

# Regional Stakeholder Workshop Summary

## Recommendations for a National Levee Safety Program Hosted by the National Committee on Levee Safety Kansas City, Missouri

29 July 2010

### I. Purpose of Workshop

The National Committee on Levee Safety (NCLS) held a one-day workshop to share information about its recommendations to Congress for a proposed National Levee Safety Program (NLSP). The NCLS invited representatives from local and state agencies and elected officials who are engaged in levee safety issues. In addition, the workshop invited levee owners and operators, planners, emergency managers, local and regional business interests, environmental interests, economic development interests, public health and safety interests. The objectives of the NCLS workshop were to:

- Learn more about the NCLS and their recommendations for a NLSP;
- Discuss the implications of adopting the NCLS recommendations for local and state governments and other stakeholders; and
- Provide feedback to the NCLS on the recommendations.

Congress created the NCLS to develop recommendations for a NLSP, including a strategic plan for implementation of the program. The NCLS adopted the vision of an involved public and reliable levee systems working as part of an integrated approach to protect people and property from floods, and has been working toward this goal since October 2008. The NCLS recommendations for a NLSP are based on three central concepts:

1. Leadership via a National Levee Safety Commission that provides for state programs, national technical standards, risk communication, and coordination of environmental and safety concerns;
2. Strong levee safety programs in all states that, in turn, provides oversight and critical levee safety processes; and
3. A foundation of well-aligned federal agency programs and processes.

### II. Opening Remarks

#### A. Troy M. Schulte, City Manager, Kansas City, MO

Troy M. Schulte provided opening remarks welcoming attendees to Kansas City, Missouri. The City Manager recognized the importance of levee safety, noting the rivers in Kansas City have always guided development and that the Kansas City levee system is the third largest in the country. Mr. Schulte also noted that the cover page of the current Kansas City budget document is the Norman Rockwell painting of the 1951 Kansas City flooding disaster, which depicts the city residents' willingness to help one another.

### **III. Introduction and Update on NCLS Activities – Karin Jacoby, Eric Halpin, Les Harder, Susan Gilson, Bob Turner and Dusty Williams, NCLS Members**

Members of the NCLS provided an overview of the history of levee development in the United States, including the factors that led to the need for a NLSP, the lack of awareness about the risks that levees pose, the charge and membership of the NCLS, and key points included in the 20 recommendations further described in the NCLS Report, *Recommendations for a National Levee Safety Program: A Report to Congress from the National Committee on Levee Safety, January 15, 2009*. NCLS members indicated that copies of the NCLS Report, information papers, presentations from the workshop, and other information about the NCLS can be found on the NCLS website, [www.leveesafety.org](http://www.leveesafety.org).

Following a brief question and answer session and a networking lunch, participants were asked choose three out of six topics for 45-minute, breakout group discussions. These six tables represented clusters of the key recommendations (20 in total) made by the NCLS. NCLS members at each of the six breakout tables provided a brief introduction to the recommended elements of a NLSP and moderated an open-ended conversation with workshop participants, answering questions, soliciting feedback, and providing additional information. Following the conversations, members of the NCLS shared some of the major themes discussed at the tables.

A summary of the comments and discussion are included below and are organized in the following categories from the breakout tables and one general comment category. Comments are organized by topic regardless of the breakout session in which the comment was made.

- A. Overall Comments
- B. Create a National Levee Safety Program and state programs
- C. Require risk-based flood insurance in leveed areas
- D. Federally fund a national levee inventory and the National Levee Database
- E. Harmonize environmental protection and levee safety
- F. Create a National Levee Rehabilitation, Improvement, and Flood Mitigation Fund
- G. Address public and private sector liability concerns

### **IV. Comments, Questions and Suggestions Related to the Recommendations for a National Levee Safety Program**

#### **A. Overall Comments**

- Levee safety is not about building bigger levees. Structural integrity is important; however, people must also be made aware of risk to inform better decision-making.
- The 1% annual chance standard for the National Flood Insurance Program (NFIP) is not a safety standard.

