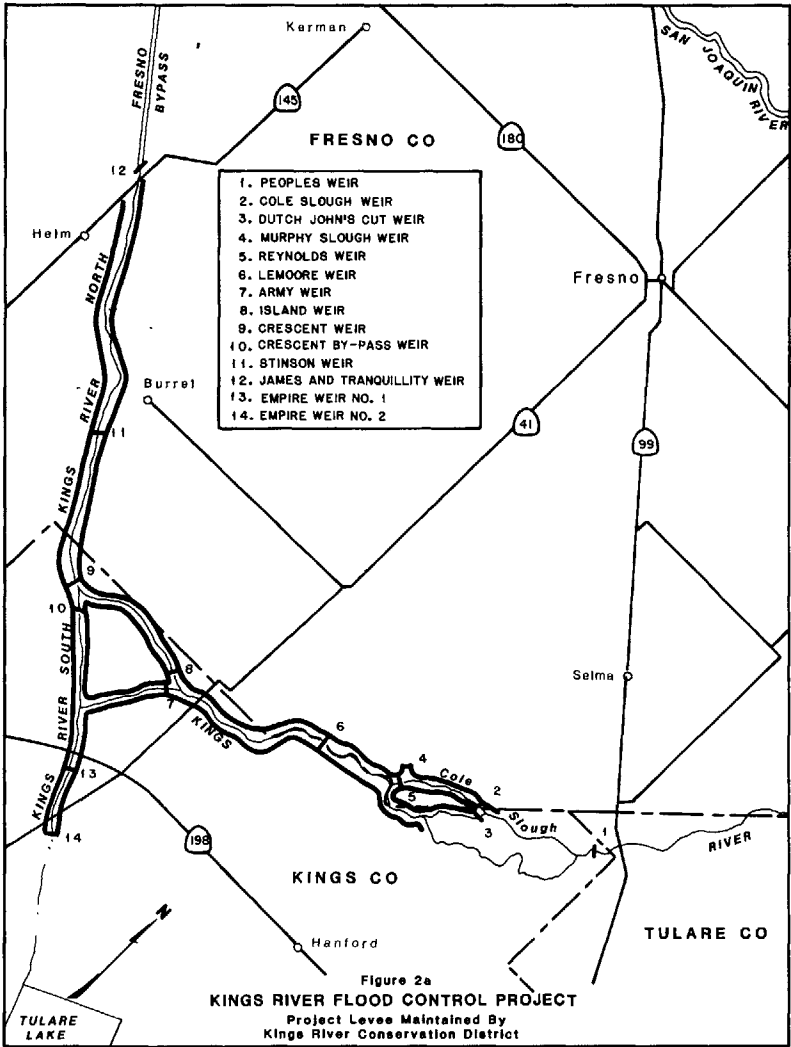


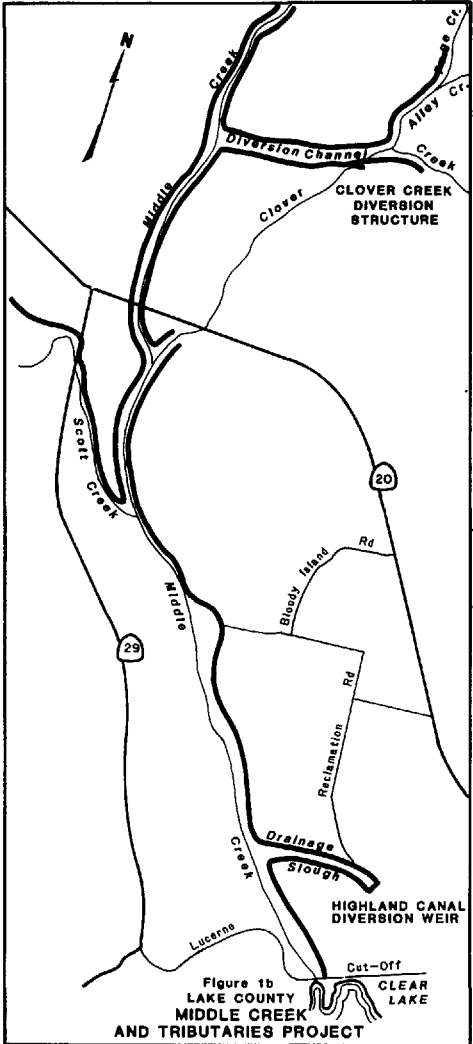
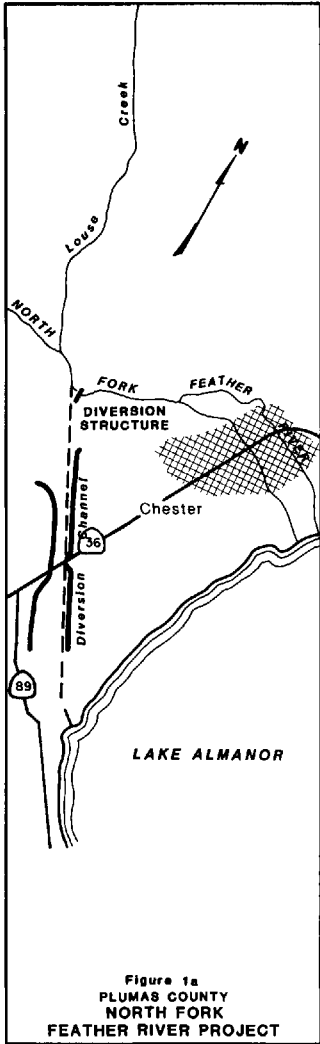
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|---|--|
| <ul style="list-style-type: none"> ■ San Joaquin River Trahern & Walthall Levees (Flood Fights) ■ Paradise Cut Levee Break "A" ■ Paradise Cut Levee Break "B" ■ & ■ Lower San Joaquin River Multiple Levee Breaks ■ Upper San Joaquin River Multiple Levee Breaks (Right Bank) ■ Upper San Joaquin River Multiple Levee Breaks (Left Bank) ■ Brannan-Andrus Island Bolis And Levee Sloughing (3 Sites) | <ul style="list-style-type: none"> ■ Upper Roberts Island Levee Seepage (Flood Fight) ■ Stewart Tract (Flood Fight) ■ Sherman Island Levee Stumping ■ Twitchell Island Levee Sloughing (2 Sites) ■ Ryer Island Levee Sloughing ■ San Joaquin River Levee Seepage At RD17 (Right Bank) ■ San Joaquin River Levee Stumping At RD2063 (Right Bank) |
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Sacramento River System January 1997 Levee Problems



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|  Feather River Levee Break (Left Bank) |  Meridian Emergency Dike |
|  Feather River Levee Relief Cuts (Left Bank) |  Bear River Levee Overtopping And Breaks.(Right Bank) |
|  Sacramento Bypass Levee Repair (Left Bank) |  Butte Creek Levee Restoration (Both Banks) |
|  Sutter Bypass Levee Break (Right Bank) |  Feather River Levee Repair (Right Bank) |
|  Sutter Bypass Levee Relief Cuts (Right Bank) |  Yuba River Mining Debris Dike Repair |





TESTIMONY OF YUBA COUNTY SUPERVISOR BRENT HASTEY**U. S. HOUSE OF REPRESENTATIVES
TRANSPORTATION & INFRASTRUCTURE COMMITTEE
WATER RESOURCES & ENVIRONMENT SUBCOMMITTEE
MARCH 19, 1997**

Thank you for this opportunity to address this Committee regarding the New Year's flooding experienced in Yuba County.

Personal Background:

As the Third District Supervisor for Yuba County, California, Chairman of the Board of the Yuba County Water Agency, Past President of Reclamation District 784, member of Governor Wilson's Flood Emergency Action Team, and local farmer, I have been actively involved in identifying flood issues and concerns, and providing recommendations for relief and assistance for our local community. The 1997 New Years' Floods have had a significant impact on me personally because my family has seen this flood disaster first hand. We lost our home and our orchards as a result of this disaster.

I have been working with my friends and neighbors as we rebuild our lives for the second time since 1986. We are very angry. We have waited patiently since 1986, and we do not understand why our failing levee system has not been fixed.

To compound things, I have also had problems receiving individual relief from the Federal Emergency Management Agency. Shortly after the flood, I registered over the phone with FEMA and was told by the FEMA representative that I would be contacted in seven to ten days. Unknown to me, because my house was inaccessible at the time I called, they kicked my claim out of the system. Finally, after more than a month, I received my FEMA inspection on February 4th. I was promised by the inspector that I would be receiving my written confirmation on the inspection within seven to ten days. I finally received confirmation of my application on February 21st. Included in my application confirmation was also the confirmation letter for Gloria Mitchell of Yosemite, California. Hopefully she has been helped by now. A check for three months' rent arrived on February 21st, almost two months after the initial event.

Local Damage:

Our community has had over 800 homes damaged or destroyed and damage estimates are in excess of \$36 million. The five largest private employers in Yuba County have gone under water. Property owners and businesses are struggling financially to stay in Yuba County. As businesses begin rebuilding, owners are experiencing extreme frustration as they try to recover from catastrophic losses.

The County is frustrated in its efforts to address immediate repair and restoration needs and to prevent additional flood damage to all levees. The question to date has been who has the responsibility for this and what does the Federal government consider timely response? Now the question asked is how many people have to die before the levees are fixed? One death in 1986, three in 1997. We pray that is enough. Federal funding needs to be appropriated immediately for adequate repair and restoration of our levees.

I can't begin to describe the feeling of frustration in our Emergency Operations Center (EOC) following the levee break as we waited for the Corps of Engineers to arrive. We were at the mercy of the flood waters. At 8:10 p.m. on January 2nd the Feather River levee failed. At 4:00 a.m. the following morning the Corps was on the scene, eight hours after the levee failure. On a good day, I can drive to their Sacramento headquarters from my house in forty minutes. An eight hour response time is too long when my friends and neighbors are running for their lives. Once on the scene, a contract negotiator for the Corps began negotiating a contract with Nordic Industries. At 6:00 a.m. representatives from Reclamation District 784 requested the Corps consider measures to fight the flood such as closing holes in the railroad tracks and the possibility of breaching the Bear River as it was obvious the tea cup we live in would fill up and spill over. He informed them that his only responsibility was to negotiate this contract, and he would do nothing else. He did not tell them whom to call or whom to see in the Corps with their concerns. At 5:00 p.m. on January 3rd, the decision was made to breach the Feather River levee to allow water out. By this time men on bulldozers, at incredible risk to their lives, we asked to cut the levee in the dark and hope a chopper made it to them to pick them up. Twenty hours for this decision was too long; the Bear River had overtopped and the system failed. Because the Corps and DWR took too long to decide what to do, we now have miles of levee to repair instead of two well defined breaks.

On January 22nd, once again the people of Yuba County were flooded, this time by the breaches on the Bear River levee. Between the 2nd and the 22nd, there were over 18 days of good weather; still the breaches on the Bear River levee were not fixed. Decisions must be made to protect people, not just when it is convenient for the bureaucrats. The Corps and DWR should be required to place liaison officers in each EOC during a flood event so communication can take place.

Individuals are now being held at the mercy of federal agency regulations, red tape, and endless procedures. We need a commitment from the federal level at a minimum to keep their word. FEMA and the Corps of Engineers should establish a pro-active, streamlined response and accountability for this event. Our community should not become a victim of the bureaucracy. The human element must be considered, as the emotional effects of this disaster are going to be with us for years to come. I am often reminded by Yuba County residents that many families are still recovering from the 1986 flooding.

But, I must say the area that is of great concern for me as a resident of Yuba County and as a disaster victim is frustration with the federal regulations and the policies dictating delivery of services for individuals and families. It is difficult for me to stand here feeling I am being penalized for being a hardworking taxpayer who supports governmental programs. My constituents do not understand why a loan is virtually all the government is willing to provide for them, while they see those who can't repay a loan receive grant money. Another large loan may create a situation which forces families like mine to walk away from their homes, unable to assume this financial hardship. We must work together to address this issue. It makes no sense that someone with one foot of water damage receives financial aid grants while those who are severely impacted are urged to accept another loan.

Although almost 2,000 Yuba County residents have registered for disaster assistance with FEMA, and assistance dollars have been provided for emergency housing needs, we are faced with yet another disaster in Yuba County--economic disaster.

Federal assistance should be made available to all individuals and the funding process should not create additional hardships. We have worked hard to address flood victim's needs, conducting surveys of over three hundred families impacted by this disaster. A common concern and frustration has been lack of

access and information. We realize this disaster has been widespread throughout the State, but consideration should be given to areas that have immediate needs for disaster assistance and coordination with agencies such as the American Red Cross, Salvation Army and others.

The State of California has promised financial assistance to ensure County government's have the ability to address expenses and disaster related losses. We hope the Federal government will continue to provide ongoing assistance. Private employers that have been damaged during this flood should be likewise assisted.

Pumping Flood Waters:

Our levees are supposed to protect and keep lives and property safe from floodwaters, but again our county faced frustration with yet another federal policy decision when we were faced with pumping flood waters from our neighborhoods and farmlands. FEMA policy is that they do not pump flood water out of inundated areas. I might remind you that when the water is behind the dam, it is the public's; when it is in the river, it is public domain; but when the levee breaks it is now the local district's water. When did the water change hands. This decision, of course, has financial impact and long lasting implications for our county, and for businesses, individuals and farmers.

Agribusiness:

Agriculture is the backbone of Yuba County. The economic loss of orchards, crops and livestock will force an exodus from our county. We must take action to provide federal and state assistance to the agricultural industry.

Legislative Support-Funding:

We must give consideration to areas suffering repeat disasters. We must establish a partnership between all levels of government in disaster response, recovery and preparedness. Counties are in desperate need of financial assistance to address future pre-disaster mitigation programs such as GIS systems.

It is our recommendation to increase federal funding levels for long-term repair, stabilization and maintenance for publicly and privately maintained levees. Expedite repairs and maintenance for publicly and privately maintained levees.

Expedite repairs and maintenance on priority projects and initiate an adequately funded, comprehensive assessment program to determine the integrity of levees throughout the Central Valley.

The USDA has previously provided replacement nursery stalks to farmers. USDA should reinstate this program to assist the replacement of trees damaged by flood waters. USDA also should consider utilizing funds available through its various soil conservation programs to assist farmers recover and protect topsoil.

New water storage projects must be developed for the purpose of flood control. Projects on the Yuba River, Bear River, Cottonwood Creek and Sites Reservoir would provide greater flood control flexibility for the State Water Project and the Central Valley Project.

I would only hope that, as we are able to be better prepared for disasters such as fires and earthquakes, we never experience another flood in Yuba County. We need to begin to work together, side by side, proactively. We must meet the needs of the people we serve. They deserve nothing less.

WALLY HERGER

for DISTRICT CALIFORNIA

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COMMITTEE ON
WAYS AND MEANS

COMMITTEE ON
THE BUDGET

Congress of the United States
House of Representatives
Washington, DC 20515-0502

March 19, 1997

STATEMENT BY REP. WALLY HERGER
SUBCOMMITTEE ON WATER RESOURCES AND THE ENVIRONMENT

Mr. Chairman, thank you for this opportunity to speak on behalf of California regarding recent flooding.

I would like to begin by sharing a few statistics about the 1997 flood. January 1997 brought the worst flooding in California's recorded history. Nine people were killed, six were constituents from my district, more than 120,000 people were evacuated from their homes and more than \$1.6 billion dollars worth of damage was suffered. Forty-eight of the state's fifty-six counties were declared state and national disaster areas. This includes each of the 10 counties within my own district. Aside from the loss of life, probably the most disturbing statistic is the fact that this was the third 100-year, catastrophic-level flood to hit California in the past 11 years.

Flooding in 1986 caused \$400 million dollars worth of damage, fortunately no lives were lost. In 1995, 28 people were killed and \$1.831 billion dollars worth of damage was caused by early and late winter floods.

One of the witnesses today will testify regarding at least one instance where the federal government has not delivered promised federal relief from the disastrous 1995 floods. I mention these facts to bring this issue into perspective. California has an absolute need to develop aggressive flood prevention programs.

Our flood control system has failed three times in the past eleven years. California also has an absolute need to define the responsibility of the federal government in maintaining California's flood control system.

The federal government took control out of local hands, then neglected its responsibility to maintain and repair the flood control

(more)

PAGE 2 -- HERGER FLOOD TESTIMONY

system. It took control of levee construction permits, debris removal, upper watershed management, and waterway maintenance. This control should require accountability. This accountability should come before not after the flood hits.

When the water is rising and the levee is breaking, it is too late to start meager efforts to hold everything in place. The time to assume responsibility is when the sun is shining and when repair efforts will have life saving effect. When the recent floods hit, however, federal agencies were caught unaware of emergency powers which allowed them to respond to flood situations.

On January 17, 1997 the United States Fish and Wildlife Service and the Army Corps of Engineers executed a memorandum of agreement establishing an expedited procedure of review for flood repair activities. This agreement was rescinded less than one week later when the fish and wildlife service finally reviewed its statutory powers and realized the law granted emergency authority to make repairs without prior consultation. Emergency powers defer such requirements until after the emergency has abated. It is unclear how many flood activities were delayed until officials figured out what action could or could not be taken.

I suggest we take the opportunity of this hearing, Mr. Chairman, to take a serious look at the devastation caused by January's floods. We have a duty to find out what we are doing wrong. Because something is wrong, Mr. Chairman, when a flood control system supposedly designed to withstand a once in a century type flood fails three times in little more than a decade.

We need to find what has contributed to the failure of the system and assign responsibility, no matter where it belongs. Mr. Chairman, I want to thank you and this committee for holding this fact-finding hearing. I look forward to hearing the evidence presented today and hope it will be useful to this committee and to congress as we look for ways to improve California's flood control system and to protect the lives, property and communities of California residents.

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**U.S. HOUSE OF REPRESENTATIVES
TRANSPORTATION AND INFRASTRUCTURE COMMITTEE
WATER RESOURCES AND ENVIRONMENT SUBCOMMITTEE**

March 19, 1997

Washington, DC

Testimony of Charlie Hoppin

Mr. Chairman and members of the Subcommittee, thank you for the opportunity to testify today on the recent floods in California's Sacramento Valley. My family has lived and farmed in this region since 1848, and I have personally farmed in Yuba and Sutter counties for the past 30 years. My farming operation, which employs roughly 100 people, includes the production of wheat, rice, safflower, apples and vegetable crops on 2,000 acres of land.

I currently serve as the Chairman of Environmental Relations, and as a Director, for the California-Arizona Watermelon Growers Association; Director on the Board of Farmers' Rice Cooperative; Director of the California Rice Industry Association; I also serve on a Citizen Advisory Panel to California Governor Pete Wilson's Flood Emergency Action Team (F.E.A.T.).

The January 1997 levee breach and resulting 25,000 acre flood near the Sutter County town of Meridian flooded over 1,200 acres of my farming operation with water and silt that rose as high as 18 feet. It should be noted that this area is not in a designated flood plain and has not experienced a flood since 1940.

This levee break, which caused the initial flooding, was promptly fixed by the U.S. Army Corps of Engineers to a 25-year level of protection, despite calls by the local counties and the State of California for full repairs to the 100-year level of protection. The Corps has also closed the man-made breach created to allow a portion of the flood waters held captive by the Sacramento River levee and bypass levee to flow back by gravity into a designated flood plain. Presently, 25% of the original flooded area in Sutter County remains under water. The 75% which has been drained remains untillable due to soil saturation, siltation, and damaged infrastructure; natural gas wells, State, County and private roads, State and Federal irrigation

and reclamation systems. Because of the inevitable delays in re-entry resulting from a flood, the region's cropping patterns for this season will be significantly affected.

Unfortunately, my farm sits geographically at the lowest point in the flooded area. At this time all remaining flood waters need to be mechanically pumped out. While pumping is our only option for drainage at this time, it must be noted that this practice is terribly expensive. Temporary pumps must lift and push water over levee tops, as opposed to existing reclamation pumps which normally utilize a combination of gravity flow and pumping through levees at ground level. I understand that due to extensive damage to our infrastructure, the Federal Emergency Management Agency (FEMA) has discretionary powers to fund our emergency reclamation efforts. This authority is provided by Public Law 93-288 as amended by P.L. 100-707 Sec 403 Sub Sec (a) (3).

FEMA representatives, however, have been unwilling to act. In fact, FEMA representatives have repeatedly denied any authority or responsibility for pumping of flood waters out of the region.

At this time, all of the original drainage pumps that have been repaired are operating under the authority, and at the expense, of Local Reclamation Districts 1660 and 70, (these Reclamation Districts cover the flooded Meridian area.). Additionally, the State of California has provided funds to Districts 1660 and 70 for the express purpose of leasing additional diesel-powered reclamation pumps to assist in the effort. This timely contribution from the State underscores the urgency of reclamation efforts to both directly affected agricultural interests and local communities, which are dependent on agriculture for their economic base.

I understand that the State of California, while acknowledging Federal responsibility for pumping flood waters out of the region, provided timely funds for our reclamation districts, and intends to work with FEMA to secure reimbursement for this action. Additionally, I have reclaimed at least 50% of my own land by excavation and pumping in an effort to mitigate my personal financial loss from this flood-related devastation.

It would be an extremely short-sighted and selfish person who felt singled out in any natural disaster. We need only to follow newspaper and media accounts to understand the

scope and devastation nature often causes. I feel fortunate to be here today. I realize this disaster could have been much worse for my family, my employees and our community. In fact, David Kennedy, Director of the California Department of Water Resources, has commented that if the January 1, 1997 storms had continued another 8-12 hours, the resulting flood could have very well cost thousands of lives and covered the majority of the Sacramento Valley.

Even with all of the technology at our disposal today we must acknowledge that nature, while providing seemingly limitless resources, often displays an awesome power of destruction. However, anyone with even a basic knowledge of the water systems in the State of California should appreciate such a magnificent creation - a system which provides water for vast urbanization, industry, and one of the most efficient and productive agricultural communities in the world. Our waterways and flood control projects also provide transportation and recreation opportunities to millions of Americans, as well as invaluable benefits for wildlife.

The state and federal water projects, despite their shortcomings, were built in an era when Fresno scrapers and mule teams preceded Caterpillar and John Deere tractors, as did hand-held transit levels and spirit levels that preceded laser technology and the computer. However, even more importantly, it was a time when common sense preceded bureaucracy!

I realize that the water systems of California were built with foresight ahead of their time, and yet are expensive to maintain. However, these systems, which include projects on the Sacramento, Feather, and Yuba River systems, provide a major portion of the water that is essentially the backbone of one of the largest economies in the World. I believe it would be nothing short of gross negligence to delay maintenance and improvements on a system that provides flood control for urban and rural Californians. Even the intuitive and creative minds that foresaw the need for California's waterways and flood control projects at the beginning of this century had no idea of the vast number of people that would benefit from their foresight.

I feel without question that the causes of the flood of '97, which nearly destroyed my business and threatened the lives and well-being of my family and neighbors, can be

corrected. It won't require Star Wars technology, but simply a step back into a time when common sense preceded bureaucracy.

I am thankful that my vocation allows me to interact with nature on a daily basis. This interaction allows me to touch and see things that many well-meaning people can only imagine. It also allows me the privilege of being a steward of the soil which most certainly requires me to be a true working conservationist. I realize that if I don't rise to the occasion of being a successful conservationist, I will not only contribute to the decline of mankind but also destroy a wonder of nature.

It is with this appreciation of nature, and the recognition of the importance of the water projects that I believe we must find a workable balance to endangered species problems. I do feel, however, that when levee repairs and the clearing of debris and sediment from river channels and designated flood plains are delayed for years to study the environmental impact of the repairs, that we have lost the common sense that created and developed these systems in the first place.

A good example of this is occurring in Reclamation District 1500, also in Sutter County, where a severe levee repair problem has been studied, funded, and accepted by the Corps of Engineers, only to be delayed for several years while additional Fish and Wildlife studies are completed on possible impacts on the endangered Giant Garter snake. The irony here is that no one has found evidence of the presence of the Garter snakes in this area. And furthermore, if it does exist, a levee constructed for flood control in this century is not its original habitat. A more practical solution would be to simply relocate any snakes found in this area and return them to their primary habitat, thus eliminating any threat to them caused by levee repairs. It must be realized that the flood in the Meridian area, which occurred at night, killed both plants and animals, including the endangered garter snakes in addition to countless deer, upland game birds, and other animals that play such a large role in the balance of nature.

I am pleased to learn that through the efforts of the Corps of Engineers and the U.S. Fish and Wildlife Service, that the old process of proceeding from flood fight and

intermediate repairs to their original status has been greatly streamlined. This new process allows the Corps to proceed quickly to repair flood damage, and more importantly, will provide greater efficiency for flood project repair and maintenance and provide some flood season protection for flooded communities. Such a practical solution to a previously cumbersome procedure is an example of the common sense approach I am requesting the agencies consider. I hope such acts will be encouraged by this administration in the future.

Furthermore, I would ask Congress and the federal agencies to remember that the levees and flood control systems were designed to conserve and transport water while simultaneously protecting the population of California from floods and economic havoc. While the tremendous amount of wildlife habitat that was created as a byproduct by the water system should not be taken for granted or destroyed, we should not allow this habitat to compromise the intent and integrity of this man-made wonder.

I would additionally request that, while valuing created habitat, Congress and federal agencies allow untethered repair and maintenance of our levee system. It should also be recognized that areas such as the Sutter Wildlife Refuge which encourage mid-channel growth of trees, brush, and tules in a designated flood plain likely contributed to the flood by restricting water flows. Again, the creation of a migratory waterfowl refuge is a wonderful and beneficial creation, but it must be recognized that environmental values should not compromise the integrity of a flood control project. In this case federal officials should always be required to follow the same accepted flood channel cultural practices that their private landowner neighbors have been required to adhere to for decades.

The hundred year flood we experienced in Northern California in 1986 and this year clearly illustrates there is no guarantee that we will not continue to face flood related economic chaos and continued loss of life. In order to help prevent these regularly occurring so-called hundred year floods, Congress should encourage a common sense approach to the repair and maintenance of our water system without unreasonable delays. Work needs to proceed with great vigor in recognized problem areas.

Additionally, we must have a comprehensive assessment of our levee system, recognizing that most of these projects originated at a time when old sloughs and natural channels were simply filled in and built up without today's engineering technology.

It is clear to me that while a workable solution to the problems and short-comings of the water and flood control systems are readily at hand, a complete and comprehensive reassessment of the levee systems should be made. This assessment needs to proceed forward at a pace that reflects the fact that the lives and economic well being of the residents of Northern California are in jeopardy until all needed repairs are completed.

Assuming that Congress and the appropriate Federal agencies recognize the need for immediate reassessment and repair, I will conclude by requesting that a joint advisory panel be formed that includes both State and Federal officials, as well as a citizens advisory group. In my opinion the citizens group is essential to bridge the gap between the workings of bureaucracy and local community needs. The citizens group should also include responsible representatives of environmental groups such as the Environmental Defense Fund.

It has been my experience that when all concerned parties involved in any issue are allowed to assemble as equals that the solutions to seemingly insurmountable problems can be resolved to the satisfaction of all.

I would urge Congress to work with the State of California to restore one of the most magnificent water systems in the world, so that it can continue to nurture and protect the residents of California now and in the future.

CHARLIE HOPPIN

Statement on Government Grants, Loans, & Subsidies

I am currently recognized as an entity by the U.S. Farm Service Agency. In 1997 I will receive the maximum payment of \$40,000 from the F.S.A. for participating in the rice and wheat program.

I have no federal loans or grants.

Charlie R. Hoppin

SS# 564-62-5890

**TESTIMONY OF GERRY A. JACKSON, DEPUTY ASSISTANT DIRECTOR FOR
ECOLOGICAL SERVICES, U.S. FISH AND WILDLIFE SERVICE, DEPARTMENT OF
THE INTERIOR, BEFORE THE HOUSE TRANSPORTATION SUBCOMMITTEE ON
WATER RESOURCES AND ENVIRONMENT, REGARDING THE RECENT FLOODS
IN NORTHERN CALIFORNIA.**

MARCH 19, 1997

Mr. Chairman, I very much appreciate the opportunity to be here today to discuss the recent and tragic flooding which has taken place in California. Our hearts go out to those that have suffered losses from the devastating floods, as well as those who are currently suffering losses from flooding along the Mississippi and Ohio Rivers in the Midwest and Southeast.

The amounts of rain which fell in the Central Valley of California in late December 1996 and January 1997 were some of the highest ever recorded. As noted by previous speakers, the flood control system throughout the Central Valley was greatly stressed by the unprecedented amounts of rain and snowmelt that resulted from this series of storms. This disaster clearly illustrates that even with the best flood protection possible, our ability to eliminate flooding is impossible.

The Fish and Wildlife Service is taking all measures necessary to expedite disaster response actions, including exercising our existing authorities under the Fish and Wildlife Coordination Act and the Endangered Species Act to ensure that disaster response is not delayed as a result of fish and wildlife conservation actions. In January 1997 the Service implemented the disaster provisions of the Endangered Species Act regulations for the 48 California counties that were declared disaster areas. These provisions allow disaster response measures to be implemented immediately in the face of flooding without prior consultation with the Service.

In addition, on February 19, 1997, the Service issued a policy statement further clarifying and articulating our flood policy. The purpose of the policy statement was to provide clear guidance to Service personnel, to address the concerns expressed by disaster response agencies and local residents, and to reiterate that fish and wildlife conservation effort would not hinder emergency flood response actions necessary to protect human lives and property.

The policy statement outlined the procedures that Service personnel will follow when evaluating the impacts from short-term repair of flood control facilities. It was the Service's intention to make clear that any repair and replacement of a facility that serves a public purpose and is necessary to prevent the recurrence of such a natural disaster and to reduce the potential loss of human life may proceed unimpeded as long as the damaged facilities are repaired or replaced to substantially the same conditions as existed before the flood. Further, the Service will work with the appropriate agencies to reduce potential impacts to fish and wildlife resources, including listed species. If significant adverse impacts to listed species have occurred or are occurring as the result of emergency actions, the Service will work with the agencies to minimize or mitigate for these impacts.

We did not re-interpret the Endangered Species Act or the regulations to exempt certain activities associated with flood response. We simply implemented the emergency provisions of Section 7 regulations to address the immediate needs of the communities affected by the flood. This is standard procedure across the country in the wake of a disaster.

Currently, we are engaged in flood response efforts throughout the affected States. In keeping with the Administration's February 18, 1997 flood plain management guidance, we are working closely with the Army Corps of Engineers, FEMA, and State agencies to respond to the needs of affected landowners, businesses, and water management districts. We are providing personnel to the Corps Emergency Response Team and offering technical assistance wherever possible to minimize the long-term impacts from levee repair and reconstruction. These efforts will continue throughout the flood season. In the wake of natural disasters, we routinely work closely with FEMA, the Corps, and other Federal and State relief agencies to ensure fish and wildlife conservation efforts do not hinder emergency response actions. The recent flooding in the Central Valley is no different.

The Administration is working with the affected agencies to review damages and needs, the existing resources that can meet them, and any need for emergency supplemental funds. We will be sending up a detailed supplemental request shortly.

Regarding floodplain management, the Fish and Wildlife Service has both a short term and long term approach. Our short-term goal is to achieve a rapid and effective response to damaged flood and floodplain management systems that will minimize the risks to life and property. The long term goal of the Service is to work to develop cost-effective approaches to reducing future flood damages that are consistent with the need to protect important environmental and natural resource values that are inherent to the floodplain and adjacent lands. We will continue to work cooperatively with Federal and State agencies, local communities, water management districts, and concerned citizens to examine long-term flood damage reduction measures. Our hope is to achieve a flood control system that is based on reducing flood damages through cost-effective, and where appropriate non-structural alternatives while avoiding unwise development in the floodplain.

I would like to take this opportunity on behalf of the Service to commend this Committee and the 104th Congress for passing the Water Resources Development Act of 1996. This legislation includes provisions that authorize the Corps of Engineers to begin analyzing potential non-structural alternatives to reducing future flood damages. We believe the flood control systems of the future will depend on developing and implementing diversified approaches including non-structural alternatives that take advantage of physical structures, such as dams and levees, plus the natural and beneficial uses of floodplains to avoid damages and unwise development in flood prone areas. The Service looks forward to working with this Committee and the Corps to address these opportunities and challenges.

In closing, we know this will not be the last natural disaster that will affect human lives and property. Therefore, we are committed to continually improving our capability to respond to the

needs of affected communities, businesses, and local residents before, during and after natural disasters of all types. We look forward to working with the Committee to improve Federal disaster response, particularly the devastating floods that continue to affect our homes and communities. Thank you for this opportunity and I welcome any questions you may have.

**Testimony
of
Warren M. Lee
Director of Watersheds and Wetlands
Natural Resources Conservation Service
Department of Agriculture**

California Floods of January, 1997

**Before the
Water Resources and Environment Subcommittee
of the Committee on Transportation and Infrastructure
United States House of Representatives**

**March 19, 1997
Washington, D.C.**

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

Thank you for the opportunity to discuss the affect of the New Year's Day floods in California.

Starting on New Year's Day, an extended, warm rain in California caused damage which resulted in 48 California counties being declared federal disaster areas. Damage to agriculture in California is estimated in excess of \$245 million. Of this, \$124 million is damage to agricultural infrastructure, such as land, private levees, farm equipment, buildings, and irrigation systems. Fifty-nine thousand acres of crops have been lost, and another 95,000 acres have been damaged, a loss totaling \$90 million. Crops suffering the highest loss include: walnuts, \$16.8 million; nursery products, \$16 million; alfalfa, \$15 million; wine grapes, \$13.8 million; wheat, \$8.1 million; plums and prunes, \$6.1 million; and peaches, \$5.8 million. Livestock and dairy losses are \$16.5 million. Other crops may also experience reduced yields and reduced quality.

Many of the flooded areas are still flooded, as water has become impounded behind the levees. If these areas are not dried by the time the trees bud, the trees themselves may be lost, causing a much longer-term and more expensive loss. Most of the orchards which remain threatened are used to produce walnuts, peaches, apricots, apples, olives, plums,

prunes, almonds, and pistachios, and vineyards which produce wine grapes. If it is necessary to replace these trees and vines, most varieties will take from 7 to 10 years to begin producing.

The NRCS in California has received over 100 requests for assistance to address flooding problems in streams, tributaries, and smaller rivers that have been impaired as a result of the floods. Two point one million dollars of existing EWP funding to cover those projects that pose an immediate threat to life or property. However, many officials are concerned about the importance of an appropriate level of protection in all California waterways being restored by November 1, 1997, the projected beginning the next rainy season.

Using existing funding, in the Deer Creek area of Butte County, an EWP project was installed to protect the town of Vina from additional flooding this season. This effort protected approximately 125 homes. In Napa County, emergency work on the Napa River levee prevented flooding in the town of Yountville. Other projects have been quickly installed to protect homes, public utilities, businesses, and agricultural infrastructure from imminent danger. In each of these projects, NRCS has the support of a local sponsor that provides 25 percent of the cost of the projects. Additionally, we work closely with the local people to make sure that these projects are socially, economically, and environmentally appropriate for their community.

In addition to EWP assistance, we provide technical assistance for the Emergency Conservation Program (ECP) administered by the Farm Service Agency (FSA). ECP is available to address damages on cropland by removing debris and sediment, and restoring cropland to its pre-flood productivity. In 20 California counties, USDA has received a substantial number of requests for ECP assistance.

For both EWP and ECP, the Administration is working with affected agencies to determine the damage needs, the existing resources that can meet them, and any need for

emergency supplemental funds. The Administration will send to Congress a detailed supplemental request.

The lessons of the Midwest floods of 1993 were hard-won. The Administration's floodplain strategy goals are to share responsibility for floodplain management at all levels of government; to act sequentially to avoid, minimize, and mitigate flood and floodplain damage; and to organize better government response to floods and floodplain needs. As a result, in a February 18th memo to agencies, the Director of OMB and the Chair of CEQ issued guidance on floodplain management and procedures for evaluation and review of levee repair and associated restoration projects. Rebuilding and recovery is now viewed within the longer-term context of floodplain management, to permit landowners and communities new rebuilding choices so that they can use the lessons learned from the flood and applying those lessons in deciding on rebuilding decisions.

NRCS is implementing this new strategy reflecting the government's interest in being efficient, fair, and responsive. To ensure that we have the best solutions for each project, the federal agencies are working closely together and with local communities to examine each proposed project to determine the most appropriate long-term solution. For some projects, repairing broken levees is the best solution; but for others, especially where damages occur year after year, the best solution may be to remove or set back the levees and allow the river to expand naturally during flood events.

The Federal Agricultural Improvement and Reform Act of 1996 (the 1996 Act) gave the Secretary of Agriculture the authority to purchase flood plain easements under the EWP program. This new authority provides an opportunity to purchase easements when the long-term economic, social, and environmental benefits of purchasing the easement are greater than the cost of repeated repairs to the same land. Where willing sellers are available, retirement of this land provides a more permanent solution from damages associated with flooding or products of erosion. The landowner receives fair value for the property depending on the easement restrictions and an opportunity to enhance the

environmental functions if a riparian corridor is created. This authority gives us the flexibility to provide long-term, common sense, environmentally responsible flood protection.

A particular area of concern in California are rivers where private levees have failed and no Federal agency has authority to repair the levees. Along the Cosumnes River in Sacramento County, where approximately 21 breaks in 25 miles of private levees have occurred, landowners have asked NRCS and the U.S. Army Corps of Engineers for assistance. The river has a drainage area that exceeds 400 square miles which, under certain circumstances, is large enough to qualify for Federal assistance, in this case from the Corps of Engineers. However, it is Administration's policy that levee projects not maintained under the Corps program are ineligible for emergency repair assistance. The Administration adopted this policy to encourage levee districts and owners to keep levees maintained and properly functioning. We believe this to be both good government and sound policy for the taxpayer.

Some landowners have expressed an interest in utilizing non-structural alternatives, such as setback levees and floodplain easements, as alternatives to repairing the damaged levees. Easements may allow uses such as wetland restoration and the establishment of wildlife habitat and, where appropriate, the production of low-risk agricultural crops in the flood plain area.

In a report to the Governor, the Flood Emergency Action Team recommended that Cal-Fed, as part of its planning process, use funds from Proposition 204 and from the Central Valley Project Improvement Act for dual purpose projects which incorporate both flood control and habitat restoration. In addition, The Nature Conservancy has indicated that they have some property, and are pursuing offers to purchase additional property in the Cosumnes corridor, and are interested in providing partnership funding if NRCS and other agencies are able to work out non-structural alternatives in this area. Coupled with funds available through the Wetland Reserve Program (WRP) or for flood plain easements under

EWP, California's farmers and floodplain managers and NRCS will be able to achieve a long-term, environmentally responsible solution to the flooding that frequently occurs in these areas.

In the San Joaquin River system, major breaks have occurred along the levees, especially at the lower end. In this area, which is adjacent to the existing U.S. Fish and Wildlife Service's San Luis National Wildlife Refuge, several landowners have indicated a willingness to sell easements to their land for the purpose of restoring wetlands that will also provide flood protection. This proposal, if successfully executed, would result in the official abandonment of miles of levees providing non-essential flood control protection, many of which were seriously damaged by the 1997 flood. There should also be reduced need to expend Federal Emergency Management Agency (FEMA) funds to compensate the flood-affected landowners or for the State to continue the costly levee maintenance programs.

If these lands are restored to wetland condition, the areas would be designed to absorb major flood events with little or no harmful effects. Much of the land would incorporate natural flood flows to stimulate the production of native trees and shrubs, thus benefiting a wide diversity of neo-tropical migratory birds, plus the state-listed endangered riparian brush rabbit and the yellow-billed cuckoo. The historic, and currently drained, White Lake bottom would be restored, creating habitat for wood ducks, mallards, herons, egrets, and the federally-listed threatened Aleutian Canada goose. In all, willing sellers in the area are offering over 3,000 acres of land for easements. These areas could be added to the existing refuge to enhance a high quality environmental reserve.

In summary, NRCS responded immediately to the most critical problems using available resources. Many eligible projects remain to be repaired. The floods of 1997 offer California a unique opportunity to address long-term flooding problems in a manner that will consider the preferences of local people, the best uses of the land, and the safest protection for California communities. To take advantage of this opportunity, we need to

move quickly to use the new authorities and establish long-term solutions before the next flood season begins. We are pleased to report that all the federal and state agencies with flood recovery authority are working together in earnest to ensure that this happens.

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Congress of the United States
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TESTIMONY OF THE HONORABLE ROBERT T. MATSUI
TO THE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
MARCH 19, 1997

Mr. Chairman and Members of the Subcommittee, I thank you for this opportunity to present my views regarding the tragic flooding that occurred in Northern California in January. I appreciate the Subcommittee's willingness to hear the testimony of those affected by the flooding. We must respond rapidly and forcefully to the lessons that we learned in these storms. This hearing will certainly be a critical step in developing the information we will need to move forward.

The facts on the tragic nature of these storms are well-known. Nine lives were lost. Total damages are estimated to be at least \$1.6 billion with some \$300 million in damages to California's flood control system. 160,000 acres were flooded as a result of levee failures.

I believe that there must be at least two distinct phases to the Congressional response to these storms. The federal government is already playing a critical role in immediate recovery efforts. Clearly, a Supplemental Appropriations measure is needed to allow aid to flow uninterrupted for flood victims and to facilitate the rebuilding of damaged flood protection facilities and other public infrastructure. I hope that the Committee will lend its support to such an effort.

In this regard, I would like to add my voice to that of Rep. Pombo in seeking a solution to the problems facing Sacramento County with regard to levee breaks along the Cosumnes River. Unprecedented flows from the Cosumnes during the recent storms resulted in more than 20 breaks in the private levees along this river. Because of the private ownership of these levees, neither the U.S. Army Corps of Engineers or the Federal Emergency Management Agency has been willing to provide any funding for repairs. Sacramento County lacks the resources to address this situation on its own. It is unacceptable to allow these breaks to remain so that flood damages are compounded and area residents are unable to begin the rebuilding process. Therefore, I would ask the Committee's consideration and support for federal assistance to ensure that these levees can be rapidly repaired.

In addition to this immediate recovery effort, we must undertake a second phase of a Congressional response to these storms—identifying and implementing improvements to

the region's flood protection system to prevent a recurrence of this tragedy. These storms make it clear that substantial improvements are needed in the flood control systems of the Sacramento and San Joaquin valleys. Although an appropriately high level of priority must go to those areas directly impacted by the recent storms, I would request the Subcommittee's continued cooperation in efforts to address the extremely severe flood threat facing the City of Sacramento.

The City of Sacramento was largely spared damage during the recent storms. Unquestionably, Sacramento did not suffer major flood damage in part through simple good fortune. Certainly, our community benefited from several important flood control measures taken since the last major storms in Northern California in 1986. However, studies performed for the Sacramento Area Flood Control Agency suggest that had the American River Watershed experienced the storm that hit the Feather River Watershed, releases into the American River from Folsom Dam could have gone as high as 160,000 cubic feet per second. This level is far above the design capacity of the American River levees, suggesting that a perilous situation was averted only as a result of the path that these storms followed.

