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Final Report
Indigenous Community Enterprises
Navajo Hogan Project

March 2003--November 2005

Grant No. 03-DG-11031000-014

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Background of the Project

In 2000, leaders from western Navajo communities joined with sustainable forestry advocates to create a new organization called Indigenous Community Enterprises (ICE). A major focus of ICE's initial work was to identify and develop new uses for small diameter trees being removed as part of forest restoration and wildfire reduction treatments that would create new economic opportunities in tribal communities.

Through work with elders and others, ICE eventually developed a traditional hogan design incorporating these materials. In 2002, they established an efficiency manufacturing facility in Cameron, Arizona to begin producing hogan kits using these materials. ICE's manufacturing process was highly automated and created a uniform dimension log building material that greatly reduced the time required for hogan construction.

Navajo communities in New Mexico expressed interest in exploring the development of a similar facility. With the advent of the Collaborative Forest Restoration Program, several of these communities began working with ICE to develop a proposal for establishing a hogan building program in New Mexico. ICE staff were aware from the outset that there were a number of important unknowns that would effect the strategy for developing such a program. These included the need for better information on the available forest resource, and uncertainties about the size of the demand for such products. ICE was also interested in the potential to recruit a trained workforce in New Mexico who would be able to construct ICE's hogan kits.

Consequently, ICE staff recommended that the first phase of the program focus on log processing and building systems that required less machinery and initial capital investment. ICE also recruited a non-profit local to New Mexico, Earth Works Institute, to begin working with the program. The proposal to the CFRP program was funded but the portions relating to developing forest thinning projects were dropped by the review committee. The panel recommended that ICE and Earth Works focus exclusively on hogan construction and related training and technical assistance.

Program Participants

The Ramah Navajo Weaver's Association and the Torreon/Starlake Chapter of the Navajo Nation were the initial New Mexico Navajo communities that worked with ICE and Earth Works to develop the first round funding proposal. Each of the initial partner organizations are described briefly below.

Indigenous Community Enterprises—ICE was founded in 2000 by a consortium of Native leaders and community development and forest specialists to establish new opportunities for Native communities to participate in forest stewardship and wood products enterprises. ICE established the Hogan Housing Program which was eventually recognized and incorporated into Navajo Housing Authority's housing development program. ICE also established a manufacturing facility in Cameron, Arizona to process small diameter logs into log building and hogan home kits. ICE is based in Flagstaff, Arizona.

Earth Works Institute—Earth Works Institute is based in Santa Fe, New Mexico. Earth Works specializes in the development and coordination of land restoration

and sustainable land management programs throughout northern New Mexico. Earth Works had previously worked with the Torreon/Star Lake Chapter in developing training and implementation programs around arroyo restoration and re-vegetation projects.

Ramah Weaver's Association—The Weaver's Association brings together traditional Navajo weavers to create both economic and cultural development activities on the Ramah Navajo reservation area southeast of Gallup, New Mexico. Ramah Chapter has extensive holdings of Pinon-Juniper woodlands and has traditionally used portions of the Zuni Mountains.

Torreon/Star Lake Chapter, Navajo Nation—The Torreon/Star Lake Chapter (Na'neel zhiin) of the Navajo Nation is located 28 miles southwest of Cuba, New Mexico. It has a cultural affiliation with the forests now managed by the Cuba Ranger District of the Santa Fe National Forest.

Program Objectives

The program developed in collaboration between the four groups described above had six major objectives:

1. Create a collaborative project management framework that coordinated the perspectives and resources of both the technical assistance organizations and the two local communities.
2. Develop a low-cost log processing and building system for hogans and test/demonstrate this in two communities.
3. Identify opportunities for job/enterprise development associated with log procurement and utilization.
4. Provide training and technical assistance for individuals interested in pursuing opportunities in forestry or wood products.
5. Evaluate potential markets for hogans and other wood products produced from small diameter trees.
6. Build two hogans as demonstrations and training programs in the two participating communities.

Program Experience and Outcomes

ICE's Navajo Hogan project had four distinct phases of activity. A brief description of each phase is followed by a summary of the overall program outcomes listed by program objectives.

Phase I: Program Launch and First Construction—March '03—December '03. During the first phase of the program, the project steering committee was established and began meeting and planning its first activities. Enthusiasm and engagement by community members was high throughout this period. Early in this phase, the first construction site was identified in the Torreon/Star Lake Chapter. Because the site was located on the existing Chapter's compound, there were no additional clearances or approvals necessary. This greatly streamlined the planning and preparation process. The significance of this benefit would become even clearer in contrast to the many challenges faced in attempting to secure a building site in the Ramah Navajo area.

During the first phase, ICE staff also researched and eventually formulated a low-technology strategy for hogan construction that would require far less capital expenditures than ICE's more highly automated approach at its Cameron facility. The goal of ICE's system design for this project was to make all essential components of equipment and technique accessible to individuals with limited financial resources and prior experience. The system ICE developed was based on using a small inexpensive portable sawmill, slabbing logs on two sides for easy stacking, utilizing a simple "butt-and-pass" corner system for the structure, and integrating vertical threaded rods within the log walls to allow for construction using "green" logs with relatively high moisture content.

Also during this phase, both communities organized work groups to go into the forest and obtain building logs. This process required extensive contact and coordination between the local Navajo communities and their adjacent Forest Service land managers. This interaction was a part of the initial objectives of the program and took place in a manner that improved both familiarity and relations between the Agency and the local communities.

