REDUCING HURRICANE AND FLOOD RISK IN THE NATION

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WATER RESOURCES AND ENVIRONMENT

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TRANSPORTATION AND
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REDUCING HURRICANE AND FLOOD RISK IN THE NATION

Thursday, October 27, 2005

HOUSE OF REPRESENTATIVES, COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE, SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT, WASHINGTON, D.C.

The committee met, pursuant to call, at 10:00 a.m. in room 2167, Rayburn House Office Building, Hon. John J. Duncan [chairman of the committee] presiding.

Mr. DUNCAN. I want to welcome everyone to our hearing this morning on Reducing Hurricane and Flood Risk in the Nation. Last week, we held two hearings more specifically related to the tragic events associated with Hurricane Katrina. But as I mentioned at the second of those hearings, we are starting to get requests from communities all across the Nation.

We have seen in the Gulf region what can happen when hurricane and flood protection infrastructure is inadequate or fails to perform. Today, we will broaden our focus a little bit and expand it out to more national concerns, or to the Nation as a whole. What is the condition of our hurricane and flood protection infrastructure? What should it be? Do we need to make policy changes to be sure that we are making the best investments of taxpayer dollars?

I hope that our witnesses today will help us answer some of those questions and give us other good advice and suggestions. We do not know where the next hurricane or flood will hit. But we do know that many of our major cities, including parts of this city, and many others, have a greater probability of flooding than did New Orleans.

And there are some facts about hurricane and flood risks that should cause us some concern. First, more Americans are moving to coastal areas where the risk of hurricanes and floods is greatest. In the South Atlantic region, the coastal population grew 51 percent from 1980 to 2000, and it is expected to increase another 13 or 15 percent by 2008. Along the Gulf of Mexico, the population increased by 38 percent from 1980 to 2000. It is projected by the Government to grow an additional 12 percent at least by 2008.

Secondly, our infrastructure is aging. The National Inventory of Dams shows that 45 percent of our Federal dams are at least 50 years old, and that over 80 percent of them are at least 30 years old. We know even less about the status and capabilities of our levees. There has never been a national inventory of levees. Over the decades, levees have been built by different entities at different times and to different standards. They have been linked together

to provide a protective system for a city, but with such a mixture of conditions; sort of a hodgepodge of construction. The true level of protection certainly is in doubt.

Every day, the Nation's engineers and scientists learn more about the reliability and limitations of dams and levees. New techniques and materials are discovered in the laboratories. Without investments in infrastructure, we cannot benefit from what we have learned and take advantage of the advance that we should of the progress that's being made. Clearly, cities can do a great deal to protect their citizens from floods through good urban planning and emergency management plans. But structural measures, such as levees and dams, will always be necessary in some situations. We must make sure that the infrastructure we have is well maintained and modern.

Currently, Congress authorizes projects that meet the basic criteria of being in the Federal interest and are technically feasible, economically justified and environmentally sound. Projects are planned and constructed with non-Federal partners sharing in the costs. With limited funds going to flood control projects, we need to consider whether there are better ways to provide flood protection at less cost. Should budget constraints dictate the level of protection we offer to a city?

We found in New Orleans many citizens could not evacuate. Is that a factor to consider in planning flood protection of other cities? Perhaps more could be done to encourage cities to use their power of zoning to reduce the need for expensive flood control projects. Perhaps we can streamline the planning and construct some processes, so that good projects can be dealt quicker.

Are we adequately examining the full range of flood protection alternatives? These are some of the questions that we have, and I look forward to hearing from the witnesses on the panel today, a very distinguished panel of witnesses.

I now recognize our Ranking Member, my good friend, Ms. Johnson, for her opening remarks.

Ms. JOHNSON. Thank you very much, Mr. Chairman.

Today the Subcommittee continues its review of issues concerning flood damage and hurricane protection. While the first two hearings focused primarily on the aftermath of the Hurricanes Katrina and Rita and the Gulf Coast, today's hearing is more general. We focus on recommendations for change in the way the U.S. addresses deadly risks of hurricanes and floods.

Too often, there is a tendency to do things the way we do them because that's the way we've always done them. I fear that the Federal, State and local approach to flood and hurricane risk falls into this category.

Hurricanes Katrina and Rita exposed shortcomings in U.S. policies: hurricane protection, economic opportunity, social equality, housing and others. It is critical that we take these lessons to heart and ensure that we do our part to correct them.

For example, we evaluate Corps of Engineers projects based upon analysis of benefits to whom they may accrue, and have since 1936. While there have been modifications to how and what the Corps studies in developing projects, the basic test has remained the same. That same 1936 Flood Control Act also stated that there was

a Federal interest in controlling the effects of floods where the lives and social security of people are otherwise adversely affected.

Maybe we need to modify the test of the 1936 Act, or maybe we need to renew the emphasis on lives and social security. These hearings will help frame these deliberations.

Others in the debate, such as our colleague from Oregon, Mr. Blumenauer, advocate change in the Principles and Guidelines and some of today's testimony also calls for review. Of course, no matter what the Federal policy is, it will be less than fully effective if we fail to adequately fund the program.

For too long, we have tried to accomplish our infrastructure goals while shortchanging them. The Corps' budget is stagnant. It took over two years of intense negotiations to extend the highway and transit programs. And they are self-financing.

Mr. Chairman, I don't profess to know the answers to meeting our national goals for flood and hurricane damage reduction. I am not even sure what the national goals are. But I congratulate you for having today's dialogue, and I look forward to working with you and all the members of this Committee to ensure that we have the best national policy and the resources and determinations to see it through.

Thank you, and I welcome the witnesses.

Mr. DUNCAN. Thank you very much.

Mr. Gilchrest.

Mr. GILCHREST. Thank you very much, Mr. Chairman, for holding this hearing. The three of us a few weeks ago went down and flew from New Orleans to Mobile, Alabama, hopscotched and stopped on a number of places along the way to look at near total devastation. It was stunning and extraordinary, so I want to compliment the Chairman for holding a series of hearings, so we can grasp a sense of the magnitude of the problem, so over the coming decades the policy of this Government will be to make sure that people are protected, stay out of harm's way, and understand the nature of nature and the nature of human engineering. Sometimes they collide and exacerbate each other in extraordinary fashion.

Just very quickly, I represent the Chesapeake Bay region. The Chesapeake Bay, in the last century, sea level rose one foot. That's due to sea level rise, natural sea level rise, and subsidence. Something very similar to what you have in coastal Louisiana.

Now, in the next century, the estimate is by all accounts three feet. That is due again to sea level rise and subsidence. Now, if we read some of the data, in the next several decades a quarter of all the homes within 500 feet of many coastal areas will be lost to erosion and likely lost to storm surges or hurricanes. But simple erosion coming from natural forces.

I think what we are trying to collect in this hearing is some understanding about the policies we should make, basically to keep people out of harm's way. So I think the best way to proceed is for you to give us some understanding of how best to collect the data about flood plains, vulnerable coastal areas, for us to come up with a way to communicate that data, to not only people that potentially want to live there, but to local governments.

I think if I was the Governor of Maryland, I would say you can't have a real estate agent's license unless you pass a test that in-

volves two things: understanding the ecological functions of the Chesapeake Bay and understanding the ecological vulnerabilities of building along the shorelines of the coastal areas. I don't know if I would get elected if that was my platform.

Collect the data on all the coastal areas, where are the erosion rates the most, what is significant about sea level rise, and it happens slowly, but it's a fact. And it does exacerbate storm surges, it does exacerbate erosion, subsidence problems, communicating that data. What kind of mapping do we need in the form of digital mapping, so local emergency management boards know what their region looks like and communicate that, and how much funding might you recommend for us to have that kind of digital mapping?

Then the other thing is, I think we basically know the answer to this, but there seems to be a clear need for us, instead of having a policy that incentivizes people to move to the coast, we probably need some kind of policy, looking back to 1968 when we created Federal flood insurance, some type of policy to dis-incentivize people from moving to vulnerable areas. And pretty much how do we do that. What would it cost to retrofit all the structures that are in vulnerable areas right now, so they don't get blown down again? And some type of mechanism to steer people away from moving to vulnerable areas.

This is a tall order. And I think we are probably at the very early stages of understanding future ramifications for having human activity grossly incompatible with nature's design. And we have a huge heart for those people who lost their homes, who are trying to move back into their homes, who lost all their possessions.

So as we go through these hearings and try to understand how to help the people most in need, create a policy so this doesn't repeat itself over the course of the coming decades.

Thank you, Mr. Chairman.

Mr. DUNCAN. Thank you very much, Mr. Gilchrest.

Our panel today consists of Mr. Peter D. Rabbon, who is here representing the National Association of Flood and Stormwater Management Agencies. He is the General Manager of the California Reclamation Board. He is here from San Francisco.

Representing the Association of State Floodplain Managers is Dr. Rodney Emmer. He is the Executive Director of the Louisiana Floodplain Managers Association, and he has come to us from Baton Rouge. As Mr. Gilchrest mentioned, we had 11 members who went down to view the damage in Louisiana and Mississippi and Alabama, and we were in Baton Rouge just a little over three weeks ago.

Dr. Gerald E. Galloway, who is a Professor of Engineering at the University of Maryland at College Park; and Dr. G. Edward Dickey, who is an Affiliate Professor of Economics at Loyola College in Maryland, and he is here with us from Baltimore. We appreciate very much, gentlemen, each of you taking time out from your various busy schedules to be here with us this morning.

Before we start with your testimony, we are always honored to have the Ranking Member of the full Committee, Mr. Oberstar, here with us. I would like to give him a moment to make any comments that he has.

Mr. OBERSTAR. Thank you very much, Mr. Chairman. My hat is off to you for persisting in this series of inquiries into flood control, flood protection, getting the facts out on the table. As I said and as you confirmed in our tour of the Gulf States, we were there and we are here to find facts, not fault. There will be plenty of time to do the latter. What we are pursuing now is the how and the what to do.

This Committee and this Subcommittee and its predecessor, the Rivers and Harbors Subcommittee, has been engaged with the flood control needs and the navigation improvement needs of the whole Gulf, the Gulf Intracoastal Waterway System, the Mississippi River system, the Port of New Orleans as the most important grain export facility in the world since the origins of the Congress. In 1789, the first committee created was the Rivers and Harbors Committee, which undertook the responsibilities of opening the interior of the Nation to human expansion and to commercial development.

There was a great deal of discussion, I recall in my first two terms in Congress, on this Subcommittee, about what to do with New Orleans. Should the levees be built to withstand the most extensive, powerful hurricane yet known, which was somewhere in the range of a category 3, category 4, there were very imprecise compared to today measures of hurricane forces at the time. There was also concern about the underlying strength of the sub-soil as we have today, there was great concern about rebuilding the wetlands as the buffer zones. We will continue that discussion in the course of these hearings and meetings.

What is at greater issue though is the whether, whether we should invest financial resources to rebuild New Orleans. We had quite a discussion about this last week in your very fine hearings, Mr. Chairman. You really gathered an array of people.

I want to put a little historical perspective on it this morning. A book that I read a few years ago, which I commend, one of the few books that Stephen Ambrose hasn't written about American history, is the Battle of New Orleans, Andrew Jackson and America's First Military Victory. The book opens, "It was a battle that changed the course of American history, a battle that convinced Americans they had earned the right to be independent, and that their sovereignty would be respected once and for all around the globe. It was a battle that thundered a once-poor, wretchedly educated orphaned boy into the White House, Andrew Jackson."

Two hundred pages later, the book concludes, "The great Battle of New Orleans produced a President and an enduring belief in the military ability of free people to protect and preserve their society and their way of life. The last six months is the proudest period in the history of the Republic, declared Niles' Weekly Register. We demonstrated to mankind a capacity to acquire a skill in arms, to conquer the conquerors of us all, as Wellington's Invincibles were modestly styled. Who would not be an American? Long live the Republic, last asylum of oppressed humanity."

That is what the Battle of New Orleans meant, that is what this region meant. It brought America together. The historian writes, "From this moment on, Americans believed wholeheartedly in the superiority of American institutions, representative government, a society that rewarded talent and individual initiative instead of

class and bloodlines. They also believed this kind of society would spread around the globe and its institutions would lift people out of their humiliating subjugation to kings, emperors and czars."

That is what is at stake in the rebuilding of New Orleans. This historical legacy that launched the New Republic, that consolidated America, that brought Americans together. We must not let it fall apart. Its historical significance is too great for all Americans.

The only question then in my mind that remains is the how. And these hearings will point us in that direction. Thank you, Mr. Chairman.

Mr. DUNCAN. Thank you, Mr. Oberstar. PBS started a series several years ago called The Presidents. It must not have been very successful, because they had a group of us down at the White House for a lecture on Andrew Jackson by that gentleman. I have always remembered that one of the last things he said was that Andrew Jackson became obsessed with paying off the national debt at that time and leaving the Country debt-free. He got it paid off and the national debt at that time was $4 million.

[Laughter.]

Mr. DUNCAN. It is now over $8 trillion. That's a lot of difference.

I read an article this morning about one of the champion marathoners in the Congress, Mr. Blumenauer. We are glad to have you with us this morning. Do you have any comments?

Mr. BLUMENAUER. Thank you, Mr. Chairman.

I must commend you, our Committee leadership, for focusing in on this. And I appreciate our Ranking Member, Mr. Oberstar, establishing the historic context. I think the more we understand history in the full context, the better we will be.

I was struck by the one line there about how people, as a result of this, were convinced of the strength and power of our institutions, to paraphrase. Well, I think what you are doing with this work here is for us to hold a mirror up and look at some of our institutions, some of our practices and some of our programs. Because I think what we will hear from our witnesses today is they haven't necessarily kept pace with what we know about the science, about hydrology, about best practices.

And sadly, Congress has been in the middle of the problem. We haven't done a very good job of being able to deal with the priorities and focus in and hear from the many experts who have appeared before us. I appreciate what the Subcommittee is doing to look critically at how we deal with New Orleans, how we deal with the great Mississippi in the context of not only history, but where we go forward from here.

I look forward to our panel. I won't share more of my own biases, other than to say that I hope that we will be able to look more aggressively in the tradeoffs in investments. I hope that we will be able to gather their wisdom to look at some of the non-structural alternatives, that we will be able to do a better job of prioritizing what Congress will do with the vast investments that are before us.

I hope that someday we will even update the Principles and Guidelines that date back to 1983. I am sure under the leadership of this Committee, we will be able to drag them into the new century.

I appreciate the hearing, I appreciate the opportunity and I look forward to hearing from our witnesses.

Mr. DUNCAN. I told my staff yesterday, Mr. Blumenauer, that you would mention the revision of the Principles and Guidelines. I am glad you didn't let me down.

Mr. BLUMENAUER. I never want to let you down, Mr. Chairman. [Laughter.]

Mr. DUNCAN. Thank you. Judge Poe.

Mr. POE. Thank you, Mr. Chairman.

I'm from southeast Texas. Jefferson County is one of the counties that was hit by Rita. The people in Jefferson County, specifically Port Arthur, Texas, are just as important as the people in New Orleans. The 40 year old levee in Port Arthur, Texas, did not break, that was built by the Corps of Engineers. I hope that we can shed some light on how we can equalize the recovery of the entire Gulf Cost, not just concentrate on one city of New Orleans, but the damage that was created by Hurricane Rita as well.

So I look forward to the testimony.

Mr. DUNCAN. Thank you very much.

Ms. Schwartz.

Ms. SCHWARTZ. Thank you, Mr. Chairman. I would just very briefly say I look forward to your remarks. Also I would associate myself with most of Mr. Blumenauer's remarks. I don't know as much about the regulations he is wanting to update, but I hope that we can look both structurally and environmentally at the ways we may be able to be hopefully smarter and more creative as we look to both remediate and rebuild and prevent future flooding.

So I would be interested in some of the accelerating wetlands conservation as a part of the discussion that we have about infrastructure demands as well. I hope we can hear some of that in the course of this panel and as we move forward.

Thank you, Mr. Chairman.

Mr. DUNCAN. Thank you very much.

Ranking Member Oberstar mentioned that in his first two terms in office while serving on this Subcommittee, that flood protection for New Orleans was discussed at that time. The Congress did approve in 1965 a barrier protection plan for New Orleans that the Army Corps and some others think might have prevented much of the flooding that occurred there. It was stopped and not carried out because of a series of lawsuits with some local opposition.

But I am hopeful that after we have all of these hearings and we have gone to the scene that some of this leads us to take appropriate action. I hope we can reach consensus on some of the things that need to be done.

I have introduced the panel, and gentlemen, each of your full statements will be placed in the record. You can summarize. Most subcommittees give the witnesses five minutes. I give you six minutes. But if you see me raise this gavel, I want you to stop because that is in consideration of other witnesses and also in consideration of the members of the panel who want to ask questions.