I know that this Subcommittee is keenly aware of the tremendous flood threat facing the City of Sacramento. The American River floodplain threatens 400,000 residents and \$40 billion in property in the Sacramento area. Last year, the Sacramento area House delegation was united in support of comprehensive legislation to address this problem. While the Transportation and Infrastructure Committee was unable to support this proposal, I do appreciate the Subcommittee's inclusion of \$57 million for levee improvements and a flood warning system in last year's Water Resources Development Act.

The recent storms underscored the importance of the type of levee improvements along the American and Sacramento Rivers that the Committee authorized. Nonetheless, it is quite clear that further action is urgently needed in order to achieve an adequate level of flood protection for Sacramento. I look forward to working with the Subcommittee on this issue as well as other aspects of efforts to respond to the recent floods.

Mr. Chairman and Members of the Subcommittee, I thank you once again for holding this important hearing.

CORRECTED VERSION

Statement of the Hon. George Miller
Before the
Subcommittee on Water Resources and the Environment
Committee on Transportation and Infrastructure
U.S. House of Representatives
March 19, 1997

Thank you, Mr. Chairman. I appreciate the opportunity to appear before the Subcommittee this morning.

This winter's flooding in Sierra and Central Valley watersheds has produced widespread human tragedy and billions of dollars in physical damage. The deaths of eight people are blamed on the floods. These events again prove we need to help people avoid the impact of high rainfall and rivers raging outside their banks.

What the floods do *not* prove, however, is that we need to build more dams to control flooding. The floods do not prove that enforcement of our laws on endangered species caused the floods, as easy as it is to blame that law. Nor do they compel the Federal taxpayer to restore all damaged structures that lie in the flood plains.

The only endangered species in this debate should be the political scapegoat, which is what some are employing to deflect our attention from the real issues. This is not the time for unsubstantiated accusations about a beetle or a fairy shrimp. These tragedies ought not serve as an excuse to legislate by anecdote, as is too often the case in the Congress these days. If we do not look for the real answers, no matter how difficult it may be, we are destined to see this tragedy repeated again.

According to information released by the California Office of Emergency Services, and reported this week by the Contra Costa *Times*, damages from the 1997 California floods will tie those we suffered in 1995, or roughly \$1.8 billion. Over 20,000 people have requested federal assistance through FEMA, and the agency has written \$13.2 million in temporary housing checks this year to 8,618 California individuals or families displaced by the floods.

Direct flood damages were also experienced in my own district and in nearby communities, although these areas were not damaged nearly as heavily as other areas in the state. The town of Orinda apparently suffered the worst flood damage in Contra Costa County.

Obviously, we must respond to the immediate needs of Californians who have been

affected by the floods and who require assistance to get their lives back together. Equally important, however, is *how* we respond to floods that have not yet happened. We need to start thinking about how we handle flooding in California.

I would hope that everyone concerned -- including the State of California, Federal agencies, local governments, and our citizens -- will see an opportunity here to learn some important lessons from the January floods.

We know we can learn from flood damage, and we saw this happen in response to the Mississippi River basin floods in 1993. Emergency personnel, local communities and environmental advocates worked together to develop a principle of "hazard mitigation" to guide flood relief efforts, reducing the risk of future flood damage while helping the people who were injured by flooding. Residents of the Mississippi River Basin started thinking creatively about responding to the danger of floods instead of spending billions of dollars in often futile attempts to modify the behavior of streams and rivers.

As the experts have stated, the California levees broke because there was too much water. The rains and the melting snowpack combined to push incredible volumes of water down river. No matter how we try, we will never be able to control completely Mother Nature. It may be, however, that in our efforts to control her, we have actually done things that made the floods even worse.

As an example, and on this subject we probably agree, the levee system in California is outdated. The solution is where we diverge. The traditional solution is simply to rebuild the straight, single thread levee channels bigger and stronger, but it is obvious that this system does not work.

Instead, I believe we need to look at restoring channel complexity and adopting watershed management techniques such as flood plain management, wetlands protection, and setback levees, so that we can catch the water where it falls instead of dumping it downstream. This is not all we need to look at however.

We need to look beyond riparian issues to upslope habitat as well. Forest management policies that allow for upstream clear cutting and the construction of logging roads on unstable slopes lead to erosion and slides that not only destroy valuable fisheries habitat, but contribute to downstream floods as well.

The President's budget includes a provision to eliminate the tax-payer subsidized construction of logging roads on federal lands. We need to support that proposal not only as a matter of public policy, but also as a tool for reducing downstream floods.

Two features of the Mississippi River basin program also come to mind, and perhaps they could produce significant benefits if implemented in California. First, federal agencies worked

together to help flood victims who wished to relocate outside the flood plain. In addition to traditional property restoration assistance, emergency relief programs offered full, pre-flood value for the purchase of properties that lay in the hazard zone. The Federal Housing Administration and Small Business Administration coordinated the benefits of federal loan programs for the victims to relocate above the flood plain to avoid the risk of future flood damage.

Second, existing levee systems were re-engineered to ensure that they would maximize flood hazard reduction. Rather than relying solely on repairs to existing levees, the Corps of Engineers reviewed the causes of the breaks and determined whether levees should be moved or constructed differently to withstand future floods.

These steps might seem like common sense, but they require a new approach to emergency flood assistance. Instead of putting everything back the way it was before the flood, federal agencies should assist local communities to reduce their risk of high water damage in the future. Taking themselves out of the path of flood waters was a far safer alternative for residents -- and for taxpayers -- than just rebuilding in the flood plain. And the cost of these measures is far lower than that of constructing new dams to hold back flood waters

Yet in the wake of the California floods, some are calling for a new round of expensive, controversial dam construction, including the Auburn Dam on the American River, as a panacea for flood damage.

Last year, this Committee wisely rejected this ill-conceived proposal. And the truth of the matter is, the Auburn Dam *still* is not needed. In fact, the American River was the one major watershed in the region where flood waters were well-managed, with little damage resulting. Analyses of the flooding will probably show that we achieved more efficient protection from the improved management of Folsom Dam and bank reinforcement, which some of us had advocated as an alternative to another costly dam. Congress already has authorized more work on the American River levee system as well.

In California, a further change will be necessary to allow local communities to manage flood risks. A three-year old state law restricts communities from managing their flood plains intelligently by requiring them to allow rebuilding in the flood plain of multi-family dwellings destroyed by floods and other natural disasters. As was recently recommended in a staff report to the California Senate Committee on Housing and Land Use, that law should be repealed to allow cities and towns to make rational decisions regarding flood management.

At the same time, the state and federal governments can help those who wish to relocate outside of flood risks. Past government programs supported those who built and rebuilt within flood plains where the risk of flood damage was extremely high. The least we can do is to provide similar support for those who no longer wish to risk repeated flooding, which will also save taxpayers the cost of future literal -- and figurative -- bail-outs.

Another way we might reduce the impact of future floods is to consider enacting legislation similar to the Coastal Barrier Resources Act for river flood plains. The premise of Coastal Barriers is simple: if you want to build on undeveloped land in the flood zone, don't expect the federal taxpayer to subsidize your construction.

The Coastal Barrier Resources Act denies federal flood insurance and other government assistance for *new* construction on undeveloped land in the flood zone along our coasts, but this does not apply to river watersheds. Existing structures included in the System are grandfathered, so no one has the rug pulled out from under them.

If such a system were applied to river flood plains, I believe it would pay off in many ways. First, it would discourage the kind of development that puts people in harm's way. Second, it would help preserve the wetlands and lowlands that provide natural buffers to flooding -- buffers that often are destroyed or impaired by development. Finally, it would help slow, or even reverse, the dramatic growth in the cost of disaster relief by discouraging the kind of development that leads to these expenditures in the first place.

As this Subcommittee meets today to review the California floods, a coalition of 15 organizations is announcing a set of five "Principles of California Flood Management and Floodplain Restoration." The five principles can be summarized as follows:

- Restore river systems and functions that improve flood management while also bolstering the effectiveness of existing flood control systems;
- Better manage the uses of floodplains to minimize taxpayer expense and maximize environmental health;
- Manage the entire watershed to provide the most protection from floods in an environmentally-sensitive way;
- Comprehensive efforts should be made to restore natural floodplain habitat and associated hydrologic functions to levels that take significant pressure off the crucial but minimum habitats available today;
- State, local and federal agencies and governments, non-governmental stakeholders, and concerned members of the public need to work cooperatively to develop and implement better short-term flood response coordination and funding. The implementation of more innovative and comprehensive long-term alternatives (undertaken in conjunction with near-term spending) should be facilitated and leveraged.

I believe these principles are sensible and fair, and I encourage your Subcommittee to keep them in mind as you consider alternatives for flood management in California and

elsewhere.

I request that the full text of these principles be included as part of the hearing record.

Finally, there has been much discussion in California regarding the need for an *independent* assessment of the state and Federal flood systems and responses to the January floods. State Assembly Speaker Bustamante and Senate President Pro Tem Lockyer have asked the President to begin such an independent assessment. I think theirs is a fair and reasonable request, and I think it is important to lend our support to this request. This proposal is not intended to diminish the role of the Corps of Engineers or the Bureau of Reclamation, or any agency or group. Rather, by appointing an independent body to review the floods, we hope to minimize the usual bureaucratic conflicts which can cloud a traditional study. I ask that you include as part of the record a letter from Senator Boxer and a letter from 17 Members of the California House delegation, and Senator Feinstein. This correspondence supports the request for an independent assessment of the January floods. If you wish, I would be pleased to supply the Subcommittee with further details regarding the need for an independent review.

Mr. Chairman, that concludes my statement. I appreciate the opportunity to discuss this important subject with you, and I would be please to answer any questions you may have.

NEWS**ATTENTION:**
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 FOR IMMEDIATE RELEASE
 Wednesday, March 19, 1997

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MILLER PROPOSES CHANGES TO INSURANCE LAW TO AVERT FUTURE DAMAGE

WASHINGTON -- Flood damage, such as that wreaked by winter storm flooding in California earlier this year, can be averted in the coming years by changing state and federal laws that encourage settling and resettling in flood plains, Rep. George Miller (D-Calif.) in testimony before the Transportation Committee's Subcommittee on Water Resources and the Environment

"A three-year old state law restricts communities from managing their flood plains by requiring them to allow rebuilding in the flood plain of multi-family dwellings destroyed by floods and other natural disasters," Miller said. "As was recently recommended in a staff report to the California Senate Committee on Housing and Land Use, that law should be repealed to allow cities and towns to make rational decisions regarding flood management

At the same time, the state and federal governments can help those who wish to relocate outside of flood risks. Past government programs supported those who built and rebuilt within flood plains where the risk of flood damage was extremely high," Miller continued. "The least we can do is to provide similar support for those who no longer wish to risk repeated flooding, which will also save taxpayers the cost of future literal -- and figurative -- bail-outs."

Miller also advocated legislation similar to the Coastal Barrier Resources Act to cover river flood plains. The Coastal Barrier Resources Act denies federal flood insurance and other government assistance for new construction on undeveloped land in the flood zone along the coast, but it does not apply to river watersheds.

"Such legislation would discourage the kind of development that puts people in harm's way," Miller testified. "It would help preserve the wetlands and lowlands that provide natural buffers to flooding -- buffers that often are destroyed or impaired by development. Finally, it would help slow, or even reverse, the dramatic growth in the cost of disaster relief by discouraging the kind of development that leads to these expenditures in the first place."

Miller also emphasized that the flood damage could not be blamed on environmental policies that protect sensitive lands and endangered species.

"This is not the time for anecdotal and unsubstantiated accusations about a 'beetle' or a fairy shrimp, and finger pointing at the Endangered Species Act as the cause of all of our problems," Miller testified. "The ESA has become an easy target, but such accusations are patently inaccurate and irresponsible. If we do not look for the real answers, no matter how difficult it may be, instead of always pointing to a scapegoat, we are destined to see this tragedy repeated again."

The 1997 California floods will tie damage wrought during the floods of 1995, or about \$1.8 billion, according to the California Office of Emergency Services. Over 20,000 people have requested federal assistance through FEMA, and the agency has written \$13.2 million in temporary housing checks this year to 8,618 California individuals or families displaced by the floods.

NEWS RELEASE

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HAWAII AND THE PACIFIC ISLANDS

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For Release: 1 p.m. PST, February 20, 1997

U.S. FISH AND WILDLIFE SERVICE ISSUES
EMERGENCY FLOOD RESPONSE POLICY

The Interior Department's U.S. Fish and Wildlife Service today issued a policy statement addressing how the agency will respond to the California flood emergency, protect human lives and property, and address endangered species conservation.

The Service's policy was announced by Deputy Interior Secretary John Garamendi at a February 20 meeting on flood recovery sponsored by Senator Dianna Feinstein in Sacramento, California.

"Fish and wildlife conservation efforts will not hinder emergency flood response measures," Garamendi said. "This policy statement provides clear guidance to address the concerns expressed by disaster response agencies and local residents."

The 1973 Endangered Species Act contains emergency provisions that allow for replacement and repair of public facilities in Presidentially declared disaster areas. The Service's policy statement clarifies how the agency is implementing these emergency provisions in the 42 California counties that have been declared Federal disaster areas.

The policy will remain in effect for the remainder of this year's flood season. It states that for flood-fighting and short-term levee repairs needed to save lives and property, landowners can go ahead with repairs that restore the flood control structures to "substantially the same condition" as existed before the flood without prior review by the Fish and Wildlife Service.

"Substantially the same" means that the level of flood protection and the area affected by the structure should be approximately the same as before the flood. Increasing the level of flood protection, such as by increasing the levee heights, would be a substantial modification that would require Service review.

(more)

Flood/2-20-97

- 2 -

If flood control structures need to be improved or upgraded from what existed before the flood, the Fish and Wildlife Service will conduct an expedited review on a case-by-case basis.

After repairs have occurred, the Service will work with appropriate agencies upon request to reduce potential impacts to fish and wildlife. If there are significant adverse impacts to listed species as a result of emergency actions, the Service will work with the agencies to minimize or mitigate these impacts.

The Fish and Wildlife policy announcement follows the issuance of guidance to all relevant agencies by the White House on February 18 to "achieve a rapid and effective response to damaged flood and floodplain management systems that will minimize risk to life and property, while ensuring a cost-effective approach to flood damage mitigation and floodplain management and the protection of important environmental and natural resource values that are inherent to the floodplain and adjacent lands."

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CALIFORNIA'S OPPORTUNITY TO ACHIEVE IMPROVED FLOOD MANAGEMENT AND MAJOR ECOSYSTEM RESTORATION.

By Philip B. Williams Ph.D., P.E.¹

A. SUMMARY

The January 1997 flood presents us with a unique opportunity to propose a new flood management solution that provides greater hazard reduction benefits for Central Valley communities, with greater reliability and at lower cost than continued reliance on the present flawed and unreliable flood control system. This solution, which fully integrates flood management with river and watershed management, will also enable the large scale restoration of habitat for wetlands, waterfowl, and fish that have been largely destroyed by the construction of this same flood control system. It can be argued that this solution is the only solution, as there is now every indication that even with massive new expenditures on more structural flood control engineering works, there is no assurance that the present system would be able to prevent the inevitable catastrophic flood which is likely to occur within the next century.

B. BACKGROUND

The rivers of the Central Valley of California have the world's most comprehensive and highly engineered flood control system. This system was constructed mainly by the federal government over the last 80 years and consists of a complex of flood control dams, levees, and flood bypasses. Since the system was completed in the late 1970's, it has been tested by major rainfloods twice; in February 1986 and now in January 1997. In both of these flood events significant inadequacies in the operation, maintenance and design of the system were revealed, resulting in several billions of dollars of flood damages. Most seriously the mis-operation of Folsom dam in 1986 caused a near catastrophe for the City of Sacramento; and the predictable but unanticipated large flood spills from New Don Pedro and Friant dams in the 1997 flood created large flood waves that caused multiple ruptures in levees as they traveled downstream.

Even as this system was being completed it was becoming obsolete. By the 1970's the U.S. Government had finally recognized the futility and limitations of an exclusive reliance on an expensive strategy of attempting to "control" floods through massive engineering works. It was realized that flood control ignored the need

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to address factors such as inappropriate land use that were causing the steady escalation of flood damages experienced in the U.S. since the 1944 Flood Control Act. Starting with the passage of the 1968 Flood Insurance Act a series of new policies were enacted adopting flood plain management approaches. Unfortunately during the 1980's and 1990's, at both the state and federal level these initiatives languished, but since the 1993 Mississippi floods the validity and utility of flood management as opposed to flood control strategies has been confirmed by federal agencies and professional organizations.

The construction of the massive water control system of the Central Valley caused major ecosystem declines and extinctions that were only understood or acknowledged within the last two decades. With the passage of the 1992 Central Valley Project Improvement Act, and the signing of the 1994 Bay Delta Accords, there are now new State and Federal initiatives being formulated to restore fish, wildlife and wetlands. These initiatives are focussing on the restoration and management of flows and habitat in the river and estuary system.

C A FLAWED FLOOD CONTROL SYSTEM

The flood control systems of the Sacramento and San Joaquin Rivers have had built into their design, serious intrinsic flaws, that frustrate achievement of their primary design objective, which is to prevent all flood damages for floods smaller than the design flood,[in most places the 100 year flood]. These include:

1. *Outdated Levee System*

In 1910 when the levees and bypass system of the Sacramento river Flood Control project [SRFCP], were designed, one of its major objectives was to flush hydraulic mining debris sediments from the Sacramento river channel to restore navigation for river stern wheelers. This was a major factor in choosing to construct levees as close to the river channel as possible, often within the active meander belt of the river and across highly permeable relict river channels. The consequence of this design decision has been eroding and unreliable levees, high maintenance costs, and higher flood stages than occurred naturally. Because the levees were so close to the river, their maintenance activities and repair with rip rap has now destroyed essential riparian habitat along most of the Sacramento River.

2. *Flood Peaks Increased*

The design of the SRFCP significantly reduced the storage of flood waters within the Sacramento valley. This storage of floodwaters on the floodplain had slowed down and dampened the flood peak as it moved downstream. The engineers of 1910 recognized this effect and estimated that by the time the project was complete the flood peak at the vicinity of Sacramento would increase the design flood from 450,000 cfs

naturally to 600,000 cfs, due to the elimination of floodplain storage. In the 1986 flood the flow in the vicinity of Sacramento was just under 600,000 cfs. Elimination of floodplains also destroyed or disconnected almost all of the Sacramento Valley's extensive floodplain wetlands from the river, destroying a key component of the watershed's ecosystem.

3. *Flood Control Encourages Flood Prone Development*

At the time the SRFCP was designed the Sacramento Valley was sparsely settled. Where people farmed in the floodplain they took prudent actions to protect themselves, like building ranches on raised ground. It was assumed that overtopping of the levees during the inevitable flood larger than the design flood was an acceptable risk. What was not foreseen was the effect the levees would have to encourage people to develop in the floodplain and neglect traditional flood proofing methods. By the 1940's it was decided that additional flood control was the answer to the growing flood hazard problem and a series of large flood control reservoirs were constructed in the Sacramento and San Joaquin Valleys between the 1940's and 1970's to reduce flood peaks of large floods to the 1910 design capacity of the SRFCP, and the design capacity of the later San Joaquin Flood Control Project, to reduce, but not eliminate, the risk of levee failure. At the time of the design of these reservoirs no consideration was given to the further increase in flood damages likely incurred by people induced to develop in floodplain areas where the risks, while reduced, were still substantial. The construction and operation of these large dams on the Central Valley rivers has probably been the most important cause of wholesale decline in the river and estuarine ecosystem.

4. *Flood Control Reservoirs Mis-operated*

When these dams were designed in the 1940's and 1950's they were experimental in that there was very little operating experience with dams of this size. Nevertheless, their flood control benefits depended on them being operated exactly to plan during all major floods. Subsequent experience has shown this to be impossible. This assumption did not consider an inherent operational conflict. All these dams were intended as multipurpose reservoirs, to be used for power and irrigation as well as flood control. However, to maximize irrigation and power revenues requires minimizing flood control storage space. Recognizing this conflict, and because federal taxes paid for the less tangible flood control functions, reservoir drawdowns and releases during the winter flood season were specified in federally approved flood control operating manuals. Unfortunately, enforcement of these specified operations has been lax or ineffective and has allowed many dams to illegally store irrigation water in the flood control space during the winter. There is now a history of incidents during major floods on many multipurpose dams like the 1986 Folsom dam mis-operation. Prescribed reservoir releases have been made too little and too late, leading to too large or uncontrolled releases and severely limiting the effectiveness of the flood control dams. Illegal storage of floodwater in this way also has a subtle but important negative environmental effect. It tends to eliminate the natural winter and spring flow variability which sustain important river ecosystem processes.

5. *Inadequate Outlet Capacity*

In the design of most of the dams outlet capacity is inadequate to allow the most effective use of flood storage space. For example more than half of Folsom Dam's flood storage space must fill before water pressure is great enough to discharge the full flood release.

6. *Flood Releases Unrealistically Constrained*

In the design of the San Joaquin Valley dams, prescribed flood discharges were so small, less than 10% of the design flood, that almost all the incoming floodwater has to be stored. With only a small amount of flood storage available it is inevitable that these dams will overtop in a large flood or be unable to handle successive small floods. For example in the January 1997 flood the inflow to New Don Pedro Dam was 130,000cfs but the discharge was limited to less than the 9,000cfs design channel capacity, resulting in the reservoir filling and spilling a flood wave of 50,000cfs that broke the levees downstream. This futile attempt to eliminate flood peaks in the lower river has allowed encroachment of vegetation into the old river channel as well as encouraging development in the floodway. This has caused a significant adverse effect on spawning gravels and the riverine ecosystem.

7. *Risk of Catastrophic Failure*

The design of the flood control system makes almost no provision for addressing the consequences of the inevitable extreme flood larger than the design flood or a flood wave from a dam failure that will overwhelm the system. For example, the design of the levee system establishes a uniform level of protection up to the level of the design flood. In fact, for a flood larger than the design flood the safety of the City of Sacramento would necessarily depend on unanticipated or even deliberate levee failures upstream to achieve lower flood stages at the City. This is a fact that is probably not understood or appreciated by communities upstream.

D. OPPORTUNITIES FOR A NEW FLOOD MANAGEMENT SOLUTION

The January 1997 floods have reconfirmed the lessons of the 1993 Mississippi flood. These lessons are described in the 1994 White House "Galloway Report" and echoed in the 1994 report of the Interagency Floodplain Management Task Force. The essence of a flood management approach is changing the objective from "controlling floods" to the more appropriate one of reducing flood hazards to lives and property. In this strategy, structural flood control measures are a very important, but not the dominant, tool in achieving modern societal goals. Land use controls, flood insurance, building codes, relocation, flood proofing, emergency preparedness, and public education are also important and effective tools. Flood management also requires "management" to substitute for "construction" as the most important activity to protect our

floodplain infrastructure. This in turn emphasizes the need for more sophisticated and effective maintenance, operation, flood warning, training, monitoring, and learning from experience to enable a cycle of constant improvements in the system.

To initiate a new effective flood management strategy will first require a comprehensive unbiased reassessment of the effectiveness of the present system. Such an audit would most likely confirm many of the findings and recommendations of the Galloway Report, but in addition identify some problems unique to California's flood control system. For example, these are some of the improvements that could be made to increase reliability and effectiveness.

1. Redesign dam flood control operation procedures to take into account upstream reservoirs and forecasted inflows to make prompt releases to draw down the reservoir.
2. Modify dam outlets to increase discharge capacity.
3. Increase floodway capacity downstream by setting back levees.
4. Increase flood releases to the expanded floodway capacity.
5. Setback levees on the mainstem rivers to increase floodway capacity, reduce risk of failure, and to provide floodplain storage benefits.
6. Lower flood bypass weirs to lower river stages.
7. Identify planned levee failures and inundation areas for extreme floods or dam failures.
8. Use up to date dynamic flood prediction models that accurately reflect the benefits of floodplain storage
9. Develop accurate assessments of residual risk of property located on the floodplain but behind levees.
10. Develop levee maintenance and inspection processes that accurately reflect the main risks of failure.
11. Reconstruct levees to improve reliability.

E. OPPORTUNITIES FOR HABITAT RESTORATION

Restoration planning efforts by Calfed and by other investigators all point to the need to restore some portion of the floodplain wetlands and woodlands that have been practically eliminated from the system. Although the science and practice of ecosystem restoration are new, there is a substantial consensus that a prerequisite to the successful restoration of any type of habitat is the restoration of physical processes that sustain the living organisms. For floodplains the key processes are floods, the movement of sediment, and free interaction of flows between river channel and floodplain.

To achieve substantive restoration of floodplain wetland processes will therefore require :

1. Setback levees to recreate floodplain corridors.
2. Setback levees to allow for an active natural meander belt.
3. Reconstruction of levees to allow for vegetated toes instead of rip rap.
4. Acquisition of flood bypass land to convert to wetlands.
5. Lowering of bypass weirs to increase frequency of flooding in bypass wetlands.
6. Change in reservoir flood operation to increase frequency of smaller floods.
7. Change in reservoir operation to allow for larger flood pulses to regenerate floodplain woodlands.
8. Increase in frequency of moderate sized floods to reestablish natural riffles, pools and meanders.

F. CONCLUSION

There is an almost perfect overlap between those measures needed for implementing an effective flood management strategy and those needed for meaningful restoration of the Valley's fish and wildlife.



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
100 ARMY PENTAGON
WASHINGTON DC 20310-0100

REF ID:
ATTENTION OF

6 MAR 1997

Honorable Pete V. Domenici
Chairman
Subcommittee on Energy
and Water Development
Committee on Appropriations
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

This letter is to inform you of the Army Corps of Engineers plan to reprogram \$400,000 of General Investigation funds appropriated in Fiscal Year (FY) 1997 to initiate the Comprehensive Basin Investigation in California. Severe flooding in January 1997 revealed that a comprehensive evaluation of the flooding problems in the Sacramento River and San Joaquin River Basins, California, is required, in addition to an assessment of flooding at small communities within the flood affected area.

The goal of the Comprehensive Basin Investigation is to undertake a comprehensive overview of the flood risk in the Central Valley of California and evaluate environmentally sensitive, long term solutions from a system perspective. Out of this comprehensive study it is expected that several site specific reconnaissance studies would be identified which could lead to feasibility studies for specific project authorization. Further, as part of this effort, a single comprehensive water management model will be developed for purposes of evaluating reservoir routings and flood forecasting.

Consistent with the February 18, 1997, flood guidance issued by the Office of Management and Budget and the Council on Environmental Quality, the investigation would be undertaken in partnership with the CALFED program and its member agencies, including the State of California. In undertaking this investigation, the Corps of Engineers will ensure that its efforts are consistent with the overall objectives of the CALFED initiative. Further, the Corps and its partners will consult with local interests and other stakeholders throughout this investigation.

A preliminary cost estimate of the comprehensive basin investigation is \$4.1 million spread over two years. The initial \$100,000 will be at 100 percent Federal expense. The remaining \$4,000,000 will be shared equally (\$2,000,000) between the Federal Government and non-Federal study sponsor. Reprogramming of \$400,000 this year will permit initiation and completion of the overall study scope (\$100,000) and initiation of the cost

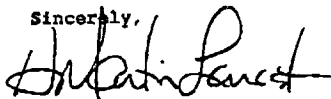
shared portion of the study (\$300,000).

The Corps plans to reprogram \$63,000 from the Sacramento-San Joaquin Delta, California, special study and \$337,000 from the Sacramento-San Joaquin Delta, Western Delta Islands, California, study to initiate the comprehensive basin investigation. This reprogramming action will cause no adverse impacts on either of the referenced studies. The local sponsor for the former was unable to execute a revised Feasibility Cost Sharing Agreement as early in FY 1997 as originally scheduled, and execution of the Feasibility Cost Sharing Agreement for the latter may not occur at all this year. The local sponsor is experiencing difficulty in identifying a funding source to continue into the feasibility phase.

Please note that the President's FY 1998 budget includes no line item request for the \$1,700,000 required to complete this study, since the need arose subsequent to formulation of the President's budget. We are developing a capability estimate for this effort for FY 1998, but such funding would be in competition for funds Army-wide, and off-setting reductions would be required in order to maintain our overall budgetary objectives. The Corps will be conducting the assessment of the flood risk for small communities under the existing Flood Plain Management Services Program. The funds and authority are currently available under this program to begin this assessment.

An identical letter is being sent to the Honorable Joseph M. McDade, Chairman, Subcommittee on Energy and Water Development, Committee on Appropriations, House of Representatives.

Sincerely,



H. Martin Lancaster
Assistant Secretary of the Army
(Civil Works)



ERENDS
OF THE
RIVER

Media Advisory
January 7, 1997

Contact: Charles Casey
916/442-3155

River group calls for review of existing flood protection system

Sacramento — Friends of the River (F.O.R.), California's largest river conservation group, today suggested that a reassessment of the Central Valley's existing flood control facilities be initiated in light of the damaging 1997 floods.

"It is clear where and when flood officials have paid close attention to existing structures and operations — the American River flood control system, for example — that flood control facilities can work well," said Betsy Reifsnider, executive director at F.O.R. "We certainly don't need to straitjacket our rivers or build a series of new dams to fight the floods we've seen. Indeed, it's ironic that some of the worst flooding has been just downstream from two of the largest dams in the state: Oroville and Don Pedro dams."

Reifsnider noted that in the Sacramento area the American River flood control system worked well during the recent storms, largely because of the efforts of flood officials and F.O.R. during the past decade. As a result of intensive analysis, planning, and actual construction, the federal dam at Folsom is now operated much more prudently during the flood season, levees have been bolstered and strengthened, and American River levees in particular are targeted for much more work because Congress — prompted by F.O.R. lobbying efforts — approved a \$57 million flood control package for the capital city area late last year.

Despite those forthcoming improvements, there is still more work that can be done along the American River. Enlarging the river outlet works and lowering the spillways at Folsom Dam would offer much more flexibility and safety during large storm events. Couple that with raising and improving downstream banks and levees along the American River and Sacramento will enjoy even more flood protection.

"The recent flooding throughout the Central Valley underscores the fact that we *do not* need something like an Auburn dam. A structure on the North Fork of the American River — no matter how big or expensive — would have done nothing for the people and property hit by flooding along

-more-

Friends of the River
media advisory
Jan 7, 1997

the Feather, Bear, Cosumnes, San Joaquin, Mokelumne, Stanislaus or Tuolumne rivers," said Ron Stork, associate conservation director and flood control specialist for F.O.R. "Let's get serious about evaluating our flood control system and stop wasting time on an unnecessary, billion dollar dam that would be located on an earthquake fault."

Borrowing in part from the 1994 federal task force recommendations that followed the Mississippi floods (a study by the *Interagency Floodplain Management Review Committee* known as the "Galloway Report"), Friends of the River makes the following suggestions for improving public safety while preserving the important features of the state's rivers:

- Analyze and reassess the entire flood system in the Central Valley;
- Consider levee reinforcement, upgrades and future setbacks in order to improve waterway conveyance reliability and efficiency;
- Improve flood control operations at existing dams;
- Make better land use and floodplain management decisions so people can safely build, or simply avoid building, in at-risk areas;
- Encourage more hazard mitigation in flood prone areas, including such things as buyouts, floodproofing buildings by elevating them, flood warning system improvements, and increased flood hazard awareness programs;
- Encourage flood insurance for those at risk.

"These are common sense, cost-effective solutions for much greater public safety, while at the same time preserving and restoring our river systems," said Stork. "We don't need new dams as much as we need to upgrade and improve the aging infrastructure that's already in place. The best and most environmentally responsible investment we can make is in the existing flood control system. Obviously, there's plenty of room for improvement." he added.

Stork, who last year led the environmental efforts to secure flood protection improvements for Sacramento without the Auburn dam, emphasized that California should make sure the existing systems are more reliable, safe and effective. He noted that the devastating levee breaks appear to be a result of inattention, lack of investment, or woefully inadequate room for rivers to flow.

Friends of the River is nearly 25 years old. Based in Sacramento, F.O.R. is a membership organization that works on a variety of river-related issues throughout the state. For more information on flood control or other river issues, contact Charles Casey: (916) 442-3155.

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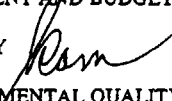
EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

February 18, 1997

MEMORANDUM TO ARMY CORPS OF ENGINEERS
DEPARTMENT OF AGRICULTURE
DEPARTMENT OF COMMERCE
DEPARTMENT OF HOUSING & URBAN DEVELOPMENT
DEPARTMENT OF THE INTERIOR
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL PROTECTION AGENCY
FEDERAL EMERGENCY MANAGEMENT AGENCY
SMALL BUSINESS ADMINISTRATION

FROM:

FRANKLIN D. RAINES 
DIRECTOR
OFFICE OF MANAGEMENT AND BUDGET

KATHLEEN A. MCGINTY 
CHAIR
COUNCIL ON ENVIRONMENTAL QUALITY

SUBJECT:

Floodplain Management and Procedures For Evaluation and Review of
Levee and Associated Restoration Projects

Purpose:

The purpose of this guidance is to ensure that agencies fully consider relevant options, including non-structural alternatives, during evaluation and review of levee repair and reconstruction projects and associated restoration necessitated by 1996 and 1997 floods. It is also our intent to ensure that relevant organizations have the opportunity to comment on project specifications and suggest appropriate modifications.

The overall goal is to achieve a rapid and effective response to damaged flood and floodplain management systems that will minimize risk to life and property, while ensuring a cost-effective approach to flood damage mitigation and floodplain management and the protection of important environmental and natural resource values that are inherent to the floodplain and adjacent lands.

This guidance is not intended to deny any party access to existing programs for levee repair and associated restoration, where that is in accord with sound financial and

environmental practices, nor to create unnecessary or avoidable delays. On the contrary, it recognizes that there are ongoing short-term measures that must be taken to restore and maintain appropriate levels of protection for this flood season and that these efforts must be implemented as expeditiously as possible.

Background:

In the past several years, severe flooding problems have drastically affected many parts of this Nation. In response to the Midwest floods of 1993 and other floods since then, the Administration has worked to improve our flood and floodplain management policy in order to reduce the loss of life and property caused by floods, and to restore the natural resource and functions of floodplains.

An important tool in development of Administration policy has been the 1994 report on improving Federal flood response and floodplain management that was produced for the interagency task force created to deal with the 1993 Midwest flooding. Entitled *Sharing the Challenge: Floodplain Management into the 21st Century*, this work established three broad policy goals:

- Share responsibility for floodplain management among all levels of government and with all citizens of the Nation;
- Act sequentially to avoid, minimize, and mitigate flood and floodplain damage; and
- Organize better government response to floods and floodplain management needs.

These goals are embodied in the guidance procedures described below.

Guiding Principles and Lessons Learned:

This guidance reflects lessons learned and policies established in the last four years. It should be viewed as an opportunity and a mandate to consider long-term alternatives with input from Federal, State, Tribal, and local interests. As stated above, however, it is not intended to deny any party access to existing programs for levee repair and associated restoration, where that is in accord with sound financial and environmental practices, nor to create unnecessary or avoidable delays.

In acting upon applications for levee repair and associated restoration of damages incurred as a result of the Pacific Northwest, Northern California, and other floods of 1996 and

1997, consistent with existing authorities, appropriate Federal agencies shall follow the procedures below:

- Drawing on the example set by the Disaster Field Office structures instituted during the 1993 Midwest floods, which provided quick, effective coordinated response to flood situations, interagency levee and associated repair coordination teams shall be established as soon as possible after a flood event to review all proposals for repair and restoration of flood damaged levees and associated systems. These teams will include a representative of each involved Federal agency and appropriate State, Tribal, and local agencies. The Army Corps of Engineers will ensure that the teams are established and meet regularly to resolve issues.
- Using the process developed over the past few years, each proposal shall be made available to the interagency levee and associated repair coordination team for a target minimum of 24 hours prior to final agency action, so that the teams may review and comment. Agencies shall take team comments, as well as all applicable State and Federal laws and regulations, into consideration, and take appropriate action when making final project decisions.
- Agencies shall coordinate scientific activities and the development of information among other Federal, state, and local agencies in order to build a basis for improved floodplain management strategies and implementation of restoration schemes.
- Each agency shall, in evaluating applications for levee repair and associated restoration, follow priorities established in 1993 by considering, to the extent appropriate and practicable, nonstructural alternatives and design modifications that could:
 - reduce future flood damages to the applicant and adjacent upstream and downstream localities;
 - lower long-term cost to the taxpayers;
 - improve environmental conditions, including water quality; and
 - assist public and private landowners in fulfilling their conservation objectives or obligations related to protected species, wetland restoration, and riparian habitat protection.

It is noted, in particular, that the Water Resources Development Act of 1996

modifies one of the major Federal emergency flood control repair and restoration authorities to emphasize consideration of nonstructural alternatives. All Federal agencies shall make full use of such authorities to consider nonstructural alternatives to levee repair and rehabilitation. Such nonstructural alternatives may include the acquisition or "buyout" of properties in the floodplain, an alternative which was successfully implemented following the Midwest Floods of 1993 and has already shown reductions in the cost of damage in succeeding floods. This approach is consistent with the policy expressed in the Hazard Mitigation and Relocation Assistance Act of 1993.

- As consistent with existing authorities and Administration policies, agencies shall, when evaluating levee repair and associated restoration proposals, work to address flood damage reduction on a system-wide or watershed basis. They shall consider compatibility with existing local or regional floodplain management and ecosystem restoration plans. Where relevant, agencies shall ensure proposals are compatible with approved forest land and resource management plans. In addition, agencies may take advantage of opportunities to use their authorities, in cooperation with the other participating agencies, to conduct work supportive of the overall health of the watersheds in the upland areas draining into the streams and tributaries subject to flood restoration work.
- In evaluating applications for levee repair and associated rehabilitation, each agency shall follow the policies established by the Administration and consider, to the extent practicable, how the levee repair and associated rehabilitation may be modified or enhanced to achieve environmental protection and restoration. All Federal agencies shall make full use of their authorities in identifying and implementing modifications to levee repair and associated rehabilitation proposals to achieve enhanced environmental values, including those that would improve fish and wildlife habitat, species diversity, and water quality, and reduce risks of future flood damages.
- Agencies shall continue efforts to encourage State, Tribal, and local community involvement and assumption of responsibility for current flood response and future floodplain management. Specifically, agencies shall:
 - coordinate with State, Tribal, and local organizations whenever possible;
 - act in accordance with existing community floodplain management and hazard mitigation plans;
 - encourage development of such plans as part of flood response proposals;

- encourage States and Tribes to help take responsibility for non-Federal levees; and
- work with State and local agencies to coordinate scientific activities and the development of information to assist in response and restoration efforts.

Additionally, agencies may, consistent with existing authorities:

- institute State, Tribal, and local cost-sharing in recovery, response, and mitigation activities; and
- make levee repair and associated restoration funds available to states for use in implementing alternative damage mitigation plans.
- In undertaking mitigation activities for Federal losses, agencies shall seek to comply rigorously with Executive Order 11988 by avoiding and or minimizing future floodplain damage through use of alternative floodplain management planning. A copy of E.O. 11988 is attached.
- Continuing through August 1997, each agency shall report on a monthly basis through the appropriate Assistant Secretary level office to the Office of Management and Budget on the status of levee repair and associated restoration, including: applications received, comments received, actions taken, and dollars spent.

If you have any questions about this guidance, please contact T. J. Glauthier (Program Associate Director for Natural Resources, Energy, and Science) or Rick Mertens (Chief, Water and Power Branch) at OMB, or Tom Jensen (Associate Director for Natural Resources) at CEQ.

Attachment

Floodplain Management

Statement by the President Accompanying Executive Order 11988. May 24, 1977

The floodplains which adjoin the Nation's inland and coastal waters have long been recognized as having special values to our citizens. They have provided us with wildlife habitat, agricultural and forest products, stable ecosystems, and park and recreation areas. However, unwise use and development of our riverine, coastal, and other floodplains not only destroy many of the special qualities of these areas but pose a severe threat to human life, health, and property.

Since the adoption of a national flood control policy in 1936, the Federal Government has invested about \$10 billion in flood protection works. Despite substantial efforts by the Federal Government to reduce flood hazards and protect floodplains, annual losses from floods and adverse alteration of floodplains continue to increase.

The problem arises mainly from unwise land use practices. The Federal Government can be responsible for or can influence these practices in the construction of proj-

ects, in the management of its own properties, in the provision of financial or technical assistance including support of financial institutions, and in the uses for which its agencies issue licenses or permits. In addition to minimizing the danger to human and nonhuman communities living in floodplains, active floodplain management represents sound business practice by reducing the risk of flood damage to properties benefiting from Federal assistance.

Because unwise floodplain development can lead to the loss of human and other natural resources, it is simply a bad Federal investment and should be avoided. In order to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative, I have issued an Executive order on floodplain management.

Floodplain Management

Executive Order 11988. May 24, 1977

By virtue of the authority vested in me by the Constitution and statutes of the United States of America, and as President of the United States of America, in furtherance of the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 *et seq.*), the National Flood Insurance Act of 1968, as amended (42 U.S.C. 4001 *et seq.*), and the Flood Disaster Protection Act of 1973 (Public Law 93-234, 87 Stat. 975), in order to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative, it is hereby ordered as follows:

SECTION 1. Each agency shall provide leadership and shall take action to reduce the risk of flood loss, to mini-

mize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.

SEC. 2. In carrying out the activities described in Section 1 of this Order, each agency has a responsibility to evaluate the potential effects of any actions it may take in a floodplain; to ensure that its planning programs and budget requests reflect consideration of flood hazards and

floodplain management; and to prescribe procedures to implement the policies and requirements of this Order, as follows:

(a) (1) Before taking an action, each agency shall determine whether the proposed action will occur in a floodplain—for major Federal actions significantly affecting the quality of the human environment, the evaluation required below will be included in any statement prepared under Section 102(2)(C) of the National Environmental Policy Act. This determination shall be made according to a Department of Housing and Urban Development (HUD) floodplain map or a more detailed map of an area, if available. If such maps are not available, the agency shall make a determination of the location of the floodplain based on the best available information. The Water Resources Council shall issue guidance on this information not later than October 1, 1977.

(2) If an agency has determined to, or proposes to, conduct, support, or allow an action to be located in a floodplain, the agency shall consider alternatives to avoid adverse effects and incompatible development in the floodplains. If the head of the agency finds that the only practicable alternative consistent with the law and with the policy set forth in this Order requires siting in a floodplain, the agency shall, prior to taking action, (i) design or modify its action in order to minimize potential harm to or within the floodplain, consistent with regulations issued in accord with Section 2(d) of this Order, and (ii) prepare and circulate a notice containing an explanation of why the action is proposed to be located in the floodplain.

(3) For programs subject to the Office of Management and Budget Circular A-95, the agency shall send the notice, not to exceed three pages in length including a location map, to the state and areawide A-95 clearinghouses for the geographic areas affected. The notice shall include: (i) the reasons why the action is proposed to be located in a floodplain; (ii) a statement indicating whether the action conforms to applicable state or local floodplain protection standards and (iii) a list of the alternatives considered. Agencies shall endeavor to allow a brief comment period prior to taking any action.