During the final months of 2003, the first two-week hogan workshop was successfully organized and completed. In 12 days, a group of 8 trainees went from raw logs to a completed hogan shell that was roofed and weather-tight. All parties to the project felt the first phase of the program had been a substantial success.

Phase II: Community Capacity Building—January '04—December '04. With the successful completion of the program's first hogan, ICE and Earth Works began developing the community capacity building elements of the program. A small business training series was created that was designed to build on the small business training that had been conducted as part of evening classes during the fall hogan construction. Earth Works also took the lead in starting to develop forestry training and apprenticeships for members of the Torreon/Starlake Chapter. During this period, Ramah was also working to identify a suitable site for the construction of its workshop hogan. Additionally, the Torreon Chapter officials raised the funds for a BP solar power system for the Hogan completed at their Chapter House, and had this successfully installed during the year 2004.

During phase II a number of challenges began to surface. First, attendance at the business training workshops was disappointingly low. It became clear that without guarantee of immediate employment opportunities following from participation in the workshop, potential participants were not motivated to attend the trainings. This was confirmed by the success of subsequent on-the-job training programs in which community members were linked to on-site apprenticeships with Jemez Pueblo's Wallatowa Woodlands forestry enterprise, and later with American Forest Products' thinning operations on the Cuba Ranger District.

The second challenge during this period was the inability to maintain consistent project leadership among participants. Several participants who appeared highly motivated to become leaders in developing forestry enterprises suddenly dropped out of the program for a variety of personal issues and challenges.

The third challenge that became more evident towards the end of this period was the inability of the Ramah Navajo community to successfully secure a building site.

Repeated delays in scheduling the second hogan construction caused most of the first workshops participants to withdraw from active participation in the program.

One of the new developments during this phase was the emergence of a multi-tribal association of Ramah Navajo, Jemez Pueblo, Zuni Pueblo and Torreon/Star Lake representatives who began exploring the potential for joint development and marketing of new wood products.

Phase III: Challenges and Barriers—Jan '05—June '05. The difficulties experienced in phase II continued to grow in the third phase of the program. The loss of momentum in building the second hogan, coupled with repeated difficulty in maintaining consistent local leadership in one of the communities made it difficult to sustain program activity during this period. The Weaver's Association continued to struggle to secure a site and all of the clearances and approvals necessary to proceed with planning the hogan building workshop. The workshop was postponed two more times during this period as the Weaver's attempted to get all of the necessary administrative approvals for their project. An alternate Navajo community (the Haystack Chapter near Grants) also dropped out during this period leaving the project no option but to wait for Ramah's administrators to finally decide whether to proceed.

Despite these setbacks, several work sessions were organized with worker/trainees from the Torreon/Star Lake community who secured more logs for subsequent constructions. During the course of phase II and III, these workers removed and prepared over 450 logs.

Phase IV: Second Construction Scheduled & Program Completed. Finally during the late summer of 2005, the Weaver's Association was able to secure all of the final clearances and approvals and proceeded with planning for the second hogan construction workshop. Design modifications were also created prior to the construction based on the desired building characteristics of the Weaver's members. This included developing a new floor system that elevated the floor off the ground, and a ceremonial earth area which created a column of soil connected to the earth below for use in traditional ceremonies.

The construction process for the second hogan contained a number of unexpected difficulties due largely to the ineffectiveness of the contractor hired to prepare the site and build the structures foundation. Confusion also arose over requirements for soil testing that further delayed the workshop leaders from starting wall construction despite the workshop already being underway. All of these challenges were eventually assimilated, and the structure was successfully completed. With the completion of this second hogan, the final requirement of the program grant was satisfied and the program was officially completed.

Summary of Outcomes

A brief summary of the measurable outcomes of this project is as follows:

- 23 people were hired for some duration of time during this project to participate in forestry, wood procurement and processing or construction activities.
- 16 individuals completed one or more of the following training programs:
  - Thinning and forestry services
  - Log procurement
  - Hogan construction
  - Business training
  - Logging machinery fabrication
- Two training curriculum/programs were developed
  - Hogan construction
  - Small business training
- A cost analysis was completed on a low-tech log building system
- 2 completed ceremonial hogans were constructed

Lessons Learned

Extensive summaries of the lessons learned from the two hogan construction workshops are included as appendix items to this report. Much of what follows is excerpted from these reports. In addition to the lessons learned from the coordination of these workshops—the primary activity of this program—the following section also includes observations regarding broader community capacity issues that had substantial influence over the conduct of this effort.

Community Capacity—The original strategy created by ICE and Earth Works staff was based on the intention to build local leadership in each of the two communities that would take an increasingly larger role in coordinating and developing local program activity. The grant was also written with the intention that the two communities would be entirely responsible for all of the pre-workshop organization and preparation specific to their respective communities. Through the course of the almost three years that transpired during this program, a number of consistent dynamics occurred which should be considered by any subsequent program of this type.