## **B. Create a National Levee Safety Program and State Programs**

- All stakeholders need to be part of the decision-making process.
- The commission, or an advisory board, needs a place for stakeholder advisement. States need to be more involved in the discussions on the shape and future of state levee safety programs.
- It was suggested that the Commission should be involved in management of grant funding – getting funding for projects that are needed that can't be funded directly by agencies.
- More outreach efforts are needed to states, highway and railroad industries, the environmental sector and others.
- Participants felt that aligning the United States Army Corps of Engineers (USACE), the Federal Emergency Management Agency (FEMA) and state programs will be difficult. Competing federal regulation and oversight has hindered flood mitigation efforts. Although infrastructure has been growing (more paving and development), federal regulations have prevented state and local governments from making improvements. For example, flood insurance programs prevent increasing levee height.
- States should have one central point of contact for all federal agencies with a role in levee safety.
- Organization charts of the proposed process would be helpful in understanding the coordination between national, federal, and state agencies.
- There is concern at both the state and local government levels that state programs will place financial and resource burdens on governments without providing federal funding. As a result, participants wondered if having state programs was open for discussion.
- Public awareness of risk is a critical factor in the success of a program. Participants agreed that it is difficult to get people to pay attention to risk except when incidents occur.
- One participant suggested that agricultural levees be excluded from the NLSP because they are only protecting their own areas.
- Participants had some fundamental questions including:
  - What is levee safety?
  - What is the relationship between the National Levee Database (NLD) and the program framework – will the NLD criteria be used to help establish the program framework?
  - Is part of the goal of the proposed National Levee Safety Commission to improve the alignment of federal programs?
  - How will funds be divided among states?
  - Will funding under the NLSP compete for funding under other related programs?
  - Can states ask the NLSP to run their state program, if the state has a small number of levees?
  - Will cities/local governments be able to access NLSP funding, if the state does not participate?
- Participants were concerned that the efforts to establish the NLSP would slow FEMA's pursuit of levee certifications, and they wanted to avoid any delays in that process.
- Participants suggested combining the NLSP with the National Dam Safety Program.
- There is concern about how quickly things would be implemented at state level and about technical oversight. There needs to be a balance between federal oversight and state implementation.

## **C. Require Risk-based Flood Insurance in Leveed Areas**

- It was not well explained that the recommendation is to build on the existing NFIP, not replace the NFIP or create a new program.

- Participants largely supported the concept, and there was general support for a risk-based approach.
- A concern raised several times was how to sell the concept to people, to get them to pay for both flood insurance and levee improvement fees. There was a lot of discussion that individuals will argue for paying for one or the other, but not both.
- There were questions about the implementation approach, which has not been fully developed.
- The issue of affordability for low/fixed incomes homes was discussed.
- Stakeholders advised the NCLS to think outside the NFIP to determine ways to include other flood risks.

#### **D. Federally Fund a National Levee Inventory and the National Levee Database**

- Non-federal stakeholders need to have significant involvement and provide feedback on federal policies.
- Data is only as useful as it is accessible, so it needs to be made easily available to stakeholders.
- Participants made several suggestions for how to “find” levees to include in the database. Examples included: interagency coordination (existing Light Detection and Ranging (LIDAR) data), photos/documents from floods, courthouse records, university partners, permit databases (USACE/ORM2), targets of flood mitigation efforts, state hydrologists and state/local GIS coordinators, and potentially creating a “report your levee” website.
- Participants also suggested the type of information that should be collected for each levee, including: materials used to build the levee, the dynamics of exposure (how frequently it holds water), hydrology, floodplain, floodway, etc.
- It was suggested that state NFIP coordinators could possibly act as NLD coordinators.
- Training should be an important part of the inventory process. Training should be made available to local governments and provided through the Web if possible.