(4) Each agency shall also provide opportunity for early public review of any plans or proposals for actions in floodplains, in accordance with Section 2(b) of Executive Order No. 11514, as amended, including the development of procedures to accomplish this objective for Federal actions whose impact is not significant enough to require the preparation of an environmental impact statement under Section 102(2)(C) of the National Environmental Policy Act of 1969, as amended.

(b) Any requests for new authorizations or appropriations transmitted to the Office of Management and Budget shall indicate, if an action to be proposed will be located in a floodplain, whether the proposed action is in accord with this Order

(c) Each agency shall take floodplain management

into account when formulating or evaluating any water and land use plans and shall require land and water resources use appropriate to the degree of hazard involved. Agencies shall include adequate provision for the evaluation and consideration of flood hazards in the regulations and operating procedures for the licenses, permits, loan or grants-in-aid programs that they administer. Agencies shall also encourage and provide appropriate guidance to applicants to evaluate the effects of their proposals in floodplains prior to submitting applications for Federal licenses, permits, loans or grants.

(d) As allowed by law, each agency shall issue or amend existing regulations and procedures within one year to comply with this Order. These procedures shall incorporate the Unified National Program for Floodplain Management of the Water Resources Council, and shall explain the means that the agency will employ to pursue the nonhazardous use of riverine, coastal and other floodplains in connection with the activities under its authority. To the extent possible, existing processes, such as those of the Council on Environmental Quality and the Water Resources Council, shall be utilized to fulfill the requirements of this Order. Agencies shall prepare their procedures in consultation with the Water Resources Council, the Federal Insurance Administration, and the Council on Environmental Quality, and shall update such procedures as necessary.

SEC. 3. In addition to the requirements of Section 2, agencies with responsibilities for Federal real property and facilities shall take the following measures:

(a) The regulations and procedures established under Section 2(d) of this Order shall, at a minimum, require the construction of Federal structures and facilities to be in accordance with the standards and criteria and to be consistent with the intent of those promulgated under the National Flood Insurance Program. They shall deviate only to the extent that the standards of the Flood Insurance Program are demonstrably inappropriate for a given type of structure or facility.

(b) If, after compliance with the requirements of this Order, new construction of structures or facilities are to be located in a floodplain, accepted floodproofing and other flood protection measures shall be applied to new construction or rehabilitation. To achieve flood protection, agencies shall, wherever practicable, elevate structures above the base flood level rather than filling in land.

(c) If property used by the general public has suffered flood damage or is located in an identified flood hazard area, the responsible agency shall provide on structures, and other places where appropriate, conspicuous delineation of past and probable flood height in order to enhance public awareness of and knowledge about flood hazards.

(d) When property in floodplains is proposed for lease, easement, right-of-way, or disposal to non-Federal public or private parties, the Federal agency shall (1) reference in the conveyance those uses that are restricted under

to require the preparation of an environmental impact statement under Section 102(2)(C) of the National Environmental Policy Act of 1969, as amended.

Sec. 3. Any requests for new authorizations or appropriations transmitted to the Office of Management and Budget shall indicate, if an action to be proposed will be located in wetlands, whether the proposed action is in accord with this Order.

Sec. 4. When Federally-owned wetlands or portions of wetlands are proposed for lease, easement, right-of-way or disposal to non-Federal public or private parties, the Federal agency shall (a) reference in the conveyance those uses that are restricted under identified Federal, State or local wetlands regulations; and (b) attach other appropriate restrictions to the uses of properties by the grantee or purchaser and any successor, except where prohibited by law; or (c) withhold such properties from disposal.

Sec. 5. In carrying out the activities described in Section 1 of this Order, each agency shall consider factors relevant to a proposal's effect on the survival and quality of the wetlands. Among these factors are:

(a) public health, safety, and welfare, including water supply, quality, recharge and discharge; pollution; flood and storm hazards; and sediment and erosion;

(b) maintenance of natural systems, including conservation and long term productivity of existing flora and fauna, species and habitat diversity and stability, hydrologic utility, fish, wildlife, timber, and food and fiber resources; and

(c) other uses of wetlands in the public interest, including recreational, scientific, and cultural uses.

Sec. 6. As allowed by law, agencies shall issue or amend their existing procedures in order to comply with this Order. To the extent possible, existing processes, such as those of the Council on Environmental Quality and the Water Resources Council, shall be utilized to fulfill the requirements of this Order.

Sec. 7. As used in this Order:

(a) The term "agency" shall have the same meaning as the term "Executive agency" in Section 105 of Title 5 of the United States Code and shall include the military departments; the directives contained in this Order, however, are meant to apply only to those agencies which

perform the activities described in Section 1 which are located in or affecting wetlands.

(b) The term "new construction" shall include draining, dredging, channelizing, filling, diking, impounding, and related activities and any structures or facilities begun or authorized after the effective date of this Order.

(c) The term "wetlands" means those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

Sec. 8. This Order does not apply to projects presently under construction, or to projects for which all of the funds have been appropriated through Fiscal Year 1977, or to projects and programs for which a draft or final environmental impact statement will be filed prior to October 1, 1977. The provisions of Section 2 of this Order shall be implemented by each agency not later than October 1, 1977.

Sec. 9. Nothing in this Order shall apply to assistance provided for emergency work, essential to save lives and protect property and public health and safety, performed pursuant to Section 305 and 306 of the Disaster Relief Act of 1974 (88 Stat. 148, 42 U.S.C. 5145 and 5146).

Sec. 10. To the extent the provisions of Sections 2 and 5 of this Order are applicable to projects covered by Section 104(h) of the Housing and Community Development Act of 1974, as amended (88 Stat. 640, 42 U.S.C. 5304(h)), the responsibilities under those provisions may be assumed by the appropriate applicant, if the applicant has also assumed, with respect to such projects, all of the responsibilities for environmental review, decision-making, and action pursuant to the National Environmental Policy Act of 1969, as amended.

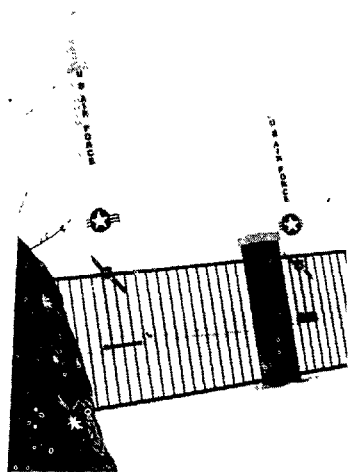
JIMMY CARTER

The White House,
May 24, 1977.

nal Report

the New York Times

of Disarmament



Kevin Mahoney for The New York Times.

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policy," said General Cook, who will watch the Helsinki talks from afar. Questioning the Russians' ability to destroy weapons under an accelerated timetable, he added, "What you don't want to do with the Russians is to get ahead of your headlights."

Under the Administration's proposal, operational strategic warheads on both sides would be reduced to levels of 2,000 to 2,500. Currently, Russia has about 7,500 of these bombs, and the United States has about 7,150, according to the Center for Defense Information, a study group in Washington

—GEOFF BROWN and the United

Flood-Control Policy Shift Is Meeting Scant Success

Residents of Flood Plains Balk at Moving

By MICHAEL JANOFSKY

WASHINGTON, March 18 — After floods roared through the Midwest four years ago, killing 42 people and causing \$16 billion in property damage, a Federal blue-ribbon panel set out to learn how to prevent a repeat of such devastation.

In a comprehensive report issued the next year, 1984, the group concluded that the best way to stem the physical and financial damage from major flooding was to place a new emphasis on relocating homes and businesses rather than patching up dams and levees.

But the shift in strategy has only been marginally felt, as Federal and local officials concede that generous disaster-aid programs and efforts to urge residents to leave the flood plains have not persuaded enough people to move to higher ground.

So far this month, flooding in five states along the Ohio River and its tributaries has caused 30 deaths and at least \$500 million in property damage. And the National Oceanic and Atmospheric Administration predicted on Monday that because of unusually heavy snows this year in the High Plains and the Rocky Mountains, the nation is likely to experience the worst flooding in a decade.

The authorities contend that it is not so much a lack of effort on their part or a lack of financial assistance from the Federal Government that has left people in the confluence of raging waters. Instead, they maintain that the Clinton Administration has not made flood management a high priority and, as a result, local officials have not acted fast enough or forcefully enough to encourage people to leave areas that are at risk. Compounding their efforts is the resistance of many longtime residents of flood-prone areas, who say they have neither the interest nor the energy to pack up and leave.

"I'm not going anywhere," said Tim L. Shively, 30, one of many residents of West Point, Ky., who re-

consensus agreement between Washington, states and the local areas affected often takes some time."

For all the problems caused by the 1993 floods, which saturated a wide strip of the country along the Mississippi River from Minnesota to Louisiana, their lasting impact could well be the revised approach the authorities are using in management of flood-prone areas.

Prodded by recommendations from the study panel and a separate assessment of the Midwest floods by the Federal Emergency Management Agency that found that "property damage, injuries, disruption and disaster relief continue to rise," communities are no longer automatically rebuilding breached levees and dams. Rather, they are encouraging residents of flooded areas to abandon the area and rebuild their homes and business elsewhere, or to build them above prescribed levels.

After the devastating floods of 1993, the entire town of Valmeyer, in southern Illinois, moved to higher ground. All 900 residents rebuilt their homes and shops one and a half

**Flood danger
remains, and for a
variety of reasons.**

miles to the east, on a bluff overlooking the Mississippi. And Administration officials say they can document 12,000 cases, most of them along the Mississippi, in which people have rebuilt homes and businesses away from flood-risk areas since 1993.

Further, Congress passed measures after the 1993 floods that expanded the availability of flood insurance, provided hundreds of millions of dollars to acquire, move or elevate

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Since 1990, Russia and the United States have cut their total nuclear stockpiles almost in half.

Almost all the missile silos in Missouri and South Dakota are gone. The reductions have been matched, step by step, by Russia, but General Cook remains cautious.

"For Russia, nuclear weapons give them world-power status, a seat at the table," General Cook warned. "Despite what is going on in the economy of Russia, they still have crews on alert. While they are not targeted at us, they can change the cross hairs in seconds."

Tim L. Shively, 30, one of many residents of West Point, Ky., who returned to a water-logged home earlier this month. "I like this town."

Gerald E. Galloway, a retired Army general who headed the 33-member study group for the Administration, said the Federal and local authorities had made progress in putting into effect many of the more than 100 recommendations the panel made in its report.

"But the governmental process is slow and sometimes tedious," General Galloway added, reflecting on the slow pace of getting out the message about relocation. "Seeking a

ance, provided hundreds of millions of dollars to acquire, move or elevate flood-damaged properties and made it easier for farmers to sell off their land in flood plans. As part of the 1994 National Flood Insurance Reform Act, which increased the amount of flood insurance coverage available, to \$250,000 from \$180,000, mortgage lenders can be penalized if they do not make sure borrowers in flood plans buy flood insurance.

But any walking tour of communities overrun by surging rivers this year in central California and the Ohio River would indicate that there are too few Valmeers. While the destruction could have been worse in both regions, according to flood management experts, it also might have been less severe if more people had taken a cue from the 1993 floods.

California officials say that several factors have impeded the state's efforts to move residents, foremost among them pressure from real estate developers who are eager to stretch suburban communities into flood-zone areas.

"With this particular flood, I think we've had a good wake-up call to look at non-structural alternatives, and I hope that we are moving toward that," said Andrew S. Lee, chief of flood plan management for the California Department of Water Resources. "But the decisions on flood plan development are often being made at a local level. That's the problem. Our role at the state is education, persuasion and providing sensible solutions. But that doesn't always come about. The pressure for development is very great."

But even in the Ohio River region, where property values are generally not as high as in California, people who returned to water-damaged homes gave no hint that they were ready to give up. And property in the flood plans is generally less expensive than on higher ground.

Responses like that make flood management experts cringe. Clancy Philipstrom, president of the Mitigation Assistance Corporation, a Boulder, Colo., company that helps governments develop policies to make people less vulnerable to floods, said he applauded the Federal Government's change in policy to emphasize moving out of the flood plain.

But Mr. Philipstrom said the message "seems to get lost in committees, policies and politics" on the way to local communities.

Kathleen A. McGinty, chairman of the Council on Environmental Quality, acknowledged that "policy change always takes a long time." She said the agencies that respond in the aftermath of serious flooding — F.E.M.A., the Small Business Administration and the Farm Services Agency — have become much more effective in coordinating efforts with the local authorities and with one another on immediate problems.

But when it comes to an emergency mode, we're not as accomplished," she added. "We still have to find ways not to just put up a Band-

Costs Clash



Photographs by The Times-Picayune

pire novels who lives in New Orleans. He built the "and egregious structure"; he did classic design."

neighborhood, among other toys. Rice's books are an industry in themselves here. Tourists pay to tour oysters and other New Orleans gems made famous in her books. Copeland is seen as a blue-heron who hires people from the neighborhood and who refuses to try to join the gentrification, even though he wields considerable influence and plays the game of New Orleans politics and business well. He lives in a big house in the middle-suburb of Metairie.

Rice and Mr. Copeland, both money to burn, have gouged at one another through the daily newspaper with thousands of dollars' worth of full-page advertisements.

It started when Mr. Copeland hit the derelict Mercedes-Benz dealership with plans for a somewhat upscale restaurant — \$13 barbed chicken.

Charles Avenue is known as one of the loveliest boulevards in the United States, but the stretch including the dealership was also home to a fast-food restaurant, which locks away, Mr. Copeland pointed out, from the mansions farther



He did not want an antebellum motif for his restaurant. He wanted music just a little too loud, for its energy, and bigger-than-life-size golden panthers, with collars studded with fake diamonds, and metal palm trees, inside.

And he got it.

Mr. Copeland said he had gone to Ms. Rice's house to find out why she was trashing his restaurant but had been turned away.

"It floored me," he said of the advertisement. "I said, 'What in the hell is this? I'm not going to be embarrassed and insulted like this. I need to fight back.'"

So he sued Ms. Rice and took out his own advertisement, calling the restaurant a "fine merger of contemporary and classic design." The restaurant, he said, also gave 200 people jobs and brought life to a blighted area.

"P.S.," he wrote in his advertisement, "see you in court."

In a second full-page advertisement, Mr. Rice made it plain that her famous vampire was not imprisoned in the Straya restaurant but instead had been jotted out of his stasis — his state of nonbeing — by the sight of it

through Ms. Rice, of course, "nothing short of your indescribable restaurant could shock me out of my torpor and my coma. I am now myself again. It is nothing short of a stroke of genius on your part to create a restaurant that will be immortalized in history, legend and literature."

Mr. Copeland is still not sure how to take that one. But he does not think that Ms. Rice can reclaim her vampire so easily. A full-page advertisement, as he knows, has no magical power to bring the undead back to being, well, whatever it was.

But he said he had finally realized why she had attacked him so viciously. Ms. Rice, he said he had learned, is planning a restaurant of her own, a Cafe Lestat.

Public opinion seems to be running in Mr. Copeland's favor. A poll in The Times-Picayune showed that people sided with him, 3 to 1.

City officials have demanded that he make some adjustments to Straya, including moving a peach-colored arch that looms too near the sidewalk. But many people here say that no matter how loud the restaura-

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SUNDAY
March 16, 1997

The Sacramento Bee

SPECIAL REPORT

Building on the edge

By Dale Kasler, Dorsey Griffith, Loretta Kalb • Bee Staff Writers

This is the first in a three-day series of stories examining development near the Sacramento region's rivers and creeks

3 recent floods don't stem tide of development

It doesn't look like much, a sad-looking field that was under 3 feet of water after the New Year's flood. That will change. In time the land in the Arboga community of Yuba County will become a neighborhood.

The flood won't halt development, said homebuilder Nathan Mayo, pawing at the mud with his boots. To the contrary. Devastated by water, Arboga and the rest of Yuba County need economic progress now more than ever.

"Basically, we've been wiped out here," said Mayo, whose own home was flooded. "We need something to happen here."

From a flooded field in Yuba County to the sprawling communities planned for the Natoma basin, Californians are continuing to build within earshot of the Sacramento area's mightiest river.

They are mapping new neighborhoods in the shadows of levees. They are squeezing river channels to provide more land for housing.

In short, some experts say, they are tampering fate.

In the wake of the flood of '97, an examination of development plans across the Sacramento region found that:

• More than 50,000 homes are planned or are under construction in 91 basins a half-degree long.

Please see FLOODS, page A14

• Feather River levees protect the Straight Bend neighborhood in Yuba City. In January, the river broke through on the other side, flooding 900 homes in Arboga and Okshurst and resulting in three deaths.



Bee photograph by Laura Chun

BUILDING on the EDGE

FIRST OF THREE PARTS

"The National Flood Insurance Program has fostered a planning culture that allows people to be blind to the geographic realities."

—Ron Stark

columnist for Friends of the River

Floods: Maps have limited effectiveness

■ Continued from page A16

occurred at a site that had passed muster with the corps on the Sutter Bypass, in western Sutter County, he said.

"Personally, I wouldn't live behind a levee," Brown said. "There's always going to be some (rainstorm) that's going to be greater than what you've designed it for."

Few would argue against improving urban levees. Absent the construction of a dam at Auburn — the solution favored by many engineers but rejected by Congress — Sacramento has had little choice but to spend tens of millions of dollars fortifying its levees after the flood of '86 exposed grave dangers to the city. Some 80 percent of Sacramento was found to lie within the 100-year floodplain.

But levees can only go so far. Levees "do such a good job 99 percent of the time ... people don't see the flood threat," said Joe Countryman, a Sacramento engineer formerly with the corps.

The FEMA maps — drawn solely for administering the National Flood Insurance Program — also can provide a false sense of security. Most people don't realize that substantial risk can exist outside the 100-year floodplain.

"You're not out of harm's way," said Barsech of the Reclamation Board.

Besides, the maps can become out-

dated. Development in Rocklin, for instance, has raised storm runoff levels in some places and increased the size of the floodplain, said Archie Moosakhanian, Rocklin's city engineer.

A pattern of levee storms is widening the floodplain as well — and increasing the amount of work needed to provide 100-year protection. Simply put, engineers are discovering that so 100-year storms brings higher water levels than previously thought. So areas believed safe are winding up in the 100-year floodplain, said Paul Dewarux, engineering director at the Sacramento Area Flood Control Agency. Indeed, calculations from the new Year's flood will likely show that much of Sacramento no longer has 100-year flood protection, he said.

Outside urban areas, FEMA's mappers have trouble keeping up. The agency allocates only \$2 million a year to map all of California, Nevada, Arizona, Hawaii and the Pacific islands. "A little over \$2 million doesn't go very far," Lamsburg said. So the maps don't always depict the true risk.

Yet developers and local government planners have come to look at the maps as the bible of land use. If the map says you're out of the 100-year floodplain, start pouring concrete. It'll be safe. The government said so.

Some critics say the system has erased any notion of accountability.

"The National Flood Insurance Program has fostered a planning culture that allows people to be blind to the geographic realities," said consultant Stark.

Many homeowners fail to investigate flood risks. Few are they have on taking the most elementary precaution — buying flood insurance — even in Sacramento's older flood-prone neighborhoods.

"They want to find a house in a neighborhood they like, they want to find out how much it will cost them, and when can they move in?" said Charon Jenkins, a Sacramento Realtor. "The maps are the best disclosure, but I don't think they read them."

The federal government urges local authorities to go beyond the 100-year standard when examining proposals for subdivisions. "Where there's a lot of development, I would have them look beyond one minimum," FEMA's Lamsburg said.

Locals, however, are reluctant to chase off developers. "We have to be competitive," said Rocklin Mayor Ken Yorda, who's also chairman of the Placer County Flood Control District.

A lobbyist for the real estate industry, speaking to legislators after the flood, had one word to describe the notion of restricting riverside development: "Repayment."

Developers believe to make sense to use as much of the land as they can while still respecting the floodplain boundaries.

North Vineyard Station, the proposed community in south Sacramento County, is no exception. Some conservationists and local officials fret that the project will come too close to Elder and Collier creeks. Developers "are trying to get every inch of ground they can and put something on it," said Sacramento County Supervisor Ila Collins.

But developers said the plan will be safe.

"Once you meet the (federal) objectives ... what's the public benefit to having it here?" said James Ray, an engineer drawing up the plan.

Developing away from the river isn't always an option in this region.

"Everywhere you go, it's in the floodplain," said Phil Engstrom, director of water resources for the Spink Corp., engineering firm. "You cannot move Sacramento. So you'll have to be sure that you do your best and build all the infrastructure that you can."

The federal government, tired of paying billions for disaster relief, is starting to crash down. Washington has begun pressuring mortgage lenders to require flood insurance on properties in the 100-year floodplain. It requires local government to im-

tribute some-to-three projects. While it has created a program called "buy and relocate" to relocate houses and remove high-risk dwellings, the program has previous few dollars.

The bottom line is, the federal government doesn't have a lot of money to fight floods any more, and is telling local governments it's time to step up. Some are doing just that.

Clatsop and counties are starting to plan together on one subdivision doesn't increase the chance of flooding downstream. When new houses are built in the floodplain, several local governments require the structures be elevated a foot or more above the standard recommended by FEMA.

Placer County last year took the extraordinary step of rejecting a proposed Fly Creek subdivision at a site that was partially flooded in 1995. The county was rewarded with a \$5 million loan, but the case is pending.

But Placer's rejection was the exception to the rule. Most counties aren't so willing and don't have the luxury of saying no to growth. Yuba's certainly has the case in sugar Yuba County.

"The levees of the poorest counties in the state," said Brent Hestey, a spokesman whose home was flooded. "Should we stop growing? There aren't a lot of places to develop in Yuba County that aren't behind a levee. Where would you have us go?"

"I, like a lot of other folks, now have a healthy respect for the rivers and what they can do."

— Lee Welch
Yuba City mayor pro tempore

Floods: 'Memories are short'

■ Continued from page A1

times that are considered questionable by flood experts. Just in waterlogged Yuba County, developers such as Mays are plotting subdivisions that some day will boast almost 12,000 homes.

■ Largely on the basis of levees and government floodplain maps that give planners a false sense of security in fact, levees can fail and the maps are designed mainly for setting flood insurance premiums. But the two work in tandem to create an unrealistic urge to build in some places that experts say should be left undeveloped.

■ Responsibility often gets passed around like a hot potato. Developers say they follow the local rules, but those standards usually are based on barely adequate recommendations from the federal government. The fact, says local leaders, is that the locals don't want to discourage economic growth. Meanwhile, most homeowners are loathe to buy flood insurance and wait around for the federal government to bail them out.

■ Uncle Sam is becoming tired of paying the bills. The federal government wants more homeowners to buy flood insurance, and is making state and local governments assume more flood control costs.

■ In turn, local governments are becoming more sensitive to flood risks. They are starting to plan together, straddling the old family-neighbor ethic in which new subdivisions merely passed their storm runoff downstream. They are toughening building codes along rivers, requiring that new developments be sited in safer elevations.

Pleasant County early last year outright rejected a proposal for a subdivision at a site along Dry Creek that flooded in 1965.

It's rare, though, for a local government to deny a project. Building along the rivers continues in spite of rains that have produced three significant floods in 11 years. The New Year's '67 storm killed eight people, caused \$1.8 billion in damage — and made a mockery of efforts to tame the river and protect their behavior. But as conservative Rep. Steve of Friends of the River put it:

"Memories are short. Developers are persistent."

The latest flood did little to discourage planners and developers from proceeding with one of the biggest residential projects Sacramento has seen: the development of North Natoma.

"Natoma" development was halted after 1968 flooding revealed glaring weaknesses in Sacramento's flood defenses. Natoma was considered particularly vulnerable because of its basin shape, water could get 30 feet deep in a major levee break. In 1968 the city shopped a moratorium on residential development in North Natoma until flood control was upgraded.

Now after tens of millions of dollars have been spent to improve levees — and Sacramento has begun paying the U.S. Bureau of Reclamation to keep Johnson Lake damper in winter, to provide some money for runoff — the moratorium is about to be lifted. Next spring will see construction of the first of what will be 22,000 homes.

Representatives say the New Year's flood, which opened the city, showed the wisdom of building in Natoma.

"It was a good flood because what we're doing isn't so crazy after all," said Gary Koenig, engineering services supervisor for the city.

He earlier showed that some of the city's levees probably would have been compromised if Sacramento had been

drenched by the same amount of rain that walloped the Feather River, just 40 miles north. And experts say anyone who lives in North Natoma should understand levees aren't foolproof.

"I think there's still the element of risk, given the fact that you can get 20 feet of flooding," said Walter Vay, chief planner for the Sacramento District of the U.S. Army Corps of Engineers.

The potential risks generally aren't confined to Natoma.

In nearby Shasta, a proposed development called Shasta Lakes would require a levee as well as a portion of the Linda Creek to make room for the project. Although engineering studies say the idea won't cause flood peaks, some experts are uneasy with the notion of pushing the channel open.

"You need to be ... happy as much of that channel open," said Ted Smith, engineer with the American River Flood Control District.

In south Sacramento County, two proposed projects raise concern. North Vineyard Station, a 6,000-acre planned community that would straddle Elder and Gerber canals, would come too close to the water to suit conservationists and some local officials. Developers say they will take necessary precautions to safeguard houses.

Overlooked is a 200-home development planned at a point on the Cosumnes River that flooded in January. Developers said they studied the New Year's flood and are going to increase the elevation of the houses that will be built closest to the river.

"It's a strange river thing in that the terrible flood that tells us exactly what's going to happen on any piece of property we see maps says it doesn't happen," said Bruce Taylor, community representative for Riverwalk developers.

Another fear, critics say, is that Riverwalk could prompt the construction of levees, which would spark additional development — and new risks.

By building a levee, "you would induce a lot of growth, and then you (would) have an urban area protected by a high-grade levee, one that probably would fail," Vay said.

Farther south, in the Delta, a \$4 billion theme park-resort-residential community called Gold Rush City is proposed for Stewart Tract — an island that flooded in January.

While developer Norman Jarrett said the 8,500-home community would be safeguarded by \$15 million worth of levee improvements, others said Gold Rush City could still be in harm's way.

"We're getting our education on how vulnerable levees are," said Ray Barsch, general manager of the California Reclamation Board, which oversees levees throughout the state. Two dozen levee breaks were recorded in January in the Sacramento region.

The New Year's flood is creating second thoughts in some newly developed communities.

Take the Shanghai Island neighborhood of Yuba City, where more than 160 homes have been built along the Feather River since 1957.

The neighborhood is near the site of a historic levee break in 1955, but the Corps of Engineers says the existing levee is sound. The 35-foot-high barrier hovers over the bustling community, where streets have playful names such as Rapid Water Way.

No one was laughing, though, when Shanghai Island was evacuated over New Year's. Even though the neighborhood was spared by the flood, some residents remain wary.

"This ... told me that no ones safe," said Terrence White, a 36-year-old father of two who lives on Wild River Drive a few hundred feet from the levee. "It could happen on no notice, especially if you're living so close to a levee."

Some city officials believe the development may have been a mistake.

"I, like a lot of other folks, now have a healthy respect for the rivers and what they can do," said Lee Welch, the city's mayor pro tempore.

On the other side of the river, not far from Shanghai Island, Yuba County absorbed some of the worst of the New Year's flooding. A break in the Feather River levee at Conroy Clark Avenue killed three people and flooded 350 homes in Astoria and Orlinville.

Also flooded: thousands of acres of farmland destined to become a community with nearly 12,000 homes.

The proposed Pharus Lake community was approved by Yuba County supervisors in 1968 with the understanding that the government would make much-needed improvements to the levees, said Jim Manning, the county's community development director.

Manning said the development project, which would include a business

park and medical center, has been stalled ever since for economic reasons. The real estate downturn in Sacramento dulled the demand for housing in Yuba County.

The flood has put Plumas Lake even further on the back burner. But once market conditions are right and the levee is upgraded — not just fixed, but upgraded — Plumas Lake will proceed.

"I'm not abandoning the project," said developer Chris Steele, who controls 800 acres in the area. "There'll be homes there some day."

The levee broke at a spot earmarked for improvements by the Corps of Engineers, improvements that got delayed until spring 1988 by budget constraints.

Despite the levee shortcomings, the Federal Emergency Management Agency's maps still showed most of Yuba County was outside the 100-year floodplain, the area likely to get wrapped in a 100-year flood.

A 100-year flood is an event so momentous that it has only a 1-in-100 chance of occurring in any given year. The threshold is important because inside the 100-year floodplain, local building restrictions get tougher and homeowners must buy government-sponsored flood insurance.

FEMA didn't ramp up Yuba County because "no one told us that (the levee) didn't provide adequate protection," said Ray Lonsburg, a civil engineer with FEMA's regional office. "No one came in and said, 'It doesn't have 100-year protection.'"

The corps says it didn't urge FEMA to ramp up because the corps couldn't prove that the levee no longer offered 100-year protection. Reason: Levee reliability is an imprecise science.

"The system was still capable of carrying that (100-year) event through there, but it was at a higher risk to the levee," said John Brown, a civil engineer with the Corps of Engineers.

In any event, the corps determined that the '87 flood on the Feather River was a 120-year occurrence. But when the levee broke Jan. 2, most property owners were unprepared. Because the FEMA maps said insurance wasn't required, most folks didn't have it.

"It hadn't really occurred to me," said Francis "Sonny" Banta, whose Arbogast home ended up with 7 feet of water and \$66,000 in damage.

Anxious about the winter storms, Banta rushed to buy coverage a few days before the levee broke. But it was too late — by federal law, the insurance doesn't kick in for 30 days.

The disaster in Yuba County illustrates the dangers of relying on levees and FEMA's maps.

Brown said no amount of surety can guarantee a levee against gopher holes or some other malady. At least one of the New Year's levee breaks

Please see FLOODS, page A16

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March 16, 1997

The Sacramento Bee

Fears somewhat doused, Natomas growth nears

By Dale Kauter
Staff Writer

The land rush is about to begin. Homebuilders are poised to break ground in North Natomas, ending a six-year moratorium prompted by the weaknesses in Sacramento's levees and the community's vulnerability to a catastrophic flood.

Sacramento city officials say model homes could go up beginning this fall. Eventually more than 50,000 people could live in Natomas, a low-lying agricultural basin north of downtown.

Millions of dollars in levee improvements, coupled with the so-called "reoperation" of Nimbus Dam, have given Natomas the strongest flood protection in Sacramento, an estimated 130 years' worth, according to the Sacramento Area Flood Control Agency.

Gary Beanta, a city engineer, said development can begin once some finishing touches are completed, such as improvements to pumping stations and construction of detention basins. Also, a habitat conservation plan must be completed, he said.

What makes Natomas such a hot-spot ground was its basin-like geography. Surrounded by water, Natomas could get hit with 20 feet of water if a levee breaks on the American or Sacramento rivers or on the canal, engineering studies have shown.

Yet city officials said such a statistic makes a Natomas flood seem scarier than it really would be. Beanta said a new analysis by city engineers shows that because Natomas is so broad, it would take 48 hours after a levee break for the flood depths to reach 8 feet. That's enough time to remove structures from rooftops, he said.

Even many of those who thought development in North Natomas gave the area an impenetrable safety net.

Natomas "is less at risk than the rest of the city" and Douglas Flynn, a City Council member who once voted to block development.

But Flynn still harbors "some reservations," he said.

Mayor Joe Serna Jr., who has supported development, said, "I'm still concerned about Natomas because it's such a deep basin."

Engineers said his reluctance is understandable. Even though Natomas' levees provide 130-year flood protection — and could reach 200 years with some proposed improvements — the area isn't free of risk.

"Certainly there's a storm out there that's greater than 100-year," said Merrill Rice of the Corps of Engineers. A 400-year flood likely would bring catastrophic flooding to all of Sacramento.

Ironically, the effort to defend Natomas has sparked protests that higher levees could increase the flood risk to a neighborhood outside the basin.

The poor Bell Acqua neighborhood sits near Dry Creek, which empties two miles west into the Natomas East Main

Drainage Canal. The Sacramento Area Flood Control Agency has proposed to raise the canal's levees.

Bell Acqua neighbors threatened a lawsuit, arguing that higher levees could back up floodwaters from Dry Creek onto their properties.

SAFCA believes the higher levees won't imperil the Bell Acqua neighborhood but is conducting additional studies, said agency engineer Paul Deveraux.

California courts already have said the government can't flood one neighborhood in order to safeguard another. In 1993 a Sacramento Superior Court judge ruled that "backwater effects" from levees around Natomas were responsible for 1986 flooding in Strawberry Manor and parts of Rio Linda.

"Whenever you block water, you almost always have else," said Richard Beaman, a lawyer for homeowners in the lawsuit. "We got to go somewhere."

Still, the economic case for developing North Natomas is compelling. As the last major piece of undeveloped land in the city, the basin is seen as the city's answer to the lure of the suburbs. As a five-minute drive from downtown, it could open highway competition. The revenue would be a boon to a city government strapped for cash.

Developer Elani Testopoulos said she's worried the publicity about Natomas could scare off some home buyers, at least early on.

"I think they will have legitimate concerns of the way the media has portrayed North Natomas as a bathtub," she said.

But the hesitancy will fade, she said.

"If they're really serious about buying a home, they'll find the truck," she said.

SAFCA is planning additional levee work to raise Natomas' protection to the 300-year level, Deveraux said. The city is requiring special building requirements for Natomas, such as anchoring houses to foundations so they can't wash away.

Beanta said. A minimum number of levee levees will be required to provide safe homes in case people can't be evacuated, said Terry Moore, the city's special projects manager for Natomas.

Above all, the city wants potential home buyers to know of the risks. The city's decision documents that emergency and state linkages will make purchase of potential flooding, Moore said.

Moore said the city will do what it can to encourage homeowners to buy Natomas flood insurance — even though Natomas' 100-year protection means flood coverage won't be required.

"They should be aware ... that they're going to be living in a floodplain protected by levees," Moore said.

But that doesn't mean allowing

construction is a mistake, he said.

"It's not the city's position to tell you you can't live in North Natomas or anywhere else," he said. "But by God if you are going to live there, we are going to tell you what your risks are, fully disclosed."

VOICES

Flood control: Whose responsibility is it?



"If we can build houses and bring more money into the area, sometimes you just need that. There's a lot of money sitting out there."

■ **Nathan Mayo**
Architect developer and flood victim



"(100-year protection) is our minimum requirement. ... Where there's a lot of development, I would hope they would go beyond our minimum."

■ **Ray Lenaburg**
FEMA civil engineer



"They want to find a house in a neighborhood they like, they want to find out how much it will cost them, and when can they have it? We hand people all these disclosures, but I don't think they read them."

■ **Sharon Jenner**
Lawyer who handles on property buying homes in floodplain



"I didn't have flood insurance, I believed the system would work."

■ **Brent Hestey**
Lake County supervisor and flood victim



"All this land use is driven by developers. They want inexpensive land, and where's the inexpensive land? It's usually in the floodplain."

■ **Ray Barab**
general manager, state Reclamation Board



"If the FEMA map says the levee gives you protection from the river, then that's what you work with. ... Local governments have to rely on federal agencies that have the money and expertise."

■ **Jim Manning**
Lake County planner

WORLD RIVERS REVIEW

Published by International Rivers Network

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Broken levees accounted for much of the 1997 flood damage in California's Central Valley

California Flood Control System Springs Leaks

by Lori Pottinger

California's multi-billion-dollar flood control system – the most extensive in the world – suffered severe breakdowns in January. Levees on numerous rivers gave way, devastating rural communities along a 125-mile stretch of the Central Valley. The resulting floods caused nine deaths, an estimated \$1.6 billion in damages and the inundation of some 300 square miles. At least 20,000 homes were damaged or destroyed and 48 of the state's 58 counties were declared disaster areas.

"This is one of the problems with engineered flood control systems," said Phillip Williams, a civil engineer. "They encourage development in the most flood-prone areas. People think they are completely protected by the flood control system, but in truth such systems are inherently unreliable." Damage from floods in this country has actually gone up despite our huge investment in flood-control infrastructure."

An official in the state's flood control bureaucracy told *WRR*, "There are two kinds of levees: those that have broken and those that are going to break. After all, they're just packed dirt."

The floods occurred after a series of warm, tropical storms brought large amounts of water to already saturated soils. The resulting runoff varied in intensity around the state, according to the state's chief hydrologist: it set a new record at New Don Pedro Dam, where it was rated as a 180-year storm; at Filant Dam it was rated a 150-year storm; but at Folsom, where the runoff was similar to that of the big 1986 storm, it was only an 80-year event.

The high volume of runoff quickly filled the reservoirs of some flood-control dams to their legal limits, and water had to be rapidly released. In many cases, downstream levee systems were not designed to handle such huge amounts of water. In other places,

continued on page 3

COMMENTARY A Golden Opportunity

California's recent floods wreaked havoc in many communities, but they also opened a unique opportunity to propose a new flood management solution - one that would provide greater hazard reduction, greater reliability and at lower cost than the flawed flood control system the state currently relies on. This solution, which fully integrates flood management with river and watershed management, would also enable the large scale restoration of habitat for wetlands, waterfowl and fish that have been largely destroyed by the construction of this same flood control system.

The rivers of California's Central Valley are constrained by the world's most comprehensive and highly engineered flood control system - and one that has been emulated in other parts of the world. Its complex of flood control dams, levees, and bypasses has been tested by major floods only twice since its completion in the 1970s: in 1986 and this year. These events showed significant inadequacies in the operation, maintenance and design of the system. Most serious was the misoperation of Folsom Dam in 1986, which caused a near catastrophe for Sacramento, and the large spills from New Don Pedro and Friant Dams in 1997, which created large flood waves that ruptured levees downstream.

The following are some of the flaws built into California's flood control system that increase its maintenance costs, unreliability and harm to ecosystems:

- Some levees have been built too close to the river channel, making them unreliable and costly to maintain, and producing higher flood stages than occurred naturally. Maintenance of such levees has destroyed essential riparian habitat along most of the Sacramento River.
- Levees significantly reduce the natural storage of flood waters within the floodplain. Elimination of floodplains destroys or disconnects floodplain wetlands from the river, destroying a key component of a watershed's ecosystem.
- At the time of the design of California's flood control system, no consideration was given to the increase in flood damages likely incurred by people induced to develop in floodplain areas where the risks, while reduced, were still substantial.
- The system suffers from a basic operational conflict intrinsic to multipurpose reservoirs, which store water for power and irrigation as well as floodwaters. The system's flood control benefits depend on these dams being operated exactly to plan during major floods. Subsequent experience has shown this to be impossible. In large part because water needs in dry California often win out. Many dams store irrigation water in the flood control space during the winter, limiting their effectiveness as flood control dams.
- The San Joaquin Valley dams are designed to release flood discharges so small that almost all incoming floodwater must be stored. This futile attempt to eliminate flood peaks in the lower river has allowed dense vegetation to choke the old river channel as well as encouraging development in the floodway.
- The design of the flood control system makes almost no provision for addressing the consequences of the inevitable extreme flood larger than the design flood or a flood from a dam failure that will overwhelm the system.

The January 1997 floods have reconfirmed that we need to change the objective from "controlling floods" to the more appropriate one of reducing flood hazards. In this strategy, structural flood control measures are very important, but are not the dominant tool in achieving societal goals. Land use controls, flood insurance, building codes, relocation, flood proofing, emergency preparedness, and public education are also important and effective tools. "Management" must replace "construction" as the most important activity to protect our floodplain infrastructure.

Some of the improvements that could be made to the existing flood control system would not only increase reliability and effectiveness, but also help restore riverine ecosystems that have suffered under the current system. These changes include setting back levees to re-create floodplain corridors and allow for an active, natural meander area for rivers. Reconstructing levees to allow for vegetated toes instead of rip-rap, acquiring flood bypass land to convert to wetlands, which provide natural flood control, and changing reservoir operations to mimic natural seasonal flood patterns and reestablish natural riffles, pools and meanders.

The construction of the Central Valley's massive water control system caused major ecosystem declines and species extinctions that were only understood or acknowledged within the past two decades. New governmental initiatives are being formulated to restore fish, wildlife and wetlands. These initiatives focus on the restoration and management of flows and habitat in the river and estuary system. There is an almost perfect overlap between the measures needed for implementing an effective flood management strategy and those needed for meaningful restoration of the valley's fish and wildlife.

Philip Williams

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Floods continued from page 1

leaves failed because of poor siting, limited channel capacity or shoddy construction.

Doug Shields, a hydraulic engineer with the US Department of Agriculture and a specialist in river restoration, said, "If you want more capacity, you can build the levees higher or you can set them back. Setting them back creates a corridor that you can maintain in a semi-natural state which brings a number of environmental values. That's what I see as the real opportunity here." Shields also said that rebuilt levee systems "should be designed with a failure plan in mind, so that operators have some control over where it will fail."

The San Joaquin River had some of the state's most extensive flooding. Releases from Friant Dam were significantly higher than the downstream channel's capacity, causing numerous levees to break. Friant Dam has 170,000 acre-feet (AF) of flood control space in its 520,000 AF reservoir, which offers protection from a 50-year flood.

The *Los Angeles Times* (Jan. 26, 1997) reports that Friant Dam's operators may have been too slow to release water, waiting five days after water rose into the flood storage area "even as the dam became three-quarters full and the state's weather forecaster warned of a tropical storm." At the time of the storm's onset, the reservoir was at 449,000 AF, with 85,000 AF of flood storage space available upstream.

During the peak of the storm, 85,000 cubic feet per second (about 168,300 AF in a day) poured into Friant. "We used our whole flood space in one day," said Jeff McCracken of the US Bureau of Reclamation. Dam operators released 62,870 cfs from Friant during the storm's peak, into levees designed to handle 8,000 cfs. Levee breaks caused most of the damage downstream.

Perhaps more troubling than whether or not Friant Dam was managed appropriately is the fact that three different people in the flood-management bureaucracy told this writer three different stories about the dam's operational requirements. The main source of confusion is over an upstream dam, which the operating manual for Friant says can be used to replace up to half of Friant's flood storage. The Army Corps of Engineers offered conflicting information, saying the upstream dam's storage area cannot be subtracted from Friant's but is "just one of many variables" used to cal-

culate releases from Friant. Other variables include saturation of the soil and amount of water entering the channel from downstream sources. Human error in such a complex system is certainly possible, even in the best of circumstances.

Large Dam, Tiny Flood Space

Another area of major damage was below New Don Pedro Dam on the Tuolumne River, which has the smallest flood-storage buffer in the state. New Don Pedro has just 17 percent of its two million AF reservoir reserved for flood storage. The average for reservoirs in watersheds above the Central Valley is 28 percent, according to the State Department of Water Resources, and the state's highest is now Folsom, at 68 percent. Dam operators had to release 50,000 cfs into a channel that can handle 15,000 cfs.

The high amount of flood damage in the communities below New Don Pedro was not due to levee problems, however, but because of extensive development in the floodplain.

"The dam allows people to pretend that part of the floodplain is safe, high ground," said Ron Stork, a flood control specialist for the Sacramento group Friends of the River.