1. *Event Organizing*--Communities assumed responsibility for organizing local logistics for trainings and workshops. Frequently, however, competing priorities resulted in these organizing efforts being delayed or incomplete. It is important to provide substantial lead time for event organizing, clear written agreements and plans prior to starting the process, and frequent voice or personal follow-ups to insure actions are being taken or obstacles are being identified and addressed.
2. *Program Coordination*—Often the most capable and interested local partners are already substantially overcommitted with competing responsibilities. It was helpful to provide some match funding to cover some of the time of these coordinators. However, because these activities and funds do not result in a full-time position, program organizers needed to be vigilant to insure that timelines were being met. Again, clear written understandings with regular and agreed to times for check-ins with local counterparts were essential to maintain program momentum.

3. *Construction Coordination*—Crucial preliminary tasks surrounding foundation installation were intended to be a part of the partner's match. However, particularly given the sensitivity to accurate foundation layout in the 8-sided hogan structure, program staff had to take a much more directive role in planning and implementation of foundations than was anticipated, particularly in Ramah where the Weaver's Assoc. requested a much more complex foundation system.
4. *Infrastructure*—Community infrastructure turned out to be a major issue in this program. The first set of logs secured for hogan construction was stored in a locked warehouse that was subsequently flooded, because it was located in an ephemeral floodplain. Finding secure locations for machinery, tools or materials was also consistently a challenge, particularly in later parts of the program in which equipment purchases were being contemplated. This problem was particularly pronounced at public facilities. Careful assessments of community infrastructure are necessary prior to any program implementation to insure that sufficient basic capacity is in place to insure that the program activities will not be compromised by insecure or insufficient site resources.
5. *Local Leadership*—There are two major areas of leadership which proved to be important and sometimes challenging for this program. At the program level, it was essential to have strong local advocates who took responsibility for acting as intermediary between the program staff and the local communities. In both Ramah and Torreon, strong program leadership was in place during the first phase of the program. As the program progressed, however, competing local priorities made it increasingly difficult for these local coordinators to maintain consistent participation in the program. At the same time, one of the biggest challenges encountered in this program was the inability to sustain project level leadership among trainees. This resulted in local coordinators having to repeatedly restart the process of identifying and training project coordinators/teamleaders.

Participant Capacity—One of the most challenging aspects of this project was the many difficulties experienced in attempting to develop consistent participation and leadership at the project level. A major goal of the project was to identify potential work/enterprise opportunities associated with the harvest and use of small diameter materials. A wide variety of different opportunities were created for local participants to receive training in forestry and wood products related activities and business training. Only a few of these individuals participated consistently in these opportunities. An important lesson learned from this experience is to more carefully understand the economic and cultural context of participants. In most cases, Navajo participants have limited economic options. One of the common strategies in rural and tribal communities for this sort of situation is to maintain a broad range of activities. On one day a person might gather firewood, on another tend horse, on another work construction. This is both an economic necessity, and in many cases a strong preference due to other social and cultural obligations that make it difficult to maintain conventional 40hr/week employment patterns.

By expecting our participants to set aside this pattern of diversified employment in order to participate in the structure of training and work we had created was unrealistic, particularly since the alternatives we were proposing were not yet demonstrated as consistent and reliable. Future programs would need to recognize these economic and cultural aspects in how program opportunities are designed. Periodic or seasonal programs seem to have a high probability of success in these situations.

Log Building Systems—The log building system utilized in this project was developed with the intention of reducing the initial capital cost of equipment required, and keeping the necessary skill levels relatively low. We were also designing the system around a very low value material—small diameter ponderosa pine. From the standpoint of creating a functional system of building using small diameter logs, low cost machinery and lower skill requirements, the program was a success. However the structures built were still more expensive than the likely market for such structures can bear. At a completed cost of over $20,000 for an unfinished log shell (with roof), the structure is far beyond the means of most of those who would like to have a ceremonial structure. The low insulating value of the small diameter logs further disqualifies the structure as a residence, at least in any context in which a portion of the funds used for its construction would come from government or private sector financing that requires the building to meet basic building codes.

Consequently, we have come to the conclusion that log hogan construction utilizing small diameter logs is not likely to be a useful strategy for creating structures that are financially accessible to a broad segment of the Navajo population. For this reason, constructions in the second phase of this project are looking at new building systems that utilize logs in structural applications but integrate less expensive local materials for walls and insulation.

The other major issue effecting the design and building cost of the hogans in this program was the foundation system. In the Torreon case, a simple grade-beam on gravel trench provided a very functional and cost effective means of putting in a foundation. The floor of the structure could then be finished in a number of different local materials including sand, adobe, or adobe bricks. However, when either a concrete floor or footer-stemwall-wood floor system is utilized, the cost of the overall structure is increased by $6,000-8,000. This is a significant issue if the goal is affordable building.

Workshop/Training Procedures—Overall, we believe the 2-3 week intensive workshop format that was utilized in this program was very successful. Participants remained very engaged throughout the process, despite not only working all day, but typically attending an additional 2-3 hours of class in the evenings. A major reason for this sustained enthusiasm was the tangible progress that participants were able to see take place each day and the sense of accomplishment that having a completed structure provides at the end of the program. We now believe that a program that could offer a series of 2-3 week workshops spread out over a 1-2 year period with remote study coordinated from local computer sites in the interim could be a very effective model. The best combination would be to have such a program followed immediately with placement in a business or organization in which these skills are immediately put to use.

Conclusion and Recommendations

One of the major goals of this program was to reestablish a link between Native communities and the National Forests now managing lands that were once a part of their traditional use lands. We believe this program has been a useful step forward in this way. By using the products from these lands as part of a demonstration program that built a

structure (hogan) with traditional cultural significance, the value of this opportunity was enhanced for both participants and local community members.