So Mr. Rabbon, you may begin your statement.

TESTIMONY OF PETER D. RABBON, P.E., GENERAL MANAGER, CALIFORNIA RECLAMATION BOARD, PRESIDENT, NATIONAL ASSOCIATION OF FLOOD AND STORMWATER MANAGEMENT AGENCIES; RODNEY E. EMMER, EXECUTIVE DIRECTOR, LOUISIANA FLOODPLAIN MANAGEMENT ASSOCIATION, MEMBER, ASSOCIATION OF STATE FLOODPLAIN MANAGERS, INC.; GERALD E. GALLOWAY, P.E., PH.D, GLENN L. MARTIN INSTITUTE PROFESSOR OF ENGINEERING, UNIVERSITY OF MARYLAND COLLEGE PARK; G. EDWARD DICKEY, PH.D, AFFILIATE PROFESSOR OF ECONOMICS, LOYOLA COLLEGE OF MARYLAND, BALTIMORE

Mr. RABBON. Thank you, Chairman Duncan. On behalf of NAFSMA, we want to thank you for the opportunity we have today. I personally want to thank you for the comments I have heard. It demonstrates clearly you are concerned, but also you understand the issue before you. We hope that NAFSMA can provide you some recommendations that you think may be worthy of consideration.

We have six key recommendations we would like to submit. There is a common theme in all of them, and it is basically safety first. We do recommend that you review the Principles and Guidelines for the Corps of Engineers with an eye toward safety first. The P&Gs are a very comprehensive document, yet they miss one item. They miss the fact that you cannot place a value on life by looking at a cost benefit formula.

For example, what that means is, it is possible to have a beat flooding situation for a population of a given size that may be economically depressed, where you would not have a viable project or Federal interest. On the other hand, you could have that same size population in a shallow flooding area of a prosperous neighborhood that would qualify for a Federal project because of the way your benefit cost ratio works in the policies and guidelines.

So we suggest, number one, for safety first, review the policy and guidelines to start looking at what you are trying to do, which is protect the public from flooding. Number two, incentive-based cost sharing. We recommend that you look at your cost sharing and provide incentives to develop more balanced programs, not just providing funding for structural projects, but what about if you took a more balanced approach of structural and gave consideration or incentive for non-structural approaches too?

Not only does that improve public safety, but that can improve your quality of life. If you are going to recognize and give incentives to local projects where they say, provide recreational areas or provide open space or improve the environment, that not only improves quality of life, that also has set aside areas where you will not be putting more people at risk. So a more balanced approach through incentive cost sharing can help put public safety first.

Item number three, streamlining the permitting process. Once we have a Federal project in place, it needs to be operated and maintained for perpetuity. You cannot drive a car without maintaining it, you cannot continue to live in a house without maintenance. Nor can you expect to live behind a federally authorized flood control project without maintenance. So we are recommending, if you want to put public safety first, that we look at stream-

lining the process necessary to obtain permits to operate and maintain the federally authorized projects that the non-Federal entities are asked to maintain.

Number four, NAFSMA supports a national levee study. We would like to see the Federal Government commit to assess the State's flood management projects, not just those that are federally authorized, but all flood control projects out there. Because if it is federally authorized, or a local project, if there is a failure, there will be a Federal agency out there after the failure. You will see the Corps there or you will see FEMA there.

So we would suggest, it is better than you first go out, know what is out there, then determine the status of that project and then go even further if there is a necessity to do it, to repair that or bring it up to more current standards. Again, this put the public safety first. It gives you an advantage to get out there and be ahead of the problem, so it is not a surprise to you.

Number five, we suggest raising the funding limit on the Water Resource Development Act for Section 215 projects. This section allows a non-Federal sponsor to do construction on their own on projects that are federally authorized and then seek reimbursement from the Corps. This too puts public safety first. By allowing us to build the project in advance before the Federal Government receives funding, we can get the public safety projects in faster, it will most likely be cheaper because we are going to be beating inflation. So again, public safety can come first if we look at something even as simple as raising the limits for the Water Resource Development Act Section 215.

Number six, creation of a flood management technical advisory committee. Here what we are suggesting is the Corps of Engineers take the lead on an advisory committee to facilitate and coordinate the Federal policies and programs related to flood management. That will allow the Federal Government to act as a single government versus separate entities, and it will include integration of the programs.

Thank you for your time. I would be happy to answer any questions.

Mr. DUNCAN. Thank you very much, Mr. Rabbon. Some very good suggestions there.

Dr. Emmer.

Mr. EMMER. Thank you. I grew up in New Orleans and live in Baton Rouge. Over the past two months, I have had a number of guests in my house, and family, friends, dogs and cats. In fact, the front yard looked like a Wal-Mart parking lot. So I bring personal experience to today's session.

The fact is, I tell colleagues throughout the United States, Louisiana, Texas and Mississippi have had better Septembers and Octobers. But hurricanes happen, survival is planned, and it is time we move on and look at the future.

The Association has had many members who are active in responding to the impacts of the recent hurricanes. These tragedies are reminders to us that we are susceptible to the natural hazards that exist along the coastal zones. Therefore, we must have problems, policies and institutions that can adequately handle these events, efficiently use taxpayer monies and build a more sustain-

able community. We thank you for the opportunity to present our ideas to you today.

The Association envisions a number of key legislative policy changes to strengthen the programs of the U.S. Army Corps of Engineers. We believe that these initiatives will reduce future flood losses of life and property due to flooding. First, there needs to be immediate action to stabilize the communities and the people. The magnitude of the disasters in New Orleans and the Gulf Coast is so great that efforts must be taken immediately to stabilize the population and return these people to some sense of normalcy.

The recovery options include: repair and stabilize all flood protection works to pre-Katrina design; engage, support and encourage State and regional authorities in the creation of long term visions for redevelopment from the impacts of the storms; to fund programs for coastal Louisiana for the continued enhancement, creation and restoration of the coastal wetlands and the natural barriers that protect the development within coastal Louisiana; and design new structural and non-structural works to provide a more realistic level of protection. Urban areas and critical infrastructures could be at the 500 year level of protection, or in the case of New Orleans, the levees raised to withstand category 4 or 5 hurricanes.

The Nation needs an integrated national levee policy. Federal agencies, such as the Corps of Engineers and Natural Resource Conservation Service build levees using different guidelines. FEMA produces flood maps for 20,000 communities in the Nation, many of which rely on these levees. The Association believes that these levees should be considered an option of last resort and used only to protect existing communities. Levees should not be used to protect undeveloped land in anticipation of new development that will be placed at risk within them.

Damageable structures behind the levees should be elevated or take other mitigation steps to avoid catastrophic damage in the case of levee failure overtopping, such as was seen recently. The Corps should be tasked to lead a Federal-State-local work group to develop an integrated national levee policy.

National levee programs, the U.S. has no national inventory of levees. Property owners behind levees assume that they are protected and so are surprised, angry and often financially ruined when levees fail. We see this most recently in New Orleans and southeast Louisiana.

The Corps of Engineers should be charged and funded to immediately undertake a national levee safety inspection initiative as part of the floodplain management services program. This initiative would be similar to the inspection and inventory the Corps performed at the instigation of the Nation's flood dam safety program. Just as in dam safety, the Federal Government should not have continuing or long term responsibility for levee safety. This is really the responsibility of State and local governments.

We should undertake wetlands restoration. This is a key to structural protection. Experts agree that wetlands provide significant flood protection. It was suggested that if wetlands had not turned to open water that that damages to New Orleans would have been significantly less. We urge Congress to fund the appropriate elements of the coastal Louisiana project that will provide wetlands

protection, enhance or create these wetlands or restore them to help protect the cities and the levees that surround the cities.

The level of protection provided by levees is of concern also. In highly urbanized areas, in particular, where the consequences of failure can be catastrophic, a 1 percent standard we feel is insufficient. Therefore, the Association supports the concept that in urbanized areas, and for critical infrastructures where the impact of flood damage or catastrophic Federal flood control projects should be designed to provide protection at or about the 0.2 percent or 500 year flood level.

We should reduce the adverse personal economic impacts to people who are flooded, develop approaches to provide property protection and financial security to those people who believe they are protected by structural works and hence think they are not at risk. These people have a false sense of security, as we saw in New Orleans, in thinking that they will never flood, and as such they have not purchased insurance and not taken the necessary actions to protect themselves.

To help with this, we think the Corps of Engineers should be directed to work with other appropriate Federal agencies, such as FEMA, Natural Resource Conservation and NOAA, to design a program to manage the residual risks associated with these projects. There should be sufficient additional Federal funding for the planning assistance to States and floodplain management services.

There should also be revisions to the Principles and Guidelines. We would hope that we could reestablish the mitigation funding from 7.5 to 15 percent, as it has been in the past.

We thank you for the opportunity to make our presentation to you today and will be happy to answer questions.

Mr. DUNCAN. Thank you very much, Mr. Emmer.

Dr. Galloway.

Mr. GALLOWAY. Thank you very much, Mr. Chairman. It is a privilege to be here today.

I come to you as a professor, but I have 38 years' experience in the U.S. Army, including service as a district engineer and 7 years on the Mississippi River Commission. In reality, I think I come to you today because in 1993, I was assigned to the White House to prepare a study that looked at why did we have the 1993 Mississippi River flood and what should we do about it.

For the most part, the lessons we learned in that study of the Mississippi flood are the same lessons we are learning today from Katrina. The message is very simple: The massive flooding that occurred in New Orleans during Hurricane Katrina was in part a reflection of a growing lack of attention to our national flood damage reduction program.

The United States, for much of the latter half of the last century, had both a well understood national flood protection policy and an equally clear program that followed from that policy. Unfortunately, we have allowed this policy and those programs to atrophy over the last 20 years.

We would say, as a result of this study and actually the experience from Katrina, that people and property are at risk in flood-prone communities across our Country. Major floods and hurri-

canes are going to continue to occur. We can expect with climate change flooding to get worse.

New development in the floodplain, without a specific need to be there, should be very much discouraged. When we do provide protection, it should represent a combination of structural and nonstructural approaches, including wetland restoration. The level of protection we now provide to many flood-prone communities is less than is needed and leaves at risk those who are provided this inadequate protection.

We recommended that governments provide a high level of protection to those that live in existing population centers and pay special attention to critical infrastructure as just described. We recommended that in these population centers, the urban areas, that they be protected against the standard project flood, the 500 year flood or greater.

When the Nation started its flood control efforts in the 1930s, the mission was pretty straightforward: prevent catastrophes. Over the last 70 years, we have lowered the protection level provided by many Federal projects to the 100 year level, a year that has a 1 in 4 chance of occurrence in the lifetime of a 30 year mortgage. In the Netherlands, governments provide 10,000 year protection on the coastline, or a hurricane equivalent, and 1,250 year protection along the major rivers.

Can our Nation afford to risk losing another metropolitan area? Sacramento sits behind one of those 100 year levees. People who live behind levees face a residual risk and really should be part of the Federal flood insurance program. They need to recognize that residual risk and deal with it.

We must recognize the inherent vulnerability of levees and flood walls. Now, levee is not a four letter word in my opinion. I believe you can do well constructed and well maintained levees, and that they can provide sound protection.

But the issue is the level of protection they provide, and whether or not we are maintaining those levees. There are thousands of miles of levees throughout the Country, some built by the Federal Government, by State governments, locals and developers. We have no accurate measurement of the location and integrity of many of these levees. We didn't have it in 1994 when we did the study, we still don't have it.

The conduct of a national evaluation of levees should have high priority. We should also, as we suggested in this report, have FEMA continue to identify flood-prone areas throughout the United States.

It is also critical that governments provide adequate funding to support maintenance and necessary upgrades of flood damage reduction works. The need for upgrades and improved maintenance of the New Orleans system was well-known and the same can be said for structures defending many other places in the Country. Over 300 miles of mainline Mississippi River levee are below design grade and section and need funding.

We need a clear national policy with respect to flood damage reduction goals and responsibilities. The responsibility among levels of governments for conceiving and for funding and maintaining these flood damage reduction projects is not clearly defined.

Funding and management of protection activities in the floodplain is a shared responsibility of all those levels of government and those who live there. Flood damage reduction should not just be a Federal activity. We urge Congress and the Administration, together with the Governors, to define these responsibilities so there can be no seams and no dropped balls.

As part of this effort, we need to define what our ultimate objective is in water resource planning. As it is found in the Principles section of the Principles and Guidelines, it is focused almost entirely on national economic development. As my colleagues have said, we need to stretch it further to consider the environment and the social effects that we saw in the eyes of the people of New Orleans.

We recommend a floodplain management act to spell out national goals and responsibilities. Flood issues need to be dealt with on a watershed basis, in a comprehensive matter. When we deal with New Orleans flood damage reduction and recovery, we also need to tie it in to what needs to be done with navigation, with water quality, with water quantity in the New Orleans area. We also need to include in there environmental restoration.

Flood catastrophes are national security issues. They affect our people, our economy and our environment. How to deal with them has been the subject of many studies, and over the years we keep coming up with the same recommendations. We need to take an approach to flood damage reduction that brings all the players to the table in a collaborative approach that shares responsibility and shares funding.

Given the tragedies we have seen over the last few weeks, the governments and the public must be prepared to take action to do it right this time, to take recommendations out of the "too hard" box and move ahead. Thank you very much, Mr. Chairman and members of the Committee.

Mr. DUNCAN. Thank you very much, Dr. Galloway.

Dr. Dickey.

Mr. DICKEY. Thank you very much, Mr. Chairman. It is a pleasure to be here today. I have testified before this Committee many times in the past, and wearing many different hats. Today I am happy to report nobody cleared my testimony.

[Laughter.]

Mr. DICKEY. From the very beginning of its authorization, the civil works projects have been developed based on site-specific studies containing recommendations tailored to specific circumstances. These studies incorporate hydrologic, engineering, economic and for several decades now, ecological, cultural and other environmental knowledge and analyses. The Corps' feasibility study process has served the Nation well and has provided us with extensive infrastructure that is essential to the effective functioning of our economic system and continuing economic growth.

However, it has not been perfect. Not all projects have performed as predicted or have been as productive as anticipated. Modifications have been required to accommodate changing conditions, new scientific knowledge, technological change and changing public values. Insufficient attention was paid historically to interactions between engineering structures which extensively modified hydrologic

regimes and the physical and biological environment. Equally important, insufficient attention continues to be paid to the impact of hazard reduction on human behavior.

These shortcomings have been amply demonstrated in southern Louisiana. Extensive engineering works for managing the Mississippi River and numerous large-scale coastal navigation and storm damage reduction projects have caused widespread and ongoing changes in physical landscapes and ecosystems. These changes were not foreseen or if anticipated, were considered to be a necessary consequence of economic advancement.

In addition, these works allowed new patterns of economic activity and changed where and how people live and work. The historic focus of storm and flood damage reduction project development was on reduction of inundation damages to property. Clearly, as in the case of New Orleans, insufficient attention was paid to residual risks and to the vulnerability of the occupants of protected areas when the provided protection proved inadequate.

The potential for disruption of human activity within protected areas and the economic consequences to the rest of the Nation were not addressed in any detail. The devastation wrought by Hurricane Katrina is a compelling demonstration of the reality of residual risks and necessity to include its management in water resources planning and project implementation.

There are, however, no cookie cutter, one-size-fits-all environmentally sensitive solutions to flood and storm threats or any other mix of water-related activities. Congress has long recognized that fact, and has generally required a Corps of Engineers report to be submitted for its consideration before it takes action to authorize and fund a project.

This approach to public decision making allows Government to function at its best, making informed choices among competing values as identified in a feasibility study. Now, situation-specific feasibility studies are important from several perspectives.

State, Federal and local governments not only face conflicts among competing values, such as economic growth and environmental and social preservation, in virtually every resource management situation, they also confront the fact that there are more demands for their respective budgetary resources than they can possibly satisfy. The reality is that many problems must be un-addressed or incompletely solved and many opportunities left to the future. It behooves us, therefore, to make the best use we can of our limited resources.

Analysis as practiced by the Corps of Engineers plays an essential role in decision making throughout the water resource planning process. The Corps of Engineers is required to go well beyond the calculation of a benefit-cost ratio for a recommended project. Incremental analysis as required by the U.S. Water Resources Council's Principles and Guidelines is at the heart of the Corps' plan formulation process. Projects of different scales and scopes are systematically considered so that trade-offs among alternative mixes of project purposes and alternative solutions can be identified and the relative merits of different plans for resource use be systematically evaluated in the light of prevailing economic, environmental and social values.

So we have heard discussion today about changing the Principles and Guidelines, and I would have something to say about that later if it becomes a question. I do want to emphasize that project planning is important not only at the project level, but at the programmatic level. We know we can't fund all the projects that have been authorized. And it is only by having the information that is specific to each investment opportunity can Congress choose wisely among competing investments.