"The Army Corps has stated that New Don Pedro Dam was 'operated as intended' in this flood, and sadly, they're probably right," said Thomas Graff, a senior attorney with Environmental Defense Fund (EDF). "Unbeknownst to most of the public, the reservoir operators manual for this dam and the constrained channel capacity downstream doomed homeowners adjacent to the Tuolumne River, who have only been provided with 50-year flood protection despite being immediately downstream of one of the state's largest reservoirs."

There was a ray of sunshine in the flood's aftermath: Folsom Dam upstream of the

state capitol of Sacramento, which had nearly failed during a major storm ten years ago, worked very well during this event because increased public scrutiny led to improvements in its operation. Thanks to city purchases of Folsom's water-storage space, the reservoir now has 670,000 AF devoted to flood storage—an increase of 200,000 AF compared to 1986. Levees downstream have been improved as well.

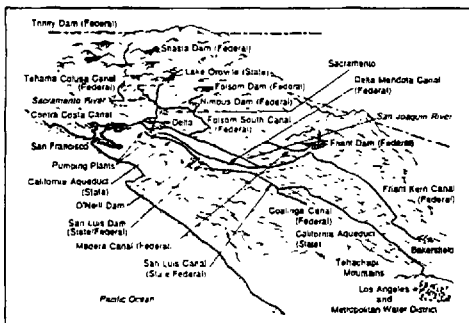
The proposed Auburn Dam—a billion-dollar flood control structure on the American River that was defeated in Congress last year—"would not have saved the people and property hit by flooding along the Feather, Bear, Consumnes, San Joaquin, Mokelumne, Stanislaus or Tuolumne rivers," said Ron Stork. Despite the evidence against it, a Sacramento legislator was renewing his campaign for the dam before the flood waters had even receded.

A coalition of environmental groups are calling for a review of the Central Valley's flood control plan. The groups, including Friends of the River and EDF, suggest that such a review could consider the following options, among others:

- move back and rebuild levees to modern engineering standards,
- improve operations of existing dams,
- buy properties in critical high-hazard zones to reduce damage and help restore the floodplain's natural ability to absorb runoff;
- encourage wise land-use planning in floodplains, reserving flood-prone lands for farmland, recharge basins and wetlands, and requiring changes to the building code to elevate buildings in high-hazard flood zones.

"It's important that any review of the current system be independent of all bureaucracies—federal, state and local—that now have roles in providing flood protection in this state," said Graff of EDF.

At press time, the *San Francisco Chronicle* reported that despite the extensive damages from the flood, "developers and real estate lobbyists vowed to battle any effort by the Legislature to restrict construction in areas that face future inundation." The Legislature had asked for comments on post-flood proposals to restrict some construction in hazardous flood zones. "The California Realtors Association would find restrictions on development repugnant," Stan Wieg, a lobbyist for the group, told legislators. ■



California Central Valley river control system. Reprinted from Overlapped Oax (Herald Press)

The New York Times

TUESDAY, FEBRUARY 4, 1997

California Floods Change Thinking on Need to Tame Rivers

New approach tries to restore waterways' natural functions.

By JON CHRISTENSEN

SACRAMENTO, Calif.

Now that the raging floodwaters that made California's Central Valley an inland sea last month have largely receded, a debate about the lessons of the floods is under way among scientists, environmentalists, planners and politicians.

The New Year floods began when a three-day storm dumped warm rains from Hawaii on a snowpack that was already nearly double the average in the Sierra Nevada. Runoff quickly filled reservoirs and overwhelmed levees. Floodwaters covered 250 square miles and destroyed or damaged at least 16,000 homes, killed eight people, and caused an estimated \$1.6 billion in damage in California.

The devastation has prompted some state and local officials to try to revise a multibillion proposal to build the Auburn Dam on the American River above Sacramento. But most officials acknowledge that there is scant chance of getting Federal or state funds for big new dams. Instead, there is a wide consensus that rivers need more room to do

their own thing, in the words of Dave Gore, a planner with the Army Corps of Engineers in Sacramento. The Federal Government, states and counties are moving away from "big structural flood control measures" that cost a lot to build and maintain, he said.

"Rivers are going to flood and meander and shift their alignments as floods come and go," he said. "If you use some stone and put a corridor of 100 feet on each side of the river and don't allow development there, in the long run you're saving yourself a lot of money, headache and heartache and you have a nice river corridor."

Environmentalists applaud this change in thinking. "We're going to have to live with floods," said Charles Casey of Friends of the River in California, which has fought the proposed Auburn Dam for many years. But it is no longer just environmentalists who are saying such things.

"We're starting to look at the big picture instead of just putting things back the way they were," said Linda Adams, a staff member of the State Senate Committee on Agriculture and Water Resources, which has been holding hearings on the floods. "We've channeled the rivers into small spaces and they don't like it." Walter Yap, chief of planning for the Army Corps of Engineers in California, Nevada, Utah and Colorado, said many people were calling for more dams.

"This generally happens when you have the misery of flooding," he said. "But the values of 50 years ago — when we built dams upstream and we straightened our rivers and put them in concrete channels — need to be re-examined."

The Mississippi floods of 1993 brought this change in thinking to the forefront, said Mr. Yap. But it has been in the works for some time here. And this year's floods provide an opportunity to put the new concepts to work.

The Corps flood control projects "never provided for natural flood plains," Mr. Yap said. Now the agency is trying to restore some of the natural functions of rivers, in some places by taking down its levees and opening its concrete channels.

"When we talk about construction now it's not necessarily concrete," he said. "It's restoring rivers, putting a meander in, landscaping and revegetation."

Dr. Jeffrey F. Mount, author of "California Rivers and Streams: The Conflict Between Fluvial Process and Land Use" (University of California Press, 1995), said: "The Corps of Engineers and the Bureau of Reclamation are undergoing gut-wrenching philosophical changes. The old tradition of when in doubt, pour concrete, is simply not going to work anymore for financial and environmental reasons."

Dr. Mount's book examines how California's landscape has been transformed in the last century by damming and channeling rivers and building in flood plains. "The same mistakes that were made on the Mississippi were made here and continue to be made," Dr. Mount said.

"We're rapidly urbanizing and all that growth is taking place if the flood plain. Californians have become addicted to levees. There are over 5,000 miles of levees in California. And each additional levee constructed along a river spreads the impact to another region, which in turn begins to plead for more protection. The crisis will be visited again and again if we don't learn some lessons from what happened."

Flood plans are by definition regularly occupied by floodwaters, he said, and trees running rivers top their banks on average once every two years. "I think we should turn flood control on its head," Dr. Mount said. "We should seek flood prevention. Flooding in one place spares another. I like to think of it as a system of checks and balances. If floods occur primarily on agricultural

New Approach to Managing a River

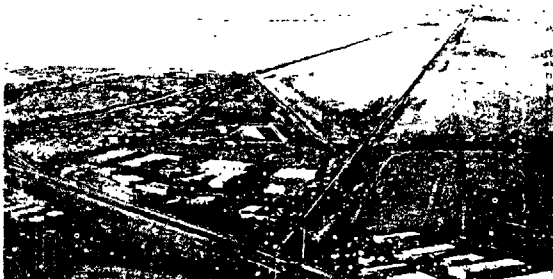
Highly lush next to a river's central channel (top) may control a flood but at great expense. Less expensive set-back levees (bottom) let the river occupy its natural flood plain. This restoring wetland's act as a buffer to floods. Between floods, they can be used for farming.

Channelized leveed river



Set-back levees





Yolo Bypass, California, is farmed in summer, but flooded in winter, on Jan. 1 gray areas were under water.

area the damage to population centers is reduced.

Dr. Mount said planners have begun to move away from pouring concrete, building reservoirs and channeling rivers, to restoring streams and rivers, and constructing wetlands to slow down, retain and spread out flood waters. Levees are being set back from river channels to give rivers room to meander and develop riffles, pools and riparian vegetation, and to store water on their flood plains, reducing upstream and downstream flooding. Farmers are being paid to allow their fields to be flooded during high water.

"But the overall and best approach is good land use planning," Dr. Mount said. Developments are still being planned and built in flood plains in California and around the West, but new developments often include open spaces that are meant to flood.

The Yolo Bypass is an example of an engineered solution designed to mimic the natural process of a flood plain within a river system," said Dr. Mount, "allowing a river access to its flood plain." A 26-mile-long stretch of farmland is protected by levees and farmed in the summer. In the winter, the levees are opened and the bypass carries flood waters from the Sacramento River to the San Francisco Bay Delta.

The Corps of Engineers is now looking at other areas on the Sacramento River near Yuba City, Marysville and Sacramento where the river

has potential to meander naturally or we can provide a bypass area that can serve as habitat or farmland," Mr. Yap said. "This is a good opportunity to look at where we can widen the river course. It'll be difficult in urban areas but outside of those areas we have tremendous opportunities to widen the river and provide more room for the river to flow."

State agencies and the Federal Emergency Management Administration are also looking at ways to spend disaster relief money to help reduce future flood damages. Since the Midwest floods of 1993, 15 percent of the flood relief money distributed by the agency has gone to states for mitigation projects. In the Midwest the program was used to buy out or relocate about 10,000 homes and businesses and move buildings from more than 100,000 acres of flood plain.

Major efforts to reform Federal irrigation projects in the Central Valley and the San Francisco Bay Delta are also providing millions of dollars for restoration projects that will help with flood management in the future. "In the past we would hear it would be great to do these things but we don't have the wherewithal and resources," said David Yandas of the Environmental Defense Fund. "We think there's a real win-win in moving the levees back and take pressure off the levees, let the river find its meander and restore habitat, and provide some wa-

ter supply benefits."

The Environmental Defense Fund is urging that a commission study the California floods much like the inter-agency panel that studied flood plain management after the Mississippi floods. Brig. Gen. Gerald Galloway, retired, of the Army Corps of Engineers, who led the Mississippi flood plain study, said he did not think a commission would add much to the debate in California.

The principles of flood plain management are now well known," he said. "There's no silver bullet. What you need is people willing to come to grips with the problem honestly. And now is the time to come to grips with it because the half-life of memories of floods is very short."

For some, the lessons of this flood have already sunk in. After watching the Sacramento River flood his 600 acres of almond and prune orchards, Barney Flynn has decided to stop fighting the river. Mr. Flynn spent \$70,000 to raise 1,200 feet of levee on the outside edge of a river bend after floods last year. He now plans to sell 50 acres of riverfront property to the United States Fish and Wildlife Service and move his levees back 500 feet.

"We're getting out of the levee business," he said. "We sat back and looked at the cost of maintaining that levee and decided that if the river wants to change course it might be more productive for us to back off."

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Cosumnes floodplain's future tied to tony project's fate

By Loretta Kalb

Bee Staff Writer

(Published March 17, 1997)

■ It's an unremarkable stretch of the meandering Cosumnes River -- a flood-prone area in south Sacramento County that is an unlikely site for a development debate.

But later this year, county policy-makers will consider whether to allow the last undammed river flowing from the Sierra Nevada to the Pacific to become the backdrop to a tony 677-acre community known as Riverwalk.

The outcome could signal how Sacramento County supervisors intend to handle proposed development in the Cosumnes floodplain.

Riverwalk would bring gated villages of 305 exclusive homes to Elk Grove south of Grant Line Road -- some costing more than \$2 million. It would include an 18-hole golf course, a 35-acre equestrian center and 264 acres of natural preserve.

"I believe strongly that we need that kind of housing," said Pat Koenig of the Elk Grove Community Planning Advisory Council, adding that the upscale development could help attract businesses and highly paid executives to southern Sacramento County.

But environmentalists contend the proposal would alter wildlife habitat, change the Cosumnes River floodplain -- and potentially spawn a land rush in a sparsely populated area subject to flood risk.

"The problem ... is how do you say yes to one (developer) and no to the others," said Keith Demetrak, a member of the Cosumnes Planning Advisory Council, which last year recommended against Riverwalk. "There's a whole series of these parcels that line up like dominoes along Grant Line Road."

The project faces an advisory vote by the Sacramento Policy Planning Commission later this year and, ultimately, a decision by Sacramento County supervisors.

A significant portion of the land for the proposed project was under water after the New Year's storm, although developers say the area proposed for homes -- for the most part --

stayed dry.

Upstream of the Riverwalk site, privately owned levees broke in more than 20 locations during the January storms.

"What we're trying to get a handle on is the condition of the levees" and how that will affect the proposed development, said Dennis Yeast, environmental coordinator for Sacramento County.

Renee Taylor, community representative for the developers, said the January flooding gave project engineers an opportunity to test their calculations showing where homes should be built.

"We realized that we had done a really good job of where development needed to be," she said.

Developers would elevate Riverwalk homes north of the Cosumnes River so they will be out of the floodplain. Much of the golf course, however, could be under water in a major storm.

Ultimately, environmentalists say, the key to flood safety is respecting the natural river

The only solution, said Mike Eaton, director of the Nature Conservancy's Cosumnes River Project, "is to avoid development in the floodplain. Anything else displaces water and makes the problem worse for someone else."

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Sunday, March 16, 1997 · Page C 1
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Unreliable levees no barrier to
developers

Planners insist upgrades will be made, but critics fear
Valley's entire system is at risk

Lance Williams
OF THE EXAMINER STAFF
Examiner staff writer Steven A. Capps contributed to this
report.

OLIVEHURST, Yuba County - When the developers
and politicians look south at the rice fields and prune
orchards along the Feather River, they envision big
things:

Housing tracts. Strip malls. Industrial parks. A bustling
new city for 35,000 people.

But the helicopter pilots who began their emergency
fly-overs at dawn Jan. 3 saw something quite different:
a vast, muddy lake, 15 feet deep and 3 miles across.
This was the site of the worst single incident of the
Great California flood of 1997 - when the Feather
River, swollen to a depth of 77 feet, burst a
problem-plagued levee on the night of Jan. 2,
inundating 15 square miles of farmland.
The disaster killed three people, caused \$200 million
in damage and forced 80,000 people from their
homes.

But bad as it was, the disaster might have been far
worse if the proposed new city of Plumas Lakes had
been built before the waters rose.

The development, intended to serve long-haul
commuters to Sacramento, was approved by the
county supervisors here in 1993, but construction is
not yet under way. More than two months after the
levee burst, portions of the site still had water standing
to the depth of eight feet.

The flooding at the Plumas Lakes project area is a
scene that was repeated up and down California's

great Central Valley, from Marysville to Fresno, during January's flooding.

In place after place, the high water inundated or threatened low-lying farmland where local officials have given the green light for large-scale urban development - housing tracts, new cities and even, in one case, a fantastic complex of four Disneyland-sized amusement parks.

If everything that has been approved had already been built, as many as 200,000 more people would have been at risk, according to a review of planning documents collected by The Examiner.

The Plumas Lake plan is "a total disaster," says Walter Cook, who lost a 15-acre walnut orchard, along with house and outbuildings, in the January deluge. "I don't think you should build a subdivision in a sinkhole," he says. "It's an area that floods every time a levee breaks, and the more people who move in there, the more heartache you will create. People will be homeless. People will lose everything. And the developers who build it will be long gone." **Levee safety questioned**

Local officials and developers insist that the projects they plan will be safe: levees will be upgraded to protect the new cities from future floods, they say. "It is definitely thought that no one would go down there and develop anything until levee improvements are under construction," says Jim Manning,

Community Development Director for Yuba County. But development proponents make that claim even as some flood experts have begun an agonizing reappraisal of the safety of the state's levees, a 6,000-mile network of earthen walls and dikes that protect some 900,000 Californians from flooding.

The levees took an extraordinary battering in January: floodwater broke through in more than 80 places in the Valley, inundating about 250 square miles of farmland and towns, causing \$1.5 billion in damage.

To some experts, the real lessons of the flood may be that the levee system is simply not capable of

protecting the rapidly urbanizing Valley at times of flood.

"The levee system isn't designed to protect property, it's mainly just designed to protect ag(ricultural) land, which is well suited for periodic flooding, anyway," says Erik Vink, California director for the American Farmland Trust, which works to conserve farmland. Ann Riley, a former state Department of Water Resources scientist now with Berkeley's Coalition to Restore Urban Waters, says:

"We have allowed people to inhabit high-risk areas behind levees that aren't necessarily structurally sound, and the price tag to rebuild the entire levee system is absolutely prohibitive."

Given the staggering costs of this year's floods, many experts say California should try to minimize the impact of future deluges by turning to an approach that plans for occasional high water and diverts it from populated areas.

"You can't remove all the houses that are there, but you can direct flood water into bypasses, purchase key sites of land and direct the flows there," says Riley

For the Central Valley, the experts envision relocating some levees, buying easements across low-lying farmland to restrict development and creating one or more new flood-control channels like Sacramento's Yolo bypass, a broad swath of lowland that is farmed in summer but carries high water away from the city during storms.

Such ideas imply that the state would restrict development in flood-sensitive areas. And that raises the hackles of local officials, who jealously guard their power to control zoning, and of home builders and real estate investors, who fear loss of their property rights. At a legislative hearing convened in January by state Sen. Barbara Lee, D-Oakland, a California

Association of Realtors lobbyist said his organization found the idea of imposing new limits on development in flood-prone areas repugnant. The California

Building Association's spokesman said his group would fight such restrictions.

"I told the committee that taking away somebody's property rights was repugnant to us," says CAR lobbyist Stanley Wieg.

But Douglas Vogl of Fresno's San Joaquin River Committee says: "County supervisors are permitting developers to build structures in areas where nature dictates nothing should be built. This is not in the public interest, because property owners look to the public purse to make them whole when natural disaster strikes."

Assistant U.S. Interior Secretary John Garamendi, a former San Joaquin County legislator, says: "It is insanity to build in these flood zones, and for cities and counties to allow it is dead wrong." The conflict between development and flood safety is being played out up and down the Valley. Among the hot spots:

*Gold Rush City. In 1989 the farming community of Lathrop, on the San Joaquin River south of Stockton, became a city.

Soon after that, Norman Jarrett, a visionary South African developer, pitched the new city council on a \$4 billion real estate project to be built around four Disneyland-style amusement parks - one of them with a '49ers theme.

More than 8 million people would visit "Gold Rush City" each year, the developer claimed in promotional material. The project would also include "a super-regional shopping center," three golf courses, an auto speedway with a grandstand for 120,000 racing fans, a sports arena for ice hockey or basketball, a hotel complex with 10,000 rooms, industrial parks and, finally, homes for 20,000 people.

Attracted by the promise of 30,000 new jobs and \$90 million in annual tax revenues, the city council enthusiastically rezoned a 5,500-acre riverside tract for the project. "Gold Rush City will put Lathrop on every tourist's itinerary," said Mayor Apolinar

Sangalong.

The city council also rezoned some farmland to accommodate Mossdale Village, a residential project for 9,000 people. If everything is built, Lathrop's population of 9,000 will triple, and much of the open space between Stockton and Manteca will be urbanized.

Gold Rush City hit a snag last year when the California Farm Bureau Federation joined the Sierra Club in a lawsuit challenging the rezoning.

Project opponents said they were horrified by the plan to pave over the prime agricultural soils on the Stewart Tract, an island at the east end of the San Joaquin River Delta where Gold Rush City would be relocated.

Another hitch came Jan. 5, when levee breaks on the lower San Joaquin River downstream of where it was joined by the flood-engorged Tuolumne put much of the farmland west of Lathrop under water - including the site of Gold Rush City.

Two months later, portions of the development area are still flooded. The developer and Lathrop city officials told the Manteca Bulletin that the 1997 flood was irrelevant; long before Gold Rush City is built, massive levee improvements will be made to keep the project dry, they said

But project opponent Eric Parfrey says that could shift flooding downstream to the city of Stockton, where January's high water put great pressure on levees, forcing the evacuation of one new 1,300-unit housing development

Also, flood experts believe it is vital to keep Stewart Tract undeveloped to ease the impact of future floods, says Rudolph Platzek, author and regional planner. "If we are to build a San Joaquin River bypass equivalent to the Yolo Bypass to take the pressure off the levees, it will need to pass right through Gold Rush City," he says.

*The upper San Joaquin River bed. Since 1947, the

massive Friant Dam in the foothills east of Fresno has allowed the state to divert more than 90 percent of the water away from the channel of the upper San Joaquin River into a series of irrigation canals.

As a result of diversions, the river through the bluffs below the dam has run at only a trickle in all but the rainiest of seasons

That has emboldened officials of the City of Fresno and Madera and Fresno counties to begin rezoning stretches of the riverbed for residential development.

So far, the Fresno City Council has approved "Scout Island," a subdivision for 11 upscale homes in the riverbed, and Fresno County supervisors have approved a 100-unit river bottom tract. Upstream, Madera supervisors have given approval for developing "Rio Mesa," a sprawling new city for 90,000 people. A 250-acre portion of that development, dubbed "Riverbend Ranch," abuts the river bottom.

Primary flood protection for the projects, all still unbuilt, is supposed to be provided by the enormous dam that impounds Sierra runoff into Millerton Lake. But in January, the warm storms melted the Sierra snowpack, filling Millerton and forcing uncontrolled releases from the dam. The San Joaquin roared to life through the Fresno bluffs, wrecking a trailer park in the river bottom and surging past the sites of the subdivisions.

After the storm passed, local flood officials joined with preservationists to urge the City Council to enact an emergency building moratorium in the river bottom. They argued that the City Council needed to study public safety issues before issuing building permits, but the effort failed.

Councilman Ken Steitz accused proponents of hyping the flood danger, telling the *Fresno Bee*: "They were using that to deny somebody (the right) to build on their own property."

*Yuba City-Marysville. The Feather River downstream from its junction with the Yuba has been

the site of six major floods in the past half-century. Worst of all was the so-called "Gum Tree" break shortly after midnight on Christmas Eve 1955, when a levee that had been spouting geyser-like leaks for more than eight hours finally ruptured, flooding a vast agricultural area and killing 38 people.

In the 41 years since then, the state has spent millions upgrading the levees, and it's a good thing. Today, the former farmland at the foot of the very levee that gave way in 1955 is a checkerboard of subdivisions. All the projects were approved by the Yuba City Council in the past five years.

"One of them is called River Run, and it's aptly named," says Sutter County Supervisor Dick Akin, "because in 1955, the river ran right through where the development is now. It's a risky place to put homes, right on a levee."

Akin says opponents cited flood danger in an attempt to derail the projects, but the City Council approved them anyway. Voters later rejected two bond issues to build a high school in the area after opponents argued that the new school would eventually be wrecked by flooding, he said.

Many home buyers in the new tract are new to the area and "didn't realize what they were buying, until this winter," Akin says. Most of the year, the Feather is a placid stream, and if you've never seen it at flood, you can't imagine how powerful it can become, he says.

In the flood of 1997, leaks developed along the levee near Gum Tree, but the structures held. Instead, the break occurred downstream and on the opposite bank, above the Plumas Lake site.

Community Development Director Manning says the officials who approved the new town didn't feel it was necessary to make flood safety a development requirement, because developers would want that as much as anybody.

"I don't know that we would need to make it a requirement of anybody to have levee improvements

before spending millions of dollars on an investment at risk," he said. "People are going to go, "Wasn't this under 15 feet of water in 1997?" Developers don't make all that money by not being clever."

But Richard Meehan, a Palo Alto engineer and flood expert, has studied the area's three most recent flood disasters - the 1955 and 1997 levee breaks, and another break in 1986 that caused \$500 million in damage. He doubts levee upgrades will solve the problem.

Meehan says the levees are built far out on the flood plain, atop an underground layer of gravel that is the river's prehistoric channel. In the trial of a lawsuit filed in connection with the 1986 flood, he testified that, when the Feather is at flood, water can move through the gravel far landward, undermining even the best-constructed levee.

"There definitely is a land-planning issue here," he says.

Tomorrow: Flood control in future.

San Francisco Examiner

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Flood watchers float plan to handle next deluge

Limit rebuilding, have water flow onto farmlands

Lance Williams

OF THE EXAMINER STAFF

Pay farmers to let their land flood

Don't subsidize washed-out property owners who want to rebuild in harm's way

Flood experts, conservationists and some politicians say those twin ideas form the core of a strategy that might provide cheaper, more effective flood control for California's Central Valley, where a century-old system of levees seems increasingly unable to protect urban areas from disaster

But the strategies are eyed skeptically by the state's powerful real estate lobby, concerned that new land-use restrictions might cost landowners and developers a bundle

Assistant U.S. Interior Secretary John Garamendi, a former San Joaquin County lawmaker, says the idea is to ease the impact of future deluges by planning for occasional high water, then diverting it away from populated areas.

"It means using everything but the old way of levees, riprap, steel and concrete," he says. Schemes being considered include buying land or obtaining easements to restrict development in flood-prone areas and creating new river bypasses to carry storm runoff away from the valley's cities.

"We must always look for non-structural alternatives," he says. "So we don't have to go back every time there was high water and rebuild what was in place."

The federal government has been drawn to this approach since disastrous floods in

the Mississippi Valley in 1993, which cost taxpayers a staggering \$5.7 billion for cleanup and repair.

Gen. Gerald Galloway of the U.S. Army Corps of Engineers wrote an influential report on the disaster, suggesting that government aid would be better spent relocating people off the flood plain than on new dams and levees.

The ideas in the Galloway Report have been resonating in California since January's devastating storms exposed the limits of the state's flood control.

The 6,000-mile system of dikes and levees - the front line of defense for more than 900,000 people - failed in more than 80 places, inundating 250 square miles of farmland and towns, causing \$1.5 billion in damage.

Some flood experts say they believed the underlying cause of many breaks was that the structures themselves had been improperly located atop flood plains, making them prone to sinking, and that they collapsed because of the underground movement of water.

It might cost billions to rebuild the system, experts say.

"Crazy" to build in flood zones

Rather than make ever-more-expensive improvements to the levee system while covering the lowlands with houses, the new strategy would seek to create buffers between urban areas and the flood plain - and steer development out of flood zones.

"In many places, our cities are already there, so our non-structural approach doesn't work," Garamendi says. "But to build more cities in the flood zones is about as crazy as to continue building on the San Andreas Fault."

Under the new approach, some levees would be set farther back from river channels. In others, occasional flooding onto farmland would be allowed.

On the lower San Joaquin River south of where it flows into the Delta, a new overflow channel like Sacramento's Yolo Bypass would almost certainly be required to route floodwater around the urban corridor between Modesto and Stockton.

State Sen. Jim Costa, D-Fresno, says he hopes to persuade federal, state and local officials to jointly finance "a system of weirs, bypasses and voluntary easements on the lower San Joaquin" to control flooding.

At least in theory, those ideas appeal to the California Farm Bureau Federation, whose members are eager to check urban sprawl and preserve the world-class farmlands of the Central Valley.

The program could have something for environmentalists, if the proposed open-space floodways include areas for wildlife. For the federal government, there's

also an appeal because it might cut the price tag on repeated federal bailouts.

Owner and developer concern

But developers and landowners are wary of the proposals, fearing that what's really being proposed is a new set of land-use regulations that will deprive them of their right to build. That would be unfair and illegal, says Stanley Wieg, lobbyist for the California Association of Realtors.

"If you take somebody's property that they bought as their attractive riverfront homesite, and it's been constructed or will be constructed within existing rules, and you pull the rug out from under them so it's only good for grazing lands, you've taken something valuable," he says.

Proponents say they realize that landowners must be compensated if their lands become floodways, and they also understand that the cost of buying all that land outright would be prohibitive.

That's why they are suggesting an easement program, in which farmers would voluntarily allow their lands to be flooded during crises in exchange for payment from the government. Precise costs have not been determined, but the easement would represent a small fraction of the purchase price of the land, which still could be farmed when dry.

In addition, Garamendi says the federal government wants to get out of the business of subsidizing development in flood-prone areas.

"The idea is to decrease the incentive to continue doing what we're doing by eliminating the federal bailout," he says.

According to Douglas Wheeler, state secretary for resources, the Army Corps of Engineers has said that at least some of the \$300 million in emergency aid headed California's way for flood repairs might go into an easement program.

"In talking about that \$300 million, they were going to emphasize non-structural options in the San Joaquin Valley, a bypass like the Yolo, or flood easements with farmers and ranchers," he says.

Over the longer haul, state Sen. Costa has become point man on a proposed bond measure that also would put primary emphasis on buying easements from farmers. The bonds - tentative amount, \$500 million - would be on the state ballot in 1998, and Costa hopes he can get farmers, environmentalists and flood experts to support the measure.

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Published on March 17, 1997

'97 floods tie as costliest in state history

Times staff

Even before the valleys dry out and all the flood victims return home, the New Year's floods of 1997 are on pace to tie 1995 as the most expensive year for flooding damage in California history.

The tally so far is roughly \$1.8 billion in damage to private homes, land, businesses, and public roads, marinas and other facilities, the state Office of Emergency Services reports.

The same figure was reported after the 1995 flooding that battered a larger swath of the state, including many Southern California areas spared this year.

"It looks like the two years are close. There may be changes in this year's estimates as we get more clarity. We believe there are still flood victims out there who haven't applied for assistance," said Fred Messick, a state OES spokesman.

Flooding caused eight deaths this year, and 33 deaths in 1995.

Some 20,400 people have requested federal assistance this year -- far fewer than the estimated 112,700 who sought federal help after the 1995 floods -- reports the Federal Emergency Management Agency

FEMA has written \$13.2 million in temporary housing checks this year to 8,618 California individuals or families displaced by the floods, said agency spokesman John Hopkins.

The agency has paid housing assistance of \$575,000 to 392 Contra Costans, \$314,000 to 214 Alameda County residents, and \$96,001 to 81 Solano County residents.

Californians also have received \$6.4 million in federal grants this year to repair property damage, and \$313,000 in unemployment assistance for people out of work because of flooding, Hopkins said.

Orinda suffered the worst flood damage in Contra Costa County this year -- about \$6.8 million to private property and \$3.8 million to roads and other public facilities, county officials say.

Pleasant Hill reported \$1 million in private property damage, and El Cerrito residents suffered \$441,000 in property damage.

For information about seeking federal flood assistance, call the Federal Emergency Management Agency at 1-800-462-9029.

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WESTERN WATER



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Flood Fight: Perspective on the New Year's Floods

Published by the Water Educator Foundation

In the News

Federal and State Flood Relief Efforts

President Bill Clinton's proposed 1998 budget announced Feb. 6 included \$44.7 million for federal levee restoration projects along the Sacramento and American rivers. Clinton asked Congress to authorize the full \$44.7 million this year to expedite levee repairs and upgrades. The funding was in response to the near disastrous 1986 American River watershed floods.

Also included in the president's budget, which will be debated by Congress over the next few months, was \$143 million for restoration of the Sacramento and San Joaquin Delta to support the CALFED Bay-Delta Program. Deputy Interior Secretary John Garamendi said, "We are strongly committed to fulfilling the federal share of restoring" the San Francisco Bay-Delta.

The federal money will help fund the 1996 Safe, Clean, Reliable Water Supply Act (Proposition 204), which authorized \$995 million to improve Bay-Delta water supply, water quality and environmental restoration. Part of the federal matching funds will be used for habitat restoration on levees. Money also could be used to repair levees broken



A farm is overwhelmed by record flows that breached levees along the constricted San Joaquin River.

during the January 1997 flooding, particularly along the Cosumnes River. Clinton is seeking a further \$286 million for 1999 and 2000.

Prior to the release of the 1998 fiscal blueprint, Rep. Vic Fazio, D-Woodland, requested an emergency appropriations measure to increase federal funding for this winter's flood recovery efforts.

Subsequently, Gov. Pete Wilson asked Clinton for \$881 million for the new year's flood damage. The governor's Flood Emergency Task Force estimated that the flood damage tally would be approximately \$1.8 billion — making it the state's most costly flood. The task force, which was created Jan. 10, released a preliminary report Feb. 13 that recommended seeking federal funds to help restore levees to their pre-flood capacity, repair damaged roads, drain flooded areas that threaten levees, and pay for agricultural losses.

The same day Wilson requested federal flood aid, the national disaster relief agency, the Federal Emergency Management Agency, disbursed a \$169 million grant to the state to help repair roads, bridges and other public infrastructure damaged during the 1995 floods.

State legislators also took steps to assist with storm recovery. A number of Senate and Assembly bills were introduced and are now under debate, which range from bond measures to fund the construction of additional dams to bills reallocating federal and local governments flood protection and disaster relief cost-sharing programs.

March/April 1997

Where We Are

March 6
 The U.S. Army Corps of Engineers announced that it will spend \$44.7 million to restore levees along the Sacramento and American rivers.

March 10
 The U.S. Army Corps of Engineers announced that it will spend \$143 million to restore the Sacramento and San Joaquin Delta.

March 13
 The U.S. Army Corps of Engineers announced that it will spend \$286 million to restore levees along the Cosumnes River.

March 13
 The U.S. Army Corps of Engineers announced that it will spend \$995 million to improve Bay-Delta water supply, water quality and environmental restoration.

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March 13
 The U.S. Army Corps of Engineers announced that it will spend \$44.7 million for federal levee restoration projects along the Sacramento and American rivers.

by Elizabeth McCarthy

Perspective on the New Year's Floods

With the new year came the second most devastating flood of the century. The unusual series of back-to-back warm storms, known as the Pineapple Express, that hit northern and central California at the end of 1996 and beginning of 1997 caused the worst flood in the state since 1955. The New Year's storm killed nine people, forced the evacuation of 120,000 people and caused as much as \$2 billion dollars worth of damage. For weeks after the storm the San Joaquin River and its tributaries continued to flood. The havoc wreaked by the epic storm, which was aggravated by downpours three weeks later, raised many questions — from technical to philosophical — about the safety of the state's flood management system and land use planning.

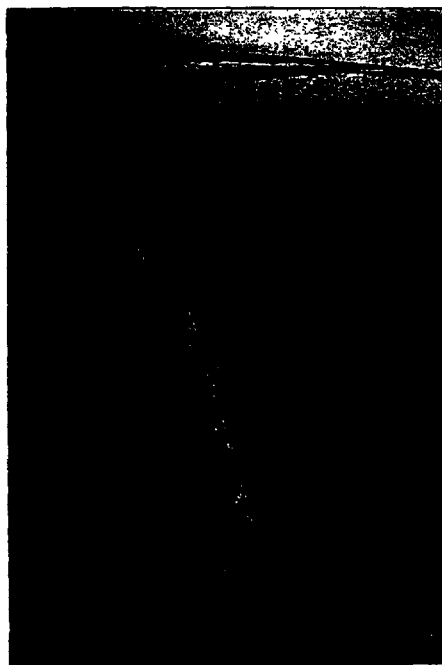
Unprecedented inflows from rainfall that pounded the area from Dec. 26 - Jan. 6 combined with melted snowpack and surged into Oroville Dam on the Feather River, New Don Pedro Dam on the Tuolumne River, Friant Dam on the San Joaquin River, Shasta Dam on the Sacramento River, Folsom Dam on the American River, New Melones on the Stanislaus River and into Camanche Reservoir on the Mokelumne River. Federal, state and local flood managers were forced to release record outflows from the reservoirs to avoid uncontrolled spills. Raging flows strained numerous levees past the breaking point along the Feather, Bear, and Yuba rivers, Sutter Bypass, San Joaquin River and along the undammed Cosumnes River. Communities in Olivehurst, Linda, Arboga, Wilton, Manteca and Modesto were flooded. Some levees were breached by flood managers to avoid greater damage.

By the end of January, 48 counties out of the state's 58 counties were declared disaster areas and 290 square miles of property, including homes, farm land, bridges, roads and flood management infrastructure were damaged. "This was unlike anything we have seen before," said Turlock Irrigation District (TID) spokesperson Tony Walker.

The flood management agencies — the U.S. Army Corps of Engineers (Corps), U.S. Bureau of Reclamation (Bureau), state Department of Water Resources (DWR), state Reclamation Board, and Office of Emergency Services (OES), received wide praise for their flood control efforts, which were made more difficult in several areas by warm rain melting an above-average snowpack. The state and federal water projects "worked when it mattered most, and millions of people still have their homes and businesses today as a result," said Stephen Hall, executive

director of the Association of California Water Agencies.

Flood control officials pointed out that flood damage was minimized because of the government's accurate weather forecasting and operational changes made after the near catastrophic flood in 1986 along the Sacramento and American



The Sacramento River Sutter Bypass levee break flooded 40 square miles of farmland.

ivers. Two days before the full force of the Pineapple Express was unleashed, the State-Federal Flood Center alerted flood management agencies and increased releases of stored water were made to make room for inflow from the subtropical storms. The forecast predicted that 40 inches of rain would fall at the upper elevation of the Feather River watershed, predictions that were within 1 inch of the actual downpour, said Lowell Floss, chief of Central Valley Project (CVP) operations.

Following the 1986 inundation, seasonal flood storage capacity was increased at Folsom Dam. The 1986 storm caused record flows on the American and lower Sacramento rivers, claimed 15 lives and caused \$1.5 billion in property damage in the Central Valley. Other record floods in this century occurred in 1955, 1964 and 1995. Because of the state's diverse microclimate and geography, flooding is a recurring phenomenon.

In the aftermath of the January 1997 storms, federal, state and local flood control officials continued to hold their breaths for it was only the beginning of the flood season and it was anyone's guess as to how wet the season would be. The loss of flood storage capacity at reservoirs along the San Joaquin system, which continued into February, has been an ongoing concern aggravated by fears about the impacts of the melting above-average snowpack — the timing and speed of which is quite variable. An early and/or heavy snow melt could lead to further flooding.

In addition, the integrity of the miles of levees along the Sacramento and San Joaquin rivers and their tributaries cannot be assessed until water levels drop. "We won't relax until we look at the erosion on the levees," said Walter Yep, head of Corps planning. After the 1986 flood waters receded, substantial erosion was found on the water side of the levees.

Since 1986, a significant portion of the levee system has been rehabilitated but levee stability remains a major concern. Levees are not only a critical part of the flood control system but also protect water supply.

Many are pondering possible lessons to be learned from the latest flooding, which once again revolve around the limitations of the flood management system and risks of floodplain development. The flood control network "does not prevent flooding but only reduces the frequency," said Jeffrey Mount, who chairs the University of California, Davis Geology Department. Mount is author of *California Rivers and Streams*.

The new year's deluge also re-ignited the debate over how to best provide flood protection from the forces of Mother Nature: through technical engineered fixes, such as construction of more dams, or by use of nonstructural flood management methods, which focus on reducing floodplain development — or through a combination of the two.

The governor and Legislature are looking at many of the floodplain management issues highlighted by the January 1997 storms. Gov. Pete Wilson convened an Emergency Flood Action Team headed by the Resources Agency Secretary Doug Wheeler to assess the floods and evaluate short-term and long-term flood protection options. The executive task force's preliminary report released Feb. 13 (see *In the News*) is expected to be finalized by May 10.

CALFED, the consortium of state and federal agencies that is seeking a long-term solution to ensure water supply reliability and restore the Bay-Delta ecosystem, is urging coordination of flood management, ecosystem and water supply reliability needs.

This issue of *Western Water* provides background to the flooding, summarizes the 1997 flood events and focuses on the main controversies over flood protection practices, which include questions of liability and climate change and potential ramifications for the state's flood control and water delivery system. For more in-depth information on flood control please refer to the Foundation's *Layperson's Guide to Flood Management* and the *American River*.

**"We cannot allow
people to think
they can build
subdivisions and
other major projects
in the floodplains and
that we are always
going to be the deep
pockets for those
kind of disasters."**

State Sen.

Jim Costa

Background

California's rivers have been shaped and driven by the capricious climate, which has fluctuated between cycles of flood and drought. Large parts of the alluvial valley areas of California are historic floodplains, low areas adjacent to waterways that flood during wet years. Development sprung up in floodplains because of the fertile soils enriched by seasonal flooding and because many commercial activities developed along rivers, which also were the main routes of commerce.



Record inflows — 302,000 cfs — forced reservoir operators to release unprecedented outflows from Oroville Dam Spillway

The Sacramento and San Joaquin valleys were originally an inland sea during wet winter months when the rivers inundated the region. The rivers were free from significant man-made alterations until gold was discovered in the Sierra foothills in 1848.

The settlers that accompanied the Gold Rush reshaped the rivers and extensively changed the landscape. Levees were constructed and huge quantities of debris from hydraulic mining washed into the waterways. Concurrently, there was extensive draining and diking in the Central Valley and Delta floodplains to allow farming of the fertile soils. In spite of

this activity, the region continued to flood.

The most serious recorded flood in the 19th century occurred in 1862. The Central Valley experienced unprecedented rain and parts of downtown Sacramento were beneath 20 feet of water. In Feb. 1863, William Brewer, who helped carry out the first geological survey of the state, wrote in *Up and Down California In 1860-1864*: "Nearly every house and farm over this immense region is gone. There was such a body of water — 250 to 300 miles long and 20 to 60 miles wide... that the winds made high waves which beat the farm homes in pieces." In response, residents banded together and lobbied local, state and federal agencies for flood control and restoration of navigation of the rivers.

Over the following decades, growth in the floodplains continued and the first flood control plan was developed in 1880 by State Engineer William H. Hall. The plan evolved into one of the most complex flood management and water distribution systems. Today's integrated federal, state and local flood management network includes 23 reservoirs with flood detention space and 1,760 miles of federal levees, channels, and overflow bypasses and weirs in the Central Valley. The network supplies fresh water for urban, agricultural and commercial demands — the majority of which are in the drier regions of central and southern California — as flood protection for the Sacramento and San Joaquin valleys. Bypass channels are large floodways that can absorb excess flow from the adjacent river. When high flows surge on the Sacramento River, for example, 500,000 cubic feet-per-second (cfs) of water can be channeled to the nearly three mile-wide Yolo Bypass leaving 100,000 cfs of flow in the river.

Predicting flood events and protecting people in floodplains has and continues to be an uphill battle. On Christmas day in 1955, prior to construction of Oroville Dam, record flows burst a levee on the Feather

River killing 40 people. Less than 10 years later, the north coast was struck by a savage storm in 1964 that caused the Eel River, which has an average flow of 7,100 cfs, to peak at 750,000 cfs resulting in 22 deaths. The next most severe flood to hit the state was in 1986 when the American and Sacramento rivers experienced record flows. The series of floods bring to mind William Faulkner's words in *The Old Man*: "The river was now doing what it liked to do, had waited patiently the 10 years in order to do, as a mule will work for you 10 years for the privilege of kicking you."

Flooding in February 1986 tested the Folsom Reservoir and American Rivers levees beyond their design capacity and caused considerable flood damage. Flood managers had believed the system would protect against at least a 100-year storm event, a designation which refers to the likelihood and not the frequency of a storm. It is defined as a 1 percent chance of being equaled or exceeded in any given year. Following the 1986 deluge, the hydrologic history that was used to gauge the probable size of future floods was reevaluated and Folsom was found only to protect against a 63-year storm. Flood management policies were revised and Folsom Reservoir was reoperated to provide a 100-year level of protection under an agreement between the Sacramento Area Flood Control Agency (SAFCA) and the Bureau, with SAFCA paying for extra flood storage space.

The main weakness of the 100-year flood designation is that it is a generic definition that ignores site-specific threats. In addition, it is based on weather records from the first half of the 20th century. The weather cycle of the first 50 years of this century was milder and the limited data presents a skewed picture of the state's climate patterns, according to UCD's Mount.

In 1995, there was serious local flooding in the Central Valley that was caused predominantly by overflowing creeks and overwhelmed storm drains.