It now appears, however, that conventional log structures, when built in the manner utilized in this project are not likely to be economically viable as a product that can create new business or job opportunities. It does appear that with modification, log frame systems using other lower cost and more energy efficient materials could achieve this objective.

It is also clear that any economic development program must consider the economic survival strategy already well established for most of those who are thought to be potential beneficiaries. A successful program must either orient its opportunities to fit into this diversified livelihood strategy, or offer something that is clearly more beneficial—better paying, more stable, congruent with local family/community needs.

One of the most promising efforts in this program was the linking of program participants with existing forestry and wood products enterprises. With the introductory experiences and skills that this program provided, we believe these placements have a higher likelihood of success.

Appendix 1: Monitoring Report—Torreon/Star Lake Chapter

Monitoring Chart CFRP Capacity Building Program
Torreon/Star Lake Chapter

Goal 1.

INDICATORS:
1.1. Reduction in the amount of vandalism and graffiti.
2.2. Change in number of stories being told in the community.

MEASURE: How many incidents of vandalism and graffiti or other signs of disrespect to the environment are reported? What is the percentage of change? How many people know the stories about the mountains, the environment, hogans, etc. and are more respectful to the environment? What is the percentage of change?

	Baseline: 2/03	1/15/04	1/15/05	1/15/06	1/15/07
# Incidents reported of disrespect (vandalism, graffiti, etc.).	Dropped this indicator				
# People who know the stories.	TBD	TBD	TBD		
# Times that stories are being retold.	20	25	30		
TOTAL					
Percent change (from baseline)		125	150		

Stories: M= Mountain, E=Environment, H=Hogans

Name of reporter (elder or police)	Vandalism Incident	Story	Years tallied
Willie Barboan		MEH	03, 04, 05
John, Juanita Mace		MEH	03, 04, 05
Jose Toledo		MEH	03, 04, 05
Joe Montoya		MEH	03, 04, 05
Yazzie Tasuchine		MEH	03, 04, 05
Ida Mae Jack		MEH	03, 04, 05
Louise Toledo		MEH	03, 04, 05
Nellie Cayeditto		MEH	03, 04, 05
Ben Mestas Sr.		MEH	03, 04, 05
Mary J. Sandoval		MEH	03, 04, 05

Name of reporter (elder or police)	Vandalism Incident	Story	Years tallied
Mary L. Sandoval		MEH	03, 04, 05
Hoskie Pinto		MEH	03, 04, 05
David Walters		MEH	03, 04, 05
Laura Woody		MEH	03, 04, 05
Sam Charley		MEH	03, 04, 05
Frank Martin Jack		MEH	03, 04, 05
Gladys Pinto		MEH	03, 04, 05
Levi Sandoval		MEH	03, 04, 05
Joe C. Sandoval		MEH	03, 04, 05
Joe T. Sandoval		MEH	03, 04, 05
Bargor Castillo		MEH	03, 04, 05
Larcy Barboan		MEH	03, 04, 05
Ambrose, Mary Trujillo		MEH	03, 04, 05
Mary A. Cayaditto		MEH	03, 04, 05
John B. Toledo		MEH	03, 04, 05
James Toledo I		MEH	03, 04, 05
Rose Trujillo		MEH	03, 04, 05

NOTES:

1. Vandalism dropped as indicator due to lack of recorded data.
2. Table to be completed with data on young people who know the stories (Sam Sala, etc.).
3. Data based on polls during community/Chapter meetings.

Monitoring Chart CFRP Capacity Building Program
Torreon/Star Lake Chapter

Goals 2 and 3:

INDICATORS:
2.1. Change in number of people with building skills in the community.
3.2. Change in number of log home builders and/or contractors in the community.

MEASURE: How many trained and certified builders and/or licensed contractors are there in the community?

	Baseline: 2/03	1/15/04	1/15/05	1/15/06	1/15/07
# Trained (not certified or licensed) builders and contractors	40 (PEP)	45 (PEP + CFRP)	50 (PEP + CFRP)		
# Trained/Certified builders	1 (Jerry Darnell)	1 (JD)	1 (JD)		
# Trained/Licensed contractors	2/1	2/1	2/1		
TOTAL	40	45	50		
Percent change (from baseline)		112.5	125		

Name	Builder/Contractor	Certified/Licensed	Years tallied
Darrell Mariana	B	C 2003	03, 04
Gerald Mariana	B	C 2003	03, 04
Alfonso Lopez	C	L	03, 04
Jimmy Chavez	C	L	03, 04
James Gordo	B	C	03, 04
Torreon/Star Lake Chapter PEP	40 trained builders	0	03, 04, 05

NOTES:

Monitoring Chart CFRP Capacity Building Program
Torreon/Star Lake Chapter

Goal 2.

INDICATORS:
2.2. Change in number of people in forest-based businesses.

MEASURE: How many people of the Torreon/Star Lake Chapter are involved in a forestry, woodworking and/or log home or hogan construction business?