And so to that end, I would like to mention four recommendations. One is to manage the total flood risk. Certainly we have paid insufficient attention to that. Secondly, we need to do a better job of quantifying benefits, and that is certainly within our capability. It is merely a question of policy.

Thirdly, we need to understand the impacts of resource investments on the location of human activity, and that needs to be specifically addressed in the planning process. And fourthly, I would affirm the recommendation of others here that in the case of a project where there is residual risk, and that is in every project, people who are protected by the project need to be required to have flood insurance.

Thank you very much, Mr. Chairman.

Mr. DUNCAN. Thank you very much, Dr. Dickey. Certainly you hit the nail on the head with the key problem that we are dealing with, and that is what is the best use of resources that are not unlimited.

I am going to reserve my questions until the end so we can get to as many members as possible. I will go first for questions to Mr. Gilchrest.

Mr. GILCHREST. Thank you, Mr. Chairman.

First of all, I want to say welcome to Dr. Dickey. We have worked before on a number of occasions, he had a different hat on, and he didn't pay attention to whoever he reviewed his speeches, which was always appreciated.

I don't know if you know Dr. Hans, if he is still there at Loyola College. But he was the head of a program that I was taking a masters course from. I went five years at night, but then I ran for Congress, never finished it, didn't get my degree. So I wondered if you could see him and see if I could get any credit for being in Congress 15 years.

[Laughter.]

Mr. DICKEY. I will speak to him, sir.

Mr. GILCHREST. I would appreciate that. And welcome, Dr. Galloway, from the University of Maryland, Dr. Emmer from Louisiana and Mr. Rabbon from the west coast.

We appreciate all these recommendations. We will sift through them, and I think with the Chairman's leadership, we will come up with the kind of policy that will integrate all your ideas to better management of the flood systems that we have out there, given they be levees or berms or dams or whatever it happens to be, and try to not encourage people to move into vulnerable areas, sensitive environmental areas, flood-prone areas, storm surge areas, by creating an opportunity to offset the actual cost of the flood damage through insurance premiums. So there is just a whole lot of things out there that we want to make sure that we do appropriately.

The question I have, I guess, for all of you, is the Corps of Engineers does a lot of this. And I know there is a lot of work to be done in Mississippi, Texas, Alabama, along the coastal areas of this Country and so on. But Dr. Emmer, if I could focus in on just the coastal problems in lower coastal Louisiana and New Orleans, I think it would be very helpful for us, because this is the bulk of the dollars where it is going to be spent in the short term.

There was 2050, there is now Coastal Louisiana Restoration, or Coastal Louisiana whatever it happens to be called, LCA or whatever. And there is CWPRA, there is a whole bunch of programs going on out there that it looks like we are going to give the Corps of Engineers a lead on, because they are the ones that would get the money for much of that restoration and evaluation.

And you talked about restoration of natural barriers, sediment dispersal, and all of those things. What would be helpful for us is if you could come up with what the restoration projects are, as specific as possible, the wetlands, the coastal barriers, the sediment dispersal, all of those things and the kinds of structures that you will do with that.

Number two, an estimate of the cost that that's going to be. Recently, I talked to Greg Smith from U.S. Geological Survey, I talked to Dr. Twilley from the Louisiana State University and a number of other people.

The last thing, which I think is as important as anything, is the entity that is overseeing that. I don't think, in all due respect, it can be just the Corps of Engineers. I think a collaborative effort with the Corps of Engineers as part of this team and probably Fish and Wildlife to have a number of projects going on down there, U.S. Geological Survey has an important part to play. NOAA has an important part to play in that. The State has an important part to play in that. Certainly the university people.

So the entity that will oversee that restoration project, and each one of those entities with the Corps of Engineers must have an equal voice with the Corps of Engineers. The entity, the restoration project and the cost of that project as best as you can give that to us. Because on the Senate side, when they made this proposal, Senator Landrieu and Senator Vitter, it is about $25 billion, they have $14 billion, I believe, for the restoration effort. But there are no specifics attached to that. And there are no real guidelines for how that is going to be done, how long that is going to take.

It seems to me that, it is my understanding that by 2050 lower Louisiana could lose 500 square miles of coast, 500 square miles. And the projects now on the drawing board to offset that can only offset half of that. So there is some understanding that you will still lose 250 square miles of lower Louisiana. So I think some of those things, if you could provide to the Committee, would be very helpful.

Thank you, Mr. Chairman.

Mr. DUNCAN. Thank you.

Ms. Johnson.

Ms. JOHNSON. Mr. Chairman, I would like to yield to our Ranking Member, Mr. Oberstar.

Mr. OBERSTAR. Thank you. I thank the gentlewoman.

I too welcome Dr. Dickey back to the Committee. I recall his many appearances on behalf of the Secretary of the Army and the Corps of Engineers in the 1990s. You were a regular presenter at our Committee.

The issue that this panel has addressed, I think, and each of you in a separate way, has been the how and the values involved in reclaiming New Orleans. I have listened to testimony over several weeks and over 30 years in this Committee, there is a tendency to sort of focus on stovepipe solutions, one group sees this as an answer, another sees a second approach as the answer.

We need an integrated plan for short term and long term responses. Both in the short term and the long term, all the factors have to be integrated. I want your reaction, the panel's reaction to non-structural, including hard choice that New Orleans itself is going to have to make, relocation of homes. That comes to the benefit-cost issue.

But it is one that we should not be making, but the city and the State have to make. Are you really going to invite people to come back to live in a place that you know cannot be protected? Or can be protected only with, as Dr. Galloway said, the Netherlands approach of a 10,000 year protection plan, or 1,250 year protection plan? We don't have that, and we may not have the money to do that. Somebody has to make those value judgments.

Wetlands restoration, levees, and balancing that against the notion of protecting undeveloped land in the anticipation that it might at some future time be developed, that is just simply not acceptable. So let me get your thoughts, and start with Dr. Dickey and then move from my right to left.

Mr. DICKEY. Mr. Oberstar, you raise of course some very difficult policy challenges. First of all, inherent in the process that we have, we don't treat all alternatives comparably in terms of cost sharing. I think that was talked about. If you do non-structural but costs, if you will, in other words, if you prevent people from living in the flood plain, the people who pay for that are the people who lose their property values, have to travel further, etc. The incidence falls on those people, as opposed to if you build a structural solution, then the Federal Government picks up a very large share of the cost.

So you have this inherent bias in the process. And so the cost sharing inherently affects our choices and the pressures which the Federal Government feels. So that is certainly one problem.

The basic principle, it seems to me, and I think this gets at some of the points that Congressman Gilchrest raised as well, is to internalize risk, to place as much risk as you can on the people who are going to live in the floodplain, so they can make rational responses. And we don't do that now. So that would be the first thing I would suggest.

Mr. OBERSTAR. Let's move on to Dr. Galloway.

Mr. GALLOWAY. Very quickly, I think one of the issues we have to face is the coordination of Federal programs and State programs. We have on one hand FEMA's mitigation program, which can help deal with some of these non-structural issues, relocation of people out of the flood plain. We need the vehicles to mesh those with ongoing Corps of Engineer projects. There is a variety of those issues.

Second, there is the issue of collaboration in the planning, as has been suggested. The most heartening thing to me is, I went to visit the New Orleans district two years ago and I walked into a room, and in the room were cubicles with maybe 20 different people. There were 20 different emblems from the Federal and State agencies in that room working together. They didn't wait until the end—this was LCA, sir—they didn't wait until the end of the project to do it, they were collaborating every day. That is something we need to carry forth.

I think the issue of restoration of the wetlands and the whole issue of coastal Louisiana, we need to do coastal Louisiana restoration whether or not it has a direct bearing on flooding. It certainly does have a bearing on flooding, but it is an ecological necessity, but it is also necessary for the protection of far more than coastal Louisiana in the New Orleans area, the whole issue of the infrastructure in that region.

Mr. OBERSTAR. Thank you.

Mr. DUNCAN. Thank you very much.

Dr. Ehlers.

Mr. OBERSTAR. Could I just ask the other two to respond?

Mr. DUNCAN. Sure.

Mr. OBERSTAR. Dr. Emmer?

Mr. EMMER. Yes, on the issue of non-structural, I think it is essential that we mix and match the available Federal programs. I don't see this as being very effectively done today.

For example, in the case of relocation of homes in Orleans Parish, we estimate there are some 30,000 vacant dwelling units right now where you could ask people in unsafe conditions to move to these areas and use the open space as open space. They do it in Tulsa, we can do it in Louisiana. And move people to safer, better homes, upgrade these homes through existing Federal programs, and move them out of the flood-prone areas.

I would also look at elevating homes that have been modified, essentially restricting the use of slab homes in Orleans and southeast Louisiana within the levee systems. We have traditionally built up, we know it works. We should look at it again and use the traditional way of building within the leveed systems.

And Mr. Gilchrest, I will answer your questions as soon as you all tell me I can answer your questions.

Mr. OBERSTAR. On that score, I would just point out that homes built over 100 years ago and longer in New Orleans escaped the flood. They were built on berms, because in that time, those builders knew they had to elevate homes away from the damage that they anticipated was inevitable to come from hurricanes and flooding. So your point is well taken.

My wife's older brother has a home that was 100 plus years old. It got water up to the threshold. Her younger brother has four feet of water in his home, built in another area of New Orleans along Jefferson Davis Parkway. It's gone, it's hopeless.

Mr. Rabbon?

Mr. RABBON. Thank you.

What I think you are referring to is the need for a balanced program with structural and non-structural solutions. There will be places where you have to have a structural solution, you have to

have a levee. There will be places where you can do non-structural type. But it needs to be balanced.

And to do that, I think it is extremely critical that at the Federal Government level, not only that they coordinate and collaborate, but that they are forced to actually integrate their programs. We frequently work with the Corps or FEMA. Yes, they are coordinated, but I think they would be even more effective if they truly integrated their programs so it was if we were working with a single Federal Government instead of two separate agencies with two separate programs.

Mr. OBERSTAR. Good advice. Thank you, Mr. Chairman, for the extended time.

Mr. DUNCAN. Thank you. Dr. Ehlers?

Mr. EHLERS. Thank you, Mr. Chairman. My question is very similar to the previous two. Therefore, I hesitate to ask it, but I just haven't gotten the answers, and perhaps it is because I am totally ignorant of the situation down there, one of the few people who have not been down to look at it.

I come from Michigan. This past winter we had an unusual freeze-thaw cycle. We had a bad ice jam on the river, and there was substantial flooding of a group of homes. Those homes are basically ruined. The Federal Government came in and said, we will buy your homes on the condition that you deed the property over to us and not build there again.

They paid off the cost of the homes and said, you are not going to build, no one is ever going to build there again. And that is the policy of the Flood Insurance Program.

That is a little hard for me to understand, why people are talking about reconstructing an entire city in a floodplain, when you know you can't possibly build 100 percent protection. Even the Netherlands, which does the best job in the world, and has no choice, because there is no place else for them to go, they had a disaster in 1953, which is probably greater than the New Orleans disaster.

They did rebuild, because as I said, they have no place else to go. But disasters are going to happen. So why would our Country, which does have alternative spaces to build, provide the funds to rebuild a city which we know at some point in the future is going to flood again? We can put a lot of money into flood protection, rebuild the levees and so forth. But you know as well as I, at some point, if you are living in hurricane country, something is going to happen in the future. It may be somewhat different in nature, but it is going to happen.

So who really is responsible for making that decision as to what is going to happen there, and what is the role of the Federal Government? If the Federal Government says, we don't want to have to pay for this again, and so we are going to establish a policy, we will simply not pay a second time for damage done through a flood to this area, because it is in the floodplain, does the city make the decision as to whether or not we are still going to allow construction in that area? Is the State going to make that decision or are the individual citizens going to make that decision and live with the potential loss of everything they have?

I am just trying to get a handle on this. It just doesn't make sense to me to put a lot of money into building in a floodplain. I

have no problem, even if the floodplain is just a foot deep and you can put a berm in, as Mr. Oberstar mentioned, that is fine. That is a pretty safe bet.

But when you are talking about an area, a city that is sinking about a meter or a yard per century, you know the problem is not going to get better, it is going to get worse. And at what level are you simply going to say, I am sorry, there is too much danger here, we are not going to let you build? I would appreciate answers from anyone. Dr. Emmer?

Mr. EMMER. I know in Louisiana we have traditionally practiced retreat from the coast. New Orleans was founded in 1718. In 1722, a hurricane came through and destroyed one of the first German communities just upriver from New Orleans. That community was relocated to higher ground.

We can look at the hurricanes of 1893, Cheniere Caminada, 2,000 people died, people moved inland. We look at Betsy in 1965, same thing, people relocated out of the lower areas in the communities such as Manila Village in Jefferson Parish. It was destroyed, people did not go back to live in these areas.

We are seeing right now retreat on a voluntary basis from the more flood-prone and hazardous areas. After Hurricane Andrew, people moved from below Houma up into the Houma area and continued to move north. I would suggest that we will see basically the same thing today. It is an evolutionary process.

I think that what we in Louisiana are saying is that we need to draw the line for several reasons. That line is in and around New Orleans. We need that because we need to restore the wetlands that are in front of New Orleans. Without the wetlands, they support a significant part of the fisheries resource in the Gulf of Mexico. We need that for not only economy of Louisiana, but it supports the shrimping industry in Mississippi, the fishing industry in Texas and on around the Gulf of Mexico.

It also supports the infrastructure for the oil and gas industry. The fact is the pipelines come onshore, and those pipelines were built to be within wetlands, not in the high energy conditions of the offshore. So if we don't restore the wetlands, we are exposing our petroleum resources as we are bringing them in from the Gulf of Mexico.

The port facility is there. I don't see us relocating the port to Mobile. Some activities will go to Mobile. The banana industry left New Orleans back in the 1960 and went to Gulfport. Some of the container ships are going to Houston. But the rest, the bulk cargoes I see staying in New Orleans. In order to protect that port, we need to have the wetlands which support and have multiple functions and values for the Nation, and also protect the city itself.

So yes, we are retreating, it is on a voluntary basis and people accept that. But the line is drawn that New Orleans, because of its many values to the Nation, the Midwest, but the Nation as a whole, should be protected. And for the other resources that the coastal system provides for the Nation as a whole, not just for the people who happen to live in Louisiana.

Mr. EHLERS. Is the State or the city going to simply draw a line and say, you can't build on the other side of this line?

Mr. EMMER. The line is drawn. The line is the artificial levees that are in place.

There was a proposal in St. Charles Parish on the west bank within the last five years, developers and special interests on the west bank decided they wanted to build. They proposed a levee to the Corps of Engineers which said, we want to go out this far.

The Corps said, to their credit, that is a ridiculous line, you cannot build out that far, because it consumes the wetlands and exposes you to the problems that are associated with building in hazardous areas, and forced the levee back to the more acceptable conditions, closer to the natural levee, where we have better foundation conditions. That levee is being built today, but it is to the credit of the Corps that they stood firm and decided not to allow for extension of the levees.

One problem we do have is that when levees are built, we occasionally will issue permits at the Federal and State level for filling the wetlands that exist within the leveed systems. Those areas that were supposedly set aside as stormwater detention systems, as habitat. There is an issue that we really need to be addressing, is to crank up some backbone and say, hey, look, these wetlands were set aside for fisheries resources, for habitat, for stormwater detention. And we mean it when we say no more permits in these areas.

Mr. DUNCAN. All right, thank you very much, Dr. Ehlers.

Mr. Blumenauer.

Mr. BLUMENAUER. I loved the last sentence about growing some backbone so that we don't end up compounding the felony. I am hopeful that the pattern that we are going to have here will end up with reinforcing the "voluntary retreat." I hope there is an opportunity to do a big look from east Texas to the Florida Panhandle about what the sustaining capacity is to help in that effort.

I must say, Mr. Chairman, that I would like to commend all of the panel. This is extraordinarily helpful testimony. A number of you represent groups that have been working for years, the floodplain managers, God love you, on the flood insurance reform, the tortuous five year process would not have happened without the professional input. I deeply appreciate it. Maybe someday we will implement the bill that we passed.

I am distributing to each of you a series of principles that I have been working on as a way to think about the recovery from Katrina. There isn't time now and I don't want to spring it on you, but I would like to leave you with a copy of these principles that I am working on, thinking about, seek to bring to the Committee. I would appreciate any reactions that you might have to them.

Dr. Galloway, I appreciated your testimony. I think you are spot on. But you reference the fact that you were a part of a very important process a dozen years ago that pointed towards a number of the solutions that we are talking about here and didn't quite make it. I wondered if you would care to reflect on why we didn't quite get there, based on the good work that was done in 1993 and 1994, any advice that you want to give the Committee in terms of the implementation. And time remaining, I would appreciate any of the other panelists responding to that.