The New Year's Flood

The sheer volume of water produced by the 1997 Pineapple Express surged into the reservoirs and quickly filled up the flood storage space — "encroached" the flood storage margin. Flood control operators made unprecedented emergency reservoir releases because of the magnitude of inflows and limited capacity of several downstream channels. These high dam outflows, however, had to be weighed against potential downstream flooding hazards caused by record releases hitting the levees, and top priority was given to protecting urban centers. The silver lining of many of the levee breaks was that they cut peak river flows downstream. It took more than four weeks for flood capacity in several of the reservoirs to be restored. In the meantime, what else Mother Nature had in store was unknown.

The Feather River received the brunt of the storm and record flows caused the evacuation of thousands. There was a 1,000 foot break along the Feather River that caused flooding in the towns of Olivehurst, Linda and Arboga.

Global Warming and Weather Patterns

The new year's storm has been linked to the same weather conditions associated with the two other peak storms that hit California this century. The January 1997 deluge along with the floods of 1955 and 1964 are a result of La Nina, which causes intense, wet and warm storms in the region, said DWR Climatologist Bill Mork. La Nina is caused by the interaction of cold surface ocean water near the equator and air and is the inverse of the better known El Nino.

The intense wet and warm weather patterns hitting the state are similar to trends associated with global warming, said several scientists. According to government records, the number of extreme precipitation events have increased by 20 percent since 1990. The new

year's flood, however "cannot specifically be tied to global warming," said Kathleen Miller, scientist at the National Center for Atmospheric Research. Global warming is a highly complex and far from settled matter but there is little doubt that climate change has specific local repercussions. A small change in mean annual temperature can redistribute the balance between rainfall, Miller said.

Redistribution of rain and snowfall can create serious problems as shown by the last storm. Flood managers should consider the consequences of increased frequency of warmer, wetter storms and reassess their reliance on the current definition of a 100-year flood, said Mount.

DWR created two holes along the Feather River levees downstream of the 1,000 foot breach to direct flood waters back into the Feather before they breached other levees and threatened Sacramento. An accidental levee break along the Bear River, however, was more successful at diverting a threatening 20 square mile lake created by the original Feather River breach.

The Sacramento and American rivers were not as seriously impacted in 1997 as they were in February 1986. The American River system operated as designed but if there had been one



Unprecedented inflows into Friant Dam came within inches of the top of the reservoir and poured into the spillway.

additional day of rain, Sacramento would have been in trouble. "A random act of nature and the re-operation of Folsom Dam saved Sacramento," said Butch Hodgkins, SAFCA executive director.

There was a levee break along the Sutter Bypass, which came close to drowning Meridian. The small town was protected by construction of an emergency dike and an intentional downstream levee break. About 40 square miles of farmland were inundated.

Huge mud slides near the American River wiped out homes and a section of Highway 50 between Placerville and South Lake Tahoe. While repairing the damaged stretch of

Highway 50, which is a main link between Sacramento and South Lake Tahoe, another massive mud slide hit three weeks later, which destroyed several hillside homes and covered a section of the road with mud four stories high.

The San Joaquin River experienced the worst flooding of record, and state and federal agencies were involved in more than 25 flood fights. The river system's flood carrying capacity is about 10 percent of the Sacramento River system. The San Joaquin levees were built close to the river's edge to channel snow melt, not downpours. In addition, a bypass system and overflow areas are lacking downstream of the San Joaquin and Merced rivers confluence (the lower San Joaquin). Levee breaks flooded mobile home parks in Madera and Fresno counties, areas near Manteca and thousands of acres of farmland.

Diversions at the Chowchilla Bypass and several nearby small private levee breaks, which diverted flood water onto farmland, protected the towns of Firebaugh and Mendota.

The warm storm led to record runoff in the Tuolumne River and emergency spill gates were opened for the first time on New Don Pedro Dam. "The episode was one of the most extraordinary events in recorded history on the Tuolumne River," said Walker of TID.

Much of Modesto was spared but 1,000 homes and the city's sewage plant located in the Tuolumne floodplain were inundated.

Questions have been raised about the soundness of the timing and quantity of releases from the inundated Friant and New Don Pedro reservoirs. Downstream owners of flooded homes and businesses are planning to sue the operators of Don Pedro Dam — Turlock and Modesto irrigation districts and the City and County of San Francisco — to recover flood damage costs (see liability, page 11).

There also were record flows on the Merced River that wreaked havoc in Yosemite Valley and caused an

estimated \$178 million in damages.

Flows on the Cosumnes River reached approximately 90,000 cfs and numerous downstream agricultural levees broke and were overtopped. Areas of Wilton and Point Pleasant were flooded as were thousands of acres of surrounding farm land. The Cosumnes hit the Mokelumne River, which was moving at 5,000 cfs, and threatened the Delta levee system. The Cosumnes River levee breaches, however, lowered the high river levels and alleviated the impact on the Delta.

The Delta levees overall held up surprisingly well under the pressure from the flow onslaught from the Sacramento and Cosumnes rivers and San Joaquin River system. But, the Delta region was not problem free and state and federal agencies carried out ten federal flood fights and numerous state and local fights, which cost more than \$5 million.

Levees

The flood management network of levees and bypasses along the state's rivers has worked well over the years but much of the new year's flood damage was caused by numerous levee breaks. Several of the accidental levee breaks, particularly along the San Joaquin River, occurred where the natural river channel was significantly narrowed by man. However, the most worrisome levee break was the one that occurred along the Feather River that had recently passed government maintenance tests. "It is a real concern and makes you wonder how reliable any of our levees are," said Ray Barsch, general manager of the state Reclamation Board.

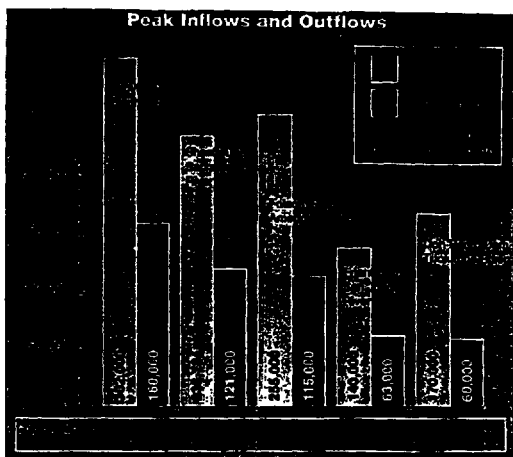
It makes the words of state engineer Hall spoken more than 100 years ago ring true: that there are two kinds of levees, those that have failed and those that will fail.

The protection provided by levees, which is a matter of considerable controversy, encourages development in the floodplains that in turn exposes more people and infrastructure to flood hazards. The thousands of miles of

levees along the state's waterways are a key part of the flood protection network but have long been considered the weak link in the flood control chain.

There are two categories of levees — federal project and nonproject. There are 1,760 miles of Corps project levees in the Central Valley that are constructed and repaired according to requisite standards. Project levees are operated and maintained by DWR or local reclamation districts through the state Reclamation Board. Reclamation districts are created when landowners form a local agency in accordance with state law and assess themselves for flood control, reclamation purposes and water supply.

Corps levees run along the Sacramento River from near Chico through the Delta and from east of Fresno to Stockton on the San Joaquin River. Since the 1986 flood, there has been an ongoing levee rehabilitation program, which targets the population centers along the Sacramento River system.



The federal project levees that broke during the new year's flood were sections that, for the most part, were scheduled for repair. Rehabilitation work was unfortunately not fast enough to strengthen all the levees, which was partly due to funding limitations, the Corps' Yep said. Repairing the recently damaged Central Valley levees will cost hundreds of million of dollars. Levee repairs are expected to be completed by the beginning of the next flood season - November 1997.



Levee breaks along the Feather River drowned homes and forced the evacuation of thousands.

Nonproject levees are largely maintained by local reclamation districts and overseen by the state. The nonproject levees in the Delta receive funds from the state for rehabilitation purposes.

Private levees are a subgroup of nonproject levees that are built and maintained by individual land owners. They are not inspected by local reclamation districts nor subject to any construction or maintenance standards and thus not eligible for state funds or federal disaster relief. The foundation and integrity of private levees, which primarily protect farmland, are largely unknown and a cause for concern.

The Cosumnes River, which is the only undammed river in the Sacra-

mento and San Joaquin system, wreaked havoc as levees burst under the relentless pressure of the swollen river. Along the private levee system there were 23 breaks, which primarily flooded agricultural land and sections of Highway 99 and Interstate 5. Many of the affected farmers are crying out for federal financial disaster assistance, which has raised questions about who should bear the risk of flooding hazards caused by reliance on unregulated levees.

DWR Director David Kennedy is urging private levee owners to join reclamation districts to help ensure the viability of the levees and qualify for government assistance. Some land owners along the Cosumnes River are pursuing this recommendation.

There are more than 1,100 miles of federal project and nonproject levees that wind through the Delta, the heart of California's water supply network. The levees — most of which are non project — keep the San Francisco Bay's salty water from mixing with the rivers' fresh water flow, which supplies two-thirds of the state's drinking water. The levees also protect below sea-level farms and homes from flooding.

There were considerable concerns about the huge river flows surging into the Delta and pounding the levees. Anxiety increased as the highest tides of the year from the Bay washed in at the height of the flooding, which raised the water level and slowed the outflow. The levees, however, "performed remarkably well," said Curt Schmutte, DWR Delta levee manager.

Since 1988, the state has spent approximately \$65 million under the state Delta Levee Flood Protection Act (SB 34) to bring the vast majority of the 700 miles of nonproject Delta levees up to, and in some cases, beyond the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Plan standards. Schmutte pointed out. Damage caused by the most recent flood was mitigated by the levee upgrades, he said. Four Delta islands were flooded — Dead Horse,

McCormack Williamson Tract, Prospect and Stewart Tract, the first three which flooded frequently.

Liability

Property damage from flooding is inevitably followed by questions of liability. Specifically, who is liable and the extent of their liability.

One lawsuit and a class action claim have been filed by property owners seeking compensation from the agencies for 1997 flood damage. The suit, *McMahan v. California* that was filed Jan. 21, was brought against the state by property owners who suffered damage following levee breaches along the Feather River. A class action claim was filed against Turlock and Modesto irrigation districts and the city of San Francisco for damage caused by flooding downstream of New Don Pedro Dam.

Both cases allege that the agencies were negligent and failed to adequately protect residents and operate their flood control systems. Homeowners below Don Pedro claim that not only was the dam inadequately operated but that the flood storage capacity was insufficient. "We did not have a flood, we had a 100-year release," said Steve Ringhoff, the attorney representing the flooded homeowners.

Assuming the lawsuits go forward, they likely will be affected by a major case pending before the state Supreme Court, which is expected to clarify the parameters of liability for flood control districts. The case, *Bunch v. Coachella Valley Water District (CVWD)*, involves the issue of whether the water district should be required to compensate a property owner for damage caused by flood waters breaking through a levee during a 300-year storm event that struck Coachella Valley in 1979.

The case has been winding its way through the state courts since 1982 and the state Supreme Court heard oral arguments Feb. 11. The main issue is whether the water agency should be automatically liable for the flood damage to the Bunch's property, or if

not strictly liable, whether CVWD's flood control operations were reasonable in light of the fact that a major storm, which hit three years earlier, breached the levee in the same spot. Included in that question of where to draw the liability line is whether the district's funding constraints should be factored into the reasonableness equation - if one is applied.

Deputy Attorney General David De Alba contended that finding the flood district strictly liable for flood damage will discourage flood control



agencies from "engaging in beneficial flood control projects."

However, Art Azerbedian, attorney representing the Bunches said that failing to compensate the Bunches for the flood damage causes them to bear a disproportionate burden of the flood control project. He further argued that if the court applies a balancing test, a district's fiscal constraints cannot relieve it of its responsibilities.

During oral argument, Justice Joyce Kennard said, "In order to achieve a just decision in this case, liability should be determined by balancing the public interests against the private party's interests."

A decision on the matter is expected by late spring.

The San Joaquin River, which has about 10 percent of the carrying capacity of the Sacramento River, experienced the worst flooding on record.

Western Water

To: Steve Lanich

From: Elizabeth McCarthy
916 444 6240**Flood Protection —
Art or Science**

The purpose of flood management is to prevent loss of life and minimize property damage. Managing floods, however, is a controversial matter that involves myriad issues from engineering to economics.

There are two approaches to flood control, structural and nonstructural. The former uses reservoirs, levees and bypass channels to confine and direct flood flows away from people and property. The nonstructural measures

apply floodplain management principles to prevent the need for engineered solutions. Using many nonstructural measures in urbanized floodplains, however, is highly controversial and costly.

The flood protection picture gets more complicated by the fact that flood control practices often conflict with water supply management. Flood control operators must keep enough reservoir storage space available to contain flood waters but the water suppliers' role is to store enough water to meet demand throughout the year.

The Corps requires that more space in multipurpose reservoirs be reserved for flood control during the rainy winter and spring snow melt months.

Controlling floods in historic floodplains is essentially a planning issue — and one that generates intense controversy, which is exacerbated by the state's spiraling population. Much of the state's anticipated population growth, which is estimated to jump from 32 million people to 49 million by 2020, is expected to land in the Central Valley.

Fresno and Madera counties, for example, recently revised their general

plans and the appropriate safety standard for development projects in the floodplain was vehemently debated. In spite of the strong opposition, the Fresno Metropolitan Flood Control District (FMFCD) pushed for a 250-year flood event standard because "there are always risks in historic floodplains and big storm events exceed our ability to control what is happening," said Doug Harrison, FMFCD general manager.

Mazy advocates increasing local government's responsibility for flood control because of the split between decisions about land use and flood control responsibility. Land use decisions are made by local agencies that are not responsible for flood control and the bulk of disaster relief is provided at the federal level.

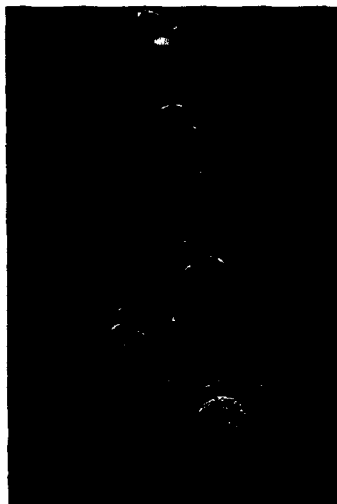
"We cannot allow people to think they can build subdivisions and other major projects in the floodplains and that we are always going to be the deep pocket for those kind of disasters," said Sen. Jim Costa, D-Fresno.

American Rivers, a Washington D.C.-based conservation organization, is urging Congress to discourage building in flood zones and to stop putting money into flood control projects. Many land use planners have recognized that floodplain development is inappropriate but the struggle to limit development clashes with local government's need to generate tax revenue.

There is little disagreement that the existing flood control system needs to be improved but much disagreement over how best to improve it.

"We need more structures to take the peak off of the high flows, which would include more dams and increased detention basins," said the Reclamation Board's Barach.

On the other hand, Mount said, "We are locked into a vicious cycle because we depend upon a structure that is inadequate to protect us but lulls us into a false sense of security." Gen. Gerald Galloway, chair of the Interagency Floodplain Management Review Committee that evaluated the



Federal and state crews worked around the clock during the floods to repair broken levees that threatened life and limb.

devastating 1993 flooding of the Mississippi River (see sidebar) and a strong proponent of nonstructural flood protection measures added, "We must get out of nature's way when alternative sites are available."

The proposed Auburn Dam upstream on the American River highlights the debate surrounding flood management. The Auburn Dam "is a great solution from a flood control perspective because it would reduce flow," said Joe Countryman, SAFAA consultant.

Friends of the River (FOR) Associate Conservation Director Charles Casey, however, said the City of Sacramento would be better protected by improved flood management, which includes enlarging river outlets and improving downstream banks and levees.

Legislation authorizing congressional funding for Auburn Dam may be sought once again in 1998.

The crux of the matter is the costs and benefits of structural flood protection measures compared and contrasted to nonstructural flood control options. Nonstructural measures in the short run include buying out homes in flood prone areas and over the long-term limiting floodplain development. Approximately 8,000 homes were bought out or relocated by the government following the 1993 Mississippi flood. The downside of property buyouts is the cost — which escalates with the number of homes built in the area. Buyouts become even more challenging in an era of government budget cuts.

Nonstructural flood control also includes set back levees and creating greenbelts — areas that absorb overflow. "Every river channel has a natural equilibrium and this is an outstanding way to increase flood protection," Yep pointed out. Nonstructural options, unlike engineered measures, do not have high maintenance costs, he added.

CALFED promotes using set back levees, creating widened managed floodways, and combining engineered

levee repair and stability — on both the land and water side of the berms — with habitat improvement along the Sacramento and San Joaquin rivers. The dual goal of levee stability and ecosystem restoration would be accomplished by increasing offstream storage to park water stored in existing reservoirs to supply water demands during the summer months and provide additional flood storage, said Steve Yaeger CALFED deputy director.

Two years ago an experimental set back levee was created at the Cosumnes River Preserve, which widened the floodplain, redeposited sand and in turn restored riparian forest habitat. In addition, the flooded back waters created spawning and rearing habitat for fish and improved waterfowl habitat. According to Rich Reiner, The Nature Conservancy central area ecologist, "Everything in the ecosystem connected."

Increasing flood protection for the spiraling population will require innovative solutions and an understanding of our limits and the ability to predict and cope with Mother Nature.

Galloway Report

Following the devastating floods on the Mississippi River in 1993, a comprehensive report was released that suggested significant changes in floodplain management in the United States.

The report, *Sharing the Challenge: Floodplain Management in the 21st Century*, known as the Galloway Report, was developed by the Interagency Floodplain Management Review Committee, which was made up of federal engineers and scientists and chaired by Gerald E. Galloway, brigadier general of the U.S. Army.

The report found that development in floodplains was accompanied by considerable loss of habitat including wetlands, which slow down flood waters by acting like

large sponges, and significant alteration of the land that includes extensive paving over of the landscape, which increases storm water runoff. The floodplain management report recommended pursuing structural and non-structural flood control programs and taking into account the social, economic and environmental costs and benefits. It specifically suggested enacting a flood plain management model and defining the responsibility among the state, federal and local flood control agencies.

As the Mississippi flood faded from the public's memory so did much of the urgency to make flood management changes and few of the report's recommendations came to fruition.

**Testimony before the
House Subcommittee on Water Resources and Environment
of the
House Transportation and Infrastructure Committee
on
March 19,1997
submitted by
William M. Mosher,
Chairman Sloughhouse Resource Conservation District and Flood Victim**

Thank you Mr. Chairman and Members of the Subcommittee for giving me this opportunity to testify before you today. I appreciate your interest and attention to the matter of the floods in California.

The weather report said that the third wave of the Pineapple Express would hit on New Year's Eve. Down in the valley it hadn't rained that much. However, early cold storms dropped the snow elevation down to the 2,000-foot elevation setting up a condition for disaster. Then the warm rains hit the mountains, melting snow clear to the top of the Sierras. The water started to come down in force on New Year's Day. I watched the Cosumnes River rise faster than ever before. I gathered up sandbags. I called my Dad to move my Aunt out of her house because I thought it was going to flood. It did. On January 2nd, farmers, landowners, friends and neighbors worked all day trying to save the levees. I know of cases where lives were almost lost when the levees eventually gave way. Everyone working on the levees knew this time it was going to break. What they didn't know was whose would be first.

On January 2, 1997, residents faced the greatest flow of water ever recorded on the Cosumnes River. The river was dangerous and uncontrolled with no flood control, no dams, and no channel maintenance. State and federal regulations allowed sand bars, trees, debris, and gravel to buildup to the point where the bed of the river was so full that the flood water could not help but be forced out of its banks and over its levees.

After the 1986 flood, the Sloughhouse Resource Conservation District (SRCD) pleaded with government officials to allow landowners to clean the channel of sand and gravel, and exchange the materials for rip-rap that would protect the levees and riverbanks. Our offer was denied because the California Department of Fish and Game said they wanted the sandbars to grow and create habitat. One example of this is the "so-called" presence of the Valley Longhorn Elderberry beetle along the Cosumnes River. This beetle has resulted in expensive surveys and mitigation to determine if any habitat for this federally listed endangered species will be lost when maintenance or repair is done on the levee system. (See attached letter from the United States Department of Interior to Louis Blodgett, landowner along the Cosumnes River.)

Currently, as a result to this year's flood disaster, federal agencies have waived or streamlined the usual permitting and consultation requirements. This streamlining must continue to allow prompt completion of the needed repairs. The SRCD's biggest fear is that this cooperative spirit may fade as public awareness fades. Key decision makers in Washington must not lose sight of both the long-term repair needs and the need for environmental streamlining to provide future security for our levees and riverbanks. Funding for repairs and maintenance will cost less than any future emergency flood relief. Residents of the Cosumnes River area know that good maintenance on this levee system will work. A report submitted by Robert S. Miller and Associates (attached) evaluates how levee repairs completed after the 1986 flood held up during the 1997 floods. Most areas had little or no damage to them.

SRCD is also concerned about reports that federal agencies may seek environmental mitigation following levee repairs. Such action could be devastating to local landowners, who have already been financially burdened by the flood, which is costing us thousands of dollars.

The floodwaters caused many millions of dollars in losses. Vineyards were covered with silt and debris. A sod farmer was put out of business after losing everything he owned, homes, roads, and power lines. Everywhere the water went, total destruction followed. It is estimated that it will cost \$2.8 million to repair the more than 24 levee breaks along the Cosumnes River. The flood protection system that was built in the 1800's is gone. What was once a 12-foot flood stage is now barely 7 feet. High river flows have come out of the breaches twice since January 2nd. Each time causing more damage, making the breaks wider, and costing more habitat to be lost along the eroding banks.

It is now March. Most of the breaks have not been fixed. Most family farmers cannot afford the price tag for repairs. Instead of helping with repairs and cleanup of the flooded area, SRCD has been involved in a flood fight of their own. Since flooding began, SRCD has been seeking emergency aid for repairs to the levees. So far we have been losing the battle. The USDA's Natural Resource Conservation Service turned us down. They said we did not qualify for their Emergency Watershed Protection Program because of the size of the Cosumnes watershed. FEMA turned down Sacramento County's request for emergency funding, claiming that the Cosumnes is a USDA problem. Additionally, FEMA said our farm land was "expendable", since it is not considered "improved property" under their regulations. SRCD disagrees with that. Many orchards, vineyards and perennial crops grown in the Cosumnes River watershed take a large capital investment to establish. Vineyards can cost as much as \$6,000 per acre to establish and take 3 years to produce a crop, and pear orchards as much as \$3,000 per acre. I believe most people would consider this improvement to the land. When the Army Corp turned us down they said it was because the levees were privately owned and maintained. The county, state, and federal agencies say they want to help, but they all have their excuses not to help as well.

Realizing that nothing is going to be handed to us, the Sloughhouse Resource Conservation District has designed three phase plan that will address the Cosumnes problem. The first phase will be working with Congressman Pombo and Sacramento County officials with the goal of receiving much needed emergency funds. These funds would be used to repair the levee breaks and restore flood protection abilities to the Cosumnes system.

If efforts are successful in the first phase, then we will be able to move forward to the second and third phases. In the second phase, the SRCD will work with neighboring Reclamation District 800 in hopes of having RD 800 expand its boundaries to include most of the Cosumnes River. If all goes as planned, this will be complete by the summer. The newly formed RD 800 would then contribute its share in making repairs to the damaged levees as well as setup a maintenance plan.

The third and final phase would include long-term preparations for the next disaster. This phase depends upon Congressman Pombo's request that the Army Corps of Engineers be funded to carry-out a study of the Cosumnes River flood control system. It is SRCD's hope that this study would provide solutions to minimize future flooding in the area. Once we know what has to be done to protect farms, homes, habitat, and public structures, we will do our best to see that it is done.

Once again, thank you for this opportunity to appear before you. I welcome any questions that you may have.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
 SACRAMENTO ENDANGERED SPECIES OFFICE
 2800 Cottage Way, Room E-1823
 Sacramento, California 95825-1846

April 9, 1987

Mr. Louis Blodgett
 Blodgett & Ostman
 7935 Sloughhouse Road
 Elk Grove, California 95624

Subject: Cosumnes River Levee Maintenance, Sacramento County

Dear Mr. Blodgett:

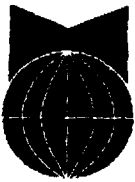
Pursuant to the Assurance Agreement signed with the U.S. Army Corps of Engineers, our contractor will survey the Cosumnes River in your area during April 22-24, 1987. The purpose of the survey is to examine the area along the river for the valley elderberry longhorn beetle. These surveys will help us determine the most appropriate way to maintain the elderberry habitat and levee, rather than just one or the other. Jones and Stokes Associates will perform the survey with Dr. Paul Rude acting as the principal field investigator.

If convenient, we would like to utilize your road as access to the levee. Dr. Jack Williams of my staff will accompany the Jones & Stokes crew. We will briefly stop by on the morning of April 22. Please contact Jack Williams at 978-4866 if you have any questions. Your cooperation in this effort is greatly appreciated.

Sincerely,

David L. Kobetich
 Field Supervisor

cc: Mr. Jeff Groska, Environmental Resources Branch, U.S.
 Army Corps of Engineers, 650 Capitol Mall, Sacramento,
 CA 95814
 Dr. Larry Eng, California Dept. of Fish and Game, 1416 Ninth
 Street, Sacramento, CA 95814



Robert S. Miller & Associates • 2222 Watt Avenue, Suite C-8 • Sacramento, CA 95825 • (916) 485-0645

Preliminary Report of Effectiveness of 1988 Levee
Repairs on Cosumnes River Levees

After the disastrous floods of December 1996 and January 1997 the Directors of the Sloughouse Resource Conservation District retained the firm of Robert S. Miller & Associates to evaluate the effectiveness of levee repairs made on the Cosumnes River Levees after the floods of 1986. This report is preliminary in that it is necessary to actually re-establish the location of the 1987/8 repairs as many of them have been overgrown with vegetation and in some cases other damage has occurred along the levee adjacent to the old work in some cases partially effecting the old works. Field conditions precluded such measurements at this time.

Background:

The floods of 1986 caused numerous breaks in the farmer owned levee system along the Cosumnes River. At that time the County Disaster Office looked for an entity to provide funding to make repairs. There was only one small reclamation district covering a short reach of levee on the north side of the river. There appeared to be no other district or entity that could under take the administration of funding and assure effective repairs. The law precluded paying individuals directly for repairs on their property.

The local Resource Conservation Districts volunteered to do this job. After much discussion and opinions from the local County Council and eventually the State AG it was decided that these districts could act in the roll of overseer, assuring that the repairs were in the general public interest and that the repair job was carried out according to sound construction procedures. The arrangement was that an engineering firm would certify that the repair served the general public and not one individual and that work done was in accordance with sound construction procedures. The arrangement was that the individual farmer or rancher would hire a contractor to do the work and that eventual payment would be made to the individual when invoices were provided and when work was certified as to quality and as to quantity. The latter required measurements be made to verify quantities and in some cases density in place tests be made to be assured that adequate compaction was obtained. The Districts retained the firm of Robert S. Miller & Assoc.

The 1987 & 1988 Project

There were 19 applicants within the Sloughouse Resource Conservation District (RCD) are shown below. The costs of 87/88 repairs, the 87/88 repairs and the condition of these repairs after the 96/97 floods.

Participant	Amount Paid dollars	1986 Damage	1996/7 Damage
Edith Eaton	\$ 53,300	cbs, rr	see foot notes
Frank Fuller	\$ 122,610	cbs, lr, rr	no damage
Francis Grimshaw	\$ 1,500	cbs, rr	no damage
James/Blawat	\$ 121,637	cbs, lr, rr	no damage
Garry Johnson	\$ 40,000	cbs rr	no damage rr, mawo on cbs
John Kutz	\$ 43,963	cbs, lr, rr	mid
Ledbetter/Mosher	\$ 20,000	cbs, lr, rr	mid, lbol
Albert Lopes	\$ 2,250	lr	no damage, lbol
Dave Lucchetti	\$ 41,375	cbs, lr, lc	no damage, lbol
William Mosher	\$ 8,803	cbs, rr	no damage, lbol
Ann Moya	\$ 39,000	cbs, lr, rr, rp	no damage
Frank Nunes	\$ 20,000	cbs, lr	mid
W.T. Pierson	\$ 65,488	cbs, lr, rr	80% no damage cbs & rr; 100% no damage lr; 20% mjd sbc, & rr
Lurene Plumer	\$ 55,000	cbs, lr	mje, mawo,
Howard Ritter	\$ 28,450	lr, cl	mje, mawo, sd
Rooney Brothers	\$ 11,168	lr, rr	mid, lbol
Jay Schnider	\$ 52,200	cbs, cl, rr	no damage
David Utterback	\$ 76,330	cbs, lr, rr	no damage
Westerburg Farms	\$ 33,676	cbs, rr	mjd caused by adjacent non- protected mawo

Total	\$ 836,840		

cbs channel bank shaping
 lr levee repair
 cl construct levee
 rr rock rip rap
 miwo minor wash out repair
 mawo major wash out repair
 mie minor erosion
 mje major erosion
 sd sediment deposition
 mid minor damage
 mjd major damage
 rp remove pipe causing seepage
 lbol levee brake at other location

From the above 9 of the 19 projects did not sustain damage at the site repaired after the 86 flood however, some of the properties had major damage at other locations along the levee from the 1996/7 floods. One had damage to areas not protected by rip rap, however the portion protected sustained minimum damage. One failed as a result of the adjacent property which was not included in the 1986 project failing in a major fashion. Two projects failed completely. One with rip rap partially failed the cause was a large tree on the berm apparently caused eddies which got behind the rip rap and eroded about 20% of the bank. Three sustained minor damage. Time did not permit an appraisal of the two other projects.

To sight a few examples in detail the following is presented. Current Conditions As Compared With the 1987/8 Project Works. It is to be noted that the actual repair work for the flood of 1996 was done in 1987 and 1988 as it took time to obtain funding and to conclude all needed arrangements for carrying out the work.

The current report deals with the 19 participants in the Sloughouse RCD, those within the Lower Cosumnes RCD were all levee repairs, that is they were wash outs. No rip rap was placed and all of these repairs withstood the 1996-7 floods.

To evaluate the effectiveness of the 1987/8 works a brief description of facilities and costs of the past work followed by a summary of how the facilities withstood the 1996/7 floods. It appears that the 96/7 floods resulting from runoff on the Cosumnes River far exceeded that of the 1986 flood.

To start with the upstream participant Jay Schneider. The project consisted of reshaping stream banks to a 2 foot horizontal to 1 foot vertical slope (2 to 1), the banks had been eroded to vertical. In addition rock rip rap was placed along the toe of the slope. There were 37,976 cubic yards of earthwork at \$ 1.75 per yard and 1,467 tons of rip rap at \$ 2.75 per ton. The low cost of rip rap was because the rock was on the Schneider property located less than 1/4 mile from the place of use. Mr. Schneider paid the difference between the \$ 70,492.25 and the \$ 52,200. The project withstood the 96/97 flood with only occasional scour along the previously shaped toe even through the area not receiving rock toe protection.

The next participant was the Fuller bank shaping, levee construction and bank protection project. It was the most costly project and involved 1,500 feet of new levee involving some 10,330 cubic yards of fill and 36,550 cubic yards of

excavation plus 2,500 tons of rip rap all costing \$ 122,610.

4

The total cost of earth work was \$ 83,110 and rip rap \$ 49,500. The compacted fill cost \$ 2.00 per cubic yard, the excavation cost \$ 1.50 per cubic yards and the rip rap cost \$ 18.00 per ton. This project withstood the 1996/7 flood without any damage.

The next project was the Johnson ranch. The project consisted of shaping the channel bank and placing rip rap on the lower 535 feet of bank. The bank shaping portion of the project was immediately downstream from the Fuller project. It had been recommended that rip rap be placed on this portion of the project however finances precluded doing so. The rip rap was placed from the channel bottom up the slope to field level.

The portion of the project not protected by rip rap sustained some damage from the 1996/7 flood. The portion with bank protection came through without any damage.

The smallest job consisted of a short reach of rip rap on the Francis Grimshaw property. This property was on a curve and lay within an area having rock rip rap placed upon it. The rock used on this reach was large varying from rock 3-feet in diameter down to 1.0 feet in size. The large size rock was placed on the channel bottom. The cost was \$ 18.00 per ton and there were about 83 tons placed on ten lineal feet of levee. The rip rap extended from the river bed up to the top of the bank 40 feet in the slope length plus a 10 foot level extension on the top of the slope.

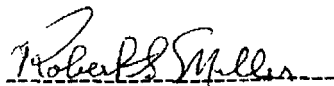
The other two properties on the river curve were the Edith Eaton with 340 lineal feet of river bank and the Blawat property with 270 feet of bank. No damage was evident in 1997

All repairs were considered force account actions it is estimated that the cost of repairs made under these conditions were from 50 to 100 per cent less than had they been made by a federal contracting agency.

Repair of damage as estimated in damage surveys on the properties described above amounted to over two million dollars as estimated by a federal if contracted for by that agency. While the actual cost of the repairs made was \$ 253,610.

However the Johnson project is considered as a partial failure with the bank shaping without rip rap protection failing and this failure caused a portion of the area with rip rap to also fail. The failures were generally limited to those areas without bank protection. This summary would indicate that repairs can be made by the local farmer at a savings over what a Federal project would cost.

Submitted By

A handwritten signature in cursive script, reading "Robert S. Miller", written over a horizontal dashed line.

Robert S. Miller, Pres. RSM&A

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**Testimony Before The Subcommittee on Water Resources and Environment
hearing on Recent Flooding in California**

I wish to thank the members of the Subcommittee on Water Resources and Environment for providing me the opportunity to present my views on the recent flooding in California. I come before the Subcommittee as a geologist who has studied the processes of modern and ancient rivers, and as a member of the academic community at the University of California, Davis involved in studying the watersheds of California. Since my time is short, I have expanded my views in an extended letter to the Subcommittee, attached to my written testimony. In addition, these views are explored in detail in my recent book entitled "California Rivers and Streams: The Conflict Between Fluvial Process and Land Use." A copy of this book is also presented to the Subcommittee for review.

The floods of 1997 revealed both strengths and weaknesses in the way that local, state and federal agencies manage floods. However, before beginning a program of new levee and dam construction, it is crucial that the lessons learned from these floods be evaluated. I believe that at least four key lessons were learned. First, despite 100 years of effort, we cannot prevent flooding of the floodplain. No amount of levees and dams can eliminate flooding, yet a substantial majority of planners, developers, and floodplain dwellers appear to believe otherwise. Second, California's multipurpose dams fulfill one primary purpose: water supply. The design and operation of these dams insures their limited effectiveness in large storm events. Third, levees not only fail to prevent large floods, but exacerbate the damage caused by flooding. This stems from the fact that levees, which ultimately work against a river rather than with it, are the source of their own undoing. Finally, flood control in the Central Valley has inadvertently increased the potential for flood damage by locking us in to a cycle of "serial engineering." By preventing small and intermediate floods, our dams and levees lull us into a false sense of security. This, in turn, stimulates urbanization directly in harm's way. When flooding predictably occurs, there is an immediate call for more flood control structures. Ultimately, these additional structures do not prevent large-scale flooding, but they do stimulate additional development of the floodplain, ensuring an ever-escalating cycle of flood engineering and flood damages.

It is my belief that unless we break the cycle of serial engineering of our rivers, the Central Valley will see an increase in flood damages and associated human suffering. The key is to resist the institutional and cultural tradition of building more and larger levees and dams following each flood. It may be time to turn the flood control paradigm upside down by reuniting rivers with their floodplains. New flood management techniques that work with rather than against the natural processes of rivers not only reduce the damages caused by flooding, but enhance water quality and the restoration of key wildlife habitat: a primary goal of current efforts in CALFED and CVPIA. The most important step that Congress can take is to bolster mechanisms that compel development to stay out of harm's way and to promote the use of alternatives to traditional floodplain engineering. This course of action may be more difficult than simply authorizing new dams and levees, but in the long run, it will be the most effective.

Jeffrey Mount
Professor and Chair, Department of Geology
Member, John Muir Institute for the Environment

**The Cycle of Serial Engineering in Flood Management,
Central Valley, California**

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Submitted to the House Subcommittee on Water Resources and Environment hearing on Recent Flooding in California

INTRODUCTION

The New Year's Floods of 1997 in the Central Valley of California illustrate numerous weaknesses within state and federal approaches to flood management. These weaknesses are not limited to the current labyrinth of dams and levees, but include our approach to land use planning and our attempts to engineer rivers. My testimony before Congress focuses on the inherent failures of California's approaches to flood management. The key lesson re-learned from these floods is that we cannot prevent all flooding of the floodplain. In addition, our traditional response to flooding, which includes erecting more and larger levees and dams, locks us into a cycle of "serial engineering" that ensures that future flooding disasters will be even more costly.

Since the 1993 floods on the upper Mississippi River Basin, there has been a national call for reform. The floods of 1997 present an opportunity to revisit these recommended reforms and to implement them. This testimony suggests that we consider turning the traditional flood control paradigm on its head: the solution to flooding disasters is not more flood control, but an integrated, watershedwide program of flood *promotion*, and an institutional willingness to get out, and stay out, of harm's way.

LESSONS LEARNED

We cannot prevent flooding. California boasts of almost 6,000 miles of levees and more than 1400 dams. With this elaborate infrastructure we currently capture, control and consume more than two thirds of the water that runs off of the surface of the state. This highly managed system was not, and is not, capable of preventing flooding. The hard lesson learned is that despite our seemingly herculean engineering efforts, floods are going to happen, and if you live on a floodplain, you are going to eventually be flooded. Although this seems like an overstatement of the obvious, a recent Field Poll showed that 7 out of 10 Californians believe that our state's planner and engineers have somehow taken care of flooding problems and their regions are not at risk.

Most "multipurpose" dams fulfill only one purpose. At the start of the storms that brought so much flooding to the Central Valley, each of the region's large reservoirs had a certain amount of space set aside to absorb runoff and prevent flooding. With the exception of Folsom Reservoir on the American River, this space was rapidly overwhelmed by the intense rain and snowmelt that hit the region. The reason that this occurred is simple; when it comes to water supply versus flood control, the "multipurpose" title of most reservoirs is a ruse.

At Oroville Dam on the Feather River and New Melones Dam on the Stanislaus, operators set aside less than 20% of the volume of the reservoir to absorb a flood. At New Don Pedro Dam on the Tuolumne River, a token 15% of the reservoir storage is dedicated to flood control. It should be no surprise that an uncontrolled spill occurred at New Don Pedro Dam, leading to significant downstream flooding.

The very limited flood storage is only half of the story. It would be logical to presume that the dam operators would let water out in anticipation of the large storm. After all, northern Californians heard dire predictions for this storm as much as a week in advance of its arrival. Regrettably, various design constraints on these dams and the channel systems that lie immediately downstream prevent the rapid lowering of the reservoir. Many of these dams simply cannot let out water rapidly until they are very nearly full. By then it is, and was, too late.

There is a bright spot in the operations of the state's reservoirs. In response to the floods of 1986, the operating procedures at Folsom Dam, along the American River immediately upstream of the Sacramento Metropolitan area, were substantially revised. Flood control reservation at Folsom Reservoir is 40%. Moreover, in anticipation of the large storm, the dam operators started releasing water a week in advance. Although the volume of the 3-day runoff was the highest ever recorded on the American River, the flood was handled without major concerns and the flood control reservation was restored within a week of the storm.

It is a hard lesson to admit, but when it comes to water supply and flood control, most "multipurpose" dams of the Central Valley fulfill only one purpose.

Levees Fail. We are addicted to levees as the first and foremost line of defense against floods. The "leveefication" of the state's rivers began shortly after the gold rush and continued for much of the next 100 years, spurred on by the ready infusion of support from federal agencies. Today, we are coping with the results of the unanticipated fallout from this ambitious over-engineering program. The floods of 1997 taught us that levees placed adjacent to river channels are doomed to eventual failure, both figuratively and literally. This failure stems from the fact that levees, by virtue of their hydrologic impacts and engineering constraints, are the source of their own undoing.

The hydrologic analyses that took place following the floods of 1993 in the Mississippi reinforced what had been known for some time: levees increase the elevation of floods. By divorcing rivers from their floodplains, levees eliminate flood storage on the valley floor, concentrating the flow into a narrow channel. This causes rapid rises in flood stage and, when coupled with levee failures and over-topping, leads to catastrophic flooding. In addition, by creating bottlenecks within flood systems, levees tend to exacerbate upstream and downstream flooding, leading to the inevitable call for more levees.

Of California's 6,000 miles of levees, approximately 20% are engineered to federal standards. Most of the flooding that occurred during the floods of 1997 was associated with structural failure of levees that were simply unable to withstand high flows for long periods. However, it's important to note that several spectacular failures occurred on engineered levees, including one that had been well-maintained, checked and recently certified. This is one of the most worrisome aspects of levees. No matter how rigorous the engineering, design constraints dictate that even the best levees will fail.

The predictable failure of levees also stems from the manner in which they are applied. Levees, more than any other flood engineering effort, fail because they usually conflict with, rather than conform to, natural river processes.

The size and geometry of an unregulated river channel, along with the rate and manner in which it migrates across its floodplain, reflects a least-work design that most effectively handles the sediment and discharge supplied by its watershed. Because rivers are in a state of constant change, which is an essential aspect of the way they handle sediment and discharge, this least-work design can be considered a state of "dynamic equilibrium."

Levees disrupt this equilibrium in two key ways. First, by placing levees against rivers, we are effectively asking one of the world's most changeable and dynamic physical systems to hold still.

The result is that during large floods rivers will undercut, erode, and tear down their levees as they attempt to migrate across their floodplains. Second, the close placement of levees alters the fundamental hydraulic conditions of a river. In response, a river will attempt to establish a new form that reflects this change in conditions. In virtually all cases, this new form is in sharp contrast with the form imposed upon it by the levee system. This contest of forms will eventually be won by the river.

Although levees fail, their failures can be viewed as a mixed blessing. During the floods on the Mississippi it was repeatedly shown that one person's misery is another's salvation. For every levee that failed, innumerable other levees were spared. This occurred because levee failure took pressure off of the overall system as the river was reunited with its floodplain. It is widely recognized that the more than 1000 levee breaks in the upper Mississippi River basin may have saved St. Louis from catastrophic flooding. It is also arguable that levee failures within the Central Valley, most notably along the San Joaquin River, may have averted a calamity in the relatively fragile Delta system, and almost certainly prevented catastrophic flooding in numerous other areas.

It is a difficult lesson to acknowledge, but more than 100 years of levee construction in the Central Valley has not prevented catastrophic flooding. Indeed, it may have increased it. For this reason, levees that are placed against rivers are an untrustworthy ally in flood control.

Flood control inadvertently increases flood damage. The term "flood control" implies that we can somehow control and even prevent flooding. As noted above, despite our efforts, it is impossible to prevent flooding of the floodplain. All that can reasonably be accomplished is to reduce the frequency of floods. But therein lies the rub.