	Baseline: 2/03	1/15/04	1/15/05	1/15/06	1/15/07
# People involved in forestry/crew business.	4	11	15		
# People involved in woodworking, sawmill, etc. business.	0	0	0		
# People involved in log home or hogan construction business.	0	0	0		
TOTAL	4	11	15		
Percent change (from baseline)	0	275	375		

Name	Forestry/Wood work/Log Building	Certified/Licensed	Years tallied
Paul Pinto	Forestry	N/A	03, 04, 05
Harvey Toledo	Forestry	N/A	03, 04, 05
Ross Willito	Forestry	N/A	03, 04, 05
Tormey Sandoval	Forestry	N/A	03, 04, 05
Paul Castillo	Hogan	N/A	04, 05
Ernie Castillo	Hogan	N/A	04, 05
Sam Sala	Hogan	N/A	04, 05
Jackson Sandoval	Hogan	N/A	04, 05
Tully Trujillo	Hogan	N/A	04, 05
Delbert Nez	Hogan	N/A	04, 05
Edison Lopez	Hogan	N/A	04, 05
Larrison Castillo	Hogan	N/A	04, 05
Frederick Jim	Hogan	N/A	04, 05
Gregory Toledo	Hogan	N/A	04, 05
Denny Sandoval	Hogan	N/A	04, 05

Monitoring Chart CFRP Capacity Building Program
Torreon/Star Lake Chapter

Goal 2.

INDICATORS:
2.3. The increase in the number of people asking the FS, BLM, and NN for wood products.

MEASURE: How many people received a wood harvesting permit from the FS, BLM and NN in the last year? How much is the percentage increase/decrease compared to the previous year?

	Baseline 2/03	1/15/04	1/15/05	1/15/06	1/15/07
# of Permits given by FS, BLM, NN to people of Torreon Chapter	50	80	100		
% change		160	200		

NAME	Permit date	Wood Products Harvested	Volume of wood
Helen Domingo	02/16/04	Standing dead firewood	2 truck loads/mth
Fannie Toledo	02/16/04	Standing dead firewood	2 truck loads/mth
Pauline Sandoval	02/16/04	Standing dead firewood	2 truck loads/mth
Cecilia Sandoval	02/16/04	Standing dead firewood	2 truck loads/mth
Ella Mae Sandoval	02/16/04	Standing dead firewood	2 truck loads/mth
Elsie Sam	02/16/04	Standing dead firewood	2 truck loads/mth
Clara Castillo	02/16/04	Standing dead firewood	2 truck loads/mth
Mary A. Cayaditto	02/16/04	Standing dead firewood	2 truck loads/mth
Benny Sandoval	02/16/04	Standing dead firewood	2 truck loads/mth
Woody Castillo	02/16/04	Standing dead firewood	2 truck loads/mth
John Mace	02/16/04	Standing dead firewood	2 truck loads/mth
Laura Woody	02/16/04	Standing dead firewood	2 truck loads/mth
Rose Castillo	02/16/04	Standing dead firewood	2 truck loads/mth
Danny Sandoval	02/16/04	Standing dead firewood	2 truck loads/mth
Sam Chiquito	02/16/04	Standing dead firewood	2 truck loads/mth
James Toledo	02/16/04	Standing dead firewood	2 truck loads/mth
Kaiser Toledo	02/16/04	Standing dead firewood	2 truck loads/mth
John B. Toledo	02/16/04	Standing dead firewood	2 truck loads/mth
Louis M. Toledo	02/16/04	Standing dead firewood	2 truck loads/mth

NAME	Permit date	Wood Products Harvested	Volume of wood
Susie Sandoval	02/16/04	Standing dead firewood	2 truck loads/mth
Marion Toledo	02/16/04	Standing dead firewood	2 truck loads/mth
Catherine Willeto	02/16/04	Standing dead firewood	2 truck loads/mth
Charley Castillo	02/16/04	Standing dead firewood	2 truck loads/mth
Anna Cayaditto	02/16/04	Standing dead firewood	2 truck loads/mth
Fannie Sandoval	02/16/04	Standing dead firewood	2 truck loads/mth
Joe Montoya	02/16/04	Standing dead firewood	2 truck loads/mth
David Walters	02/16/04	Standing dead firewood	2 truck loads/mth
Willie Montoya	02/16/04	Standing dead firewood	2 truck loads/mth

NOTES:

Monitoring Chart CFRP Capacity Building Program
Torreon/Star Lake Chapter

Goal 3.

INDICATORS:
3.3 Change in the number of completed or finished hogan projects in the community.

MEASURE: How many buildings (esp. hogans) were finished and how many remained unfinished in the community in the last year?

	Baseline 2/03	1/15/04	1/15/05	1/15/06	1/15/07
# of buildings began this year	0	>2	3		
# of completed buildings	0	>1	1		
# of hogans began this year	0	2	0		
# of hogans completed this year	0	1	0		

NAME				
Torreon Chapter				

NOTES:

Data on buildings to be increased by counting all construction projects

Monitoring Chart CFRP Capacity Building Program
Torreon/Star Lake Chapter

Goal 7.

INDICATORS:
7.1. Having easy access to the forest for ceremonies.

MEASURE: How many have a permanent access pass/permit/membership for the Medicine Men Association and how many are Native American Church members. Measure percentage increase of access obtained by these organizations to access the forest with ease.

