Response Strategies Revisited: focus on Adaptation

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Throughout this report, examples of adaptation have been highlighted. However, the costs and benefits of various strategies have received little attention to date, and the actual pursuit of such strategies is still in its infancy in most cases.

Planning for and adapting to climate change is an evolutionary process. Through adoption of longer planning horizons, risk management, and adaptive responses, vulnerable infrastructure can be made more resilient, maintaining critical services in the face of climate stressors.

Insurance and Adaptation

Insurance is an arena where adaptation is receiving some attention. For example, some insurance companies have issued guidelines that help reduce losses due to extreme weather events. The insurance company FM Global reports that 310 commercial locations worth $24.4 billion in the path of Hurricane Katrina that had implemented all of its recommended hurricane-loss-prevention methods reduced their losses by 85 percent compared to those that had not done so. These benefits came at a bargain, with $480 million in losses avoided as a result of customer investments of only $2.3 million. The average cost of the risk reduction measures was approximately $7,400 per site on average. FM Global was one of the most profitable U.S. insurers during the year of Hurricane Katrina.

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MetLife and Allstate report giving incentives to customers that install storm shutters and other measures to "wind-proof" their homes. A number of insurers, including Allstate and State Farm, have pushed for the adoption of improved, well-enforced building codes, which serve to both reduce insurance losses and reduce heat-trapping emissions, demonstrating synergies between mitigation and adaptation. A post-Katrina analysis revealed that per-capita economic losses were three-times lower in areas where building codes and comprehensive land-use planning were in use.

Examples of Adaptation Goals and Actions		
Planning Area	Goal	Sample Actions
Water Supply	Expand and diversify water supply	• Connect regional water systems • Enhance existing groundwater supplies through aquifer storage and recovery • Develop advanced wastewater treatment capacity for water reuse ("gray water")
	Increase usable storage in reservoirs	• Add capacity to reservoirs by raising dam height • Adjust reservoir operations to reflect changing conditions
	Reduce demand/improve efficiency	• Increase billing rates for water • Change building codes to require low flow plumbing fixtures • Install high efficiency delivery systems for irrigated agriculture • Meter all water uses
	Increase ability to transfer water between users	• Use water banks, water pools, and water markets to facilitate the reallocation of water resources • Renegotiate transboundary water agreements where applicable
	Increase drought preparedness	• Update drought management plans to recognize changing conditions • Increase authority to implement water restrictions and other emergency measures as needed
Coasts	Reduce shoreline erosion	• Preserve ecological buffers to allow for inland beach migration • Enhance shoreline protection where retreat and accommodation are not possible
	Reduce property damage from erosion, flooding events, sea level rise	• Reduce development in coastal hazard areas • Incorporate climate change impacts into design requirements for coastal structures • Move or abandon shoreline infrastructure • Restore wetlands for run-off storage and flood control
	Maintain or enhance coastal habitat	• Preserve ecological buffers to allow for inland migration of wetlands, salt marshes, and other habitat systems • Reduce spread of invasive species
Agriculture	Adjust production to reflect changing conditions	• Change planting dates • Consider double cropping where longer growing seasons allow • Change planting varieties • Promote greater use of heat-resistant, insect-resistant and disease-resistant crops
	Improve agricultural water supply and use	• Promote new irrigation technologies to improve water use efficiency • Promote water conservation • Use market forces to distribute water • Diversify and expand water infrastructure
	Improve information used in managing agriculture	• Be aware of how climate change affects global agriculture • Work with county extension agents to distribute information to farmers on projected climate change impacts to agriculture