Mr. GALLOWAY. Thank you, sir. It is an interesting case. Immediately after the flood, just as with any action concerning the flood,

everybody is interested in coming up with a solution. The half-life of the memory of the flood is very short. And for the first year, we had a committee that worked with all the Federal agencies and we had a draft executive order and we had revisions to the Principles and Guidelines set up, and we had people looking at all of these.

Soon, not very long afterwards, 11, 12, 15 months, they began to fade away. We didn't act on them quickly. And other priorities moved in their place in the White House and the Federal agencies and on the Hill. I met and testified before committees and there was a great attempt to move ahead right at that point in time. We had a change in the Congress in 1994, priorities again shifted. It just fell behind.

And that is the challenge. We recognize these, you have seen my colleagues talk about agreement with most of these sorts of recommendations. But the problem is getting them acted on. And it really falls in the halls of the Congress to make some of these decisions, to decide what are the policies, the Administration to deal with the objectives that we found in Principles, part of the Principles and Guidelines.

The processes of the Federal agencies are certainly amenable to change, and the agencies are willing to deal with many of these issues, but there are constraints that need to be lifted, and there is coordination and integration among the Federal agencies, as Mr. Rabbon said, that need to be addressed. We don't have a single coordinating element for water issues in the Federal Government right now in the Administration. We haven't had it since the Water Resource Council was abolished in 1983.

So I think the challenge is to move quickly to get everybody on the team and to address, instead of addressing the easy issues first, address the hard issues first.

Mr. BLUMENAUER. Mr. Chairman, I see I have 30 seconds. I don't want to abuse the privilege. Let me just say that the point Dr. Galloway made about the attention span, we are already seeing in terms of the amazing media attention, that it is starting to drift away. I think that that is very important counsel to us to guide, Mr. Chairman and the Ranking Member, in terms of how soon we can move this forward.

I do sense it already, because there are many other issues that are moving forward. If we are able to build on this superb set of hearings that we have had, the consensus actually that is emerging from the expert witnesses, if we are able to move that in a timely fashion, I think that may be one of the most elements that I take away from this and I hope we can accelerate.

I appreciate you moved quickly, but I think time is running short for us to have the impact that the public needs.

Mr. DUNCAN. All right, thank you very much.

Dr. Boozman.

Mr. BOOZMAN. Mr. Rabbon, can you tell us about the other cities that are at risk like New Orleans?

Mr. RABBON. Yes. I do come from the city of Sacramento. I live behind a levee. I would be flooded 10 feet deep if the levee failed. I also happen to have a boat in my garage.

[Laughter.]

Mr. RABBON. Sacramento is an area that is protected completely by levees, surrounded by levees. In the central valley of California, there are over 1,600 miles of levees that are federally authorized. Literally every city or town in the central valley of California is protected by some type of flood control system.

So I am just speaking from my experience as general manager of the reclamation board. NAFSMA, we have over 100 organizations. They all, almost essentially all of them have some type of federally authorized flood control project, or are working on studies or activities with the Corps of Engineers. So in terms of levees, it is a major issue across the U.S.

Mr. BOOZMAN. How accurate are our flood control and our floodplain maps? How up to date are they?

Mr. RABBON. They are accurate the date they are published.

Mr. BOOZMAN. When were they published?

Mr. RABBON. Each one would vary, but once they are published, from that point on, the way that maps are developed, the go out of date. A map, especially, you're referring probably to the FEMA map, is just a snapshot in time. Once you have taken that snapshot, development will continue, development will modify what those maps look like. Hydrology changes, many people here on the Committee have talked about the changing climate, the sea level rise. All those things will impact the maps.

As another local example, for Sacramento, when Folsom Dam was built, we had 250 year level of protection. It dropped down to as low as a 70 year level, and the only thing that changed was the hydrologic data. Nothing else changed.

Mr. BOOZMAN. Isn't it a significant problem that the maps that we have now aren't up to date, and that people in good faith, that are trying to do the right thing, can't do it because they don't have the information to make that determination?

Another thing is, how do we solve that problem?

Mr. RABBON. Those maps do need to be updated. There is a remapping program through FEMA that does need additional funding in order to update those maps.

Mr. BOOZMAN. You mentioned, and again, this is for the panel, I think most of you feel like we need to go to a 500 year flood whatever. You mentioned the levees. In many cases, the levees aren't going to get it. Is the panel suggesting that we need to look at additional dams and things of that nature?

Mr. GALLOWAY. Sir, I would argue that it could be a combination. I think you have to look at each case and decide what is the comprehensive approach to it. Because if you do something in this particular area, you may affect the people downstream.

That goes back to the issue of a comprehensive, multi-faceted approach. There are floodways being considered, upstream storage and wetlands. There are many ways to do it. I think in each case, you need to see what is the appropriate approach that you need to take in this particular region.

Mr. EMMER. I would suggest in our case, and in cases such as Port Arthur and California, where we live behind levees, is that we strengthen our first line of defense, but internally we have to take responsibility for ourselves. We need to start looking at elevating houses within the community and simply looking at those areas

that are too low to protect, and should you choose to live with these areas, build up, but you accept the risk if the flood is higher than the height of the elevation of the structure that you choose.

But there needs to be some personal acceptance of responsibility when you live inside the levee system to take care of yourself.

Mr. BOOZMAN. I guess I would argue, and I hope that you will support us, that in order to really figure out what you need to do, you have to understand the risk. And if you don't have accurate floodplain data, which we don't, it doesn't appear, it create difficult situations.

Mr. GALLOWAY. Sir, the FEMA floodmap modernization program, which Mr. Rabbon mentioned, is the real giant start on a program supported by ASFPM and NAFSMA to get the program going. It is in the second year of what is envisioned to be a five year, but certainly will last longer with the new-found emphasis. But there are modern techniques. We are finally able to capture the strength of GIS and computer data bases and LIDAR to go and found very accurately what elevations are.

The one challenge we still have in that is, how do you know about the integrity of the levees that are there. That is the toughest job. Walking along the surface of a levee, you don't see very much. So it is a complex job that is going to require a lot of effort and each of the panelists have mentioned that.

Mr. BOOZMAN. Thank you very much.

Mr. DUNCAN. Thank you.

Ms. Johnson.

Ms. JOHNSON. Thank you very much.

I appreciate all the witnesses, I think that all of you brought a great body of knowledge. As I sit here listening, however, I fully recognize that where we are in terms of the temperature of the water and all that, we are subject to have other catastrophes and when, we don't know. But I do have a concern that building back New Orleans before we get an opportunity to improve the levees might place us in the same position that we are now. And that is the whole Gulf Coast.

The other thing is, we have had hearings on the possibility of a tsunami for California, or warnings and what have you. We look at Florida and we have had some tremendous floods in New Jersey and all. I just wonder if we need to do a nationwide inventory and start to perhaps alter housing. Because I don't know that we will ever have enough money to build these floodplain areas to the point of not flooding. And if we even had enough money, it takes a while to get that done.

If we could get a current inventory around the Nation and the danger which we might see, because we did know about the possibility of New Orleans, but there was nothing that we found ourselves being able to accomplish to address it prior to it happening. We have a bill that was passed out of the House about three months ago that had quite a bit of money for the area. And I am not saying that if we had it appropriated, it would have prevented that.

But I am saying that to emphasize the length of time it takes to implement whatever we appropriate for. And I think the Corps

of Engineers probably has done the best they could do with the money they had and the situations. But we do have to improve it.

Now, we have had some of these computerized projections of what downtown Dallas is going to look like over the Trinity River corridor. And we have had some pretty dangerous floods, but we are vulnerable now. I think probably we will have it by the time we get any attention given to it.

But how do we approach this? I would just like to hear from each of you and your opinions of how we go about it and what kind of money would it take and just give us your degree of expertise. Let's start with California. We could move that whole State out, I guess, the whole State is vulnerable.

[Laughter.]

Ms. JOHNSON. How would you start now to try to protect?

Mr. RABBON. You are correct, time is of the essence. And the State of California actually has issued a report entitled Sudden Management Crisis, it actually calls it a ticking time bomb. I don't have a great solution, but one thing that I do offer is the idea of a national assessment is critical, that we will start to get our arms around it.

But I think the Corps of Engineers has their cost-sharing program. That has basically said, those that are serious at the non-Federal level, step up, put your money on the table, we will work with you.

I think if you take that into consideration, that might help address the timing concern. Those at the local level that know they have a problem, that are serious about helping to get their problem solved, if they step up to the table, you are going to see those areas go quicker. That will be the urban areas. Those will be the ones that probably have a tax base where they can put money on the table.

So that's the one item I offer to try to move things quicker, is look at cost sharing.

Ms. JOHNSON. Thank you.

Mr. EMMER. As we rebuilt New Orleans, there are a lot of homes that simply don't exist any more, that were simply destroyed, others that need to be torn down. I believe that when these are rebuilt, they should all be elevated, there should be no slab houses left or allowed in those areas where we had inundation.

We know that is acceptable to live at least to a plus nine feet above surface elevation with a New Orleans type basement house, where the first floor is actually open space, essentially, where you park your car and that type of thing. These houses have existed in New Orleans since the 1910s and 1920s, an acceptable, traditional way of building.

We can build on piers. When I rebuilt my house after a fire, I built on piers, because I don't like slab, obviously. I think that has come across. But it only added about 2 percent to the cost of the house. Once you start moving the house up, it is like making reproductions of paper. The first 500 costs you something, but everything after that is essentially paper, so you are moving up 2 percent to do the first 18 to 24 inches, after that it is just some minimal amount of money to get it up to almost any height that you

want. It is whether it is culturally acceptable. That can be done now.

The second thing is, we can offer people a chance to move into some of these vacant houses, get them back on the tax roll, upgrade them through other Federal programs, such as HUD, and give people the opportunity to have safer homes in less flood-prone areas.

So I think there is plenty we can do right now as we look at upgrading our levee systems. We don't have to wait until the levees are done.

Mr. GALLOWAY. I would comment that I think education is a very important part of this, knowing the risks that you face. I compliment the State of California, and actually the media in California, which has put a lot of attention on getting this word out, that you are at risk. We have recommended in the past national inventory of flood-prone structures and equally important, an inventory of what is the risk to Federal facilities in the floodplain.

OMB has chosen not to press that issue, but I think it needs to move ahead, because there is a risk. All of that says, if you know where the risk is, then a rational person may well avoid moving into that area. That would be the first big step. The other step is to avoid building in the floodplain new areas, as Mr. Emmer mentioned, when you don't need to, when there are alternative locations. Yet we see day after day people wanting to build something in the floodplain and throw a levee around it and say that they are protected. I think we need to educate the populace.

Mr. DICKEY. I think an enormous contribution could be made by requiring people to buy flood insurance even though they live outside the 100 year floodplain, let's say, up to the 500 year floodplain. That would be a very effective way of informing people and reminding them every year of the risks that they really in fact face.

Ms. JOHNSON. Thank you very much, to all of you. My time has expired.

Mr. DUNCAN. Thank you very much. Mrs. Schmidt.

Mrs. SCHMIDT. Thank you. This is directed to the panel.

Today, many people have talked about migration away from the floodplain when a natural disaster occurs as a way to handle not rebuilding in the floodplain. My concern is, people have a short term memory and they will come back.

I am also concerned that with the rebuilding, there is not a uniform building code along that portion of the coast that has been devastated. So there is an inability to control what is being built in a responsible way.

Do you have any suggestions?

Mr. EMMERS. In the case of Louisiana, I know unfortunately many parishes do not have building codes. So your brother-in-law can go out there and put in the wrong size wire and burn the house down. Why we choose not to do that, I am not sure. It seems like a pure family safety factor.

But that is some initiative that the State needs to seriously take and implement, a building code that would satisfy and address the issues of health, safety and storm surge and flooding. It is something we in Louisiana definitely need to address. How we force the legislature to do it, I am not sure.

Mr. GALLOWAY. The House committee that was dealing with this after the Mississippi floods came up with that very same question: what do we do? And the answer is, it is very difficult to seem unkind to the people that are at risk. Yet reality is that you need to get the people who are at the local level and the Federal officials all agreeing that you need tough love in this post-disaster period. You need to be able to tell people and to pass emergency legislation at the local level that says, you may not rebuild in here unless you adhere to new codes.

That is tough. And people have been reluctant to do that. But that is the only way we will prevent it. Because right now, there are so many incentives and so many programs that are helping the people "get back on their feet," we may put them back on their feet but in the wrong place. So we need coordination and we need some tough love.

Mr. RABBON. I would like to add one other item. I had discussed an incentive-based cost sharing with the concept that the Corps of Engineers consider not just structural but non-structural elements of a federally-authorized flood control project. This could work very well for your concept, be it if the Corps was doing a federally-authorized flood control project, if they had an incentive-based cost sharing that would say, well, if you reserve this area as part of the project for open space and make sure there is, for perpetuity, no longer construction in this area, we are going to give you some special consideration and cost sharing on your larger project. So by changes in the policy and guidelines, there could be potential to address your concern.

Mrs. SCHMIDT. Thank you.

Mr. DUNCAN. Mr. Baker.

Mr. BAKER. Thank you, Mr. Chairman, for convening this hearing. I want to express a particular welcome to Dr. Emmer. He and I have labored in the floodplain fields for many, many years, and I have regard for his opinions.

I just wish to make a comment, I really don't have a question unless a member of the panel wants to respond. But I have introduced H.R. 4100, I appeared before the Committee some time ago relative to the Louisiana Recovery Corporation. The bill is now filed. It creates an off-budget corporation which, through a financial mechanism, basically issues Treasury debt that can fund improvements in the Katrina-affected area, over a period of time getting us out of the Congressional appropriations cycle where you have to come in and ask for huge chunks of money, because we will require timely, year over year, expenditure, not one lump sum, which lends itself to other problems.

Secondly, the opportunities afforded to an adversely-affected homeowner from being a partner in the redevelopment and taking no money from us, but getting a reclaimed lot on which they can rebuild at a future time, to taking a cash settlement and moving on, to taking a cash settlement and having the first right of refusal on a lot they buy back at some subsequent time, in other words, a lot of options that the homeowner determines what is best for their family to have a bottom-up plan.

But the corporation is vested with the responsibility to acquire, as best possible, all the tracks that are adversely affected, not like-

ly to be reclaimed or rebuilt, and do the levee restoration, simultaneous with the environmental remediation, and then bring in free enterprise developers to bid on those reclaimed tracts, which provide some repayment to taxpayers on the back side of the deal. So the Federal taxpayer investment is a bridge loan against which payments from the sale of lots to developers in future years will enable some reduction in the overall Federal liabilities.

All that works. Now, some people say, why go to the trouble, and to Mrs. Schmidt's observation that people do come back, well, in our case, there is economic necessity for people to come back. Thirty percent of the Nation's oil and gas, 30 percent of the Nation's seafood, the port, which exports 70 percent of everybody's grains and corn, those are good jobs. People are going to come back for good jobs.

So if people are going to be there, how do we mitigate against the potential of repetitive loss? One, of course, the obvious, is levee restoration and integrity. But I would point out in New England two weeks ago, we had a dam failure. And although not of the cataclysmic scope of Katrina, the consequences were very similar. You had people who had never flooded, you had a structure that was well over 100 years old, looked like something that was built around the Civil War, that was to protect them from invasive floodwaters.

Well, that is no more responsible than people living south of New Orleans. So we have to be very careful about saying, you can't live there, because if there is a danger, we have to truck you out somewhere. We are all going to wind up on a hill in the middle of Oklahoma somewhere, and we are going to be watching for tornadoes. That doesn't make economic sense.

At the same time, we have a flood insurance program which, on its face, seems to work better than any other natural disaster response. Nobody has taken affront to the fact that when a natural disaster occurs somewhere else in the Country, we write checks directly out of the Treasury with no hope of repayment. That is not a problem. We have a flood insurance program which collects premium, which since about 1988 has repaid every dollar advanced on a line of credit, plus interest. And that is a defective program. I am missing the logic to these arguments.

What we need is, rather than having Louisiana as the second highest conforming flood insurance participant with slightly over 40 percent of the people in the floodplain paying premium, we need to get everybody in, mandatorily. If you live there and it is surveyed as in the floodplain, you are going to pay.

Now, we can screen this even better. If it is your primary residence, you pay one rate. But if you are down there buying a suntan on the sunny coast of X, Y or Z, and it is your second home, you ought to be paying actuarial rates. Or else you have no business being there. That is logical.

Why we won't do it, I don't know. And what I have learned this morning, most troubling, and the reason why I am not my customary calm self, Mr. Chairman—

[Laughter.]