	Baseline 2/03	1/15/04	1/15/05	1/15/06	1/15/07
# of MMA with permanent access to forest	Permit 9	Permit 9	9 (3 left)		
# of NAC members with permanent access	200	200	200 (70 left)		
# of reported refusals for those wanting access in either group	0	0	0		
% increase of MMA access	0	0	0		
% increase of NAC access	0	0	0		

NAME				
Joe Montoya	MMA	Member in 05		
Tony Barboan	MMA	Member in 05		
David Walters	MMA	Member in 05		
Rita Mace	MMA			
Yazzie Touchine	MMA			
Paul Pinto	MMA			
Jose Toledo	MMA			
Tony Sandoval	MMA			
Sammy Sandoval	MMA			

NOTES:
Membership of MMA are for 4 years. In Cuba only a membership card needed. Permit to the forest is separate from membership. On Mt. Taylor free permits are issued. NAC members commonly gather dead oak branches (for firewood).
Source: Wooly Barboan (NAC) 731-2430, and David Walters (MMA): 731-2273

Monitoring Chart CFRP Capacity Building Program
Torreon/Star Lake Chapter

Goal 7.

INDICATORS:
7.2 The percentage change or increase in participation of fire crews and /or livestock programs for weed control.
MEASURE: How many people participated in fire fighting and weed control in the past year?

	Baseline 2/03	1/15/04	1/15/05	1/15/06	1/15/07
# of people that participated in fire fighting	6	6	6		
# of people that participated in weed control			2		

NAME	Fire	Livestock	Acres treated	Period
Paul Pinto	2/03, 2/04			2/03, 2/04
Harvey Toledo	2/03, 2/04			2/03, 2/04
Ross Willeto	2/03, 2/04			2/03, 2/04
T. Sandoval	2/03, 2/04			2/03, 2/04
Sherwood Willeto		Weed control		2/03, 2/04
Rose Jim		Weed control		2/03, 2/04

NOTES:

Monitoring Chart CFRP Capacity Building Program
Torreon/Star Lake Chapter

Goal 9.

INDICATORS:
9.1 Getting heard and respected by federal agencies.

MEASURE: How many requests to the Forest Service generated appropriate responses in a timely manner?

	Baseline 2/03	1/15/04	1/15/05	1/15/06	1/15/07
# of requests for assistance or information made by tribal offices	12	12	12		
# of requests responded to within 4 wks.	6	6	6		

RECORDER' s NAME	Baseline 2003	1/15/04	1/15/05	1/15/06	1/15/07
Leo Charley					
Sam Sala					
Wally Toledo					
Sherwood Willeto					
Joe L. Cayaditto					

NOTES:

To be completed and verified

Monitoring Chart CFRP Capacity Building Program
Torreon/Star Lake Chapter

Goal 9.

INDICATORS:
9.3. Being informed by federal agencies about natural resource management projects and community capacity building opportunities that are relevant to the community.

MEASURE: How many times per year have Forest Service officials provided presentations and/or sent announcements to the community about issues such as wood products sales, prescribed fire, cultural resource issues, restoration job opportunities, and training opportunities?

	Baseline 2/03	1/15/04	1/15/05	1/15/06	1/15/07
# of FS presentations					
# of FS announcements	12	12	12		

RECORDER' s NAME	Baseline 2003	1/15/04	1/15/05	1/15/06	1/15/07
Torreon/Star Lake Chapter	12	12	12		

NOTES:

FS provides periodic announcements related to the implementation of projects, prescribed burns, thinning, etc. on FS land; The Chapter is given opportunity to comment on sacred sites and other issues related to Native Americans

Add investigation on FS announcements on job and contract opportunities.

Monitoring Chart CFRP Capacity Building Program
Torreon/Star Lake Chapter

Goal 2.

INDICATORS:
2.4. Jobs created.
2.5. Acres treated.
2.6. Number of partners.
2.7. Volume of small diameter products.

MEASURE: How jobs were created in the last year through the CFRP project or its spin off activities? How many acres were treated? How many of the different partners of the project participated? How many CCF of small diameter products were harvested?

	Baseline 2/03	1/15/04	1/15/05	1/15/06	1/15/07
# of jobs created (in person hours/yr)	0	760 h	892 h		
# of acres treated	0	20	30+		
# of project partners involved	0	6	7		
CCF volume of SDT harvested	0	8 CCF	5 CCF		
% change	0				

RECORDER' s NAME	Baseline 2003	1/15/04	1/15/05	1/15/06	1/15/07

NOTES:
In 2004, the Torreon crew was employed in Jemez Pueblo (188 hours), in Torreon for log hauling from the Cuba Ranger District (80 hours), and by Sam Gutierrez (352 hours + 240 hours). The crew removed about 100 logs (avg 8" dbh) and thinned and spread logs on 30+ acres.

Appendix 2: Monitoring Report—Ramah Navajo

The Ramah Navajo community monitoring component of this project was delegated to a broad-based community initiative that was just beginning to formulate a collaborative approach to community monitoring incorporating most of the major schools, social service agencies, and governmental agencies in the Ramah Navajo area. Consequently, our project was asked not to complicate the local process by initiating a separate but parallel effort. Attached is a copy of the extensive community monitoring instrument developed by this broad-based community collaborative. The first round of survey work is now completed and the results are being analyzed by the University of New Mexico. Results of this analysis should be ready for review by May of 2006.