By controlling the small and intermediate floods with levees, dams and a so-called 100-year floodplain, we have locked ourselves into a cycle of serial engineering of our rivers and floodplains. This cycle typically begins with the construction of levees in order to increase use of the floodplain for agriculture. Once established, these levees produce extended periods of tranquility where once there was frequent nuisance flooding. This tranquility, in turn, stimulates the initiation and growth of urban centers, virtually within the shadows of the levees. Superimposed on this is the FEMA-inspired 100-year floodplain, which encourages development up to some imaginary line in the sand. This line's accuracy does not, in any way, match the precision with which it is placed. The line represents a statistical best-guess based on a skimpy historical data base and a host of assumptions about the distribution of floods. The most it accomplishes is limiting development that would be inundated by small and intermediate floods. Worse yet, in most regions the levees have been raised to a level to insure that the 100-year floodplain lies just inside the levee tops.

But a river is like a soldier's life: 98% boredom and 2% terror. And, like a soldier, it is during those moments of terror that most of the work gets done. Unfortunately for the urban centers that have been lulled into a sense of false security by their dams, faulty zoning laws, and levees, this "work" involves spreading water, sediment and human misery across the floodplain.

The default response to the inevitable terror on the floodplain comes in two phases. The first involves an immediate demand for action, with a call for newer, larger engineering solutions, including raising or expanding levees, erection of new multipurpose dams, and river channeling and straightening. As shown, the problem with this approach is that it does not end catastrophic flooding and, as we repeatedly learn, it often worsens the overall flood condition. However, this usually satisfies the demand that *something* be done.

The second phase involves our remarkable human capacity to forget. General Galloway, the author of the most important call for reform in flood management in the upper Mississippi River basin, noted recently in an interview that our "flood memory half-life" is remarkably short. Within six months, most of us will have forgotten the tragedy of the floods of 1997.

The combination of a short flood memory half-life and our desire to construct some perceived solution locks us into the serial engineering cycle. Even before we complete our supposed fix, we are back at it, populating the floodplain, expanding urban centers directly in harm's way, and forgetting the tragedy of the recent past. When the floods come again, and the damage is much greater because of our well-intentioned actions, the cycle of serial engineering and forgetfulness begins anew.

TOWARD A NEW FLOODING PARADIGM

In the past, "solutions" to flooding were simple: build levees which will be followed eventually by multipurpose dams. Given today's political, economic, and environmental realities, the traditional federally-supported large-scale river engineering approaches are no longer viable. As experts throughout the world are noting, it is time to take a second look. The essence of reform lies in breaking the cycle of serial engineering. Only by getting away from applying measures that work against rivers, and moving toward measures that either work with or minimize resistance to a river, can we effectively reduce flood damages in the future.

Breaking the cycle of serial engineering can be summarized into three steps: 1) Stay out of harm's way; 2) Get out of harm's way; and 3) Do no harm.

Stay Out of Harm's Way. To put it simply, the only reason that flooding is catastrophic is because we choose to get in the way. The most cost-effective solution, when costs are measured both monetarily and in terms of human suffering, is to stop making the bad choices that initiate or perpetuate the cycle of serial engineering.

Thirty years of effort on the part of the federal government to encourage us *not* to place ourselves in harm's way has not worked as well as originally envisioned. Moreover, the current FEMA-supported approach of designating an ill-defined 100-year floodplain exacerbates our bad choices by actually inducing development of the floodplain and concentrating populations at risk. In light of this, it is time to consider scrapping this approach to land use planning.

The list of suggestions for reform of FEMA-based floodplain management are too numerous to review in this testimony. The basis of the reform, however, is to recognize three important concerns. First, it is the geomorphic floodplain that is our best indicator of areas at risk of flooding, not an inaccurate statistical best-guess of flood frequency. Second, floods form a continuum that does not stop at the boundaries of the 100-year floodplain. This arbitrary line in the sand does not separate the flood-safe from the flood-prone. Finally, it is important to acknowledge that local control is part of the problem, not the solution. The need to raise money through development is a compelling drive for making bad choices in the floodplain, and traditional local solutions to flood control, which usually meet some minimum standard, tend to transfer problems elsewhere in the floodplain. Regional floodplain management, which is integrated over a watershed and recognizes progressive changes in a watershed, is a more effective land use planning tool.

Get Out of Harm's Way. The Mississippi River floods ignited the current debate over traditional flood control methods, and generated a call for new, creative solutions. It is anticipated that the floods of 1997 will reinforce this call. A key element of any change will lie in the way FEMA administers disasters. Under guidance from Congress and the Whitehouse, FEMA has begun to shift away from the disaster-relief business toward striking a balance between disaster relief and disaster mitigation/prevention. This Committee should consider supporting these moves.

Proposals for mitigating flooding for those who already reside in the floodplain involve elevation of structures, floodproofing structures, development of ring dikes around urban centers, and strengthening (not raising or expanding) existing urban levees to reduce the likelihood of their failure.

One of the proposals being reviewed is the way we operate our "multipurpose" dams. Increases in the aggregate amount of space allocated for flood storage would have had a major impact on the flooding associated with the floods of 1997. Enlarging flood storage inevitably leads to decreases in available water supply during drought years, although this can be reduced by maintaining flexible operating procedures.

Last on most lists of ways to get out of harm's way is relocation. This expensive approach may well be the only cost-effective way to reduce damages in some communities. It is perhaps the most politically unpalatable, but in the long run, as shown in the Mississippi Basin, this approach can reduce costs and human suffering.

Do no Harm. The most important step in breaking the cycle of serial engineering in California involves abandoning more than a century of floodplain management tradition. Levees placed close to rivers, along with their supportive "multipurpose" dams, exact high economic and environmental costs and should be viewed only as a very last, rather than first resort. In the wake of the floods of 1997, there has been a predictable call for more dams and levees. Answering these calls, which can only happen with federal support, will further entrench us in the cycle of serial engineering and further guarantees that future natural disasters will be more costly. Flood promotion, rather than flood prevention, may be the key to flood management.

Throughout the world, there are numerous experiments in non-traditional approaches that enhance flood control. Most of these approaches have one thing in common: they reunite rivers with their historic floodplains. In the Central Valley of California there are a minimum of three methods that can be used to reduce the impact of flooding without doing additional harm to the rivers. These include levee-setbacks, development and expansion of flood bypasses, and installation of "circuit breakers" within the levee system.

Following the Mississippi River floods of 1993, there has been increased demand for the establishment of levee setbacks within the upper Mississippi Basin. This approach has multiple benefits. First, when applied correctly, setbacks increase overall flood storage by allowing river's access to their floodplains. Second, this additional storage lowers flood stage, reducing the potential for catastrophic flooding associated with levee failures. Third, when large enough, levee setbacks allow rivers room enough to restore their form. The geometry and behavior of the channel are able to adjust to the new local hydrologic conditions, without restrictions from adjoining levees. Fourth, setback levees restore regular flooding to the floodplain. Along with ending the uncontrolled urbanization of the floodplain, this flooding can co-exist with and even support a variety of land uses, including farming, and expansion of wetlands habitat and riparian corridors. This alone may be the best mechanism for preservation of prime agricultural land in the Central Valley and the restoration of ecosystems and water quality key to the success of CALFED and the CVPLA.

It is important to note that, like any floodplain management method, levee setbacks are not a one-size-fits-all solution. Modeling in the Mississippi River Basin has shown that improperly placed or sized setbacks can actually exacerbate flooding by creating dead storage that does not reduce flood peaks. Like all management techniques, levee setbacks have to be part of a program that integrates diverse approaches.

Although conceived more than 100 years ago by the California State Engineer, the Sutter and Yolo Bypass systems on the Sacramento River remain a model for modern flood management techniques. The Bypass, which is both a flood storage and conveyance system, is only used during very high discharge events on the Sacramento River. Weirs allow as much as 4/5 of the flow to drain through the levees of the Sacramento into the Bypass, greatly reducing the peak flood hydrograph and conveying this water around the Sacramento Metropolitan area. The rich soils of the Bypass are farmed annually, and development is, logically, prevented.

The lower San Joaquin River is a narrow, highly leveed reach of river that is separated from its floodplain by relatively fragile levees. The extensive network of farms and limited (so far) urban areas makes this reach ideal for a bypass system. This option is currently under discussion by a host of federal and state agencies. However, the window of opportunity to complete this option is rapidly coming to a close as population pressures continue to grow.

The final solution proposed here is analogous to the circuit breakers that keep a house from burning down. The levee failures that occurred on the Mississippi River and on the rivers of the Central Valley reduced and localized catastrophe within the overall system. Modeling after the floods on the Mississippi showed that overtopping of agricultural levees was one of the most effective ways to reduce the peaks of flood hydrographs. One approach to management of very large flood events is to attempt to control chaos by electing to design failure into a levee system. These "circuit breakers" allow planners to choose where natural disasters are going to have their greatest impact, thereby preserving urban areas or other key regions. In the case of California, this failure saved the Delta, the most vital link in water supply to 2/3 of the state's population.

SUMMARY

The floods of 1997 in California and, at the time of this writing, along the Ohio River, have reinforced the key lesson learned from the Mississippi River floods of 1993: traditional approaches to flood management do not prevent flooding. Rather, inherited wisdom, which has locked us in a cycle of serial engineering, pits our engineers against one of nature's most dynamic systems. Despite our flood control efforts, this contest has only increased the overall cost of flooding disasters.

Arresting the institutional and cultural inertia that compels us to build more dams and levees is a daunting task. However, the floods of 1997, along with the apparent changes in ideology within key federal and state agencies affords an unusual opportunity to change course. At the time of this hearing, all of the issues discussed in this testimony are currently under discussion at the local, State and Federal level. Most notable of these efforts is the February 18, 1997 joint OMB/CEQ Memorandum entitled "Floodplain Management and Procedures for Evaluation and Review of Levee and Associated Restoration Projects," which directs the USACE to create an Interagency Levee Task Force. Supported by language in the Water Resources Development Act of 1996, the Task Force is directed to seek alternative solutions to traditional approaches to flood control. I urge the Subcommittee members to recognize and support this effort and to encourage solutions which break the cycle of serial engineering.

Respectfully,

Jeffrey Mount
Professor and Chair
Department of Geology
University of California, Davis

The issues examined in this testimony are explored more fully in:

Mount, J.F., 1995, *California Rivers and Streams: The Conflict Between Fluvial Process and Land Use*. Berkeley, University of California Press, 359 p.

RICHARD W. POMBO
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Statement
by
The Honorable Richard W. Pombo
before the
House Subcommittee on Water Resources and Environment
of the
House Transportation and Infrastructure Committee
on March 19, 1997

Thank you Mr. Chairman and Members of this Subcommittee for the opportunity to appear today to discuss the recent flooding events that have taken place in California. As you may know, the floods severely affected my Eleventh Congressional District and promises to continue well beyond this season's spring runoff.

I would like to take this opportunity to thank those men and women in the various agencies of the federal, state, and local governments that worked endlessly to ensure that all residents were protected from harm's way. I am certain that my fellow northern California colleagues will agree with me when I say they did a magnificent job considering what they were up against. I do know that my constituents will be forever grateful.

Let me begin by recognizing the witnesses from my district, which covers most of San Joaquin County and the southernmost regions of Sacramento County. Testifying later today, on behalf of San Joaquin County, will be Water Resources Coordinator John Pulver, who will address several flood issues that are of importance to the county. On behalf of the Sloughhouse Resource Conservation District will be its Chairman, William Mosher. Mr. Mosher will discuss issues relating to private levees along the Cosumnes River. Both these gentlemen have been instrumental in providing me, and my office, with necessary information on the flood disaster.

Mr. Chairman, this Congress has its work cut out for it in the next few months. Damages from the California floods are expected to exceed \$1.6 billion. In my district alone, San Joaquin County endured an estimated \$59 million in damages to homes, over \$12.5 million to businesses, \$13 million to agriculture, and \$14.7 million to infrastructure. Of the area I represent in Sacramento County, the damages to agriculture have not been determined yet, but it is estimated that there is over \$1 million in damages to homes. I want to reinforce that all these figures are purely estimates and more than likely will increase as floodwaters recede.

I understand that the Congress will need to appropriate emergency supplemental funds for the flood response actions undertaken by the various federal agencies. This funding will be key in ensuring that California's flood victims get back on their feet. Therefore, I urge the members of this Subcommittee to join me in supporting the supplemental bill, when it is brought before us for consideration. However, we all need to recognize that the flooding in northern California is far from over. Additional flooding is expected to begin this spring when the Sierra Nevada snowpack begins to melt, typically in the months of April or May. Therefore, neither the Administration nor the Congress should conclude that flood damages and essential emergency funding will be completely addressed in this emergency bill. It is likely that subsequent funding will have to be revisited at a later date. An item that may come before this Subcommittee

I would like to bring to the attention of the Subcommittee a couple issues that have arisen from the California floods this winter. The first issue concerns the Cosumnes River in the northern part of my district, which lies in Sacramento County. The Cosumnes is one of the last free-flowing rivers in California. This river has no dams and virtually no upstream storage. This winter, the river reached its highest peak flow in 90 years, which is also double of any previous recorded flows. This record flow caused over 20 breaks to private levees and resulted in considerable damages to agriculture, rural housing and the surrounding environment. This river was also responsible for closing portions of Highway 99 and Interstate 5, which serve as the main north/south arteries for the state.

Officials from Sacramento County have informed me that they do not have the necessary resources available to repair the numerous breaks along the Cosumnes River levee system. They have requested assistance from the Federal Emergency Management Agency (FEMA), but were denied emergency funding because private levees are not eligible for federal assistance. The Army Corps of Engineers has explained that they too are prohibited from working on private levees unless there is a "flood fight." In spite of the fact that the Cosumnes residents are in the process of forming a reclamation district, they are left with few, if any, options today. The organization of a reclamation district will enable them to maintain and repair their levees, but it is a lengthy process and doing so will not answer their immediate needs. It is almost certain that these constituents will flood again since the levee system has suffered catastrophic failure.

In the interest of protecting the lives and property of my constituents, I would like to press upon the Subcommittee to assist in resolving this problem. I request that the Subcommittee authorize language that will provide limited funding for one time repairs to the failed levees along the Cosumnes River. Such an appropriation should be met with matching funds from the state as well. Once authorized, this could be included as part of the emergency supplemental bill. I do not seek a federal takeover of these levees. However, I do seek an immediate solution that addresses the dire needs of the residents along the Cosumnes River. Doing so will also prevent further degradation to wildlife and the environment. Flood protection needs to be restored in this area--period! This Subcommittee, through its authorization, will provide great assistance in restoring such protection to this region.

The second issue I wanted to bring to your attention is of a larger scope. As hard as it is to believe, it has come to my attention that a comprehensive flood study of the Sacramento and San Joaquin River Basins has never been carried out. Despite the unknown reasons for not doing such a survey before now, it is apparent that this must be done. Therefore, I additionally request that the Subcommittee authorize funding for an independent comprehensive study of northern and central California's flood control system. This too could be included as part of the emergency supplemental bill. I believe such a review of the current flood control system, in regards to this disaster, will lead to recommendations for improvements that will reduce the risk of future flooding. Furthermore, it may highlight areas of policy and regulations that need to be changed. The findings of this study should not be intended to place blame, but rather to prevent future flooding that could be repeated if the study is not carried out. In keeping with the need for a comprehensive review, private levees should not be overlooked by any study that seeks long-term flood solutions. This Subcommittee has an opportunity to significantly reduce the effects of future flooding in the California area. A comprehensive study will lay out the path which ultimately may lead to this goal.

In closing, it is unfortunate that flooding has become a way of life for many communities throughout the United States. As my constituents in the Eleventh Congressional District of California can attest to, flooding at any level can be devastating. It is essential that this Congress pass an emergency supplemental bill with funding for urgent levee repair programs as well as other federal emergency programs. It is also important for this Subcommittee to authorize the proposals I have discussed with you today. To do so is crucial to my district's recovery and public safety.

Thank you, again, Mr. Chairman and Members of the Subcommittee. As always, I look forward to working with you as soon as possible on these issues.

**HOUSE OF REPRESENTATIVES
RESOURCES COMMITTEE
March 19, 1997**

Presentation by John Pulver

**San Joaquin County Department of Public Works
Post Office Box 1810
Stockton, California 95201-1810
Telephone (209) 468-3089**

My name is John Pulver. I am a Registered Civil Engineer in the State of California and am employed by San Joaquin County as Water Resources Coordinator. My duties, as Water Resources Coordinator, include coordinating the development of supplemental surface water supplies into San Joaquin County, floodplain management and the maintenance of flood control channels. The maintained flood control channels are part of Federal projects, and non-Federal project channels.

San Joaquin County is located in the central part of California and includes approximately 40 percent of the Sacramento/San Joaquin River Delta. Streams that come from the western slopes of the Sierra Nevada flow through San Joaquin County, as well as the San Joaquin River that drains the southern San Joaquin Valley as it flows to join with the Sacramento River that drains the Sacramento Valley to the North. The combined system then drains to the Pacific Ocean through the Golden Gate.

In the flooding of January 1997, the challenge afforded by the huge amount of runoff was met through maximum efforts provided by the Reclamation Districts, San Joaquin County, the Cities in the County, and State and Federal government forces.

In San Joaquin County, there are 54 Reclamation Districts which have the primary responsibility of maintaining levee systems that protect the lands within those Districts. There are also seven cities and 17 irrigation districts in the County.

The coordination of flood fight activities is through the County Office of

Emergency Services which allocates material and personnel to coordinate the flood fight effort. The Reclamation Districts, while having a strong local presence, do not have the resources necessary to perform the flood fight activities. The resources of the County are also limited in its ability to support the Reclamation Districts. State and Federal governments do have the resources; however, without the local presence. In consideration of these limitations and capabilities, when mixed together in an emergency situation, provide an extremely difficult management situation. It is a credit to the Office of Emergency Services that the many agencies involved can be coordinated to minimize flood losses.

In the 1997 flooding, San Joaquin County suffered approximately \$100 million worth of loss. This loss is about \$60 million in structural loss, \$22 million in business loss (including agricultural losses) and \$15 million in loss in public facilities. Current efforts to recover from this loss involves working with the Federal Emergency Management Agency and the Federal Highway Administration to obtain the maximum assistance in the recovery from the flood event.

In a review of the flood emergency, two items stand out as major concerns to San Joaquin County. They are the need for a higher structural design standard for levees which protect urban areas and the need for greater degree of certainty that the levees will function as designed.

Urban areas behind levees should receive a higher level of protection due to the substantial benefits that can be accrued from those levees. Those levees can be retrofitted with an impervious core or otherwise strengthened to provide a greater degree of protection and thereby eliminate or reduce the substantial damages that might occur.

The failure of levees in San Joaquin County has historically not been due to overtopping but has been due to the structural failure of the levees. The maintenance of the levees is made extremely difficult through the regulations that must be met by the U.S. Fish and Wildlife Service and the California Department of Fish and Game. These regulations lead to the growth of material, which impacts the carrying capacity of the levees, and the intrusion of burrowing animals into the

levee structure. Both of these situations cause weak points that lead to increased seepage through the levees and their danger of failure. If the opportunity for uninhibited maintenance is allowed to be performed, flood losses could be reduced by insuring that the levee would function as designed in the emergency. It is possible that mitigation for environmental impacts caused by the existence of the levees could be mitigated in some other location while not jeopardizing the flood-carrying capacity of the levees.

Currently, in order to comply with the restrictions imposed, we are only allowed to perform in channel maintenance between July 1st and October 15th. This makes the maintenance of over 200 miles of channels extremely difficult. The local responsibility, as part of the participation in a Federal project, is to provide the maintenance. These maintenance requirements are overseen by the State of California. We often feel as though we are in the middle of two contradicting State requirements. If the weeds are not cut along the channels, they cause a potential fire threat to the surrounding area. The Fire Marshall requires this cutting. Our challenge is to perform this function within the environmental requirements.

It has been an honor and pleasure for me to be here and to provide this information. I am available for any questions, now and in the future, which you might have regarding our flood-related activities in San Joaquin County.

**U.S. HOUSE OF REPRESENTATIVES
TRANSPORTATION AND INFRASTRUCTURE COMMITTEE
WATER RESOURCES AND ENVIRONMENT SUBCOMMITTEE**

MARCH 19, 1997

WASHINGTON, DC

Testimony of Mike Smith

**Civil Engineer with MHM Engineering
Consulting District Engineer for Reclamation District 784
Marysville, Yuba County, California**

PERSONAL BACKGROUND

My name is Mike Smith. I am a civil engineer with MHM Engineering. Our firm provides engineering services to numerous levee districts, including Reclamation District 784 in Yuba County, California, where the Feather River levee broke on January 2, 1997.

JANUARY FLOOD EVENT

In Yuba County the January Flood of 1997 caused failure of the Feather River levee. The breach rapidly grew to nearly 1,000 feet in length, quickly flooding to depths of 25 feet and more. Three lives were lost; and over 500 homes, many businesses, and thousands of acres of farmland were inundated. The floodwater inflow was so intense within a 24-hour period that levees at the lower end of the district were overtopped from the landside and water flowed back into the river, causing two more major levee breaks.

HISTORIC LEVEE CONSTRUCTION AND TYPICAL PROBLEMS

The levee system in Northern California was built over the last century by basically dredging the silts and sands from the floodway and constructing berms on each side of the river channel. The soils were not selected because of their engineering characteristics or properties as good construction materials for levees, but because they were available. The resulting sandy, highly porous levees seep and leak water. The ground on which the levees sit is also subject to seepage. When the rivers are high, the levees and the ground they sit on become saturated, resulting in a significant reduction in the structural integrity of the levee. Seepage moving through the levees can also cause internal erosion of the levee. These factors, in combination or separately, can lead to the catastrophic collapse of a levee. It is highly probable that these factors played a major role in the Feather River levee failure on January 2. One might imagine that levee failure is caused by floodwaters overtopping a levee. While this can happen and frequently does in many parts of the nation, it is important to note that our levees typically fail because of a lack of structural stability, not overtopping.

The levee system was constructed by the federal government and is generally owned by the State of California. Numerous local special districts such as Reclamation District 784 provide routine maintenance on a continual basis under the authority of the State of California.

EMERGENCY LEVEE REPAIRS

The emergency repair of levees is handled by the Corps of Engineers under the authority of PL84-99. The restrictive bureaucracy of the PL84-99 program, coupled with environmental laws and regulations, greatly limited the effectiveness of the emergency levee repair progress. PL84-99, for these reasons, caused the Corps of Engineers to be ineffective in accomplishing the timely and cost-effective repair of damages.

As an example, the Feather River Levee break was undertaken as an emergency repair, but policy allowed only a repair to a 25-year flood protection height, instead of full reconstruction to the normal 100-year level. The Bear River breaks were deemed not an emergency but a "restoration project" and as such, subject to a 3-month process of evaluation, including environmental review and environmental mitigation. Failure to act promptly on the Bear River breaks caused the area to reflood a second time in late January.

RECOMMENDATIONS:

- The PL84-99 program should provide for the reconstruction of levees in a timely manner, without interruption, to their pre-flood full existing height.
- The repair work to restore existing levees should not be subject to delays for environmental and economic studies. Emergency repairs should be exempt from environmental review.

PUMPING OF IMPOUNDED FLOODWATERS

The failure of a levee causes flooding which in nearly all situations leaves impounded water which requires pumping. Neither the Corps of Engineers or FEMA were able to assist with this critical need. Floodwaters cause both environmental and economic threats to flooded areas. The public infrastructure, roads, and utility systems deteriorate rapidly when subject to inundation. The issue of pumping floodwater needs to be handled as an emergency response equal to that of repairing a broken levee, not as a matter which is left unaddressed by public policy.

RECOMMENDATION:

- Federal agencies should immediately respond with emergency assistance to flooded areas to obtain special equipment and funding to pump or otherwise remove impounded waters from flooded areas.

LEVEE RECONSTRUCTION PROGRAM

Without substantial improvements to the levees we can expect to have more failures. Yuba County has experienced two floods from levee failures in the last eleven years. Because of the flood of 1986, the Corps of Engineers was directed to undertake the repair of the entire levee system in the Sacramento Flood Control Project. The section of levee on the Feather River that failed on January 2, 1997 was scheduled for reconstruction in 1998: 12 years after the 1986 flood and one year too late to prevent the 1997 flood.

Prior to the January 1997 flood, there were a number of ongoing efforts to restore and improve the reliability of the levee system which protects Yuba and Sutter counties. These efforts need the continued support of the federal government.

RECOMMENDATIONS:

- Complete the reconstruction to flood damage caused by the January '97 storms.
- Complete the reconstruction of levees as identified in the Corps of Engineers' 1990 Sacramento River Flood Control System Evaluation: Marysville-Yuba City Area Report.
- Complete the 1991 Corps of Engineers' Feasibility Study to identify and support higher levels of flood protection for Yuba County.
- Review the design concepts of the proposed levee improvements in light of what has been and can be learned from the January flood to assure that the goal of adequate structural integrity has been achieved.

RELIEF FROM ENVIRONMENTAL LAWS AND REGULATIONS

The proper maintenance of levees and flood control channels has become increasingly difficult, due to state and federal environmental laws and regulations. The floodways have become in many places so overgrown with trees, brush and undergrowth, as well as the buildup of silts and gravel deposits, that the channel capacity is significantly reduced and we can no longer expect the floodway to handle its intended design flow. On the Yuba River, high flows during the flood event have washed substantial quantities of gravel over Daguerra Point Dam, which was originally constructed to prevent gravel tailings from migrating into the river channel below the dam. These tailings have raised the river channel 10 feet above its elevation prior to the storm, reducing the flood channel capacity of the river and placing additional strain on downstream levees.

In Reclamation District 784, before starting the Corp of Engineers' levee restoration project that was to provide increased levee strength to the section of the levee that failed in January, an eighty-acre site had to be created at a cost of 1.9 million dollars to mitigate for 43 elderberry bushes found on the levee. This is an example of how the implementation of environmental

regulations both delays and increases the cost of a vitally needed levee repair project.

RECOMMENDATIONS:

- Congress and federal agencies need to review and, where appropriate, amend federal regulations, including the Endangered Species Act, that prohibit or impede the repair and maintenance of levees and flood control channels. Levees and flood channels are essential infrastructure and need to be primarily managed and maintained as such. Other uses such as wildlife habitat can be accommodated, but should have a secondary priority.
- The Corps of Engineers assumed the responsibility of the California Debris Commission, which included channel maintenance of the Yuba River through dredging of accumulated gravels. Funding needs to be provided and environmental regulations need to be modified that again allow the regular maintenance of the Yuba River channel, including the extraction of gravel deposits.

Statement of Douglas P. Wheeler
Secretary, California Resources Agency
Before the Subcommittee on Water Resources and Environment
Committee on Transportation and Infrastructure
U.S. House of Representatives
Washington, DC
March 19, 1997

Mr. Chairman and members of the Subcommittee, I appreciate this opportunity to summarize California's response to the New Year's Floods of 1997.

I am Doug Wheeler, Governor Wilson's Secretary for Resources and Chair of the Governor's Water Policy Council. I also Chair the Governor's Flood Emergency Action Team, which was established on January 10 to coordinate the State's response and to evaluate our experience as a guide to improved flood management. Our first report to the Governor was submitted on February 10, and the second is due on May 10.

The disastrous floods of January 1997 had enormous impacts on much of California, produced record flows on many Central Valley rivers, and were more widespread than any floods this century in California. Total damage is estimated at \$1.6 billion. These floods not only tested the Sacramento-San Joaquin flood control systems, but they tested the stamina and resolve of California's citizens, best exemplified by the heroic and successful effort to save the small town of Meridian.

While the major flood control reservoirs performed as designed, the sheer magnitude and duration of rainfall runoff overwhelmed the capability of the

Sacramento-San Joaquin flood control systems. Flows in the Feather River below Marysville and in the Sutter Bypass exceeded channel design capacities, contributing to factors that caused two major levee failures in those areas. In the San Joaquin system, unprecedented flood control releases from major reservoirs, some exceeding downstream channel design capacity by magnitudes of four to seven times, caused extensive levee failures throughout the entire system. Further, sustained high flows in the Sacramento-San Joaquin flood control systems saturated and weakened levees, some to the point of failure. More than 160,000 acres were flooded as a result of these levee failures.

In many areas outside the Sacramento-San Joaquin flood control systems, the January storms caused considerable flooding and damage to local communities and agriculture. On the Cosumnes River, in southern Sacramento County, record flood flows caused massive damage to the private levee system allowing flood waters to damage many homes and businesses, causing extensive agricultural damage, and the temporary closure of Highways 16 and 99 and Interstate 5. The Napa and Russian rivers overflowed their banks, again flooding communities that were damaged by the 1995 and 1986 floods. Areas along the Truckee and Walker rivers were ill-prepared for the massive flows which caused severe damage to every community along their paths.

Excessive runoff and water springs caused mudslides along Highway 50 in the Sierra Nevada, closing portions of the highway until April. Highway 395, in the eastern Sierra Nevada, was literally washed from the Walker River Canyon for several miles and currently requires detours.

For the most part, due to an extremely dry February, flood control storage in the Sacramento and San Joaquin systems has been recovered in all reservoirs, and flood flows eliminated. However, we estimate that residual damage to the flood control system may exceed \$300 million.

This disaster affected a wider area of California than previous episodes. Cities and counties that previously had not experienced flooding were not as totally prepared to coordinate response activities and some were not adept at following disaster procedures during this emergency.

The State sustained major infrastructure losses in all segments of its economy. Preliminary estimates suggest damages in excess of \$230 million to tourism in 25 California counties. Damage to roads and facilities in and adjacent to Yosemite National Park has significantly hurt local counties' economies, and California's tourism industry overall. Damage to highways, roadways, and other public structures could exceed \$500 million, and agricultural losses are estimated at hundreds of millions of dollars. The American Red Cross reported that more than 100,000 Californians sought shelter with them to set a new but unenviable record. By the end of January, over 23,000 homes and about 2,000 businesses had been damaged or destroyed at a cost of just under \$400 million (about \$300 million for housing and about \$80 million for businesses).

The federal government's response to our needs during the flood fight was commendable. The U.S. Army Corps of Engineers was, as always, reliable during the emergency and is poised to assist in the reconstruction phase. The Federal Emergency Management Agency was similarly helpful in the early

going, but has been less responsive in recent days, due – it would appear – to an unnecessarily narrow reading of its authority. Our requests to FEMA and the Corps are contained in Governor Wilson's letter of February 15 to President Clinton, a copy of which is attached. Many of these actions, essential to the repair of the flood control system prior to November 1, 1997, which will be the beginning of another flood season, have yet to be taken. Specifically, FEMA has yet to respond to our request of January 17 for reimbursement of costs associated with pumping water from inundated fields, and on appeal of a local decision not to fund emergency repair of Consumnes River levees.

In summary, California requests:

- Approve a Supplemental Appropriation to fund the following:
 - \$300 million for the full cost of the levee repairs undertaken to bring the system to capacity by next November;
 - \$381 million to fund the federal share of the highway repair needed. This will require a waiver of the \$100 million per disaster cap;
 - At least \$200 million to repair damaged public facilities and provide on-going assistance to flood victims; and
 - Reauthorize and fund the Tree Assistance Program, administered by the Department of Agriculture.

In addition to the supplemental appropriations needed, we ask that the Congress do the following:

- Support repair of damaged levees to their full height and section under the Corps emergency repair authority. The Corps is currently repairing levees to a 25-year capacity regardless of the original design capacity. This approach could mean that repairs will have to be made twice on the same levee, increasing the cost of total levee repair. This issue is of particular importance along the Sacramento and Feather Rivers.
- Continue to support a policy that expedites environmental permitting for the levee repairs and which only requires mitigation to the post-flood level of habitat.
- Examine the policy of the Federal Emergency Management Agency that does not distinguish between crop-year losses and the long term investment values of agricultural infrastructure associated with orchards and vineyards.

In conclusion, the State recognizes the need for a comprehensive approach to the problem of flooding and is prepared to do its part in taking remedial action. The FEAT report will identify structural solutions such as dams, levees, bypasses, and off-stream storage, as well non-structural approaches and improved land-use planning. We look forward to working with the federal government in developing a flood-control system that is less subject to these devastating floods, and which recognizes the limitations imposed by the physical reality of a large river prone to erratic hydrology. To that end, we welcome the Army Corps of Engineers proposal to review non-structural responses and to conduct basin-wide studies of principal California watersheds. The State has

already taken this initiative on the Consumnes River, through establishment of a Task Force to execute short term solutions while working with The Nature Conservancy, local governments, and landowners, on longer term solutions to include levee setbacks and management of riparian habitat.

If we can learn from this experience and apply the lessons of this disastrous occurrence, all Californians will be better prepared to confront the inevitability of another sudden inundation.

Attachment: Governor Wilson's Letter of February 10, 1997



GOVERNOR PETE WILSON

February 13, 1997

The President
The White House
Washington, DC 20500

Dear President Clinton:

As you know, California continues to work to recover from the devastating flooding caused by the January storms. In the past month, we have been grateful for the quick response of such federal agencies as the Federal Emergency Management Agency and the U.S. Army Corps of Engineers and their invaluable help.

However, as we move from the immediate response phase, several issues have arisen that make clear the need for additional federal action to ensure the fullest possible recovery and restoration of our flood control system to a level sufficient to provide full protection during the remainder of the 1997 rainy season. This includes the need for a federal supplemental appropriations bill, which I understand is now being discussed within your Administration.

Through Executive Order, I created a Flood Emergency Action Team of state agencies to work with their counterpart federal agencies, affected local governments, and citizens to review the January floods. The Team has completed their interim 30-day report on actions needed now to speed recovery efforts and ensure the flood control and emergency response systems perform as needed during the remainder of the flood season. I have enclosed a copy of this report, which includes several recommendations for federal action. Pursuant to my Executive Order, the Team is also preparing a more comprehensive report within the next 90 days; this report will identify longer term improvements and recommend state and federal actions needed for flood control within California.

Administrative Actions

I request your assistance in implementing the following recommendations, which do not require congressional approval, as quickly as possible to ensure a full recovery effort and safeguard public health and safety as we continue to be at risk to additional flooding this year.

The President
February 13, 1997
Page Two

Army Corps of Engineers. Direct the U.S. Army Corps of Engineers to restore damaged flood control facilities to pre-flood full capacity, using the Corps' emergency authorities. The Corps is currently repairing levees to a 25-year capacity regardless of the original design capacity. This approach limits protection for those relying on the levee system during the remainder of the flood season in two ways. First, if there is another significant storm, there will be insufficient channel capacity to carry the water. Second, because of insufficient channel capacity, reservoirs will be unable to empty quickly enough to provide adequate flood storage. In addition, the current approach will also mean that repairs will have to be made twice on the same levee, increasing the cost of total levee repair. This issue is of particular importance along the Sacramento and Feather Rivers.

Fish and Wildlife Service. Direct the U.S. Fish and Wildlife Service to exercise its authority to implement emergency procedures with respect to mitigating emergency and reconstructive levee repair. In addition, it is critical that the Service make it clear that where mitigation is required, it will be to the post-flood level of habitat. Finally, the Service should be providing any mitigation requirements on repair projects at the time of the initial consultation.

These federal procedures would conform with the process already implemented by the California Department of Fish and Game for emergency repairs. The Department is providing on-site consultation with immediate determination of mitigation requirements to speed the repair process, without neglecting the important mitigation that may be required. However, our approach provides certainty with respect to the total costs associated with repairs. The Fish and Wildlife Service's current practice of deferring mitigation requirements leaves considerable uncertainty as to the total cost, and could lead to incomplete repairs should their mitigation requirements, as determined later, exceed the amounts to be available from both federal and state sources.

FEMA. Direct the Federal Emergency Management Agency (FEMA) to provide federal funds for pumping of floodwaters that are endangering levees that have not yet failed. The State has written to FEMA twice to emphasize the hazard that ponded water is causing for the levees. In the past, FEMA has recognized that ponded water threatens the continued integrity of the levee infrastructure, and has funded pumping efforts. Failure to do so now risks the needed integrity of this infrastructure for the remainder of the current flood season and, in the case of Delta levees, also presents risks to a major portion of the State's water supply infrastructure. This issue is sufficiently critical that I have already directed State agencies to advance funds and begin the pumping on their own.

The President
 February 13, 1997
 Page Three

FEMA. Direct FEMA to expedite reimbursement to counties that have had to respond to flooding. Many members of your Cabinet and administration have witnessed firsthand the dramatic loss of infrastructure and tax base in many counties as a result of the flooding. Some of these counties are the same ones that experienced losses in the 1995 flooding, yet they are still awaiting FEMA reimbursements for those previous events. Again, because of the importance of this issue to those local governments, I have already directed state agencies to advance a portion of the funds needed for recovery. I request that the federal agencies join with us.

Parks and Tourism. Repairs to the roads and infrastructure of Yosemite National Park and other important tourism areas are urgently needed. Many of the counties affected by flooding and the storms, such as Mariposa County, are experiencing severe economic hardship because of the closure of Yosemite. I have directed our Department of Transportation to expedite repairs on all damaged roads that fall under the responsibility of the State, and have issued an Executive Order waiving any procedural requirements as appropriate for the Department to do this work as quickly as possible. These efforts are showing extraordinary results, and I am offering the services of Caltrans on a contractual basis to the National Park Service and the U.S. Forestry Service to expedite repairs to roads within Yosemite and other tourism destinations as well.

Supplemental Appropriations

In addition to the administrative measures outlined above, I understand your administration is preparing a supplemental appropriations request to address the costs of recent natural disasters nationwide. I request that any proposal presented to the Congress include funding for the following flood-related costs. I would only caution that these cost estimates are necessarily preliminary as recovery work is still continuing and access to many areas and levees remains limited due to high waters.

Levee Repair. Repair to our damaged levee system is urgently needed to protect the lives, property, and water supply for millions of Californians. The Corps of Engineers has primary responsibility for these repairs, and it is currently estimated the Corps will need over \$300 million to repair damages directly attributable to the January floods. However, it is impossible to accurately estimate the full amount of the damages to the flood control systems at this point, as repairs continue to be made and access to many areas is limited by continued high waters. This number may increase as more information is available.

The President
February 13, 1997
Page Four

Transportation. California's transportation system has been devastated in some parts of the State, and it is imperative that the Federal Highway Administration have sufficient funding available to provide assistance as they have in previous disasters. Current estimates are that \$381 million will be required to fund the federal share of these needed repairs to eligible roadways. However, as you know, the existing federal appropriation for the Emergency Relief program is \$100 million for all states and the federal government combined. Moreover, the amount that can be spent per disaster is capped at \$100 million. I am requesting this cap be waived, as the federal government has done in previous disasters, to accommodate transportation repair needs.

FEMA Public Assistance. Under current law, the Federal Emergency Management Agency (FEMA) pays 75 percent of certain costs of repairing damaged public facilities and providing assistance to flood victims. Demands on existing FEMA appropriations are unclear. However, our current estimates are that at least \$200 million will be needed to fund the federal share of eligible costs arising from the recent floods. This current estimate includes damages to non-federal roads, public facilities, schools, emergency response, debris removal, the individual family grant program, and the costs of pumping standing water to preserve the levee infrastructure and portions of the state's water supply system.

Agriculture. Hundreds of acres of orchards may be destroyed as a result of the flooding. These are permanent crops that will require years to restore, with resulting losses to our agriculture industry and local economies. Funding for the Tree Assistance Program under the U.S. Department of Agriculture would provide much needed assistance to growers and farm dependent communities who have lost a significant portion of their agricultural infrastructure. No cost estimates are available at this on the total amount of damage.

On behalf of all Californians, I want to thank you for your assistance and the attention your Cabinet and others in the Administration have given the flood victims. As we both recognize, much work remains in the recovery phase of the floods. I urge your continued assistance as Californians continue this massive recovery effort.

Sincerely,



**TESTIMONY OF
JAMES LEE WITT
DIRECTOR
FEDERAL EMERGENCY MANAGEMENT AGENCY
BEFORE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
U.S. HOUSE OF REPRESENTATIVES
MARCH 19, 1997**

Mr. Chairman, Congressman Borski and Members of the Subcommittee, it is an honor for me to appear before you today to speak with you about our recent disaster activities, especially those in California. Having recently witnessed the trauma and devastation along the Ohio River, my remarks will also touch on those disasters.

As you know, the winter floods in California had a widespread and devastating impact on the State. Over 100,000 residents were forced to evacuate their homes, the American Red Cross sheltered over 20,000. To date, FEMA has accepted applications for assistance from over 21,297 California residents.

FEMA immediately responded to this incident by deploying experienced disaster response staff to the State, and by authorizing the immediate emergency assistance that was required to repair utilities such as electricity and water, to restore residential access to affected areas, and to ensure that essential facilities and buildings were operational.

Forty-eight (48) California counties are now included in the President's Major Disaster Declaration. I will be reviewing the situation in California on a week-to-week basis rather than closing the disaster declaration period after all emergency needs have been met. Over 8,400 temporary housing assistance checks, totaling approximately \$13 million, have been mailed to affected residents. FEMA and the State have also approved over \$6 million for the Individual and Family Grant Program, which helps affected residents meet serious needs caused by the disaster.

FEMA and the State of California have conducted numerous inspections for the Public Assistance Grant Program, resulting in over 990 Damage Survey Reports. Over \$10 million in Federal funds have already been obligated for Public Assistance projects.

I am aware that we have had difficulties in effecting a smooth operation following the California State-wide floods of 1995, and I have taken several steps to ensure that these difficulties are resolved. In August of 1996, I installed new leadership in the FEMA Region IX Disaster Closeout Center. Mr. John Swanson was charged with reducing the backlog of pending obligations, appeals, and re-considerations of damage assessments. Over the next four months, FEMA was able to make significant progress by reducing our backlog, better explaining FEMA policy, and communicating our rationale for

funding decisions. An important aspect of this effort to resolve outstanding issues was strengthening the partnership between FEMA, state and local officials and Member of Congress in the affected areas.

At the present time, FEMA has obligated over \$180.7 million dollars to the State of California for these previous flooding incidents. FEMA received approximately 19,885 Damage Survey Reports from the 1995 flood events. Funds for 98% of the DSRs have been obligated, 330 remain. FEMA has received 1,074 funding decision appeals from the State, 274 of which are still being considered. Forty-seven (47) Damage Survey Reports have been suspended, pending further information from the applicants, environmental reviews.

In the current flooding incident, I have instituted numerous procedural changes to streamline the public assistance grant program operations. These procedures should minimize problems that have resulted during previous disasters in the State.

For example, to ensure better uniformity and consistency in damage inspections, more extensive training program is being conducted at the Disaster Field Office. This training is being provided both to FEMA and California Office of Emergency Services personnel, regardless of their previous experience or training. It has ensured that all inspectors are instructed in the same policies and procedures. No Federal inspector was given a field assignment until he/she had been fully trained in the field, and senior reviewers from other FEMA Regions conducted on-the-job training for reviewers to ensure consistency.

Several measures were implemented to expedite the Damage Survey Report (DSR) review process. DSRs are reviewed in the field and all issues are resolved to the greatest extent possible. Any issues that cannot be addressed in the field are jointly resolved with State officials in the Disaster Field Office. This process will ensure more accurate DSRs from the field, faster processing and obligation of funding, and fewer re-inspections and appeals.