#### **E. Harmonizing Environmental Protection and Levee Safety**

- Viewing levees from a “watershed perspective” links nicely to the NCLS’s desired systems approach and a regional viewpoint.
- A single permitting process for operations and maintenance of levees would be beneficial in streamlining processes.
- It was suggested that the federal government and states meet on a quarterly basis.
- It was suggested that there is a need to more clearly write in environmental criteria as a requirement to be able to access available funds.
- It was noted that addressing the environment early in the process will help make other funding opportunities available.

#### **F. Create a National Levee Rehabilitation, Improvement, and Flood Mitigation Fund**

- Several participants noted that a cost share of 80% federal and 20% local would be preferable to the 65/35 cost-share ratio recommended by the NCLS. Requirements for 35% local contribution may be too high for state and local governments to be interested.
- Some participants stated that it was unclear whether or not the 35% cost share included money spent on meeting the Fund criteria or whether those criteria had to be met prior to getting funding approval.

- Participants suggested that alternative approaches for states to meet their cost share obligations (e.g. in-kind services) should be pursued.
- It was suggested that no/low interest loans or a sliding scale would be beneficial to smaller communities. One participant also suggested an approach currently being drafted for public works projects that determines cost share on a case-by-case basis. This allows for the cost share to be on a sliding scale to factor in such things as size of the tax base, priority of the project, potential impact, etc.
- Ideas were shared regarding how to raise the funds for the local/state cost-sharing requirements, including instituting development fees for any projects that are deemed to increase risk or through the addition of flood insurance premiums for high-risk communities.
- There was discussion about the risk analysis rating or consequence equation that would be used to determine national funding priorities. Many factors (e.g., physical structure and likeliness of failure to internal drainage and protection of non-urban infrastructure) will have to be incorporated to ensure that the potential economic damage does not become the deciding factor.
- A project's access to other funding sources should also be considered as a criterion to ensure funding goes to projects most in need.
- Priorities should be based on other metrics such as economic impact. If a town only has 13,000 people, it probably won't qualify for funding based on population. However, if you consider that the town's administrative buildings, schools and central business district are protected by a levee, the potential impact is significant.
- Many participants noted that specifically mentioning "urban areas" in the Fund write-up could potentially be misconstrued. It was recommended that a clearer definition of the consequence equation / risk criteria be included in a funding proposal.
- There was a lot of support behind figuring out how to streamline the funding approval and allocation process.
- Many local governments must fund their own levee rehabilitation, so educating politicians on possible cost-sharing arrangements and providing access to a shared cost-responsibility fund would be a good way to encourage participation.
- It was recommended that criteria be clearly established that incentivizes building to higher protection standards while also recognizing that the "one-size-fits-all" approach must be avoided.
- Other funding programs require funding analyses, cost-benefit analyses, and parameters on how funding can be used. The Fund should have similar types of rules or parameters. It should also have a mitigation planning requirement, but it seems that levee safety planning should be kept separate from multi-hazard mitigation planning or other related programs.
- It was suggested that the USACE develop and manage a grant program instead of adding another layer of bureaucracy in the form of the Fund.
- Some participants noted that while the clear dividing line between pre- and post-disaster initiatives is desirable, there is a potential issue in post-disaster scenarios where funding allocated can only be used to rebuild the levee to the state it was before the disaster, rather than allowing for improvements.
- The proposed NLSP could act as a prioritization board that helps determine which projects should receive funding. The prioritization method should be an all-encompassing approach and include criteria such as safety, loss of life, economic losses, etc.
- The Commission could play a role in management of grant funding – getting funding for projects that are needed that can't be funded directly by agencies.

## **V. Wrap-up**

Mr. Tom Waters, Chairman of the Missouri Levee and Drainage District Association, provided his final thoughts to the group and suggestions for future work. In particular, Mr. Waters emphasized the need to focus on upland land management and source water areas having the potential to cause flooding downstream. Mr. Waters thanked participants for their continued efforts to improve levee safety.