Mr. BAKER.—is FEMA has the statutory authority now to constrain rebuilding activities in Louisiana and Mississippi and simply

is not exercising their statutory obligation to say, don't build here again under these circumstances, and paying people and hinting it's okay to rebuild.

I just came from Financial Services, where that subject just came up. I have signed on to a letter with Mr. Frank, Chairman Oxley and others, and I am going to suggest to Chairman Oxley he get that letter over for your attention. If FEMA has the authority to preclude repetitive loss and is simply not exercising their authority, that is just inexcusable.

Mr. Taylor and I and others in the affected area are willing to step up and tell our constituents there has to be a different way of conducting our business. But if we already have the authority to preclude inappropriate conduct and we are not exercising that statutory authority, that is just inexcusable.

So I would say, Mr. Chairman, we would modestly suggest in Louisiana, we want to pay our proportionate share. This storm has exhausted all available revenues to the community, to the State. New Orleans has no revenue. The State has already expended a billion and a half dollars that it does not have in response to the storm. So we are totally reliant on your good generosity to resolve the circumstance.

But we must recognize that people out of economic necessity will return, that there are appropriate remedies that can be posed and some voluntary, many mandatory, that we should take. And that at the end of the day, we can have a fully funded, required flood insurance program that provides repayment to the American taxpayer over time when these calamities occur. And they are certainly going to occur again.

I give up, Mr. Chairman.

Mr. DUNCAN. Well, thank you very much, Mr. Baker. As I have mentioned in here one other time, all of the delegation that went down to Louisiana was so impressed with your handling of the entire situation. You have had to go through things in the last several weeks that none of us would wish on our worst enemies. It has been a very difficult and time consuming thing. Certainly, I think you are absolutely correct in the comments that you have just made.

Mr. BAKER. Mr. Chairman, I hate to interrupt, but I just want to point out, not that I am down on my luck, but I actually paid good money for tickets to the fifth game of the World Series. I just want you to know that.

[Laughter.]

Mr. DUNCAN. Well, I hope it starts turning around for you. And I was rooting for Houston, so that didn't do much good.

[Laughter.]

Mr. DUNCAN. Well, I said a few minutes ago that Dr. Dickey had brought up the most difficult part of this whole process, and that is that we have to try to figure out what is the best use of very limited resources. As we have pointed out in here before, the Federal Government has an important role and it has a leadership role. But it can't do it alone.

I have some questions in that regard. But first, Dr. Dickey, I did mention my friend Earl Blumenauer has brought up in this Subcommittee frequently the Principles and Guidelines. Do you think

that the Principles and Guidelines are so inflexible that they need to be thrown out and we ought to start over again? Well, let me ask you this, instead of me saying that.

Do you think that most people who study these needs feel that we should take in a whole lot more into consideration than just the cost benefit or benefit cost considerations?

Mr. DICKEY. Mr. Chairman, first of all, the Principles and Guidelines are very, very flexible. They are simply a framework for systematically looking at alternatives and can accommodate a wide range of objectives. So I am very wary, frankly, of changing the Principles and Guidelines.

There are lots of details about how they are implemented, but that is within the discretion of the agencies. I think you open a can of worms, frankly, and it is noteworthy that when people say they want to change them, you ask them, well, how do you want to change them. You get different stories. OMB wants to change them. They said that in a recent statement of position. They want to make it harder to justify projects.

Other people I think want to make it easier. Other people want to add another objective, talk about environmental quality. Well, we had experience with environmental quality as an objective in the Carter Administration, and it just produced an enormous amount of confusion.

Mr. DUNCAN. Right. What about the cost benefit analysis considerations? What I am getting at is people are saying that we need to take into consideration safety first, as Mr. Rabbon said. We need to give priority to human life. Nobody would dispute that.

On the other hand, I would assume that none of the four of you on this panel think that we should just totally throw out the window cost benefit, or as some people refer to it, benefit cost considerations. What do you say about that?

Mr. DICKEY. I would hope not, Mr. Chairman. Again, the Principles and Guidelines, if you read the Principles, you can accommodate other concerns, whether it be loss of life or environmental values, whatever. Those all can be accommodated. The Corps is accommodating them. In fact, if you look at the Everglades Restoration Project, there is no BC ratio for that. For Coastal Louisiana, there is no BC ratio for that.

The reason we haven't incorporated human life into evaluations is because we have just chosen as a policy not to do it. People are wary about, for 9/11, the value of human life was quantified. EPA quantifies it, incorporates it into benefit cost analysis. It is merely a practice of the agencies. There is no reason to have to change the P&G to change that.

Mr. DUNCAN. Well, you have mentioned two of the three biggest projects that we had in the WRDA bill that we passed a couple of times here now in the House, and it has gotten bogged down in the Senate. We had huge amounts of money for funding of Everglades restoration and work along the Gulf Coast and Coastal Louisiana.

Dr. Galloway, I think everybody was so impressed with your testimony. You certainly have knowledge of this, especially from your 1993 study. But let me ask you this. You mentioned in your testimony the 1,250 year protection in the Netherlands along the rivers and the 10,000 year protection along the North Sea Coast.

That sounds good, but, it just wouldn't be possible for us to do anything like that all around this Country, would it? Do you have any idea how much that would cost for the United States to do something like that? You aren't advocating that, are you?

Mr. GALLOWAY. No, I am not advocating a 1,000 year, 1,250 year protection. But I am advocating for, as our report did, and my colleagues have, that we have an increased amount of protection provided for major population centers.

Mr. DUNCAN. And I would agree with that.

Mr. GALLOWAY. Sir, I think that the issue becomes one, in the 1930s, after the 1927 flood on the Mississippi that really got us started, they said, let's figure out what is the worst storm that we can have and let's protect against it. That is what has been in place on the Mississippi River since 1928.

I think that we need to examine each of the areas and see what it is that is appropriate, taking other steps like flood insurance to protect against residual risks. No, I am not suggesting that we provide 10,000 year protection, but I think it is rather interesting that we have very high level of protection on the Mississippi River side of New Orleans, and a considerably lower level on the hurricane protection side, Lake Pontchartrain.

So I think we need to go around and see what our program is. That is why I have advocate, and in our report we advocated this inventory to see what really is the challenge. There is a study of the National Flood Insurance program underway that looks at many of these issues and what is the right level of protection and those sorts of issues have been addressed.

So I think it is opening the dialogue to say that we should not accept 100 years as the standard. We ought to decide where it is we want to have the higher level.

Mr. DUNCAN. I am presently reading a real interesting book called Storm of the Century about the hurricane that hit the Keys on September 2nd, 1935. A lot of people just don't realize that the worst year was 1933 while the worst decade was the 1940s. Anyway, it is a fascinating subject to me.

Dr. Emmer, my understanding is the State of Louisiana has requested 500 year protection for the entire coast of Louisiana. What do you say about that? And how much would that cost, do you think?

Mr. EMMER. Cost-wise, I do not have an estimate of what that would cost. There was, in the New Orleans Times Picayune on Tuesday a map that was reproduced showing what was supposedly the barrier plan that would extend from St. Tammany Parish across to below the Atchafalaya. The Governor's Coastal Commission received reports from a Congressional delegation and also some internal reports. I did not, or do not have those detailed figures, but there is a very big writeup in the New Orleans Times Picayune this past Tuesday on that.

Do I see it as working? Realistically probably not. I see protecting the areas where we have existing development. But when we looked at the barrier plan back in the 1980s, a conscious decision was made to go with the levee alternative, not to put a barrier across the Chef and the Rigolets.

I think that upgrading and protecting the areas where we life, as was indicated before, we protect what we have, we rebuild the wetlands and the fact is we have to accept that there is only so much habitable land within the State of Louisiana, at least in the coastal zone. That is where we are.

Mr. DUNCAN. Have you looked into this business about the soil erosion or the levees giving way underneath?

Mr. EMMER. I am not an engineer, however, I do have a background in geology. If you look at the soil surveys for East Jefferson Parish and for Orleans Parish, you see that there are lenses of peats all the way across. These have been identified since the soil surveys were published. They should have been anticipated. As I said, I am not an engineer. I don't know why or how they were missed.

I will say that I was surprised that the sheet pile were only 15 feet long. I would have thought that they would have been much deeper than that. But again, I am not an engineer, so I cannot speculate on any of that.

Mr. DUNCAN. All right, Mr. Rabbon, we have to close this out. I have to be in another meeting in about five minutes, but I am going to give you a chance. You have heard all these questions and comments here. Any closing thoughts? I am going to give you the last word here.

Mr. RABBON. My thought is, with all the effort you have put in, I certainly hope that we seize upon this opportunity that is before us to make some improvements for public safety.

Mr. DUNCAN. You know, I think we will. I think that we will take some actions. As bad and horrible and terrible as all the things that have happened with Katrina and Rita, as I have said at some of these other hearings, we have to do everything we can to make sure that the money that we have sent down there is not spent in scandalous or wasteful ways and the taxpayers don't get ripped off.

But I do think that this Country is better at bringing good out of bad than any other Country in the world. So, as critical as some people have been about things that have happened, or some of the response, no other Nation in the world would have responded as quickly or in such a wonderful and big way as we did in this Country to a disaster or to disasters of the magnitude that we have seen.

Well, you have been outstanding witnesses and we certainly appreciate your help to us in this regard. That will conclude this hearing.

[Whereupon, at 11:55 a.m., the Subcommittee was adjourned.]

OPENING STATEMENT OF
THE HONORABLE RUSS CARNAHAN (MO-03)
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
U.S. HOUSE OF REPRESENTATIVES

Hearing on
Reducing Hurricane and Flood Risk in the Nation

Thursday, October 27th, 10:00am
2167 Rayburn House Office Building

Mr. Chairman, thank you for holding this hearing on reducing hurricane and flood risk in New Orleans and throughout the nation. Hurricane Katrina has put to the forefront the need for us to re-evaluate our nation's flood control policies. The role of the federal government in rebuilding New Orleans and improving our nation's flood protection infrastructure should focus on the safeguarding of lives and property. No federal policy should exist that fails to protect both.

Because our subcommittee is charged with hurricane and flood damage reduction, we must play an active role in ensuring that our country's infrastructure is adequate, cost-effective and environmentally friendly. We also need to take a serious look at the Flood Control Act of 1936. Basing infrastructure projects purely on a cost-benefit basis without taking into consideration the potential loss of human life proved inaccurate during Hurricane Katrina. No particular area of the country should receive less protection from flooding based solely on a cost-benefit analysis.

As exemplified in New Orleans' Lower Ninth Ward, I am concerned about plans for protecting low income areas. I am especially interested in hearing what each of the panelists envision for the future of flood protection in general, and in particular for low-income areas like the Lower Ninth Ward.

I also urge everyone to pay particular attention to meeting these goals in a fiscally responsible manner.

I look forward to hearing the testimony of the panelists. Thank you for being here today.

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STATEMENT OF
THE HONORABLE JERRY F. COSTELLO
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
HEARING ON "WATER RESOURCES PLANNING FOR A REBUILT NEW ORLEANS AND REDUCING HURRICANE AND FLOOD PROTECTION RISK IN THE NATION"
THURSDAY, OCTOBER 27, 2005 AT 10:00 A.M.

Thank you, Mr. Chairman, for holding this series of hearings on rebuilding the Gulf Coast region and flood damage reduction and floodplain management.

The flooding that occurred after Hurricane Katrina in New Orleans and the surround Gulf Coast areas was one of the worst disasters our the nation's history. The U.S. Army Corps of Engineers currently analyzes the costs and benefits of each hurricane and storm damage reduction and flood damage reduction project. Yet, the benefits primarily consider protecting property, not the value of a human life.

We have learned that residents of flood prone areas are not fully responsive to adequate and timely hurricane warnings or do not have the means and ability to vacate the area. Other cities may present the same difficulties, including Miami, Houston, and Sacramento, and we must assess our policies now in order to maximize safety, preserve infrastructure, and protection of human life.

Whatever decisions are made regarding hurricane protection for New Orleans and the Gulf Region will affect flood control policy nationwide, including my congressional district in Illinois where the Flood of 93 severely devastated my district. Thus, these policy decisions must be carefully explored and considered and reflect some generally applicable criteria.

I welcome the witnesses here today and look forward to their testimony.

Complete Statement of G. Edward Dickey, Ph.D.
on
Reducing Hurricane and Flood Risk to the Nation
before
Subcommittee on Water Resources and Environment
Committee on Transportation and Infrastructure
U. S. House of Representatives
October 27, 2005

Thank you, Mr. Chairman, for inviting me to testify on the important topic of reducing hurricane and flood risk to the Nation. I am pleased to have this opportunity to draw upon my years of experience with Federal water resources management and provide advice on how Congress can best continue to reduce the hurricane and flood risk to lives and property through the Army's Civil Works Program.

OVERVIEW

From the very beginning of the program, Civil Works projects have been developed based on situation-specific studies resulting in recommendations tailored to particular circumstances. These studies incorporate hydrologic, engineering, economic and, for several decades now, ecological, cultural and other environmental knowledge and analyses. The Corps feasibility study process has served the Nation well and has provided us with extensive infrastructure that is essential to the effective functioning of our economic system and continuing economic growth. However, it has not been perfect.

Not all projects have performed as predicted or have been as productive as anticipated. Structural or operational modifications have been required to accommodate changing economic conditions, new scientific knowledge, technological change and changing public values. Insufficient attention was paid historically to the interactions between engineering structures, which extensively modified hydrologic regimes, and the physical and biological environment. Equally important, insufficient attention continues to be paid to the impact of hazard reduction on human behavior.

LESSONS FROM SOUTHERN LOUISIANA

These short-comings have been amply demonstrated in Southern Louisiana. Extensive engineering works for managing the Mississippi River and numerous large-scale coastal navigation and storm damage reduction projects have caused widespread and on-going changes in physical landscapes and ecosystems. These changes were not foreseen or, if anticipated, were considered to be a necessary consequence of economic advancement. In addition, these works allowed new patterns of economic activity and changed where and how people live and work. The historic focus of storm and flood damage project development was on reduction of inundation damages to property. Clearly, as in the case of New Orleans, insufficient attention was paid to residual risk and to the vulnerability of the occupants of protected areas when the provided project protection proved inadequate. The potential for disruption of human activity within protected areas and the economic consequences to the rest of the nation were not addressed in any detail. The devastation wrought by Hurricane Katrina is a compelling demonstration of the reality of residual risk and the necessity to include its management in water resources planning and project implementation.

THE VALUE OF CIVIL WORKS PLANNING

The Civil Works Program has always been at the forefront of situation-specific planning. The major outputs of water projects--flood and storm damage reduction, navigation and water supply--lend themselves to benefit estimates in monetary terms. Most project costs can be quantified in monetary terms, as well. Comparisons on benefits and costs of specific project possibilities are readily made. Moreover, each planning situation is unique in terms of the issues to be addressed and the opportunities to address them. There are no cookie cutter, one size fits all, environmentally sensitive solutions to flood and storm threats or any other mix of water related issues. Congress has long recognized that fact and has generally required a Corps of Engineers report to be submitted for its consideration before it takes action to authorize and fund a project. This approach to public investment decision-making allows government to function at its best–making informed choices among competing values as identified in a feasibility study.

Situation-specific feasibility studies are important from several perspectives. Not enough resources are available to produce all the goods and services we value. This is true at all decision levels, public and private. As individuals we must make tough choices about how to use our incomes. Businesses cannot do all that they might want to do in order to increase their profits. Federal, state and local governments not only face conflicts among competing values such as economic growth and environmental and social preservation in virtually every resource management situation, they also confront the fact that there are more demands for their respective budgetary resources than they can satisfy. As Congress wraps up the FY 2006 appropriations process, choices must be made, and many compelling justifications are being advanced for allocating available program funds in one direction or another. The reality is that many problems must remain unaddressed or incompletely solved, and many opportunities left to the future. It behooves us, therefore, to make the best use of what we have. Scarcity of resources is a fundamental condition of human existence. Scarcity must be addressed in individual project planning and at the program level where the competing budgetary demands of meritorious projects across the Nation must be balanced in the most responsible way possible.

The Corps planning process as it relates to individual project decisions

Analysis plays an essential role in decision-making throughout the water resource planning process. The Corps of Engineers is required to go well beyond the calculation of a benefit/cost ratio for a recommended project. Incremental analysis as required by the U. S. Water Resources Council's Principles and Guidelines* is at the heart of the Corps' plan formulation process. Projects of different scales and scopes are systematically considered so that trade-offs among alternative mixes of project purposes and alternative solutions can be identified, and the relative merits of different plans for resource use can be systematically evaluated in light of prevailing economic, environmental and social values.