To immediately pay for emergency work, a procedure was implemented to expedite funding to local governments that were adversely affected by the disaster. Many communities were experiencing cash-flow problems due to the emergency actions taken during the flood-fighting phase of the response efforts. This expedited process provides immediate funding for expenditures for

emergency work such as debris removal.

Because of the number of damaged levees in this disaster, a Levee Working Group was established to facilitate a coordinated review of all requests for repairs to levee or flood control works. This group provides a single review that takes into account the program resources and regulatory responsibilities of the member agencies. The group includes representatives from the U.S. Army Corps of Engineers, the Natural Resources Conservation Service, FEMA, and the State of California.

As a part of this process, FEMA has funded the establishment of the first comprehensive levee database for California. The database will allow immediate access to important features about California levees. It will include detailed maps, as well as information on ownership, date constructed, physical information, and other pertinent data.

We are also supporting the U.S. Army Corps of Engineers in its role as the lead agency for the Office of Management and Budget Interagency Task Force. Task Force Representatives are now working in the California Disaster Field Office.

In order to expedite the environmental review process that is required by the National Environmental Policy Act (NEPA), a new series of Programmatic Categorical Exclusions have been created to clear, in advance, all projects that have no significant impact on the environment. By doing so, there should be no delay in funding these projects due to NEPA compliance requirements. We believe that this process will expedite payment, while still upholding the mandates and integrity of NEPA. The possibility of including several such projects is being reviewed, but to date, such Categorical Exclusions have been developed for: (1) the elevation of structures in the floodplain; (2) seismic retrofits; (3) culvert repairs and upgrades; and (4) the stabilization of road slip-outs and other facilities due to flooding.

If there is any reason to believe that a FEMA action will affect endangered species, FEMA must consult with U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act. In order to both comply with this requirement and expedite recovery activities, FEMA, in coordination with the USFWS, completed a Programmatic Consultation for each known species that could possibly be affected by FEMA's recovery effort in this disaster. By

doing so, prior clearance was obtained for all actions of a similar type, even before there is a proposal for FEMA funding.

To comply with the requirements of the Clean Water Act, FEMA, in coordination with the U.S. Army Corps of Engineers and the USFWS, finalized an agreement for a Regional Permit for Emergency Flood Repair and Protection. This agreement will be in effect until June 15, 1997, and will also benefit from the Programmatic Consultation on Endangered Species.

Finally, to comply with the National Historic Preservation Act, a Programmatic Agreement is being finalized among FEMA, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the Governor's Office of Emergency Services. This agreement should significantly reduce, if not completely eliminate, the review process normally required for FEMA restorative projects.

Standing water, in agricultural areas of both Yuba and San Joaquin County, is of major concern to the State of California. FEMA has been asked to provide funds to California for the pumping of these standing floodwaters. The pumping of floodwaters resulting from a declared major disaster may be eligible for reimbursement only if such work reduces immediate threats to life, improved property, or the public health and safety. FEMA regulations specifically exclude agricultural land from the definition of improved property. Based upon inspections conducted by FEMA and other Federal agency officials--including EPA, the U.S. Army Corps of Engineers, and the Department of Health and Human Services--and State of California officials, there is no specific evidence of threats to health or improved property in the flooded areas. Until such threats are demonstrated, FEMA cannot approve funding for protective measures such as pumping.

We are committed to providing the essential assistance that California needs in the most efficient way possible. I am confident that the measures I have instituted will provide this assistance.

While my testimony has focused thus far on initiatives as they relate to California, we cannot lose sight of other parts of our Nation, that have experienced disasters.

Along the Ohio River, FEMA is providing assistance and coordinating efforts

in six states affected by the recent tornadoes and floods. FEMA and the affected States estimate that over 10,000 homes were destroyed or severely damaged by the tornadoes and floods.

Presidential Disaster Declarations have been approved for Arkansas, Kentucky, Ohio, Indiana, Tennessee and West Virginia. Thus far 156 counties are included, and we expect to add additional counties in the near future. At present, over 600 FEMA employees, utilizing the resources of five FEMA Regional offices, are committed to responding to the needs of these States. To date, FEMA has accepted over 31,700 applications for assistance from affected residents. We have already approved over 8,500 housing assistance checks, totaling over \$16 million.

I have visited these States several times to view the destruction and meet with State and local officials. Although the magnitude of these events may be great, I believe that the quick response and strong working relationships among Federal, State and local officials will result in a faster, more complete recovery from the disasters.

Each disaster is substantially different, and becomes a learning experience for the agency. Disaster victims have diverse needs, as do the State and local governments that are attempting to recover from disasters. FEMA is constantly updating and streamlining its programs, procedures, and regulations in order to meet the needs of the next disaster. Although we sometimes do not satisfy all who have been affected by disaster, I am confident that we are doing the best possible job with the resources that are available to the agency. We have a responsibility to the Nation's citizens to help them in their time of need, as well as a fiscal responsibility to effectively manage the costs of disasters. I believe that FEMA is achieving these goals.

Unfortunately under similar circumstances, I have visited all of these states before and witnessed their suffering and losses. These experiences have clearly shown me the importance of mitigation.

I am proud of the advances we have made in our mitigation efforts. With the support and partnership of this committee, we have a tool in section 404 of the Stafford Act to accomplish change in the post disaster environment. Relatively speaking it is a new tool and one which we are learning each year to use more effectively. The degree to which we are successful in mitigation efforts relies

in part on the capabilities at the State and local government levels and on public participation. We are taking steps to address this. For instance, this year we are providing funds for a State hazard mitigation officer in each state and are devoting resources to training state personnel in environmental compliance, grants management and cost benefit analysis.

You and I have work yet to do to promote a greater acceptance of changing communities to build more safely and to reduce the risks facing our communities. Disasters are no longer unusual or singular events. Their frequency, and their degree of devastation, demand that we raise our own expectations about what we can do. We need to set higher standards in building our communities. We have to make our mission of protecting public health and safety a shared goal. We can do better. And we know that.

While some FEMA programs already have made significant strides in mitigation, ranging from our work on building codes to the U.S. Fire Administration's leadership on the use of sprinkler systems, it is unfortunate that our most significant work in reducing risks can only be triggered by a disaster. Foresight, planning and intelligent preparedness work, cannot be rewarded under our current disaster assistance program - we have to wait for nature to force our hand.

The strong message of what communities can do to strengthen codes, to make schools and public facilities safer, and to lessen the impact of these events, has to be heard outside of this committee room, outside of the walls of FEMA, outside of the emergency management community, and outside of insurance roundtables.

The idea of reducing the risks has to enter the mainstream. No one knows better than the Members whose districts have been affected by disasters that the losses from disasters are neither small nor rare.

In the FY 98 budget we are seeking \$50 million in pre-disaster mitigation funding to begin a program of forging coalitions to create disaster-resistant communities. And we do mean coalitions where everyone plays an important part.

If pre-disaster mitigation is considered "a FEMA program", then it's a failure. This has to be a program that leverages the resources and energy of other

federal agencies, States and local governments, and especially the private sector, and brings them in as partners. They must recognize their stake in this; they too must to provide the leadership.

We believe many state and local governments are ready and willing to join us. The business community and the voluntary community are ready to join in. We think this program will demonstrate their commitment and resolve. It's my belief that this is the ultimate route for reducing disaster costs.

We must continue to be good stewards of the funds Congress provides us for disaster response and recovery. We must continue to re-invent the ways we deliver assistance that help to save resources and provide better customer service.

But we also believe that pre-disaster mitigation, along with the enormous amount of post-disaster mitigation work we accomplish, is the key to increased safety and reduced costs. I look forward to working with this committee to develop the legislation necessary to implement a pre-disaster mitigation program.

ADDITIONS TO THE RECORD

**Statement Delivered to the
Congressional Flood Forum**

**Congressman Vic Fazio
Congressman Wally Herger**

Thursday, February 20, 1997

Yuba City Veteran's Hall
Yuba City, California

By:

Bill Borror
Tehama County Board of Supervisors
Tehama County Flood Control and Water Conservation District Board of Directors

Dan Keppen
Water Resources Engineer
Tehama County Flood Control and Water Conservation District

Ladies and Gentlemen:

It is an honor to appear before you in this informal setting to discuss our concerns relative to flooding, flood control, and flood emergency recovery in the Sacramento Valley. I am here today representing agriculture. I own the Tehama Angus Ranch in Tehama County and have worked in agriculture my entire life. I live on the banks of the Sacramento River in the town of Tehama, and have experienced firsthand the dangers of local flooding.

I am also a member of the Tehama County Board of Supervisors and sit as a member of the Tehama County Flood Control and Water Conservation District Board of Directors. Since 1993, four federally-declared flood disasters have been proclaimed for Tehama County. In addition to my personal experience with real-life flooding, I have also seen how government reacts and operates after a flood disaster. I have noted that agricultural interests are often not adequately addressed by federal flood control policies and programs. Today, I would like to offer specific observations for your consideration about government involvement in flood issues, in hopes that the federal agencies present today might work internally towards resolution of these problems.

1. Adequate funding is required to properly support emergency reimbursements dictated by the federal levee policy.

All of the publicly-maintained levees and nearly every privately owned levee in Tehama County provide protection for agricultural land. The vast majority of these levees are located in drainage areas of less than 400 square miles. Under the recently revised federal levee policy, this means that the only federal agency with legal authority to fund emergency levee repairs is the Natural Resources Conservation Service (NRCS). At the onset of the recent flooding, the NRCS had only \$2 million to fund this program, of which \$1.5 million were committed to the Deer Creek levee repair in our county. As a result, numerous levees remain a threat to tens of thousands of residents and thousands of acres of agricultural land.

2. Upfront money is required assist smaller, rural flood control districts and counties to quickly repair emergency damages.

Our county spent approximately \$600,000 in 1995 to repair damages resulting from two emergency flood events. Two years have elapsed since the floods, and county officials are still working to fully recover these costs through FEMA and OES. Repairs of this magnitude constitute a significant cash flow sink to rural agencies with limited budgets. Agricultural county governments cannot survive a series of emergency disasters unless advance money of some sort is provided to assist with up-front costs. We applaud Governor Wilson's recent directive to OES which allows a portion of estimated emergency costs to be covered in advance, without the usual time-consuming delays associated with assessing and quantifying exact damage. The federal government should provide counties and flood districts with cash advances, as well.

3. The issue of responsibility for private levees, streambanks and channels must be resolved.

Tehama County contains many miles of levees and streambanks located on private property which primarily protect agricultural land from flooding. The history and condition of these levees is often unknown, since portions were constructed near the turn of the century. As a result, individual responsibility for these areas is often unknown and many sections of private levees are not properly maintained, which can contribute to failure during flood events. The resulting damages can be significant and are especially unfair to neighbors who have maintained their streamcourses. I have heard from several Tehama County residents who received flood waters in their homes that originated from erosion causing breaches on private levees and streambanks located as far as one mile from their property.

Rural counties have enough trouble stretching the dollars to fix the flood control facilities for which they have a legal obligation. Private levees and streamcourses, if not properly maintained, present the potential for significant flood damage to multiple properties. Surely this is not a problem that is limited

to our county only. Input from FEMA could be very beneficial in this regard. Federal and state assistance is required to help solve this problem.

4. Bank protection along the Sacramento River is a problem that is not being addressed by any federal agency.

The 1995 floods caused extensive damage to rock revetment sites on the Sacramento River originally constructed under the Chico Landing to Red Bluff project. Securing federal reimbursement for these emergency-related damages was a process that took nearly two years. The reason for this time-consuming exercise, we believe, was criteria differences between the participating agencies. FEMA, citing the federal levee policy, denied reimbursement because they considered these projects as "flood control facilities" within the jurisdiction of the Corps of Engineers. The Corps of Engineers were not able to fund these permanent repairs because, under their criteria, these works are considered to be "bank stabilization" projects, which do not qualify for Corps PL 84-99 assistance. For two years, neither agency would step forward to assist with these very substantial repairs. Not until Congressman Herger's office set up a meeting at the Presidio last fall, where high ranking staff from FEMA and the Corps were seated at one table, was it revealed that, indeed, these projects were "bank stabilization", not flood control, and therefore eligible for FEMA funding. However, outside of this one meeting, we have not yet seen an official policy statement from FEMA explaining their position of funding emergency repairs to bank stabilization projects on the Sacramento River.

Private landowners along the Sacramento River who are not benefitted the protection of adjacent bank stabilization projects also appear to be in a sort of "black hole". Currently, the only emergency funding which might assist private agricultural property owners with bank stabilization is the NRCS EWP program. However, on the Sacramento River, with a drainage area exceeding 400 square miles, the NRCS has denied assistance to property owners, again citing the federal levee policy as their reason for denial. Because of the large drainage area, NRCS states that the Corps of Engineers is the proper agency to handle emergency reimbursement funding. The Corps of Engineers, to our knowledge, has no program in place to help private land owners install or replace rock revetment on the Sacramento River. Several residences and significant agricultural acreage are at risk at being swallowed up by the

Sacramento River in Tehama County.

A larger question exists relative to the priority of the river bank protection projects. Our County Flood Control District is obligated through assurance agreements with DWR to maintain nearly 20 miles of rock revetment along the river. More and more of the land protected by these sites is being purchased by groups like the Nature Conservancy, and more and more talk is being directed towards the creation of Sacramento River "meander zones". If the public wishes for the Sacramento River to seek its own path, this priority needs to be conveyed clearly to the local agencies charged with another, seemingly contradictory task. The Senate Bill 1086 Committee should work closely with CALFED and local agencies to make sure that the proper priorities are being considered.

5. Hazard Mitigation funds should be made available to support expanding channel maintenance programs, feasibility studies for creation of additional special flood assessment zones, and permanent solutions employing proven flood control techniques.

Following a presidential disaster declaration, the Hazard Mitigation Grant Program is activated. The program's purpose is to fund projects which are cost-effective and which substantially reduce the risk of future damage, hardship, loss or suffering resulting from a major disaster. After the 1995 floods, the criteria for project eligibility appeared to heavily favor environmental projects such as establishment of riparian corridor areas, creation of wetlands, and the like. Proven flood control techniques like channel clearing, debris and sediment removal, and riprap placement did not appear to be high on the priority list to receive Hazard Mitigation funds. A fundamental reprioritization of flood control, as opposed to habitat enhancement, is required at the federal level in order to properly reassess the criteria of federal programs like the Hazard Mitigation Grant Program.

6. Non-public agricultural water entities (such as mutual water companies, private irrigation associations, etc) cannot participate in public assistance programs to repair damages to irrigation facilities which serve multiple properties.

Tehama County has several agricultural water purveyors which serve large numbers of agricultural

customers in rural areas. Groups like the Thomes Creek Water Users Association, Stanford-Vina Irrigation Company and the Los Molinos Mutual Water Company all suffered tremendous damages on January 1. However, because these groups are not public agencies, they cannot qualify for public assistance from FEMA for damages to water delivery systems. The one program which might be of assistance to these groups is the NRCS EWP program. However, NRCS has stated in the past week in correspondence to our office that repairing irrigation facilities is clearly not within their authority. This will mean that irrigation customers will ultimately pay for emergency - related damages through higher water bills later this year.

7. NRCS requires a 30-day "hold" time in order to process reimbursement requests under the Emergency Watershed Protection Program, which poses a cash problem for small, rural districts capable of providing local support to agricultural interests.

We know that NRCS is capable of rapid results; they sent an inspection team to our County and prepared an assessment of 2000 feet of damaged levee within 24 hours of the breach occurring. Sitting on a reimbursement check for 30 days is a bureaucratic requirement that is very inappropriate in an emergency situation, especially when small, local districts are fronting cash in amounts that are equivalent to several years revenues.

8. Flood control does not appear to be a high priority with the federal government, especially in relation to habitat replacement and enhancement. Local property owners and flood control officials are increasingly constrained by state and federal environmental laws and regulations to obtain permits to properly maintain levees and stream channels.

The federal government should take the lead and provide a definition of priorities. Which policy dominates - habitat restoration / enhancement or flood control? Federal regulators seem to have forgotten the contracts that reclamation and flood control districts have to maintain flood control projects. Private agricultural property owners should also have a say and be allowed to fix their own drainage problems. In many instances, proposed channel cleaning and levee maintenance on private property is not really "altering" channel beds. Rather, the work instead reverts the channel back to its

original, pre-flood condition. More flexibility should be included in the federal permitting of maintenance - related activities. Criteria differences among the various agencies should be resolved, and the permitting process needs to be better coordinated and simplified.

Flood control saves lives, property and valuable agricultural land. Flood control as a government service in California should be considered on equal terms with fire protection, earthquake protection and crime prevention. Of the multiple reasons taxpayers hand over their hard-earned money to the government, it seems to me that flood control is one of those essential government services that demands a higher priority in this state. Starting at the highest level, with the elected officials and federal agencies present today, this priority needs to be re-established so that the policies which impact us all the way down at the local level can be developed in a practical manner.

Since 1993, significant changes have occurred in federal levee policy. As a result, local agencies and private landowners have a very limited recourse to federal assistance in emergency repairs to levees and streambanks. There is a willingness at the local level to fund emergency repairs to the best of our abilities. However, the magnitude of the damages associated with a federal disaster declaration are way beyond the means of local interests. Federal and state assistance is required to cope with these extraordinary circumstances.

Local agencies and property owners are willing to work with federal agencies 1 on 1 to develop practical and meaningful solutions to flooding problems. We know that the system can work. The recent repairs to the Deer Creek levee system in Tehama County provide one good example of how the federal reimbursement program can work beneficially. The combination of a strong, unified local agricultural community, practical and qualified local agency engineers, and a reliable federal funding source provided by the NRCS all resulted in the successful repairs to over 2000 feet of damaged levee sections - all in less than 30 days. All parties involved in this project are pleased with the outcome. We are confident that similar successes can be achieved through the coordinated efforts of local interests and other federal agencies.

Thank you.



California Farm Bureau Federation

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CFBF Statement Regarding Short and Long-Term Flood Relief Priorities

Submitted by Burt Bundy, CFBF Board of Directors
before Joint Congressional Flood Forum
Thursday, February 20, 1997
Yuba City, California

My name is Burt Bundy, I farm near Los Molinos in Tehama County. I am a member of the California Farm Bureau Federation and I serve on its board of directors. Congressman Fazio, Congressman Herger and other members of the Forum, thank you for coming here today. Farm Bureau extends its sincere thanks to you for your hard work on behalf of flood victims throughout the state.

We've made a lot of progress toward clean-up and repair, but much work remains. As you might expect, there was confusion at the outset, but local, state and federal officials came together quickly to develop an effective team. We commend all those involved for their hard work and dedication.

Thank you for going to bat for us, demanding that federal agencies waive or streamline the usual permitting and consultation requirements. This continues to be essential in completing timely repairs. We urge President Clinton to extend the disaster declaration until next year. It will be months before repairs are complete. For example, the San Joaquin River will be at or near flood stage through June. Emergency provisions must be extended.

We are concerned that all repairs be expedited to prevent additional flooding. A lot of repair work remains, especially on private levees throughout the Central Valley. The Army Corps is currently prohibited from assisting with private levee repair. We believe the Corps should be authorized to repair levees in the interest of public safety, private property and public infrastructure. While these private levees may border and protect farmlands they also provide protection for nearby towns and highways. On the Cosumnes River, there were 17 different levee breaks which led to the closure of Highway 99 and Interstate 5.

Another concern involves streams and rivers that have been damaged by the floods throughout northern California. Thousands of acres of farmland have been damaged by flooding in areas which require bank stabilization and protection. Funding and permitting

must be provided to further those repairs.

We understand, Congressman Fazio, that you and Representatives Condit, Pombo and Herger are each working on funding legislation to handle short and long-term repairs. We support your efforts and pledge our help.

Concerning future actions, we'd like assurances that the Army Corps will focus its greatest attention on flood protection. The Corps spends an increasing amount of time on permitting matters, but the agency must not lose sight of its number one priority --- flood protection. We're also concerned by reports that federal agencies may seek environmental mitigation following levee repairs. We urge you to make it clear that this practice is unacceptable.

Recently, the State of California allocated special funds to assist in pumping flooded fields, orchards and vineyards. Damage to tree crops is currently estimated at \$36 million. This is likely to increase due to standing water. The state needs additional federal assistance and FEMA reimbursement to pump this water off of ag lands in order to prevent further loss.

Fortunately, there have been few reports of delays because of government regulations. That is very encouraging. This spirit of cooperation must continue!!!! Please maintain your vigilance over the federal process.

Our biggest fear is that this cooperative spirit may fade as public awareness fades. Key decision makers in Washington must not lose sight of both the long-term repair needs and the need for environmental streamlining to provide future security for our levees and riverbanks. Funding for repairs and maintenance will cost a lot less than future emergency flood relief.

We must learn from our past mistakes. Following the floods of 1986, there was a lot of talk about what needed to be done to prevent future flooding. It stopped there. We soon lost sight of what caused the flooding and what needed to be done to prevent future problems. And we started to slide backwards. We ignored the needed repairs and maintenance. Instead, federal environmental agencies added new regulations. And, here we are 11 years later facing the same hardships.

The system failed because reclamation districts were prevented from performing routine maintenance. Maintenance work was either delayed or banned due to the potential, I repeat, *potential* harm to species habitat. The mere presence of elderberry bushes stopped maintenance projects whether elderberry beetles were present or not. Other work was stopped during the hibernation period for the Giant Garter Snake --- again whether the snake was present or not. Our values and priorities have become terribly skewed. Today, we place a higher priority on preserving endangered species habitat than preventing the loss of lives and property. The Endangered Species Act needs a permanent fix.

Levees by definition are embankments built for protection against floods. As such they need to be built and maintained for flood protection, not potential as habitat for endangered and threatened species. Congressman Herger, your legislation is a good starting point. We salute your efforts.

We must do more to prevent stream bank erosion through rip rapping and other repairs. In some areas, stream channels must be dredged to allow the rivers to function efficiently.

And, we must build additional flood storage facilities. Several off-stream sites have already been proposed. These additional storage projects will help the state meet its water needs, while providing greater flexibility in flood management. We have experienced three major floods in the past 11 years. Some countries take protective actions to avoid 300 year floods. Let's strive for flood protection that other countries consider routine.

Farm Bureau looks forward to working with you on special agricultural needs, supplemental appropriations, short term repairs and long term improvements.

In closing, Farm Bureau salutes the thousands of individuals who have given generously of their time and money to help the flood victims. These hardships prove once again that Californians are resilient, the state's farmers are resilient. We will come back from the losses. Where appropriate, we seek federal assistance to help those who are willing to help themselves. We also urge the federal government to exercise good common sense in the months and years ahead to help us avoid future flooding problems.

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STATEMENT OF PRINCIPLES OF CALIFORNIA FLOOD MANAGEMENT AND FLOODPLAIN RESTORATION

March 1997

Endorsed and presented by:

Biodiversity Legal Program, Environmental Law Foundation
California Trout
Environmental Defense Fund
Friends of the River
Friends of the Santa Clara River
Golden Gate Audubon Society
Institute for Ecological Health
League of Women Voters of California
National Audubon Society, California
Natural Heritage Institute
Pacific Coast Federation of Fishermen's Associations
Sierra Club
The Bay Institute of San Francisco
Tuolumne River Trust
United Anglers

"I think we should turn flood control on its head...the way to reduce flooding in one area is to promote flooding in others. For political, economic and environmental reasons, the traditional approach of raising levees and building dams is simply no longer viable. Store floods on the floodplains. That's the way the rivers do it, and we should follow their lead."

- Dr. Jeffrey F. Mount: California Rivers and Streams: The Conflict Between Fluvial Process and Land Use

"Ten thousand river commissions, with the mines of the world at their back, cannot tame that lawless stream, cannot curb it or confine it, cannot say to it 'Go Here' or 'Go There', and make it obey; cannot save a shore which it has sentenced; cannot bar its path with an obstruction which it will not tear down, dance over and laugh at..."

- Mark Twain: Life on the Mississippi

For more information or to obtain extra copies of this document, please call Jackie McCort or Jenna Olsen at the Sierra Club, 510/654-7847.

The tragic 1997 California floods killed 8 people, damaged or destroyed almost 20,000 homes and have been estimated to cost more than \$1.8 billion in property damage.

It's time for a change. Building big new expensive dams and levees isn't the answer. California needs a comprehensive flood management strategy that will minimize loss of life and property, save taxpayer dollars and protect and restore important and valued natural environments and landscapes. A recent Field Poll reveals there is a widespread endorsement of levee set-backs and the placement of greater restrictions on future residential building in floodplains--the public is ready to embrace environmentally-sound flood management practices.

Floods are part of the dynamic nature of healthy rivers. In fact, floods and high flows are needed to cleanse rivers of accumulated debris, build streambanks, import gravel for salmon and steelhead spawning, thin riparian forests and create riverine habitats. By working with nature--instead of against it by relying solely on building big new expensive infrastructure such as dams and levees--we create the opportunity to develop solutions of mutual benefit that improve flood management, water quality and the health of ecosystems and the economy.

Our general principles of flood management and floodplain restoration, based on the most current scientific understanding of riverine processes and the hard lessons of repeated flooding in California and other parts of the country, most notably the Upper Mississippi Basin, are:

- 1. Restore river systems and functions that improve flood management while also bolstering the effectiveness of existing flood control systems:**
 - a. Restore to a meaningful extent the historical capacity of rivers and their floodplains to better accommodate flood waters by setting back levees to widen the floodway--the river channel during high flows.
 - b. Increase wetland and riverside forest habitat within the widened river zone.
 - c. Increase the use of planned floodplain flooding to reduce downstream flood peaks.
 - d. Strengthen existing and properly sited levees at high risk, which protect high value floodplain uses that cannot be relocated from the floodplain.
 - e. Reassess the operations of reservoirs and waterworks to ensure the efficient, reliable and prudent use of flood control space. In some cases, dams and waterworks need to be structurally modified to improve their ability to release water to avoid downstream flooding.
 - f. Improve use of weather forecasting and monitoring upstream conditions to have a better "early warning system" of when a flood could be coming.
- 2. Better manage the uses of floodplains to minimize taxpayer expense and maximize environmental health:**

- a. Eliminate incentives or subsidies for development in the most dangerous parts of the floodplain. No more people should be put in harm's way.
 - b. Reform floodplain mapping programs so that they accurately portray the risks and consequences of anticipated flooding. Ensure that Californians understand when they are locating in a floodplain.
 - c. Ensure that new structures unavoidably being built in floodplains are designed to resist damage from foreseeable future floods.
 - d. Educate Californians on the risks of living, working, or farming in areas prone to floods--and make sure they are willing to bear the appropriate financial responsibility for such use.
 - e. Endeavor to relocate the most threatened Californians and communities who volunteer to move to safer locations.
 - f. Ensure that state and local governments responsible for floodplain land use decisions bear an increased financial responsibility for flood recovery efforts.
- 3. Manage the entire watershed to provide the most protection from floods in an environmentally-sensitive way:**
- a. Discourage development in remaining wetlands and floodplains. Wetlands and functioning floodplains act as giant sponges which absorb and slow the progress of floodwaters.
 - b. Use acquisition and easement programs to restore some of California's historical wetlands and floodplain acreage and to promote functional restoration of associated river systems.
 - c. Discourage clearcutting and roadbuilding in areas prone to mudslides.
 - d. Where possible, replace non-native hillside annual vegetation with native perennials to improve rainwater absorption and reduce hillside erosion.
- 4. Existing state and federal laws that protect endangered species are not responsible for delays in immediate levee repair. Attempts to weaken or suspend existing endangered species laws only divert energy away from the true causes of repeated flooding losses. Rather than scapegoating these laws, comprehensive efforts should be made to restore natural floodplain habitat and associated hydrologic functions to levels that take significant pressure off the crucial but minimum habitats available today.**
- 5. State, local and federal agencies and governments, non-governmental stakeholders, and concerned members of the public need to work cooperatively to develop and implement better short-term flood response coordination and funding. The implementation of more innovative and comprehensive long-term alternatives (undertaken in conjunction with near-term spending) should be facilitated and leveraged.**

**STATEMENT BY
CONGRESSMAN GARY A. CONDIT
SUBCOMMITTEE ON WATER RESOURCES AND
INFRASTRUCTURE**

**CALIFORNIA FLOODS
MARCH 19, 1997**

Chairman Boehlert, Ranking Member Borski and subcommittee members, thank you for the opportunity to share with you the current situation of flooding in California.

As you are well aware, the disaster in California caused by severe storms, beginning on December 28, 1996, is ongoing. As of this date, 46 of the 52 counties in California have been declared disaster areas and have been severely impacted by the devastation of flooding and mud and land slides. Fortunately, communities throughout the state have been greatly served by the coordinated federal, state and local effort that has assisted with flood fighting and the provision of assistance to victims of the disaster.

While some of the problems caused by the disaster may be resolved in the near future, we are becoming increasingly concerned about the longer term impacts that continued flooding is expected to cause as the year progresses. For example, although the most recent flooding has begun to subside, thereby allowing interim repairs to begin to some of the affected levee systems and other public infrastructure systems, the continuing Winter storms in addition to the upcoming snow melt from the Sierra Nevada in the Spring, is expected to cause ongoing dangerous flooding and mud and land slides for months to come.

I would also like to highlight the tremendous need for federal assistance in the "brick and mortar" stage of rebuilding. Although the official damage estimates have not yet been released, preliminary estimates indicate that this disaster will toll billions in damages to the state. Unfortunately, many areas have yet to recoup from the 1995 floods, only to be hit once again in the current disaster. I believe that the magnitude of the two disasters, particularly the most recent, warrants a high level of federal commitment, not only in terms of providing financial assistance to rebuilding efforts of damaged infrastructure systems, but in providing assistance toward long term flood prevention efforts as well.

To this end, I cannot overemphasize the great need for a high level of federal cooperation in working with local communities and the state of California in the development and implementation of long term flood control solutions. As you are aware, these solutions include such strategies as levee improvement, off-stream storage, by-pass systems and flood control easements.

Mr. Chairman my message is simple and straightforward, we all need to work cooperatively to ensure this disaster is dealt with in a expedited and fair manner. Thank you for allowing me this time and I look forward to working with you as we move forward in helping the people of California.

Crippen

CITY OF MARYSVILLE

Marysville, California

JOINT CONGRESSIONAL FLOOD FORUM**February 20, 1997**

Honorable Wally Herger

Honorable Vic Fazio

I am the Mayor of Marysville, California. I represent 12,500 citizens. We live behind great levees in the very center of the confluence of the Yuba and Feather Rivers. We sustained no direct flooding except for a few homes with water in their garages due to rainfall in excess of our pumping system's design capacity. Our city's direct costs for the flood of 1997 are the costs of the actual flood watch and fight, evacuation, and the repairs, yet to be made, to sections of our levees.

Then why am I making this appearance before you. Our County has if not the poorest, at least one of the poorest economies in California. Our economy, historically, relies heavily on agriculture. We have made great efforts to attract other commercial and industrial organizations to our area to reduce our reliance on agriculture. The floods of 1986 and 1997 set back these efforts disastrously. It is difficult at best to attract new business, let alone to an area where in eleven years there have been two major flooding events.

You have assembled here today representatives from many of our Federal and State agencies. Each of these agencies have been charged with the responsibility for protection or maintenance of a segment of environment, infrastructure, or economy. (Agencies)

There are many special interest groups whom advocate protection of segments of our environment each of these separately are of great merit. (Groups)

There are regions of our State with larger populations with attendant political clout, who need the water that passes through our area annually. These areas want to store this water in our area and wheel it through our system to them when needed. Without paying for the infrastructure that is required to provide them with water and us with safety. (Dry areas)

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We your constituents are a minority, politically due to low population density, economically due to our location, and governmentally due to our state government appropriation of local government revenues yet we make a significant contribution to the economy of California which is the seventh largest world economy. (Minority)

The combination of bureaucratic red tape of the Agencies, the political pressure of the Groups, and the political pressure of the Dry Areas have left the Minority with out help from agencies that should be protecting us, and even worse have kept us from protecting ourselves. The combined neglect of our basic needs has caused our area in the Flood of 1997 to sustain loss of human life, loss of homes and personal treasure, significant loss of business and investment capital, and had our economic future mortally wounded.

From my perspective and experience this is what needs to be done:

1. Declaration of Federal and State disaster needs to be streamlined to quickly respond to the need of local government to know that there will be economic help to continue and implement the fight.
2. Flood fight control. During flood situations the control over the levees must remain in local hands. There are times when levees must be cut to relieve pressure, lower levels of water, reduce affected areas, or reduce damage. These cuts must be made quickly and then repaired as part of the flood damage.
3. Flood fight definition. It seems that only repairs made to levees while there is water against them is considered in the flood fight. If your levee is damaged during the flood but holds and you elect to repair at a safer, later date there is no help on the repairs.
4. The confusion about who is financially responsible for segments of the fight or cleanup, caused by the bureaucratic structure of the Agencies, needs to be eliminated. Marysville's fire department, is the regional hazardous materials mitigation team. California's EPA budget for cleanup of \$10,000 was expended in the first two days of the flood cleanup. It took us four days of effort to find a way around the red tape to be sure we would continue to be funded to finish the cleanup. Local agencies due to their reduced revenues cannot temporarily fund these activities without assurance of quick and complete reimbursement
5. The permitting process of and between several Agencies to allow for levee repair is impossible. If we have another high water event this year South Yuba County will flood again due to the delay this process has caused in levee repair.

6. We need without special interest group interference, Endangered Species Act implications, habitat mitigation requirements, or citations from various agencies to:

Repair, replace, and improve our levee system.

Perform river, stream, and slough channel rehabilitation to remove aggregate, debris, plant life and other impediments to water flow allowing full capacity flow of runoff. An obvious benefit would be navigable waterways for commerce transportation.

Build the Marysville Project (Parks Bar Dam) to allow for more flood control and water storage for the Dry Areas.

7. We need to stop public agencies that are purchasing real estate within the levee flood way with the intent to allow the real estate to return to it's natural state. This creates silting in of the channel and flood plain which reduces the capacity of our flood system. This is absolutely opposed to the very need for those levees

8. We need to enact legislation that makes special interest groups, who stop or delay needed infrastructure repair or improvements, financially responsible. We the victims of their delays should be able to recover financially due to their control of our local situation.

9. We need to change the way that government programs provide help. It appears to the victims of the current calamity that, for those who pay the taxes to support the system, there is no help. If I make a reasonable income and lose my home in the flood the only help I can receive is a low interest loan which often increases the debt load on my home beyond it's fair market value. While those who, for many different circumstances live off the system, receive grants to replace and rebuild.

10. The State of California needs to enact an increase in sales tax to fund the necessary levee repair and improvements, as it did to repair earthquake damage in San Francisco and Southern California.

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In conclusion we have been victimized by bureaucratic red tape, well meaning special interest groups, and the need for water in Southern California. We need your help to restore, as the **number one priority** of this nation, human habitat. Are our homes, livelihoods, families and the food we produce so insignificant to this nation and state that they should be sacrificed to the Elderberry Beetle and leisure time recreation. Please help us make a difference.

Respectfully submitted,

Jerome B. Crippen, Mayor



Mr. Angelo R. Danna
1829 Parkwood Dr.
Yuba City, CA 95993

Mr. Heger,

On Jan. 2nd our lives were changed forever, due to a levee break on the Feather River. My family lost six homes and my husband's 2500 acre family ranch was under 20-25 feet of water. This was a disaster that should have never happened, but did because of neglect by many agencies.

Please let me tell you a little about how the last two months have been. On Dec. 30, 1996 my five year old was admitted to a hospital in Sacramento, Ca. My son Matthew has a life threatening liver disease and because of this he was admitted to the hospital. On Jan. 1, 1997 my husband and I were at the hospital and received news from my sister that the television was reporting that Oroville Dam was notifying the public that the water might come over the top and they would have uncontrollable releases. Our other two children were with my family in Arboga and at that time I had to make a decision on whether I should take Matt out of the hospital. I felt comfortable with the decision to take him out of the hospital and notified our doctor. The doctor knew that I was capable of making this judgement to release Matt from the hospital, so at 1:00 p.m. we headed home to our other children. This was a very frightening experience, but the worst was yet to come.

My brothers had been doing levee patrol and had notified RD 784 that there was seepage (not boils, but SEEPAGE) between Country Club Ave. and Anderson Ave. When they physically showed two of the board members the area, the board members obviously were not capable of making the call that would later kill and ruin many lives because they thought everything was just fine. Later, on Jan. 1, 1997 my brothers showed my husband that there was seepage and that the board members had looked at the area and were not concerned. My husband was concerned and that night he and my brothers did levee patrol. The rest of the family stayed with friends in the foothills because they had a feeling something was going to happen.

On Jan 2, 1997 we headed down from the foothills and brought the guys some food for breakfast. I can remember my brother Gary being upset because he didn't want us so close to the levee. My families' homes were about a quarter mile from the levees so we left to a safer place and that would be the last time to ever see our homes.

That evening we were evacuated from my home in Yuba City. We had gone there to clean up and at 6:00 p.m. received a mandatory evacuation. We left and on our way we listened for information on the radio in the car. At about 8:10 p.m. the radio reported a levee break in Arboga. We knew at that moment everything was gone, but our main concern was for my brothers who were still there. We called them on the cellular phone and at that time they

were trying to get neighbors out. They had ten minutes and the water was there. At 10:30 we saw one brother on the news and knew that they had gotten out alive.

Jan. 2, had alot of meaning to my family because six months ago to the day we lost my father. We are a very close family and this had been a hard time for us. Because of many agencies neglecting our levees we lost so much more that money could ever replace. We lost the bed that my father died in while my brother Butch held him in his arms. We lost his red hat that sat on the night stand next to his bed. This hat was something that made me feel close to my dad because I could go and lay on the bed and put the hat over my head and smell his scent and feel his presence. His shoes that sat next to the bed are gone. His clothes that we were not ready to let go are gone. The mementos that he saved in his drawers are no more. The chair that he spent alot of his time in is in a pile of rubble. We feel as if we have lost our dad all over again. But he is forever in our hearts and we will go on, knowing he is watching over us.

Let me tell you about each of the homes that were lost. My Mom and brother lost everything because the water was over the roof of their house. The only things that were saved were some clothes, some pictures, and the flag that draped my father's coffin. My brother and his pregnant wife and four year old son lost almost everything in the flood and what wasn't lost to the water was lost to fire when the water hit the mobile home he lived in and moved it causing the gas line to break and burn everything to the water line. My sister and nephew lost the mobile home they lived in. They had gotten a few things out because my sister was afraid something might happen. Still they lost a majority of their things. Two of my aunts lost their homes and small ranches. They are in their 70's and shouldn't have to start all over again because of neglect from agencies that we were suppose to trust. My cousin, her husband and two children lost their home and family ranch as well as another ranch that was in the 1986 flood. My husband's family has a big farming operation and were flooded twice in January from the Feather River and the Bear River. Some people ask why we didn't get much out before the flood hit and the answer is that my family was trying to protect the community by patrolling the levees and reporting any problems. My family did their jobs, but the people in charge either didn't do theirs or didn't know what they were doing and I prefer to believe the latter because I don't think anyone wanted loss of life, but someone has to accept responsibility of what has happened to our community.

Now has come the time to deal with the loss. With the exception of Red Cross there has been no help, just a lot of disappointment. FEMA and the

SBA just seem to give you the run around. First they seem as if they are going to help you then as time passes the reality sets in. My sister was denied a grant because she has a job and has worked all her life. She was then accepted for a loan from SBA, but finds out that they are as worthless as FEMA. Again, we see it only pays to be worthless and on welfare to get any assistance from a government that you have paid your hard earned money in taxes too. Some of them are waiting for grants and nothing has happened with that. So, over two months later they are without homes, and without much assistance from the government. I help where I can, such as a warm home for them to live in. Right now there are 13 of us living in my four bedroom home. When my father died his funeral expenses were to much for my mom, so I spent \$7000.00 to help my mom pay off this bill. Now I haven't much to give them. We will be there for my family and it is sad to think that without my home, where they might all be at today.

Please don't put the life of a bug, animal, or tree over the lives of people. There has come a time to tell the enviromentalist NO MORE and to listen to the will of the people. It should not take losing lives and ruining lives to get something accomplished, but as usual this is always what it takes. Now is the time to stop talking and take action to protect the people you hve been elected to serve. **PLEASE HEAR OUR CRIES FOR HELP!**

Sincerely,
Susan Danna

1829 Parkwood Drive
Yuba City, Ca.95993
(916)671-7604

**TESTIMONY OF ROBERT MEACHER
PLUMAS COUNTY SUPERVISOR**

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4 Oroville Dam, the keystone of the State Water Project, controls flood conditions
5 on the Feather River. The recent January 1st flooding and the devastation caused
6 along the Feather River by Lake Oroville's inability to manage the inflows has
7 made it clear that changes need to be made in the flood management on the
8 Feather River.
9 Feather River.

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12 To date, the focus has been on the area below the Oroville Reservoir as the
13 solution. We believe that it is part of the solution - a better levy system and,
14 perhaps, setback levies that would do much to increase flood protection above and
15 below Oroville Dam. However, there is another phenomenon that is happening.
16 The water is coming in at Lake Oroville faster than the facility can let it out. It
17 is this phenomenon which an organization known as RCRC has been examining
18 and to which I would like to make the focus of this testimony. (RCRC is the
19 Regional Council of Rural Counties, a 25-member organization representing the
20 watersheds of about half of California.) At the time of the flooding in the areas
21 along the Feather River, Oroville was releasing approximately 160,000 cubic feet
22 per second. At the height of the flood, water was entering Oroville at
23 approximately 370,000 cubic fee per second. If this situation had continued for
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1 another 8 to 10 hours, there would have been uncontrolled releases from Oroville
2 in the neighborhood of 400,000 cubic feet per second. Releases of that magnitude
3 would have obliterated the levy system on the Feather River and would inevitably
4 have toppled the levies on the Sacramento River. We believe the situation was
5 further exacerbated by conditions left behind the 1986 flood and past land
6 management practices. At the height of the flood, the Shasta Reservoir on the
7 Sacramento River was storing water. It also came very near to becoming full and
8 having uncontrolled releases on the Sacramento River. Had either or both
9 facilities overtopped, the losses surely would have been unimaginable. The
10 January 1st event did not seem inordinately large in terms of rainfall nor in terms
11 of melted snowpack, for those of us who have lived upstream of these reservoirs,
12 and we certainly did not see this rainfall as anywhere near 100 year flood
13 conditions, in our opinions.
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19 For thousands of years streams have jumped out of their banks during high water
20 events and flooded most of the low lying lands in the upper watersheds and, in
21 general, this has been beneficial to the overall ecological conditions in these area.
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1 California's uplands have resulted in altered conditions that have added to the
2 "flashing" effect we saw this winter. Streams are channelized, banks are blown
3 out, groundwater tables have been depleted, fire suppression costs have become
4 an exorbitant drain on the U.S. Treasury, and has resulted in overstocking of small
5 unmerchantable material, with trees that increase watershed damage. This
6 condition also extends the droughts we see in California almost every year. We
7 encourage the State to work with the United States Forest Service and the Natural
8 Resource Conservation Service in order to renew the uplands so that they hold
9 more water during storm events as they were able to do in the past. This can be
10 done both underground and on the surface and can be done without large structures
11 (i.e., in stream dams). At the time of the January 1st floods Plumas County,
12 (which is upstream of the Oroville Reservoir), was substantially under water.
13 Much of that water was standing water on meadows throughout the uplands. If
14 the uplands continue to deteriorate and if the channels continue to get wider and
15 steeper, groundwater will inevitably run off faster in peak events. We believe that
16 the past deterioration is what caused the unanticipated peak flows in the January
17 1st event. With your financial support, we are looking forward to studying this
18 hypothesis and we're looking forward to implementing corrective mechanisms if,
19 in fact, we are allowed to present our case.
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1 I would like to close with a request of you to allow us to gather this information
2 and data and submit it as evidence for consideration when you have your formal
3 hearings in Washington, D.C. this spring. It is our firm belief that we need to
4 look at the entire drainage system of the Feather River Basin lest we throw good
5 money after bad and we'll all be doing this dance again and, perhaps, with a less
6 severe meteorological event than that of January 1st if we do not address the upper
7 watershed.
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12 Thank you for your consideration.