Appendix 3: Lessons Learned from the Torreon Hogan Construction Workshop

November 3rd—15th, 2003

Community Capacity

1. Torreon Chapter successfully organized basic infrastructure for workshop including accommodations, meals, and pre-construction prep including foundation installation
2. Community demonstrated strong interest in project
   a. Food excellent—lunches and dinners
   b. Use of Chapter facilities for classroom segments very functional
   c. Participant accommodations adequate

Areas for Focus or Improvement

1. Instructor accommodations marginal—Housing site uncleaned. Bathroom facilities frequently uncleaned and unstocked.
2. Mistakes made in foundation installation that required changes in construction—should be on site for pour unless very experienced person is available.

Student/Participant Capacity

1. Students very hardworking
2. Familiarity with basic math limited among a number of participants particularly use of fractions and basic geometry/algebra.
3. Students frequently not adequately prepared for harsh weather working conditions
4. Familiarity with synthesizing information limited e.g. consolidating costs, outlining multiple project phases.
5. Substantial interest and need for information regarding how to develop personal housing—homesite lease procedures, mortgaging concepts, self-help options
6. Initial lack of construction experience less important than desire and willingness to learn.

Areas for Focus or Improvement

1. Careful attention necessary to manage crew dynamics to maintain enthusiasm and productivity
2. Propensity for individuals to not-show of be late.

Technical/Technological Systems

1. Slab Hogan construction viable for ceremonial style hogans
   a. Substantial imperfections can be accommodated in raw logs
   b. Templates can be created for wall-log shaping

c. All-thread rod system can be accommodated to allow for shrinkage
d. Achieved a construction rate of approx 5 log courses/day with 5-6 working on wall erection

2. Two week construction timeframe for ceremonial is achievable
3. Micro-mill worked well for processing
   a. Could create slab logs with 1/8" accuracy (limited production to 5" and 6" heights
   b. Could produce up to 8 milled logs/hour depending on capability of operator (average 25-35 logs/day).
   c. Anticipate ~4 days necessary to mill one hogans worth of logs.
   d. Mill capable of producing all the necessary trim pieces for doors, windows and other exterior trim (not including rafter facia—want harder wood species than Pine).

Areas for Focus or Improvement

1. Roof design substantially over-built and consequently expensive.
2. Construction more expensive than anticipated
   a. Materials other than logs more expensive than anticipated
   b. Logs may be more expensive

Workshop Procedures/Processes

1. Use of up-front agreement helpful in clarifying roles and responsibilities
2. Use of daily briefings with clearly stated daily objectives and task assignments very useful
3. Daily recap of lessons learned important for synthesizing learning
4. Creating a break during mid-week helpful to maintain enthusiasm
5. Go to 2 day weekend to give more of a break between sessions
6. Potential for creating a workshop series with web-based training between the sessions as strategy for building technical skills and capacity for self-help housing groups.
7. Giving everyone measuring tapes with measurements marked in 1/8" increments was very effective.
8. Small graduation/awards ceremony (everyone receives an award/gift) very effective closure.
9. Combination of trade-specific training with community/business development training good combination. Students have strong interest in both types of information.

Areas for Focus or Improvement

1. Instructors have to be VERY flexible and have a strong predisposition towards patience. Two instructors ideal. Instructors can anticipate working 12 hour days for both pre-work and post work follow-up and classroom teaching.

2. A substantial amount of necessary tools had to be provided by the instructors—high capacity drills, sawzalls, ladders, planers, hand-tools, extension cords, etc.

Appendix 4:Lessons Learned--Ramah Navajo Hogan Construction Workshop

October 24th—November 5th 2005

Community Capacity

The successful completion of the two week hogan construction workshop was a major accomplishment given the almost two years spent attempting to organize it. The repeated postponement of the Ramah Weaver's hogan construction was indicative of community capacity challenges that were further demonstrated during the workshop process.

Observations

1. The Weaver's Association successfully organized basic infrastructure for workshop including accommodations, meals, and instructional location.
   a. Food excellent—lunches and dinners
   b. Use of Chapter facilities for classroom segments very functional
   c. Participant accommodations adequate
2. The Association had insufficient capacity to take full responsibility for organizing and implementing the foundation installation. As a consequence, much of this task was coordinated by ICE staff. This led to several project complications that increased project cost and timeframe.
3. Community participation was limited. Few Weaver's Association members were present during the workshop or construction, and no special events were organized to involve community members. No cultural teachings were offered for workshop participants to link the hogan construction with cultural traditions.
4. Site selection and approval was difficult and protracted. More time and attention was needed to satisfy School board requirements, particularly soil testing.
5. School Board facilities personnel were very responsive and helpful, providing equipment and personnel for several important tasks.
6. Chapter Natural Resources program personnel, former participants in the project's steering committee, were not supportive or present during the workshop.
7. The local recruitment process resulted in a number of selected participants not having adequate information and not being available for the workshop. Consequently, only one selected member was on-hand at the outset of the workshop. Efforts to fill these vacancies were successful but resulted in more delays and confusion among participants.

Areas for Focus or Improvement

1. Set a clear timeframe for site selection and approval. Have several options under consideration at any point. Establish a clear understanding that if no viable sites are available within agreed upon timeframe, another site will be pursued/selected, possibly outside the Ramah community.
2. Develop a clear agreement in writing that clarifies that it is the host community's responsibility to handle all arrangements associated with foundation installation.

Project staff will be available to verify layout and design, but all other activities associated with planning, contracting and construction are to be the community's responsibility.