The Corps of Engineers' application of the Principles and Guidelines has grown with its missions and with the comprehensiveness of its studies. The Corps has been a pioneer in applying its techniques of incremental analysis to develop ecological restoration plans and multiple purpose plans providing a mix of economic and ecological outputs. In situations where benefits are not monetized, as in the case of ecological restoration, costs of successive increments of output are identified with the goal of weeding out unproductive project features where the expenditure of resources does not produce commensurate benefits. (Where benefits are not monetized, the study is referred to as a cost-effectiveness analysis, but the analytical process is similar to that for a benefit/cost study.) In short,

* Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, March 10, 1983

tradeoff analysis is essential to informed choice among competing alternative plans regardless of the nature of the alternative plans' outputs. Such analyses support both the Comprehensive Everglades Restoration Project and the Louisiana Coastal Areas Program.

Sometimes significant aspects of a comprehensive plan are not captured in a cost-benefit or cost-effectiveness analysis. Regional impacts and social impacts not contained in the plan's economic analyses can be significant in decision-making. An appropriately constructed display of tradeoffs provides a framework for consideration of these impacts. Congress and a project's non-Federal sponsor should be able to understand the "price," in terms of both benefits foregone and additional costs incurred, of accommodating these kinds of concerns. Again the Corps' analytic framework assists informed decision-making by both the Federal Government and the projects' sponsor regardless of the complexity of the issues and the possible tradeoffs among competing values.

Programmatic benefits of Corps project planning

Sound situation-specific feasibility studies are essential from the programmatic perspective as well. Well-crafted situation-specific planning helps ensure that the Civil Works Program is as productive as possible. State and local governments, in their role of project sponsors, clearly influence Federal spending priorities by their willingness to contribute their funds to project implementation. However, the effective limit on the size of the Civil Works Program is Federal funding. As we all know, Federal funding has been increasingly difficult to get for the past decade, and Federal appropriations have not kept pace with the willingness of non-Federal project sponsors to contribute their funding shares. Because of the constraints on the total Civil Works Program imposed by Federal funding limitations, expending funds on projects which contain unproductive elements, like project funding that is not leveraged by non-Federal contributions, imposes a major cost to the Nation in terms of the benefits-forgone. Construction of other productive Civil Works projects is delayed or eliminated. Tradeoffs among projects are real at the programmatic as well as at the project level.

The scarcity of Federal appropriations is not presently reflected in individual Corps feasibility studies, but the limited availability of Federal funds certainly should be an essential consideration as project proponents select their preferred damage mitigation strategies.

CLIMATE CHANGE AND ITS EFFECTS

Recent scientific evidence has made water resource planning even more challenging. Global warming and its impacts including sea level rise and changing weather and storm patterns will make traditional Corps feasibility studies more complex. Consideration of sea level rise brings an added consideration to many types of planning studies, not just Corps studies, in coastal areas. Estimates of benefits and costs may change, and project designs may be influenced substantially as a result of climate change and its impacts. As scientific information continues to be developed, the effects of climate change should be incorporated into feasibility studies.

NEW POLICY DIRECTIONS

Some have argued that the hurricane and flood threat to major population centers demand simplified approaches to Federal water project investment decisions. I believe that the Corps' traditional planning approach offers the best hope for making wise responses to the evolving hurricane and flood threats we face across our vast Nation. The powerful conflicts among values are unique in each planning situation and can not be successfully addressed at the programmatic level.

Four programmatic policy changes that would improve Corps feasibility studies and project implementation warrant the attention of Congress. They are briefly summarized below. The first three pertain directly to how the Corps plans. The fourth addresses a larger policy issue.

First, Corps planning should be focused on managing the total flood risk rather than on developing a Federal project to manage a portion of the risk. There will always be a flood risk remaining after any plan is implemented. Both the Congress and the non-Federal sponsor should be given a plan for managing the total risk. Congress should ensure that every plan that it authorizes is complete in that structural measures are accompanied by appropriate local regulatory and other management measures such as maintenance of evacuation plans as necessary adjuncts to structural investments. This is not a new idea (See, for example, Section 202(c) of WRDA '96); it has been resisted for years.

Second, the Corps needs to do a better job of identifying and quantifying the benefits of its projects. We can now fully appreciate that large scale, albeit infrequent, events like Hurricane Katrina have economic and social costs that extend beyond the standard project benefit calculations based on reductions in property damages that are typically contained in Corps reports. Expansion of benefit calculations will require development and use of new techniques and expertise and will require added resources for individual studies and for research that can support the uses of broader benefit calculations.

Third, the impacts of new water resource infrastructure on the location of human activity should be explicitly addressed in the planning process. Since the 1960s, interactions between Federal projects and ecological systems has been increasingly recognized and addressed in resource investment and management planning. Project-induced impacts on human activity continue to be largely ignored in Corps feasibility studies. Congress should require that the Corps and its non-Federal sponsor evaluate changes in the location of human activity and private investment that are likely to be induced by a damage mitigation project. Management actions such as zoning and building codes that minimize undesirable impacts should be required of the sponsor as an integral part of the plan's implementation.

Fourth, National Flood Insurance Program policy should be altered. Civil Works planning takes place in a larger Federal policy framework. Properties located outside the "100-year floodplain" are not subject to the requirements of the National Flood Insurance Program. Communities sometimes see the objective of a Civil Works storm or flood damage reduction feasibility study to be to find the cheapest way to remove the community from the requirements of the Federally mandated flood insurance program rather than how to provide the best flood damage reduction plan for its inhabitants. Such thinking distorts project decision-making and shifts attention away from the issue of residual risk. Congress should require properties which benefit from a Federal storm or flood damage reduction project to maintain policies that would insure them against residual flooding risk. This requirement would promote better plan selection decisions and better use of the lands afforded a degree of flood protection by a project.

SUMMARY

Congress should continue to rely on situation-specific water resource studies when deciding to authorize and fund measures to reduce the evolving hurricane and flood threat. Sound water resource planning considers the economic, environmental and social conditions of a particular place and allows the inevitable tradeoffs among competing values to be addressed in an informed way. Sound planning also helps ensure that Congress will make the best use of available Federal funds as it allocates resources across competing projects nationwide. More comprehensive analyses, the management of residual risk through flood insurance requirements and other actions by project sponsors that complement a Federal investment can further improve our Nation's ability to protect floodplain residents from hurricane and flood threats.

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TESTIMONY

Association of State Floodplain Managers, Inc.

before the
House Transportation and Infrastructure Subcommittee on Water Resources and Environment

Reducing Hurricane and Flood Risk in the Nation

Presented By:
Rod Emmer, ASFPM Member and
Executive Director, Louisiana Floodplain Management Association

October 27, 2005

Background

In the aftermath of Hurricanes Katrina, Rita and Wilma, the Association of State Floodplain Managers (ASFPM) envisions a number of key legislative policy changes to strengthen the programs of the U.S. Army Corps of Engineers and reduce future loss of lives and property due to flooding. We appreciate the opportunity to discuss those with you today.

ASFPM and its 21 Chapters represent over 8,000 state and local officials and other professionals who are engaged in all aspects of floodplain management and hazard mitigation. These include land management, mapping, engineering, planning, building codes and permits, community development, hydrology, forecasting, emergency response, water resources and insurance. Many of our members work with communities impacted by hurricanes Katrina and Rita, or work with organizations that are assisting those communities in rebuilding. All ASFPM members are concerned with working to reduce our nation's flood-related losses. Our state and local officials are the federal government's partners in implementing programs and working to achieve effectiveness in meeting our shared objectives. For more information about the Association, please visit http://www.floods.org.

The recent tragedies on most of the Gulf Coast, in Florida and in the Northeast are reminders to the nation that we are very susceptible to natural hazards – especially flooding – and that we must have programs, policies and institutions that can adequately handle these events, efficiently use taxpayer money and build a more sustainable future. Nothing less than our nation's prosperity and economic security are at stake. The Congress and this Committee will be at the center of this discussion with an opportunity to make policy changes that can have importance and relevance far into the future.

Some Historical Perspective

The devastation in the Gulf Coast and New Orleans from Katrina is unprecedented in recent US History. Yet, the history in our nation and the world provide ample evidence that large natural disasters occur frequently and with a vengeance. Whether we are discussing tsunamis, hurricanes, floods, wildfires, or earthquakes, natural hazards remain a primary force that can bring about catastrophic consequences to every region and state in the United States.

All of us will contribute to the rebuilding the Gulf coast and the New Orleans area, not only through our personal contributions but with our tax dollars. Therefore, there must be an evaluation of how we plan, mitigate, and respond to natural hazards in order to ensure that the nation is not ignoring natural hazards while positioning to deal with human-caused disasters and acts of terrorism. We must rebuild in a way that reduces the risk of flooding and hurricanes in the future, and the human suffering that follows.

One need only look back to 1992 when Hurricane Andrew demonstrated that we had inadequate policy to deal with the situation when a large area is impacted, and that significant pressure will be brought forth politically to relax

reconstruction standards, perhaps leaving the rebuilt structures more hazard prone than prior to the disaster. Many of these inadequacies were corrected during the Great Midwest flood recovery of 1993 that led to resources being made available, such that the recovery and reconstruction was done consistent with good practices. Other needs for change in policies were identified, but not accomplished, but still warrant completion or reconsideration.

Likewise, the nation has ignored critical infrastructure, including levees, for years. Following the failure of the Teton Dam in 1976, it was apparent that a national dam safety program was warranted and a highly effective federal-state-dam owner partnership was established that reduces the risk of catastrophic dam failure in the nation. Levees are simply dams that guide water downstream, and there is a need for us to implement a levee safety program patterned after the national dam safety program.

Recommendations

The specific recommendations that ASFPM is making to the Committee are:

1. **Immediate actions to stabilize people and communities.** The magnitude of the disaster in New Orleans and in the Gulf Coast is so great that every effort must be taken to stabilize the populations and return the people of these areas to some sense of normalcy. This approach may lack some efficiency but is necessary. To be successful it requires a commitment by all to see the entire recovery through, but until this first step is taken people will not be able to focus on wise long term rebuilding, a rational recovery option will not occur. This recovery option should include the following steps-
    a. Repair and stabilize all flood protective works to meet pre-Katrina design.
    b. Engage, support, and encourage State/Regional/local authorities in the creation of a long term vision for the redevelopment of impacted areas.
    c. Fund those parts of Coastal Louisiana that start the process of restoring the natural barriers that protect the Gulf Coast
    d. Design new structural and non-structural protective works that provide a more realistic level of protection, for river flooding in urban areas and for critical infrastructure this should be the 500-year level of protection, and for New Orleans and coastal urban areas the equivalent is a Category 4 or 5 hurricane.

    It is clear that the Gulf Coast region has immense impact on the nation's economy, and taking steps to stabilize and position this region for the future is essential to the well being of the region and the nation. Likewise, taking steps that reduce the chances that this type of disaster would be repeated is necessary.

2. **The nation needs an integrated National Levee Policy.** Numerous federal agencies deal with levees for different programs in different ways. The Corps of Engineers and NRCS build levees for different purposes with different guidelines. FEMA produces flood maps for 20,000 communities in the nation, many of which have levees. How to determine if those levees are adequate, and how to map the

areas behind those levees must be done by integrating the needs and programs of all federal agencies along with state and local partners who either build or operate and maintain thousands of miles of levees.

a. **ASFPM believes levees should be considered an option of last resort and used only to protect existing communities. Levees should not be used to protect undeveloped land with the speculation new development will be placed at risk behind those levees.** There is no current policy addressing this issue. When levees are used to protect highly urbanized areas with critical infrastructure those levees must be built strong enough to prevent future catastrophes like Katrina. It is unwise public policy that provides the same level of protection to New Orleans as is provided to corn fields. Further, damageable structures behind those levees should be elevated to some extent or take other mitigation steps to avoid the catastrophic damage in the case of levee failure or overtopping.
b. What kind of commitment must a community make to operating and maintaining a levee if it is accorded status as being "adequate" to protect lives and property? Once those standards are agreed upon, what are the consequences if the community fails to meet the operation and maintenance standards? Again, no such standards currently exist.

The Corps of Engineers should be tasked to lead a Federal/State/ Local work group to develop an Integrated National Levee Policy

3. **National Levee Safety Program** The U.S. has no national inventory of levees, nor do we know the condition (the adequacy or safety) of many of these levees. An inventory of the levees in the nation would show perhaps tens of thousands of miles of levees, with hundreds of thousands of structures at risk in those "protected" zones. Property owners behind levees assume they are protected, and so they are surprised, angry, and often financially ruined when levees fail. The State of California has been told by its courts that the state is responsible for damages caused due to failure of levees for which the State is the levee sponsor. That exposes the state to potentially billions of dollars in liability. Communities with levees throughout the nation face these issues.

This situation is no different from the threat the nation faced in 1976 following the failure of the Teton Dam, the only difference being that it was a catastrophic dam failure and not a levee failure that provided the catalyst for a national dam safety policy. As a result of this initial Federal effort, a state supported Dam Safety program of inspection and maintenance has arisen in most states, greatly reducing the threat and impact of catastrophic dam failure.

The US Army Corps of Engineers should be charged and funded to immediately undertake a National Levee Safety Inspection initiative as part of the USACE Floodplain Management Services Program. This initiative would be similar to the inspection and inventory the Corps performed at the instigation of the Nation's dam safety program. Just as in dam safety, the Federal

government should not have continuing or long term responsibility for levee safety. That is the responsibility of State and local governments. As such, consideration should be given to developing federal incentives for State and local programs that adopt appropriate levee safety management strategies by providing them priority in project funding and/or by providing enhanced cost shares for those that adopt and implement an improved levee safety program.

4. **Wetland Restoration is often a key part of structural protection.** Experts all agree that wetlands provide significant flood protection benefits. It was suggested that much of the vast damage in the New Orleans area could have been avoided had the loss of wetland areas been avoided/reduced or if more wetlands had been restored prior to the Hurricane. Data indicates that the storm surge is reduced by one foot for every 2.7 miles of wetlands. If we do not undertake to protect and enhance these wetlands, New Orleans and much of the Gulf Coast will be directly exposed to the open water of the Gulf. If that happens, it will not be feasible, from either economic or engineering standpoints, to protect those areas during future hurricanes. **We urge Congress to fund those appropriate elements of the Coastal Louisiana project that will provide wetland protection.** Further, we urge that wetland restoration receive renewed attention by the Corps nationwide. ASFPM agrees with the National Research Council (NRC) suggestion that the Corps needs to design a program that moves away from attempting to justify wetland restoration utilizing economic analyses that fail to fully capture all benefits of that restoration.

5. **Level of Protection provided by Levees.** Driven by disconnected federal policy, the level of flood protection from levees in communities has gravitated downwards towards a 1% (100-year) level. In highly urbanized areas, in particular when the consequences of failure can be catastrophic, a 1% standard is insufficient. The tragedy of Katrina demonstrates we cannot have hospitals, police, fire, water supply, wastewater treatment and other critical facilities inoperable or inaccessible during major flood events. It has been suggested, and the ASFPM supports, that: **In urbanized areas and for critical infrastructure, where the impacts of flood damages are catastrophic, Federal flood control projects should be designed to provide protection at or above the 0.2% (500-year) flood level.**

6. **Reducing Adverse Personal Economic Impacts.** We must develop approaches to provide property protection and financial security to those who believe they are protected by structural works and hence think they are not at risk. Hundreds of thousands of properties exist behind levees, below dams or in storm surge areas. Those people have a "false sense of security" in thinking they will never be flooded. As such, they generally do not have, nor do they think they need to, in any way insure their building(s) or mitigate them. Katrina has provided a real life demonstration that these are not "no risk' areas. There is a need to design a program that would manage this residual risk. **The Corps should be directed to work with other appropriate federal agencies (FEMA, NRCS, NOAA) to**

design a program to manage the residual risk associated with its projects through insurance and mitigation.