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1 Robert Meacher is a 2nd term supervisor of Plumas County. Plumas County is
2 the headwaters of the State Water Project at Lake Oroville with a watershed larger
3 than the state of Maryland.
4

5
6 Mr. Meacher is the Chairman of the Regional Council of Rural Counties (RCRC)
7 Water Advisory Committee; the President of Nor-Cal/Neva Resource Conservation
8 and Development Council; the Rural California Representative on Governor
9 Wilson's Biodiversity Council; and the Area of Origin/Source Counties
10 Representative to the Bay Delta Advisory Council, Cal-Fed Process.
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PRESENTATION BEFORE THE JOINT CONGRESSIONAL FLOOD FORUM

YUBA CITY, CALIFORNIA

FEBRUARY 20, 1997

THE GOOD FARMER

by Dennis Pooler

This is a true story about a Yuba County family farmer. He could just as easily have been a farmer in Sutter County or Butte County or any other county in California. He is an honest, hard working businessman whose business is raising orchard crops. He farms about two hundred acres of peaches and walnuts. He has been in the business for thirty years and by all accounts is a good farmer with a good credit rating, paying his taxes and maintaining crop insurance for his orchards.

He is an independent businessman who has up until recently not had a real need for government assistance even though throughout the years, his orchards have been inundated by flood waters from the nearby river. His orchards lie within the levee system as do tens of thousands of acres of fruit and nut trees in California.

Farmers with orchards inside the levee system know the hazards they face. When the rains come and the snow melts, flooding is normal. Usually the water rises slowly to flood the orchards. Sometimes the trees are flooded for several weeks, but as long as they are not actively growing there is no great damage.

There is a training levee running through part of the property. The levee was built by the Army Corps of Engineers many years ago. Its purpose is to direct the main force of the water back toward the river channel. Up until now there have only been minor problems with the training levee.

However, in early January, 1997, the rains came and the snow melted, the river levels increased only this time they didn't gradually flood the surrounding property, this time the volume of water was unprecedented. Levees broke or were overtopped and the raging river did much damage.

The farmer had been warned that flooding was expected and being a good farmer, he moved his equipment to the tops of the levee for protection. But flow of water was too great and it ate away at the training levee eventually causing parts of it to collapse, sending the farmer's equipment into the flood waters.

When the water returned the river channel and the farmer checked his orchards he found tons of debris and topsoil pushed onto his property. The orchard floors were nothing but sand hills and deep holes and the trees were buried in debris. One section of orchard was washed away leaving only a huge gorge. In other places trees were left suspended in the air by their roots since the soil at their base had been washed away. This was no normal flood, this was a disaster. Nearly twenty acres of trees had been destroyed and the rest were damaged in some way.

The farmer salvaged what he could. He rented expensive earth moving equipment to level the land. He contacted government agencies to find out if there were any financial relief programs available. Oh yes, he was told, there are government programs to assist farmers in recovering from a disaster. Maybe he could take advantage of one of the many state or Federal assistance programs he had been told were available. But what does he find? Not much!

What he found was that like the vast majority of good farmers, because he has been a good businessman he didn't qualify for the government low interest loans offered through the Emergency Loan Assistance Program (EM), those go to people who can't get credit from commercial credit sources.

He could not obtain funds through the Emergency Conservation Program (ECP) which would have provided cost share money to rehabilitate his farmland and allowed him to remove debris and relevel his orchards. He did not qualify because his orchards are located within the levee system, in the flood plain, his application for assistance was denied by the local committee. What would have happened to this farmer's business if he hadn't had the resources to go in clean things up for himself? If he had waited for funding from the government, he would still be waiting.

The Noninsured Crop Disaster Assistance Program (NAP) offers crop loss protection to growers of crops for which Federal crop insurance is not available so it did not offer any assistance. Besides the restrictions of NAP don't seem to recognize the unique farming practices in California where more than 250 crops are grown. It applies more to the monoculture which exists in the Midwest.

The training levee was severely damaged with three large breaks. When first approached, the Army Corps of Engineers said that they no longer considered the levee to be their responsibility even though they had built it and had repaired it in the past. Currently there is some hope that the Corps will repair the damage levee.

The farmer is lucky in one sense, his orchards are now dry, drained of floodwater. If he farmed elsewhere in the county where farmland was still flooded he would have found that there were no Federal Emergency Management Administration (FEMA) funds available for pumping the water out. Agriculture doesn't meet the FEMA definition of infrastructure. It doesn't seem to matter that it will take five to eight years to reestablish the damaged orchards. It doesn't seem to matter that most of his employees are out of work and collecting unemployment insurance. It doesn't seem to matter that the economy will be suffer from his loss of productivity for years to come and our State and local governments will lose tax revenue. Well at least the good farmer will have a tax writeoff and his Federal taxes will be reduced.

COUNTY: <i>Butte</i>		1997		CONTACT PERSON: <i>...</i>	
FRUIT, NUT, FIELD & VEGETABLE CROPS	ACRES LOST	ESTIMATED COST	ACRES DAMAGED	ESTIMATED COST	TOTAL LOSSES
ALFALFA					
ALMONDS					
APPLES					
APRICOTS					
ARTICHOKES					
ASPARAGUS					
BROCCOLI					
CABBAGE					
CARROTS					
CAULIFLOWER					
CELERY					
CHERRIES					
COTTON					
GARLIC					
LEAF LETTUCE					
OAT HAY/ALFALFA HAY					
ONIONS/POTATOES					
ORANGES/LEMONS					
PEACHES					
PEARS					
PERSIMMONS					
PLUMS/PRUNES	20	200,000	100	50,000	250,000
RADISH					
SPINACH					
STRAWBERRIES					
SWEET CORN					
TOMATOES					
WALNUTS	60	300,000	120	100,000	400,000
WHEAT/BARLEY	1200	300,000	1000	50,000	350,000
WINEGRAPES					
OTHER					
SUBTOTAL					1000,000
NURSERY	TYPE OF	ESTIMATED			
	LOSS	COST			
Cut flowers, field flowers, turf					
Soil, Greenhouse commodities					
FORESTRY					
OTHER					
SUBTOTAL					
LIVESTOCK	HEAD LOST	ESTIMATED COST			TOTAL LOSSES
BEEF CATTLE					
DAIRY CATTLE					
HORSES					
POULTRY					
SHEEP					
OTHER					
SUBTOTAL					
OTHER DAMAGES		ESTIMATED COST			TOTAL LOSSES
FARM BUILDINGS					
FENCES					
INFRASTRUCTURE		1,500,000			1,500,000
ROADS					
PROCESSING BUILDINGS					
OTHER					
SUBTOTAL		1,500,000			1,500,000
TOTAL LOSSES					2,500,000

COUNTY: SUTTER		CONTACT PERSON: MARK P. QUISENBERRY (AMENDED 2/27/97)					
REFLECTS MERIDIAN AREA ONLY - AS OF THIS DATE		1/2 OF THE AREA STILL UNDER WATER					
FRUIT NUT, FIELD & VEGETABLE CROPS	ACRES LOST	ESTIMATED COST	ACRES DAMAGED	ESTIMATED COST	TOTAL ACRES	TOTAL LOSSES	
ALFALFA	364	\$147,056	0	\$0	364	\$147,056	
ALMONDS	0	\$0	0	\$0	0	\$0	
APPLES	0	\$0	30	\$13,110	30	\$13,110	
APRICOTS	0	\$0	0	\$0	0	\$0	
ARTICHOKES	180	\$558,000	0	\$0	180	\$558,000	
ASPARAGUS	125	\$262,500	0	\$0	125	\$262,500	
BROCCOLI	0	\$0	0	\$0	0	\$0	
CABBAGE SEED	16.5	\$75,900	12	\$66,600	28.5	\$142,500	
CARROTS SEED	2.8	\$16,800	11.2	\$67,200	14	\$84,000	
CAULIFLOWER	0	\$0	0	\$0	0	\$0	
CELERY	0	\$0	0	\$0	0	\$0	
CHERRIES	0	\$0	0	\$0	0	\$0	
COTTON	0	\$0	0	\$0	0	\$0	
GARLIC	0	\$0	0	\$0	0	\$0	
LEAF LETTUCE	0	\$0	0	\$0	0	\$0	
MIXED ALFALFA HAY/WHEAT STRAW	0	\$0	0	\$0	0	\$0	
ONIONS SEED	0	\$0	0	\$0	0	\$0	
ORANGES*	0	\$0	1	\$429	1	\$429	
PEACHES	0	\$0	0	\$0	0	\$0	
PEARS	0	\$0	0	\$0	0	\$0	
PEPSIMMONS*	0	\$0	20	\$8,500	20	\$8,500	
PRUNES*	0	\$0	80	\$18,864	80	\$18,864	
RICE	0	\$0	3,421	\$410,520	3,421	\$410,520	
SAFFLOWER	0	\$0	5,982	\$528,200	5,982	\$528,200	
STRAWBERRIES	0	\$0	0	\$0	0	\$0	
SWEET CORN	0	\$0	0	\$0	0	\$0	
TOMATOES	4,916	\$544,169	0	\$0	4,916	\$544,169	
WALNUTS*	0	\$0	2,008	\$182,728	2,008	\$182,728	
WHEAT	2,575	\$767,648	0	\$0	2,575	\$767,648	
WINEGRAPES	0	\$0	0	\$0	0	\$0	
OTHER CHESTNUT*	0	\$0	20	\$2,500	20	\$2,500	
SUBTOTAL	8,179.3	\$2,372,093	11,665	\$1,398,651	19,744.60	\$3,770,744	
	TYPE OF	ESTIMATED					
	LOSS	COST					
NURSERY							
Cut flowers, field flowers, turf Sod, Greenhouse commodities	Various	\$0				\$0	
FORESTRY		\$0				\$0	
OTHER		\$0				\$0	
SUBTOTAL		\$0				\$0	
LIVESTOCK	HEAD LOST	ESTIMATED COST			TOTAL	LOSSES	
BEEF CATTLE	0	\$0				\$0	
DAIRY CATTLE	0	\$0				\$0	
HORSES	0	\$0				\$0	
POLLTRY	0	\$0				\$0	
SHEEP	0	\$0				\$0	
OTHER	80	\$27,000				\$27,000	
SUBTOTAL	60	\$27,000				\$27,000	
OTHER DAMAGES**		ESTIMATED COST			TOTAL	LOSSES	
STORED PROCESSED AG PRODUCTS		\$890,000				\$890,000	
STRUCTURES***		\$6,250,000				\$6,250,000	
FIXED EQUIPMENT****		\$500,000				\$500,000	
PERSONAL PROPERTY(EQUIPMENT)****		\$2,000,000				\$2,000,000	
ROADS		\$5,000,000				\$5,000,000	
AGRIY PRODUCTS		\$75,000				\$75,000	
OTHER		\$0				\$0	
SUBTOTAL		\$14,715,000				\$14,715,000	
TOTAL LOSSES					19,744.60	\$18,572,744	

* THIS PRELIMINARY LOSS FIGURE CAN INCREASE DRAMATICALLY IF THE TREES FLOODED DO NOT RECOVER

** OTHER PRELIMINARY DAMAGES FIGURES ARE SUBJECT TO SIGNIFICANT ADJUSTMENTS ONCE ACTUAL DAMAGE AND LOSS IS DETERMINED

*** FIGURES USED ARE ASSESSED VALUES ONLY AND DOES NOT REFLECT THE ACTUAL COST TO REPAIR OR REPLACE.

COUNTY: YUBA		CONTACT PERSON: DENNIS POOLER, Commissioner			
FRUIT, NUT, FIELD & VEGETABLE CROPS	ACRES LOST	ESTIMATED COST	ACRES DAMAGED	ESTIMATED COST	TOTAL LOSSES
ALFALFA	80	\$160,000			\$160,000
ALMONDS					
APPLES			180	\$180,000	\$180,000
APRICOTS			2	\$2,000	\$2,000
ARTICHOKES					
ASPARAGUS					
BROCCOLI					
CABBAGE					
CARROTS					
CALIFLOWER					
CELERY					
CHERRIES			70	\$70,000	\$70,000
COTTON					
GARLIC					
LEAF LETTUCE					
OAT HAY/ALFALFA HAY	300 TONS	\$30,000			\$30,000
ONIONS/POTATOES					
ORANGES/LEMONS			4	\$4,000	\$4,000
OTHER					
PEACHES	20	\$351,000	2280	\$2,280,000	\$2,631,000
PEARS			970	\$970,000	\$970,000
PERSIMMONS	10	\$150,000	70	\$70,000	\$220,000
PLUMS/PRUNES	15	\$357,000	5400	\$5,400,000	\$5,757,000
RADISH					
SPINACH					
STRAWBERRIES	4	\$40,000			\$40,000
SWEET CORN					
TOMATOES					
WALNUTS	100	\$2,316,600	4280	\$4,280,000	\$6,596,600
WHEAT/BARLEY	185	\$92,500			\$92,500
WINEGRAPES					
KIWI			170	\$340,000	\$340,000
OTHER					
PECAN	60	\$240,000			
OATS	500	\$250,000			\$250,000
PASTURE			1200	\$240,000	\$240,000
SUBTOTAL:					\$17,583,100
NURSERY	TYPE OF LOSS	ESTIMATED COST			TOTAL LOSSES
CUT FLOWERS, FIELD FLOWERS, TURF, SOD, AND GREENHOUSE	VARIOUS	\$60,000			\$60,000
FORESTRY					
OTHER					
SUBTOTAL FOR CATEGORY					\$60,000
LIVESTOCK	HEAD LOST	ESTIMATED COST			TOTAL LOSSES
BEEF CATTLE	1000	\$1,000,000			\$1,000,000
DAIRY CATTLE	550	\$1,100,000			\$1,100,000
HORSES	100	\$150,000			\$150,000
POULTRY	1000	\$4,000			\$4,000
SHEEP					
APIARY	600	\$63,000			\$63,000
OTHER	300	VARIOUS			\$100,000
SUBTOTAL FOR CATEGORY					\$2,417,000
OTHER DAMAGES		ESTIMATED COST			TOTAL LOSSES
FARM BUILDINGS		\$4,000,000			\$4,000,000
FENCES		\$750,000			\$750,000
INFRASTRUCTURE		\$3,500,000			\$3,500,000
ROADS		\$600,000			\$600,000
PROCESSING BUILDINGS		\$9,000,000			\$9,000,000
PROCESSING EQUIPMENT		\$28,000,000			\$28,000,000
OTHER	PRODUCTS	\$8,000,000			\$8,000,000
SUBTOTAL FOR CATEGORY					\$53,850,000
TOTAL LOSSES					\$73,910,100

levees no barrier to developers

Planners insist upgrades will be made, but critics fear Valley's entire system is at risk

By Lance Williams
OF THE EXAMINER STAFF

OLIVEHURST, Yuba County — When the developers and politicians look south at the rice fields and prune orchards along the Feather River, they envision big things:

Housing tracts. Strip malls. Industrial parks. A bustling new city for 35,000 people.

But the helicopter pilots who began their emergency fly-overs at dawn Jan. 3 saw something quite different: a vast, muddy lake, 15 feet deep and 3 miles across.

This was the site of the worst single incident of the Great California flood of 1997 — when the Feather River, swollen to a depth of 77 feet, burst a problem-plagued levee on the night of Jan. 2, inundating 15 square miles of farmland.

The disaster killed three people, caused \$200 million in damage and forced 80,000 people from their homes.

But bad as it was, the disaster might have been far worse if the proposed new city of Plumas Lakes had been built before the waters rose.

The development, intended to serve long-haul commuters to Sacramento, was approved by the county supervisors here in 1993, but construction is not yet under way. More than two months after the levee burst, portions of the site still had water standing to the depth of eight feet.

The flooding at the Plumas Lakes project area is a scene that was repeated up and down California's great Central Valley, from Marysville to Fresno, during January's flooding.

In place after place, the high water inundated or threatened low-lying farmland where local officials have given the green light for large-scale urban development — housing tracts, new cities and even, in one case, a fantastic complex of four Disneyland-sized amusement parks.

If everything that has been approved had already been built, as many as 200,000 more people would have been at risk, according to a review of planning documents collected by The Examiner.

The Plumas Lake plan is "a total disaster," says Walter Cook, who lost a 15-acre walnut orchard, along with house and outbuildings, in the January deluge.

"I don't think you should build a subdivision in a sinkhole," he says. "It's an area that floods every time a levee breaks, and the more people who move in there, the more heartache you will create. People will be homeless. People will lose everything. And the developers who build it will be long gone."

Levee safety questioned

Local officials and developers insist that the projects they plan will be safe: levees will be upgraded to protect the new cities from future floods, they say.

"It is definitely thought that no one would go down there and develop anything until levee improvements are under construction," says Jim Manning, Community Development Director for Yuba County.

But development proponents make that claim even as some flood experts have begun an agonizing reappraisal of the safety of the state's levees, a 6,000-mile network of earthen walls and dikes that protect some 900,000 Californians from flooding.

The levees took an extraordinary battering in January: floodwater broke through in more than 80 places in the Valley, inundating about 250 square miles of farmland and towns, causing \$1.5 billion in damage.

FIRST OF
TWO
PARTS

To some experts, the real lessons of the flood may be that the levee system is simply not capable of protecting the rapidly urbanizing Valley at times of flood.

"The levee system isn't designed to protect property, it's mainly just designed to protect agricultural land, which is well suited for periodic flooding, anyway," says Erik Vink, California director for the American Farmland Trust, which works to conserve farmland.

Ann Riley, a former state Department of Water Resources scientist now with Berkeley's Coalition to Restore Urban Waters, says:

"We have allowed people to inhabit high-risk areas behind levees that aren't necessarily structurally sound, and the price tag to rebuild the entire levee system is absolutely prohibitive."

Given the staggering costs of this year's floods, many experts say California should try to minimize the impact of future deluges by turning to an approach that plans for occasional high water and diverts it from populated areas.

"You can't remove all the houses that are there, but you can direct flood water into bypasses, purchase key sites of land and direct the flows there," says Riley.

For the Central Valley, the experts envision relocating some levees, buying easements across low-lying farmland to restrict development and creating one or more new flood-control channels like Sacramento's Yolo bypass, a broad swath of lowland that is farmed in summer but carries high water away from the city during storms.

Such ideas imply that the state would restrict development in flood-sensitive areas. And that raises the hackles of local officials, who jealously guard their power to control zoning, and of home builders and real estate investors, who fear loss of their property rights.

At a legislative hearing convened in January by state Sen. Barbara Lee, D-Oakland, a California Association of Realtors lobbyist said his organization found the

idea of imposing new limits on development in flood-prone areas repugnant. The California Building Association's spokesman said his group would fight such restrictions.

"I told the committee that taking away somebody's property rights was repugnant to us," says CAR lobbyist Stanley Wieg.

But Douglas Vogt of Fresno's San Joaquin River Committee says: "County supervisors are permitting developers to build structures in areas where nature dictates nothing should be built. This is not in the public interest, because property owners look to the public purse to make them whole when natural disaster strikes."

Assistant U.S. Interior Secretary John Garamendi, a former San Joaquin County legislator, says:

"It is insanity to build in these flood zones, and for cities and counties to allow it is dead wrong."

The conflict between development and flood safety is being played out up and down the Valley. Among the hot spots:

► **Gold Rush City.** In 1989 the farming community of Lathrop, on the San Joaquin River south of Stockton, became a city.

Soon after that, Norman Jarrett, a visionary South African developer, pitched the new city council on a \$4 billion real estate project to be built around four Disneyland-style amusement parks — one of them with a '49ers theme.

More than 8 million people would visit "Gold Rush City" each year, the developer claimed in promotional material. The project would also include "a super-regional shopping center," three golf courses, an auto speedway with a grandstand for 120,000 racing fans, a sports arena for ice hockey or basketball, a hotel complex with 10,000 rooms, industrial parks and, finally, homes for 20,000 people.

Attracted by the promise of 30,000 new jobs and \$90 million in annual tax revenues, the city council enthusiastically rezoned a 5,500-acre riverside tract for the project. "Gold Rush City will put Lathrop on every tourist's itinerary," said Mayor Apolinar Sangalang.

The city council also rezoned some farmland to accommodate Mossdale Village, a residential project for 9,000 people. If everything is built, Lathrop's population of 9,000 will triple, and much of the open space between Stockton and Manteca will be urbanized.

Gold Rush City hit a snag last year when the California Farm Bureau Federation joined the Sierra Club in a lawsuit challenging the rezoning.

Project opponents said they were horrified by the plan to pave over the prime agricultural soils on the Stewart Tract, an island at the east end of the San Joaquin River Delta where Gold Rush City would be relocated.

Another hitch came Jan. 5, when levee breaks on the lower San Joaquin River downstream of where it was joined by the flood-engorged Tuolumne put much of the farmland west of Lathrop under water — including the site of Gold Rush City.

Two months later, portions of the development area are still flooded. The developer and Lathrop city officials told the Manteca Bulletin that the 1997 flood was irrelevant; long before Gold Rush City is built, massive levee improvements will be made to keep the project dry, they said.

But project opponent Eric Parfrey says that could shift flooding downstream to the city of Stockton, where January's high water put great pressure on levees, forcing the evacuation of one new 1,300-unit housing development.

Also, flood experts believe it is vital to keep Stewart Tract undeveloped to ease the impact of future floods, says Rudolph Platzek, author and regional planner.

"If we are to build a San Joaquin River bypass equivalent to the Yolo Bypass to take the pressure off the levees, it will need to pass right through Gold Rush City," he says.

► **The upper San Joaquin River bed.** Since 1947, the massive Friant Dam in the foothills east of Fresno has allowed the state to divert more than 90 percent of the water away from the channel of the upper San Joaquin River into a series of irrigation canals.

As a result of diversions, the river through the bluffs below the dam has run at only a trickle in all but the rainiest of seasons.

That has emboldened officials of the City of Fresno and Madera and Fresno counties to begin rezoning stretches of the riverbed for residential development.

So far, the Fresno City Council has approved "Scout Island," a subdivision for 11 upscale homes in the riverbed, and Fresno County supervisors have approved a 100-unit river bottom tract. Upstream, Madera supervisors have given approval for developing "Rio Mesa," a sprawling new city for 90,000 people. A 250-acre portion of that development, dubbed "Riverbend Ranch," abuts the river bottom.

Primary flood protection for the projects, all still unbuilt, is supposed to be provided by the enormous dam that impounds Sierra runoff into Millerton Lake.

But in January, the warm storms melted the Sierra snowpack, filling Millerton and forcing uncontrolled releases from the dam. The San Joaquin roared to life through the Fresno bluffs, wrecking a trailer park in the river bottom and surging past the sites of the subdivisions.

After the storm passed, local flood officials joined with preservationists to urge the City Council to enact an emergency building moratorium in the river bottom. They argued that the City Council needed to study public safety issues before issuing building permits, but the effort failed.

Councilman Ken Steitz accused proponents of hyping the flood danger, telling the Fresno Bee: "They were using that to deny somebody (the right) to build on their own property."

► **Yuba City-Marysville.** The Feather River downstream from its junction with the Yuba has been the site of six major floods in the past half-century.

Worst of all was the so-called "Gum Tree" break shortly after midnight on Christmas Eve 1955, when a levee that had been spouting geyser-like leaks for more than eight hours finally ruptured, flooding a vast agricultural area and killing 38 people.

In the 41 years since then, the state has spent millions upgrading the levees, and it's a good thing. Today, the former farmland at the foot of the very levee that gave way in 1955 is a checkerboard of subdivisions. All the projects were approved by the Yuba City Council in the past five years.

"One of them is called River Run, and it's aptly named," says Sutter County Supervisor Dick Akin, "because in 1955, the river ran right through where the development is now. It's a risky place to put homes, right on a levee."

Akin says opponents cited flood danger in an attempt to derail the projects, but the City Council approved them anyway. Voters later rejected two bond issues to build a high school in the area after opponents argued that the new school would eventually be wrecked by flooding, he said.

Many home buyers in the new tract are new to the area and "didn't realize what they were buying, until this winter," Akin says. Most of the year, the Feather is a placid stream, and if you've never seen it at flood, you can't imagine how powerful it can become, he says.

In the flood of 1997, leaks developed along the levee near Gum Tree, but the structures held. Instead, the break occurred downstream and on the opposite bank, above the Plumas Lake site.

Community Development Director Manning says the officials who approved the new town didn't feel it was necessary to make flood safety a development requirement, because developers would want that as much as anybody.

"I don't know that we would need to make it a requirement of anybody to have levee improvements before spending millions of dollars on an investment at risk," he said. "People are going to go, 'Wan't this under 15 feet of water in 1997?' Developers don't make all that money by not being clever."

But Richard Meehan, a Palo Alto engineer and flood expert, has studied the area's three most recent flood disasters — the 1955 and 1997 levee breaks, and another break in 1986 that caused \$500 million in damage. He doubts levee upgrades will solve the problem.

Meehan says the levees are built far out on the flood plain, atop an underground layer of gravel that is the river's prehistoric channel. In the trial of a lawsuit filed in connection with the 1986 flood, he testified that, when the Feather is at flood, water can move through the gravel far landward, undermining even the best-constructed levee.

"There definitely is a land-planning issue here," he says.

Examiner staff writer Steven A. Capps contributed to this report.

Tomorrow: Flood control in future.

Note: Examiner National Edition stories appear one day later.

19 Feb 97

PRESENTATION - JOINT CONGRESSIONAL FLOOD FORUM
Before Wally Herger, California Second Congressional District and
Vic Fazio, California Third Congressional District
At Community Veterans Memorial Hall, 1425 Circle Drive, Yuba City

By Donn Wilson, Yuba County Water Agency

Flood Control Efforts/Levee Reconstruction Panel

ONGOING EFFORTS

There are a number of on going efforts to restore and improve the reliability of flood protection in Yuba and Sutter Counties that need continued State and Federal support, both financial and getting through, over or under, the bureaucratic road blocks.

- o Complete the reconstruction of January 97 failed levees
- o Complete the restoration of levees as identified in the USACE 1990 Sacramento River Flood Control System Evaluation, Marysville-Yuba City Area Report.
- o Complete the 1991 USACE Feasibility Study to identify and support higher levels of Yuba County flood protection for the Yuba and Feather Rivers. Yuba County Water Agency (Y.C.W.A.) has contributed or committed \$1,750,000 to this effort.
- o Authorize and financially support the flood control levee betterment project that is ultimately recommended by the USACE Feasibility Study.

NEEDED EFFORTS

- o Remove or reduce regulatory obstacles that prohibit or impede maintenance of levees, and flood channels. Levees and flood channels are essential infrastructure and need to be primarily managed and maintained as such. Other uses such as wildlife habitat can be accommodated, but should have a secondary priority. An example is that for approximately ten years state and federal regulatory agencies have not allowed, or made the process so cumbersome, that aggregate companies no longer remove sand and gravel from accumulated bars in the Yuba River during summer low flow periods. As a result there has been a steady reduction in channel capacity.
- o The California Debris Commission was created and given the authority to provide facilities and channel maintenance to mitigate the downstream problems created by upstream hydraulic mining activity. On the Yuba River the residual mining material is still causing reduction of channel capacity that results in flooding of adjacent areas. Additionally, training walls and other Debris Commission facilities adjacent to the Yuba goldfields are not being maintained and in their current condition offer little protection from flooding. The disastrous Linda Flood in 1950 was the result of the Yuba River leaving its banks in the goldfields. The California Debris Commission has been eliminated, but its responsibilities have been transferred to the USACE. The USACE needs to request and the Federal and State Government need to fund the USACE responsibilities that it inherited from the California Debris Commission.
- o During the January 97 high flows on the lower Yuba River millions of cubic yard of material was eroded from training walls above Daguerre Point Dam and deposited in the river channel downstream. This has substantially reduced the channel capacity, greatly increasing the

chances of flooding. This build up resulted in the breach of interior levees, resulting in flooding and river channel relocation, resulting in substantial bank erosion. The bank erosion caused the loss of orchards and wildlife habitat. Adjacent property owners reported in excess of one hundred clumps of Elderberries were lost due to the bank erosion. Before any of the USACE levee restoration work could start, a \$1.9 million, eighty acre site had to be created to mitigate for 43 clumps of Elderberries that would be disturbed by the work! Funding needs to be provided for USACE to restore the river channel capacity.

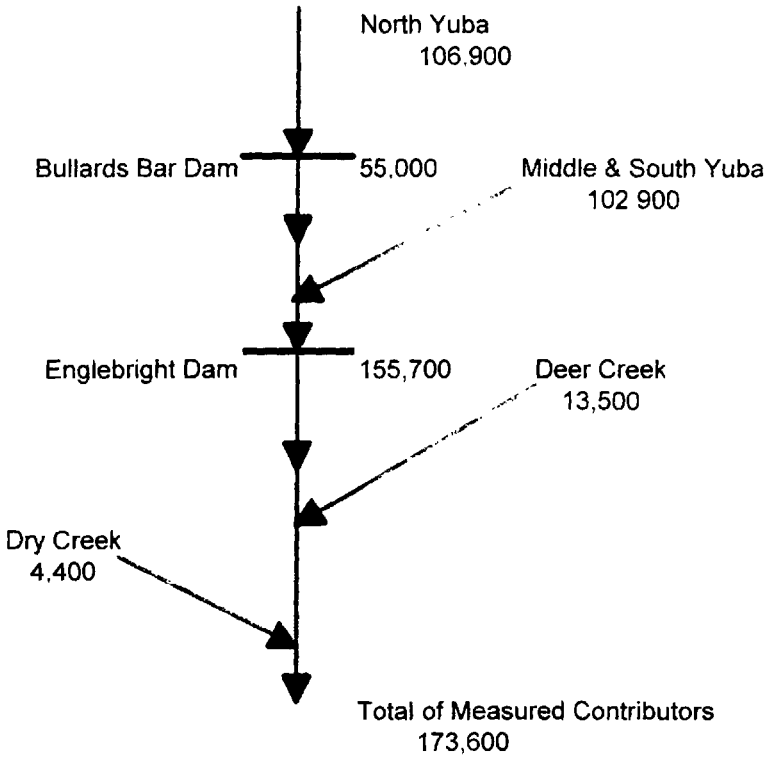
- o During the January 97 flood there were many instance of confusion as to who had responsibility for various levees. This usually resulted in delayed action or inaction, often resulting in additional damage and flooding. The USACE and/or the State Reclamation Board needs to prepare and disseminate maps that clearly identify all levee and flood control facilities and identify who has what responsibility with regard each facility.
- o To insure any reasonable level of flood protection for the Yuba and Feather Rivers, substantial increased channel capacity needs to be created from Highway 20 on the Yuba River to the Sacramento-San Joaquin Delta, or increased storage on the lower Yuba River. State and federal studies going back to the 1950s identified the quantity of needed flood storage for the Feather and Yuba Rivers. Of the identified needed storage Oroville and New Bullards Bar were built, but the third identified facility, the Marysville, or Parks Bar project did not get built. The Marysville Project is still a Congressionally authorized project. Recently updated YCWA estimates show that under several different scenarios a 640,000 acre foot reservoir at Parks Bar can provide 240,000 acre feet of additions flood space, provide an additional 355,000 acre foot average year and 160,000 dry year water supply, is

financially feasible and the loss of salmon and steelhead spawning habitat can be mitigated.

The Yuba River channel past Marysville is supposed to safely pass 120,000 cubic feet per second (cfs). Operation data from the January 97 flood shows a peak Yuba River flow past Marysville of 173,600 cfs. A YCWA model simulation shows that with 240,000 af flood storage at Parks Bar, the peak Yuba River flow past Marysville would have been 106,500 cfs.

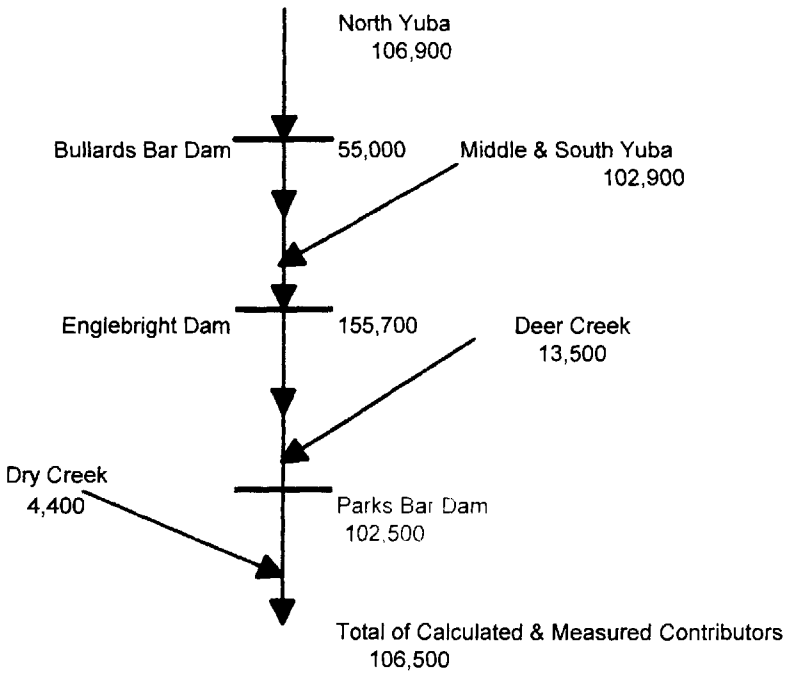
- o The greatest need and the greatest help that can be provided, is for state and federal resource and regulatory agencies to constructively work with local efforts to sustain or improve flood protection, not work against it, as too often currently happens. We are not asking that laws be ignored, only interpreted and implemented as originally intended by the legislatures. We ask that the resource and regulatory agencies' staff, each and all, approach flood protection needs by asking themselves, what can I do to help this get done.

Jan 97 Yuba River Flows In CFS



Channel capacity at Marysville 120,000 CFS

Jan 97 Yuba River Flows In CFS With 240,000 AF of Hypothetical Storage Available at Parks Bar



Channel capacity at Marysville 120,000 CFS

COMPARISON OF AVERAGE ANNUAL RUNOFF AND TOTAL GROSS STORAGE
for Major Central Valley Rivers

	Average Annual Runoff (MAF) ¹	Number of Reservoirs	Total Major Reservoir Capacity (MAF)	Ratio
Putah Creek (Near Winters)	0.38	1	1.60	4.21
Stanislaus (Inflow to New Melones)	1.13	7	2.87	2.54
Calaveras (At Jenny Lind)	0.16	1	0.32	1.94
Tuolumne (Inflow to New Don Pedro)	1.84	6	2.76	1.50
Cache Creek (Above Rumsey)	0.50	2	0.61	1.21
Feather (Inflow to Oroville)	4.44	11	5.24	1.18
Mokelumne (Inflow to Pardee)	0.73	4	0.83	1.14
Merced (Inflow to Exchequer)	0.97	1	1.02	1.05
Sacramento (Inflow to Shasta)	5.68	6	4.70	0.83
Kern (Near Bakersfield)	0.71	1	0.57	0.80
Kings (Inflow to Pine Flat)	1.63	3	1.25	0.77
American (Inflow to Folsom)	2.66	9	1.80	0.68
San Joaquin (Inflow to Millerton)	1.74	8	1.14	0.65
Sacramento (Above Bend Bridge)	8.30	8	4.97	0.60
Yuba (At Smartville)	2.33	7	1.37	0.59
AT MARYSVILLE GAGE	2.40			0.56
Tule (Inflow to Success)	0.14	1	0.08	0.59
Stony Creek (At Black Butte)	0.42	3	0.24	0.57
Bear (Inflow to Camp Far West)	0.32	2	0.17	0.53
Kaweah (Inflow to Terminus)	0.43	1	0.14	0.33
Cosumnes (At Michigan Bar)	0.37	1	0.04	0.11

¹1921-1983 base period from Department of Water Resources Division of Planning Office Report "California Central Valley Unimpaired Flow Data," February, 1987 and from the California Cooperative Snow surveys.

Difference Between Total Storage and Annual Average Runoff

	Average Annual Runoff Acre Feet	Existing Storage Acre Feet	Difference Acre Feet
Sacramento at Shasta	5,680,000	4,700,000	980,000
American at Folsom	2,660,000	1,800,000	860,000
Yuba at Daguerre Point	2,460,000	1,370,000	1,090,000

CALIFORNIA LEGISLATURE

SACRAMENTO, CALIFORNIA 95814

BILL LOCKYER
PRESIDENT PRO TEMPORE
OF THE SENATE
STATE CAPITOL, ROOM 209
SACRAMENTO, CA 95814



CRUZ M. BUSTAMANTE
SPEAKER
OF THE ASSEMBLY
STATE CAPITOL, ROOM 219
SACRAMENTO, CA 95814

February 11, 1997

President Bill Clinton
White House
1600 Pennsylvania Avenue
Washington, DC 20500

Dear Mr. President:

We appreciate all of the support that your Administration has extended to California during our most recent major disaster. Recovering from the floods will be a long and difficult task; however, the federal aid received by the state, local governments and individuals will go a long way to help people rebuild their communities.

As we assess the damage, and look for ways to reduce damage from the next flood, we believe it is important to have an *independent assessment* of how the state and federal flood control systems and response can be improved. While the U.S. Army Corps of Engineers and California Resources Agency may examine their own operations, we believe an independent evaluation with a broader scope would be more comprehensive than one done by those who were in charge of the flood control systems.

The federal government, through the Army Corps, runs the state's flood system, and the federal government pays a lion's share of the disaster losses; therefore, it makes sense to us that your Administration should oversee the study that will forward recommendations to you, Congress, Gov. Wilson and the California state Legislature.

Thank you for your consideration.

Sincerely,

Cruz M. Bustamante
Speaker of the Assembly

Bill Lockyer
Senate pro Tempore

cc: Senator Dianne Feinstein
Senator Barbara Boxer

Congress of the United States
Washington, DC 20515

February 24, 1997

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

As citizens of Northern and Central California communities continue putting their lives back together in the aftermath of the January floods, we want to take this opportunity to thank you and the many Federal employees of FEMA, the Bureau of Reclamation, the Corps of Engineers, and other Federal agencies who have provided critical assistance to flood victims.

We also want to express our strong support for the suggestions made in the February 11, 1997, letter to you from the leaders of the California Legislature, Assembly Speaker Cruz M. Bustamante and Senate President Pro Tempore Bill Lockyer. In their letter, the suggestion is made to conduct an "independent assessment of how the state and federal flood control systems and responses can be improved". It is further suggested that your Administration should oversee such a study, and that recommendations for possible improvements should be made to you, Congress, Governor Wilson, and the California State Legislature.

We believe most agencies already have sufficient authority to participate in this assessment, and we encourage you to quickly assemble the necessary personnel to conduct this assessment. As you consider this suggestion, please feel free to contact us at any time regarding the scope of the study or other details.

We sincerely appreciate your efforts to improve the responsiveness of Federal agencies to flood events, and we look forward to an opportunity to work with your Administration in addressing these matters.

Sincerely,


GEORGE MILLER


GEORGE BROWN, JR.


NANCY PELOSI


ROBERT MATSUI

The President
February 24, 1997
Page Two



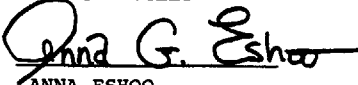
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PETE STARK



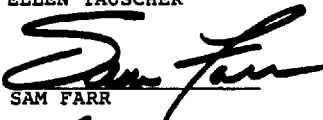
CALVIN DOOLEY



ANNA ESHOO



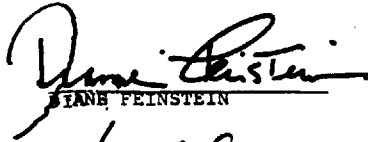
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SAM FARR



Walter Capps



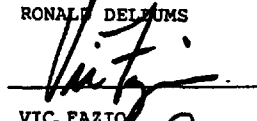
STANE FEINSTEIN



HOWARD BERMAN



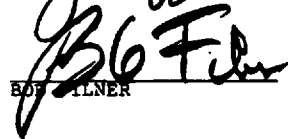
RONALD DELLUMS



VIC FAZIO



ZOE LOFGREN



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COMMITTEES:
ATTENTION:
BANKING, HOUSING, AND
URBAN AFFAIRS
SUBJECT:
EMERGENCY
AND PUBLIC WORKS

United States Senate

HART SENATE OFFICE BUILDING
SUITE 111
WASHINGTON, DC 20510 0505
(202) 224-3443
srboker@senator.senate.gov
http://www.senate.gov/~srboker

February 20, 1997

Steve

The President
The White House
Washington, DC 20500

Dear Mr. President:

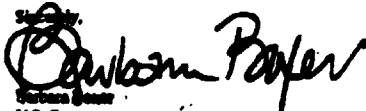
I am writing to support the request by California's legislative leaders for an independent assessment of how state and Federal flood control systems and response can be improved in the wake of the devastating floods of January, 1997.

I understand that California's Assembly Speaker Cruz Bustamante and Senate President pro Tempore Bill Lockyer wrote to you on February 11, asking for a comprehensive evaluation of state and Federal responses to the California floods. I believe such an evaluation would be useful in determining the lessons we have learned and how Federal, state and local agencies can work better in the future to reduce the loss of lives and property from such disasters.

As you know, an intragency task force study was undertaken by retired U.S. Army Corps of Engineers Brig. General Gerald Galloway after the Midwest floods of 1993, and made key recommendations for floodplain management. In California's case, we have a sophisticated system of flood management in some areas upstream of areas which do not have the same capability to handle substantial floods. In addition, many Federal agencies are involved in flood control efforts, including the U.S. Army Corps of Engineers, the Federal Emergency Management Agency, the Bureau of Reclamation, the U.S. Fish and Wildlife Service and the National Weather Service, in addition to a myriad of state and local agencies.

I am concerned that, without a formal study of how success facilities and policies may have affected a disaster, we will not learn from our mistakes.

Thank you for your consideration of the leaders' request.

Sincerely,

Barbara Boker
U.S. Senator

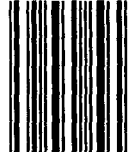
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