3. Develop a more effective recruitment process that verifies **prior to the start of the workshop** whether participants are available.
4. Develop specific plans for involving a larger segment of the community to insure that the widest possible group are aware of and can learn from the hogan construction process.

Student/Participant Capacity

The character and quality of this workshop's participants was very positive. Participants were somewhat older than the average age of the Torreon workshop. This may have contributed to less challenges in maintaining motivation and engagement. Participants were very engaged, hard working and attentive even during work/study days that lasted over 12 hours in duration.

Observations

1. Students were very hardworking
2. Familiarity with basic math and algebra limited among a number of participants particularly use of fractions was very limited. This could be a major impediment to successfully leading their own crews or companies.
3. The process of synthesizing information such as categories of costs for project budgets/bids was also limited. Again this is a key area of skill/ability and one that should receive additional attention to those who want to move into their own businesses.
4. There was substantial interest in learning more skills, particularly financial skills, related to starting or running one's own business. Several participants are currently running small enterprises, primarily in crafts/art.
5. Initial lack of construction experience less important than desire and willingness to learn. However, the presence of one skilled carpenter among participants was very helpful in allowing several crews to be working independently.
6. 7-8 participants is probably an optimal range to maintain working 3-4 working teams on the various key tasks.
7. There was one instance of an unexplained absence. This created uncertainty among both workshop leaders and participants about the status of this individuals participation.

Areas for Focus or Improvement

1. Codify math teaching materials and provide exercises for further development of these skills.
2. Develop a clear consequences-based disciplinary agreement that could involve crew members in deciding how consistent tardiness or unexplained absences will be dealt with.
3. Identify specific follow-up resources/programs that can provide participants opportunities to continue to develop skills/knowledge learned in the workshop.

Technical/Technological Systems

The overall system for hogan construction in a two week timeframe worked remarkably well given the dramatically compressed timeframes. Several important issues were raised during this process however, that need to be given further consideration.

Observations

1. Slab Hogan construction viable for ceremonial style hogans
    a. Substantial imperfections can be accommodated in raw logs
    b. Templates can be created for wall-log shaping
    c. Dry logs substantially improve construction efficiency by enabling the use of log screws instead of continuous vertical all-thread rod.
    d. Logs can be milled and shaped by four people in approx 3-4 full days.
    e. Walls can be build by a team of 4-5 in 3-4 days.
2. Two week construction timeframe for ceremonial is achievable **if foundation is already in place.**
3. Micro-mill worked well for processing
    a. Could create slab logs with 1/8" accuracy (limited production to 5" and 6" heights
    b. Could produce up to 8 milled logs/hour depending on capability of operator (average 25-35 logs/day).
    c. Mill capable of producing all the necessary trim pieces for doors, windows and other exterior trim (not including rafter facia—want harder wood species than Pine). **Trim material must be fully dried before installation.**

Areas for Focus or Improvement

1. Roof design substantially over-built and consequently expensive. Need to revisit the potential for a round wood log truss system.
2. Accurate and consistent placement of logs still more time-consuming than anticipated. System needs to be examined to identify areas where higher accuracy may be required in log preparations.
3. Construction more expensive than anticipated
    a. Materials other than logs more expensive than anticipated—Approx $7,000Logs are an expensive building material--~$5,500 for peeled, dry logs.
    b. A code compliant foundation will cost approx $7,000 in labor and materials.
4. Logs have marginal insulation value if structure is to be used as a dwelling (~1-r/inch or R-6 for a six inch diameter log wall. Compared to R-19 for 2x6 framed wall). Need to consider other types of wall materials if structure requires even moderate energy efficiency.

Workshop Procedures/Processes

The overall format for the workshop was successful in both accomplishing a specific task—building a hogan—while also providing a background and exposure to key learning topics. The process is very demanding of workshop leaders and participants, requiring 12+ hours each day. The demanding schedule is compensated by the dramatic and visible accomplishments that occur over this short time frame.

Observations

1. Use of up-front written agreements was helpful in clarifying roles and responsibilities
2. Starting out behind schedule created a sense of urgency that limited flexibility in demonstrating alternative methods.
3. Day-work/evening-learn format works well for a relatively short course. More than two weeks would likely have burned out participants.
4. Participants will need some sort of structured and prolonged support to internalize the skills and perspectives presented in the workshop. There may be a potential for creating a workshop series with web-based training between the sessions as strategy for building technical skills and capacity for self-help housing groups.
5. Giving everyone measuring tapes with measurements marked in 1/8" increments was very effective.
6. Small graduation/awards ceremony (everyone receives an award/gift) created a useful and effective program closure.
7. Providing both trade-specific training with community/business development training was a good combination. Students have a strong interest in both types of information.

Areas for Focus or Improvement

1. Instructors have to be VERY flexible and have a strong predisposition towards patience. Two instructors ideal. Instructors can anticipate working 12 hour days for both pre-work and post work follow-up and classroom teaching.
2. A substantial amount of necessary tools had to be provided by the instructors—high capacity drills, sawzalls, ladders, planers, hand-tools, extension cords, etc.
3. Daily pre-work briefings with crew would have been helpful to orient everyone on the days tasks/objectives
4. Evening recaps underscoring daily learning would also be useful.
5. Direct exposure to the forestry side (log procurement) would have been a valuable enhancement that the compressed timeframe did not allow.