Not only will this protect individuals, it will protect communities and the nation's taxpayers from the consequence of catastrophic damages when those measures fail or are overtopped from larger events. The mitigation and insurance measures need not be expensive, because even small measures and amounts reduce the pool of damages and claims. In addition, a small annual insurance premium provides those property owners with yearly evidence and awareness that they are actually subject to flood risk

7. **Technical assistance to communities and states.** Communities with levees need technical assistance to help determine: is their levee safe; how to properly operate and maintain that levee; and to develop and analyze the various structural and non-structural options in the event their levee is not certified as adequate. The Corps of Engineers has two programs which provide technical assistance to communities and states (these are small programs of technical assistance, outside the Corps' "water resources projects" program) Flood Plain Management Services is currently authorized at $15 million and Planning Assistance to States (PAS) is authorized at $10 million.. Both have been consistently under funded, severely limiting the ability of the Corps to provide technical assistance. ASFPM recommends that the Committee not only urge the Appropriations Committee to fully fund this program, but that the Committee act to increase the base authorizations significantly for both programs. These programs offer the counties and communities of the nation the opportunity to benefit from Corps expertise in developing "bottom up" solutions to their flood loss mitigation issues. The need for local consultation with the Corps is made abundantly clear by the current recovery needs along the Gulf Coast. Local jurisdictions need the technical assistance provided by Corps expertise, not only for major structural projects, but to develop non-structural or combined structural and non-structural remedies as redevelopment takes place.
8. **Update the "Principles and Guidelines"** used by the Corps in project development. These Principles have not been updated since 1978 and in reality were a modification of Principles that have guided Corps programs since the 1930's. The challenges facing the nation today are different, and the Principles do not currently lend themselves to identification of appropriate projects that meet the needs of communities, states or the nation's taxpayers. The planning process: was developed for a different era; is premised on a rather short sighted expression of federal interest; has helped create an unmanageable backlog of projects; and in spite of well laid intentions, the process inherently can not avoid bias and pre-determined outcomes.

   The reality of today's NED model is that the least cost solution to a problem generally is not the NED alternative; the opportunity cost of federal investment in an inherently risky area as compared to a less hazardous area is not considered; the impact to disadvantaged areas is rarely considered; and the model does not

consider the impact that long term damages will have on the federal budget as it relates to disaster payments. NED has a role in the decision making process, but it needs to be balanced with other planning objectives and national goals. An updated P&G will assist both the Corps and Congress in promoting a water resources program that makes sense for the next century, rather than continuing to focus on what was relevant in the last century

The complexities of this problem cannot be solved in limited testimony, and should not be crafted on the fly through a legislative process. What should be done however is to direct the administration to develop revisions to P&G that reflect current realities, broaden the approach such that NED is part of the decision making process; and finally directs the administration to consider the project formulation and delivery process.

9. **Establishing priorities for Corps projects.** Determining which Corps projects should be on the top of the priority list for funding is difficult, at best. Updating P&G should assist in this process. ASFPM suggests a higher priority should be placed on those projects that protect lives and property (public safety) in communities with existing developments, or those projects that would prevent at risk development through the creation and conservation of open space; rather then the types of projects which are justified based on enhancing local economic conditions, but rarely represent an opportunity that could not be replicated outside a flood hazard area.

Other Related Recommendations

1. **Post-disaster mitigation funding must be restored.** The Hazard Mitigation Grant Program (HMGP) provides mitigation funds after a disaster as part of the Disaster Relief Act. Funding for that program was started in 1988, but was inadequate to be effective until the Midwest floods of 1993, when Congress increased funding to 15% of the disaster costs. In FY 2003, the funding level was reduced to 7.5%, and has again proved inadequate. Property owners are most receptive to mitigating their property at a time when they have to rebuild anyway. Communities are more responsive to assisting in cost sharing mitigation in the wake of disasters. Mitigation cost sharing with federal funds under this program is only done after a rigorous test to ensure that benefits over the life of a project exceed the cost of the mitigation. This opportunity for mitigation should not be missed. Rebuilding after Hurricanes Dennis, Katrina, Rita and Wilma will be expensive enough once, let us not set ourselves up to do it again when the next major hurricane takes aim at the Gulf coast. While this issue is not under the purview of this Subcommittee, it is under the purview of the full Committee, and we urge your support in connecting all these disaster reduction efforts.

   Further, we urge the Committee to make clear that in areas appropriate for rebuilding, the mitigation option known as "demolish and rebuild" should be available for use under the HMGP program. The Army Corps has made use of

this option in the past and its guidelines could be used by FEMA and others.

2. **The Corps should be directed to work with FEMA to incorporate Corps flood map inundation data on FEMA's flood risk maps.** This would assist in expanding FEMA's flood maps to include "residual risk" areas for the purpose of including those areas as mandatory purchase areas under the National Flood Insurance Program.

3. **Federal monies should not place people and structures at risk, nor contribute to the increased flood risk of structures and people.** Many agencies will spend billions of taxpayers monies in our efforts to rebuild the Gulf coast. This includes the Corps of Engineers, FEMA, HUD, EDA, EPA and DOT. It is imperative those agencies do not increase flood risk, or cause flood risk to be increased through their actions. Federal Executive Order # 11988 directs all federal agencies to analyze their actions to avoid increasing flood risk by their actions to build, finance or provide technical assistance. We urge this Subcommittee to condition each program authorization on compliance with this Executive Order.

Conclusion

The ASFPM represents the federal government's state and local partners in the continuing quest to reduce flood damages and disasters. Today, we once again stand at a crossroads---in the aftermath of a catastrophic flood disaster, with an opportunity to work with you to refine national flood policy that will serve the nation for decades to come. Thank you for the opportunity to provide the wisdom and expertise of our members on these important issues. The ASFPM and our members look forward to working with you as we move toward the common goal of reducing flood disasters.

For more information, please contact Larry Larson, ASFPM Executive Director (608) 274-0123 (larry@floods.org), or Pam Pogue, Chair (401) 946-9996 (pam.pogue@ri.ngb.army.mil) or Rod Emmer (225) 923-3743 (remmerla@bellsouth.net)

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Statement of
Gerald E. Galloway, PE, PhD
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University of Maryland, College Park, MD 20742
to the
Committee on Transportation and Infrastructure
Subcommittee on Water Resources and the Environment
US House of Representatives
October 27, 2005

Chairman Duncan, Members of the Committee. It is a distinct privilege to participate in this important and most timely hearing and I want to thank the Committee for the opportunity.

I am Gerald E. Galloway, a Glenn L. Martin Institute Professor of Engineering at the University of Maryland where I teach and do research in civil engineering. I came to that position following a 38 year career in the US Army and eight years service in the federal government, most of which was associated with water resources management. I served for three years as District Engineer for the Corps of Engineers in Vicksburg, MS and later, for seven years as a member of the Mississippi River Commission. I also serve, on a part-time basis, as a visiting scholar at the Corps of Engineers Institute of Water Resources in Alexandria, VA and as a consultant to a number of organizations. In 1993 and 1994, I was privileged to be assigned to the White House to lead an interagency study of the causes of the Great Mississippi River Flood of 1993 and to make recommendations concerning the nation's floodplain management program, and it is largely on the basis of that study that I am here today.[1]

My message is simple. The massive flooding that occurred in New Orleans during Hurricane Katrina was, in part, a reflection of a growing lack of attention to our national flood damage reduction program. The United States, which for much of the latter half of the twentieth century had both a well understood national flood protection policy and equally clear programs that followed from that policy, has allowed this policy and those programs to atrophy over the last twenty years. As a result, today:

- People and property are at risk in flood prone communities across the country.
- The level of protection we now provide to many flood prone communities is less than is needed and leaves those provided this inadequate protection at risk and not knowing they are at risk.
- The responsibility for conceiving, funding, constructing, maintaining and operating flood damage reduction projects is diffuse and not clearly defined. The responsibility of individuals to participate in their own protection and in the mitigation of potential damages to their property is similarly not clear.
- Insufficient funds are available to ensure the integrity of many of our flood damage reduction structures. If the federal and state governments provide flood protection structures, the public expects that they will be well maintained and many are not.
- Steps must be taken to establish a clear national policy with respect to flood damage reduction goals and responsibilities.

Eleven years ago, a federal interagency review committee, formed within the White House and charged to conduct an in-depth analysis of the problems connected with the 1993 Mississippi River Flood, identified and reported to the President and the Congress nationally significant challenges that governments needed to address. For the most part, the lessons we are learning from Katrina are the same lessons we learned from the 1993 Flood.

In response to this interagency study, governments took action on some of the report's 60 recommendations; however many of the recommendations fell into the "too hard box" and nothing was done to deal with them. Significant actions remain to be taken.

Our committee made three fundamental points:

1. Floods and hurricanes are natural events and will continue to occur. Under climate change flooding may be exacerbated. This year has already seen 'newsworthy flood events in most parts of the country.

2. Management and funding of protection activities in the floodplain – whether it be along the Gulf Coast or in the lowlands of Louisiana, or anywhere else in the United States, is the shared responsibility of federal, state, and local governments, businesses and those who live in or work in the floodplain. Each element must know its task and do its part while working in collaboration with others to reduce the overall risk to life and property. Flood damage reduction should not be just a federal activity.

3. As a nation, we need to take action to:
   - Reduce the vulnerability of those in flood hazard areas
   - Streamline the bureaucratic process for dealing with flood vulnerability
   - Concurrently preserve and enhance the natural environment. In many cases this protection and enhancement of the environment will contribute significantly to flood damage reduction.

Let me highlight the more important 'un-actioned' recommendations of our study:

- To reduce the vulnerability of those in the floodplain, governments need to:

  - Provide a high level of protection to those who live in existing population centers and pay special attention to protection of critical infrastructure such as hospitals, water treatment facilities and fire stations. New development in the floodplain - without a specific need to be located in the floodplain - must be discouraged.

    - We recommended that population centers be given a higher level of protection than most now have – protection against the standard project flood – which is roughly equivalent to a 500 year event.[2] When the nation started its flood control efforts in the late 1920's and early 1930's, it stated that "…destructive floods upon the rivers...constitute a menace to national welfare; it is the sense of Congress that flood control is a proper activity of the Federal Government."[3] The standard project flood or higher level of protection was the norm. The mission

was straightforward, "Don't let catastrophes happen." Over the last 70 years, we have lowered the protection provided by many federal projects to the 100 year level, a level that has a one in four chance of being exceed in the life of a 30 year mortgage. It is amazing to me that the capital city of California, Sacramento, is only protected to the 100 year level. Can the nation afford to risk losing another major metropolitan area?

This lowering of the standard has resulted from a combination of:

- A fixation on economic benefit-cost ratios to the exclusion of non-economic factors. [4]
- An unwarranted belief that the 100 year standard of the National Flood Insurance program represented a safe level of protection for a levee system. While it may be adequate for insurances purposes and for elevating individual buildings, it does not adequately address the catastrophic losses that occur when levees are overtopped or fail.
- The institution of cost-sharing where local sponsors were only willing to fund a minimum level of protection.

- The front door to New Orleans, along the Mississippi River, is protected with levees at a higher than standard project flood level, approximately 800 -1000 year protection, while the back door, the Hurricane protection levees along Lake Pontchartrain, built decades after the Mississippi River levees, provides only the equivalent of 200 - 300 year protection. Many of the other levees protecting the New Orleans area from the Gulf of Mexico provide even less protection. (New Orleans also faces a serious internal drainage flood hazard, and fixing levees only solves part of the problem.)

- In the Netherlands, governments provide 10,000 year protection along the North Sea coast, the equivalent of our hurricane protection, and 1250 year protection along the major rivers.

- Use all the tools available to reduce flood damages. This means use of not only structural means such as levees, floodwalls, and dams, but also non-structural approaches such a floodproofing, voluntary relocation of homes and businesses, revitalization of wetlands for storage, and use of natural barriers such as the Louisiana wetlands. Long before Katrina, both engineers and environmentalists had pushed this non-structural approach as a part of a comprehensive solution to Louisiana's hurricane protection problems.

- Recognize the inherent vulnerability of levees. The levee challenge is not unique to New Orleans. Sacramento sits behind a levee. Major areas of Los Angles are protected by floodwalls and there are floodwalls and levees in many other large cities across the country.

  - Throughout the country there are thousands of mile of levees, some built by the federal government, others by developers or individual landowners and we have no accurate measure of the location and integrity of many of these levees.[5] The lack of

knowledge about levees that was identified in the 1994 report still exists today and the conduct of a national assessment of levees should have a high priority.

People who live behind a levee see protection but all levees are not equally strong nor do they provide the same level of protection. And, those who live behind levees remain subject to the residual risk of levee overtopping or failure. Lest there be a misunderstanding, I do believe that well constructed and maintained levees can provide sound protection against floods of the magnitude for which they were designed – the issue is level of protection and maintenance of levee integrity.

- Because a residual risk of flooding exists for all who are behind levees, the committee recommended that the government require flood insurance purchase by those who live behind levees and who are now exempt from the requirement to buy such insurance. Insurance on property behind levees is typically cheaper than normal flood insurance.

- Charge higher insurance rates to those whose homes are repetitively damaged and limit assistance to those who could have bought insurance and did not

- Provide adequate funding to support maintenance and necessary upgrades of flood damage reduction works. This is a challenge that must be addressed by governments at the federal, state and local levels. The American Society of Civil Engineers' (ASCE) two report cards for national infrastructure assign an overall grade of D to the condition of our basic infrastructure and water infrastructure is no exception. The need for upgrades and improved maintenance of the New Orleans system was well known and the same can be said for structures 'defending' many other locations. Over 300 miles of main line Mississippi River levees are below the design grade and section, yet funding is not available at the state or federal levee to deal with this challenge to the system's integrity.

- To streamline the process of dealing with flood damage reduction:

  - The Congress and the Administration, together with the governors, need to define the responsibilities for floodplain management at each level – so there are no seams and no dropped balls and adequate funding can be provided to at least take care of what maintenance and upgrades are required. The committee recommended that the Congress and the Administration, in coordination with the states, develop a Floodplain Management Act to spell out national goals and responsibilities.

  - The President needs to update the Executive Order (11988) that governs the actions of federal agencies with respect to floodplain management. The current Executive Order dates back to 1977 and much has changed in the world since then. The President also needs to address coordination among federal agencies so that overlaps, duplications and conflicts in procedures can be identified and eliminated.

3. Finally, the committee recommended that the federal government needed to take actions, as it carried out flood damage reduction, to concurrently preserve and enhance the natural and

social environment. We recommended that the President revise the *Principles and Guidelines* for water resources planning, the federal document which directs the actions of federal water agencies.[6] The current document was signed by President Reagan 22 years ago and establishes national economic development as the sole objective of federal water development actions. It gives scant attention to social impacts of the kind we saw in the eyes of the displaced families in New Orleans or to deal with the loss of thousands of lives. We recommended that environmental quality, to include broader social goals, be established as a co-equal objective to national economic development. It is interesting to note that the 1965 Corps of Engineers Manual discussing levels of protection for flood damage reduction projects indicated that the selection of the design flood "...should not be governed by estimates of average annual benefits of a tangible nature alone... particularly when protection of high class urban or agricultural areas is involved. Intangible benefits, resulting from a high degree of security against flooding of a disastrous magnitude, including the protection of life, must be considered in addition to tangible benefits that may be estimated in monetary terms."[7]

In addition to the above, the Committee also pointed out that:

- Flood issues need to be dealt with in a watershed context and in a comprehensive manner. It is important to identify how actions taken in one part of a basin to stem flooding may impact the flooding for people who live in other parts of the basin. Comprehensive planning – integrated water resources management – also requires that flood damage reduction efforts be undertaken with full consideration for other aspects of water resources use. In the case of the protection of New Orleans, comprehensive planning would dictate that any plans take into account not only flooding but also the interrelationships with navigation, environmental restoration, and water supply and water quality.

- Neither federal nor state governments have knowledge of the extent of the risk the nation faces in the floodplain. The committee recommended that FEMA, in cooperation with the states undertake an inventory of flood prone structures. The committee also recommended that, in the face of indications that problems exist, the Office of Management and Budget direct federal agencies to assess, through scientific sampling, the vulnerability of federal facilities and major projects funded by the federal government.

- Flood Maps are frequently out-of date and as a result do not necessarily reflect either current or potential future conditions. The committee recommended use of emerging technologies to speed map improvements across the nation The current FEMA Map Modernization Program is a major step in this regard and merits continued funding support. The use of up to date GIS will assist not only floodplain residents but those who must work to protect them.

- Federal agencies need to work closely with each other and the states before, during, and after floods to avoid conflicts, ensure coordinated programs and provide a single federal face. This was not the case during the 1993 Mississippi flood event. The recently

instituted pilot program of FEMA, the Corps of Engineers and several states to establish closer working relationships – the "Silver Jackets Program" - is a step in the right direction.

In Conclusion

A flood catastrophe represents a national security issue. Floods especially attack the poor, the disabled and the elderly. They affect our people, our economy, and our environment. How to deal with them has been the subject of many studies over the years and we keep coming back to the same recommendations.

In the future we need to take an approach to flood damage reduction that brings all of the players to the table in a collaborative approach that shares responsibilities and funding. The federal government, acting alone, may not be able to afford new projects but, where it already has been committed to provide protection and where it now provides protection, it has an obligation to provide an appropriate level of protection and to carry out the maintenance necessary to insure system integrity.

Given the tragedies we have seen over the last weeks, the governments and the public must be prepared to take action to 'do it right' – to take recommendations out of the too hard box and move ahead.

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[1] Interagency Floodplain Management Review Committee, Executive Office of the President. 1994. *Sharing the Challenge: Floodplain Management into the 21st Century.* Washington, GPO. (available at http://www.floods.org/Publications/free.asp)

[2] The Standard Project Flood is derived from "...the most severe flood producing rain fall depth-area duration relationship and isohyetal pattern of any storm that is considered reasonably characteristic of the region in which the drainage basin is located, giving consideration to the runoff characteristics and existence of water regulation structures in the basin...The Standard Project Flood is intended as a practicable expression of the degree of protection that should be sought as a general rule in the design of flood control works for cities where protection of life and unusually high-valued property is involved."
(US Army Corps of Engineers. Engineer Manual, 1110-2-1411. "Standard Project Flood Determinations." Washington: CECW, 1 March 1965)

[3] 1936 Flood Control Act. 33 USC 701a.

[4] "The "design flood" for a particular protect my be either greater or less than the standard project flood, depending to an important extent upon economic factors and other practical consideration governing the selection of design capacity in a specific case. However, selections should not be governed by estimates of average annual benefits of a tangible nature alone, nor should construction difficulties that may prove troublesome but not insurmountable be allowed to dictate the design flood selection, particularly when protection of high class urban or agricultural areas is involved. Intangible benefits, resulting from a high degree of security against flooding of a disastrous magnitude, including the protection of life, must be considered in addition to tangible benefits that may be estimated in monetary terms." (Engineer Manual, 1110-2-1411)

[5] The *Sharing the Challenge* report indicated that levees are "constructed by different agencies and individuals at various times and under various times and under various programs, have very few common characteristics. Their physical composition varies by reach of the river. Some are on the riverbank while others are set back appropriately to permit flood flow conveyance. Many of those built in areas subject to swift currents during floods or over formerly active channels are destined to fail again and again. Most non-federal levees were built without any substantive understanding about impacts on river hydraulics and the riparian environment. Many of the federal levees were built prior to the availability of river hydraulic models and geologic maps that could provide such needed information. In some cases flows have increased for the same meteorological conditions because of upstream development. Determination of the level of protection provided by a levee is an important piece of information frequently difficult to obtain." (*Sharing the Challenge*, p 143)

[6] US Water Resources Council. "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies." Washington: March 10, 1983 (http://www.iwr.usace.army.mil/iwr/pdf/p&g.pdf)

[7] Engineer Manual, 1110-2-1411

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He has been a consultant to the Executive Office of the President, and has assisted the U.S. Water Resources Council, World Bank, Organization of American States, Tennessee Valley Authority, U.S. Army Corps of Engineers and various other organizations in water resources related activities. He was appointed by President Reagan to the Mississippi River Commission and served on the Commission for seven years. He was also a presidential appointee to the American Heritage Rivers Initiative Advisory Committee. Following the disastrous 1993 Mississippi Flood, he was assigned to the White House and led an interagency study that investigated the causes of that flood and made recommendations to improve the nation's floodplain management. He is a past member of the Board the Hudson River Environmental Society and is currently serving as a Director of the Hudson River Foundation for Science and Technology. He commanded the Army Corps of Engineers District in Vicksburg, Mississippi from 1974 to 1977 and has served on the faculty of the U.S. Military Academy at West Point. In 1990, he was promoted to Brigadier General and appointed the ninth Dean of the Academic Board (Chief Academic Officer) of the Military Academy. He retired from active duty after a 38 year military career.

Dr. Galloway holds master's degrees from Princeton, Penn State, and the U.S. Army Command and General Staff College. Dr. Galloway received his Ph.D. degree in geography from the University of North Carolina. Dr. Galloway is a member of the National Academy of Engineering, a fellow in the American Society of Civil Engineers and an Honorary Diplomate of the American Academy of Water Resources Engineers and a registered professional engineer in New York.

STATEMENT OF
THE HONORABLE JAMES L. OBERSTAR, RANKING DEMOCRAT
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
HEARING ON "REDUCING HURRICANE AND FLOOD RISK IN THE NATION"
OCTOBER 27, 2005

Thank you, Mr. Chairman, for holding today's hearing. This hearing is the last in a series of three responding to the devastating results of Hurricanes Katrina and Rita, and the potential impacts to national flood control policy and preparedness that were left behind in their wake.

Today's hearing will examine whether communities are adequately prepared to handle future disasters, including hurricanes, flooding events, or other natural disasters. If anything has been learned from the events of 2005, it is that natural disasters can occur anywhere and at anytime, and will continue to do so in the future.

Mr. Chairman, it is the Federal government's responsibility, in partnership with State and local governments, to ensure that communities are properly prepared to handle natural disasters, and that the practices of the Federal, State, and local governments not encourage behavior that places people in harms way.

For example, several programs within the Federal Emergency Management Agency (FEMA) help states and local governments with flood loss mitigation activities. These programs, such as FEMA's flood mitigation assistance program, and the pre-disaster mitigation programs, help communities by providing financial assistance for the development and implementation of flood mitigation plans. Pre-disaster mitigation and hazard deduction programs are a highly-effective and cost-efficient way of avoiding potential flooding damages and loss of life, and result in significant savings to taxpayers in avoiding future costs of rebuilding damaged infrastructure.

Equally important is the role of the Corps of Engineers in providing communities with essential hurricane and storm damage reduction, and flood protection. In its 230 year history, the Corps has established itself as the Nation's oldest, largest, and most experienced, governmental organization in the area of water and related land engineering matters. The Corps is unrivaled in its efforts to provide the Nation with flood protection, including its efforts to reduce the devastating floods of the Mississippi River valley.

Yet, even with the combined efforts of FEMA's pre-disaster mitigation programs, and the Corps' flood protection projects, according to the Corps, flood damages in the U.S. continue to average $4.3 billion each year.

Hurricanes Katrina and Rita have provided the Nation with a wake-up call on whether we are prepared to handle future natural disasters, and questions on what needs to be done to reduce the future impacts to lives and livelihoods. Essential to these efforts is full funding for both FEMA's disaster mitigation program, and water resource development efforts of the Corps of Engineers – a commitment that this Administration has sadly failed to uphold.

It is equally important, however, that this Committee reexamine how flood control projects, as well as other essential projects of the Corps, are developed and prioritized for implementation. If, as some have suggested, the Corps is relying on outdated or misguided criteria for the development and selection of projects, it is important that we understand these shortcomings, as well as what would be a more appropriate test for the Corps to use in developing their plans. Today's hearing offers us a prime opportunity to start this dialogue, and I welcome the views and opinions of our witnesses here this morning.

In addition, Mr. Chairman, I was also pleased to see that many of the witnesses here today share my concern with the disconnect between flood prevention and the assimilative capacity of the natural environment.

As development pressures continue, more and more natural flood plains are severed from their river systems, and surrounding wetlands are drained and converted into residential or commercial use, eliminating their natural ability to reduce or eliminate flooding events.

A protected floodplain acts as a permanent safety valve for flooding, reducing destruction to developed areas downstream. For example, according to a 1993 study by the Illinois State Water Survey, for every 1 percent increase in protected wetlands along a stream corridor, peak stream flows decreased by 3.7 percent. Without adequate protection of these natural flood protection areas, we increase the likelihood of flooding from smaller and smaller precipitation and storm events, place an even greater reliance on structural flood control measures, and position more communities in harms way.

I welcome the witnesses here this morning, and look forward to their testimony.

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Testimony of the National Association of Flood
And Stormwater Management Agencies

Presented by Peter Rabbon, P.E.
General Manager, California Reclamation Board
President, NAFSMA

Reducing Hurricane and Flood Risk in the Nation

U.S. House of Representatives
Transportation and Infrastructure Committee

Water Resources and Environment Subcommittee
Rep. John Duncan, Chairman

October 27, 2005

I am very pleased to present this testimony on approaches to reducing the nation's risk from floods and hurricanes on behalf of the National Association of Flood and Stormwater Management Agencies (NAFSMA).

Background on NAFSMA

NAFSMA is a national organization based in the nation's capital that represents more than 100 local and state flood and stormwater management agencies. Its members serve a total of more than 76 million citizens and as a result, we have a strong interest in the issues the committee is discussing today.

The mission of the Association is to advocate public policy and encourage technologies in watershed management that focus on issues relating to flood protection, stormwater and floodplain management in order to enhance the ability of its members to protect lives, property, and economic activity from the adverse impacts of storm and flood waters. Many of NAFSMA's members are currently non-federal partners with the U.S. Army Corps of Engineers in water resources projects, including flood management and environmental restoration projects.

Formed in 1979, NAFSMA works closely with the Corps, as well as the Federal Emergency Management Agency and the U.S. Environmental Protection Agency to carry out its mission. NAFSMA members are on the front line protecting their communities from loss of life and property. Therefore, the organization is keenly aware that flood management is a wise and necessary investment required first to prevent loss of life and ensure the safety of our citizens and secondly, to prevent damages to peoples' homes and businesses and protect them from economic disruption. Flood management has proven to be a wise investment that pays for itself by preserving life and property, thereby reducing the probability of repeat requests for federal disaster assistance.

We appreciate the committee's interest in these critical issues and look forward to working with you to develop a wise and sustainable approach to protecting our citizens from the risk of flooding and hurricanes.

The last few months have been devastating for the nation's Gulf Coast region and our members have discussed a number of approaches outlined

below that we hope will be considered by Congress as it moves forward in response to the destruction and loss of life that occurred as a result of this year's devastating hurricanes and resulting floods.

We suggest that the Water Resources Subcommittee strongly consider the following recommendations put forward by NAFSMA as you work to develop a solid and well-thought out response to these recent losses.

Re-Examination of our Prioritization for Funding Flood Control Projects

In the past few years, more and more emphasis has been placed on achieving the best economic value for federal involvement in flood management projects. We ask that the Principles and Guidelines for Corps of Engineers flood management projects be reviewed with an eye toward safety first. While our members are committed, as you are at the federal level, to ensuring that the taxpayer receives the best possible reward for dollars spent on flood management, we also feel that we need to assess the risk faced by some of the nation's urban areas due to aging infrastructure issues. We are currently driven by a benefit cost analysis that does not adequately address the human risk factor in its formula. With these issues driving our allocation process for federal dollars, the nation's flood management agencies are put at a disadvantage in trying to work with the federal government to meet the nation's flood management needs.

We need to develop a resource allocation system that adequately addresses the risks to our nation's urban populations from flooding and hurricanes. When concepts of providing Category 5 protection are discussed, we need to ensure that the areas where there is a strong potential for loss of life are addressed in an appropriate manner against other economic or environmental benefits. Throughout the United States, densely populated urban areas have been protected by flood control infrastructure, which is now aging. Given the large number of lives at stake and the substantial fiscal consequences, there is a strong Federal interest in ensuring that measures are taken to minimize the risks to the population associated with extreme flood events.

Currently, however, public safety is not adequately accounted for in the prioritization of investments in federally-partnered flood management projects. The benefit-cost analysis that serves as the primary criteria for flood management investments at the federal level does not account for

public safety. Instead, it focuses exclusively on the economic benefits of protecting properties and public infrastructure.

Let's develop a set of performance measures which encourages reduction in risk to our citizens from catastrophic flooding. Reducing these risks provides strong economic benefits. The amount of funding needed to address the damages, recovery and rebuilding efforts on the Gulf Coast should be strong evidence that this nation needs to commit more federal dollars to needed flood management efforts.

Incentive-Based Cost Sharing

In 1986, our local flood managers worked with Congress to establish cost sharing requirements for Corps-partnered projects. It has been almost twenty years since those concepts were adopted. The time is ripe to closely examine our current planning and allocation process to determine if we are indeed moving in the direction we had hoped with this approach.

NAFSMA urges this committee to consider an incentive-based cost sharing approach that would reduce local cost sharing requirements for communities that adopt and enforce comprehensive floodplain and flood water management measures to reduce flood risks to their populations and properties.

A more balanced and thoughtful approach to address public safety and environmental concerns must be developed. Our agencies couldn't be more committed to achieving the best possible environmental results when developing flood management projects. We feel that integrated approaches to watershed management are indeed the best use of our resources. Striving to make a flood or stormwater management project achieve the best possible environmental, and in some cases recreational results, for local and state agencies should be a key driver for our nation's water resources programs. We do, however, feel that in cases where structural approaches are needed, which is the case in many of our communities across the nation, we need to ensure that these necessary systems are able to be maintained.

Streamlined Permitting Process for Public Safety Agencies and Projects

In cases where emergencies exist, or could exist, due to threats to the existing flood management system, streamlined permitting processes must

be made available to local agencies. Our agencies have often been delayed in carrying out routine maintenance activities needed to keep their flood management systems operating at optimal levels, by their inability to obtain necessary federal permits in a timely manner, if at all.

Extreme examples have involved the inability of our agencies to clear flood channels of vegetation because of the time and mitigation needed to apply for and receive a section 404 permit. Our member agencies have even been faced with one federal agency telling them that the channels must be cleared or National Flood Insurance claims would be subrogated against the flood control agency, while another federal agency (and is some cases state water quality agencies) is telling them that they cannot carry out this necessary maintenance activity.

NAFSMA Supports A National Levee Study

There needs to be a federal commitment made to first, assess the state of the nation's flood management infrastructure and then, to carry out a federal flood safety maintenance and repair program. At this point, there is no national database that exists to alert federal and local officials where potential problems may develop across the nation. While we have sophisticated weather monitoring systems that can predict a storm's path and its level of intensity, we simply don't have the data we need to accurately predict how our nation's flood management systems can respond to these threats. We need a levee assessment program that identifies not only federally-owned and operated levees, but local levees and other flood control structures as well. Many of our communities, both large and small, depend on levees and other structural systems for flood protection that have been built solely by the locality or state and these structures are aging and are potentially in need of repair.

NAFSMA strongly supports the creation of a national levee assessment administered at the federal level, but developed with the input of local, state and regional officials so that it can be structured in way to best provide the information needed at both the federal and local levels.

Other federal agencies, such as the Federal Emergency Management Agency, also need to have a role in such an effort. We know that the problems this country is facing as a result of aging infrastructure in the flood

management area are real and that such an assessment is needed. We stand ready to assist in developing and implementing such an approach.

Raise the Funding Limit on WRDA Section 215 Projects

NAFSMA members have suggested that one potential approach to help meet the nation's flood management needs would be to raise the funding limit on Section 215 projects. Section 215 of the Flood Control Act of 1968 provides for reimbursement to a non-federal sponsor for construction of a part of a federally-partnered flood management project authorized under the Water Resources Development Act. A higher limit would provide an opportunity for non-federal entities to undertake a larger portion of the project, potentially stretching limited federal dollars and allow for faster construction of projects.

Creation of Flood Management Technical Advisory Committee

NAFSMA strongly supports the creation of a National Technical Advisory Committee on Flood Management. Our members feel that the lead federal agencies in this effort should be the U.S. Army Corps of Engineers, the Federal Emergency Management Agency, the Natural Resources Conservation Service and the Department of Interior's Bureau of Reclamation. Also participating in this committee should be representatives of the U.S. Environmental Protection Agency and the U.S. Geological Survey, as well as State and local representatives with expertise in flood and stormwater management, as well as local and State emergency response officials.

We would like to see the mission of this Advisory Group be focused on the facilitation and coordination of federal policies and programs related to flood management. It would be extremely helpful if this group could develop joint policy recommendations that could be considered by the administration for future flood prevention, response and recovery planning.

Other Issues

Although the following issues are outside of the purview of this Subcommittee, NAFSMA believes that they are important components of a unified national response to the recent disasters.

Removal of FEMA from the Department of Homeland Security

NAFSMA would like to raise the need to move the Federal Emergency Management Agency outside of the structure of the larger Homeland Security Administration. We have been concerned that FEMA would inevitably lose its needed independent ability to mitigate against and quickly respond to natural disasters in such a large agency as the Department of Homeland Security.

While NAFSMA strongly supports the creation and the needed work of DHS, we feel that an agency with a primary focus on natural disasters is needed.

Continue Adequate Funding of FEMA's Map Modernization Program

Accurate Flood Insurance Rate Maps are an essential part of a comprehensive national floodplain management plan. To ensure that these maps are available to all levels of government as soon as possible, NAFSMA strongly supports continued adequate funding of FEMA's Map Modernization Program.

Mitigation Activities

The FY03 budget for FEMA reduced the Hazard Mitigation Grant Program (HMGP), which is used for post-disaster mitigation, from the previously authorized 15% of disaster relief funds to 7.5%, and also established a competitive pre-disaster mitigation grant program. NAFSMA believes that the HMGP authorization should be returned to 15%, and that both pre- and post-disaster mitigation should be adequately funded.

In closing, NAFSMA very much appreciates the opportunity to present our thoughts on these critical national issues to the Subcommittee for consideration. We stand ready to work with you on these important issues and would welcome any of your questions.

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