Mr. Halpin thanked participants for their sharing of knowledge and expertise and for engaging on the issues raised during the workshop. Mr. Halpin explained that the feedback received from workshop participants will be assessed by the NCLS and will help inform whether changes are needed moving forward. Dialogue with stakeholders and partners will continue through 2010 and into 2011, with eight public workshops scheduled around the country, similar to the one held in Kansas City, MO.

NCLS members explained that there are 12 recommendations that require new authorities and that all 20 recommendations need new appropriations. NCLS non-federal members have crafted a legislative framework supportive of these 12 recommendations and delivered it to Congressional staff. The initial critical activities for improving levee safety nationwide include: (1) Establishing the NLSP; (2) Completing an inventory of all the nation's levees; and, (3) ensuring Congress fully understands and addresses liability concerns.

Where possible, NCLS is working on common levee safety activities under existing authorities within FEMA and USACE.

NCLS members also are working to define the costs and benefits of a NLSP, considering refinements of the recommendations, and building smart implementation steps around the recommendations.

For more information, visit [www.levéesafety.org](http://www.levéesafety.org).

## Appendix A: Kansas City Regional Stakeholder Workshop Attendees

Debra Baker, Kansas Water Office  
Matt Bond, City of Lawrence, KS Public Works  
Ron Borst, Clay and Bailey Manufacturing  
Jeff Brizendine, AECOM  
Gale Cantu, Platte County, MO  
Eliodora Chamberlain, USEPA  
Brian Clennan, City of Hutchinson  
Gary Creason, Affinis Corporation  
Mickey Cruse, Kansas City, MO Water Services  
Don Curtis, HDR  
Steve Dailey, Fairfax Drainage District  
Douglas Danather, Wilson & Company, Inc.  
Patrick Diederich, Nebraska Dep. of Natural Resources  
Rod Ellis, Missouri Dep. of Natural Resources  
Bill Empson, USACE  
Dan Erickson, Platte County, MO  
Dondrea Fisher, Kansas City, MO Water Services  
Bryan Flere, USACE - Omaha District  
Vancel Fossinger, Wilson & Company, Inc  
Bob Franke, FEMA Region VII  
John Frick, Kansas City Board of Public Utilities  
Joseph Gibbs  
Randall Graham, PBS&J  
Andy Haney, City of Ottawa  
Lynda Hoffman, Kansas City, MO  
Water Services  
David Holt, USACE - Omaha District  
Glenn Hunt, Jr., Kansas City, MO Water Services  
Tom Jacobs, Mid-America Regional Council  
Diana Johnson, Kansas City, MO Water Services  
Rich Leonard, FEMA Region VII

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Matt Long, Wilson & Company, Inc.  
Phillip Loun, Kansas City Board of Public Utilities  
David Mathews, USACE - Kansas City District  
Wes Maxwell, FM Global  
Jamie McVicker, USACE  
Walt Neal  
Michelle Neiswender, City of Topeka, KS Public Works  
Richard Nienstedt, City of Ottawa  
Rick Nusz, FEMA  
Paul Padilla, Wilson & Company, Inc.  
Tom Poer, HNTB Federal  
Brian Rast, USACE KC District  
Tom Roberts, cfm Distributors, Inc.  
Andy Sauer, CDM  
Scott Schulte, Patti Bantes Assoc.  
Troy Schulte, Kansas City, MO  
Steve Schultz, Shafer, Kline & Warren, Inc.  
Randy Scrivner, MO Emergency Management Agency  
Leon Staab, Burns & McDonnell  
Mike Teply, City of Topeka, KS Public Works  
Scott Vollink, USACE - Kansas City District  
Amanda Wages, Wilson & Company, Inc.  
Tom Waters, MLDDA  
  
Bob Williamson, City of Kansas City, MO  
Terry Winbush, Kansas City, MO Water Services  
Robert Winiecke, Great Bend, KS  
Tom Yahl, City of Ottawa  
Shuhai Zheng, Nebraska Dep. of Natural Resources  
Steve Zuhlke, City of Kansas City, MO

### Members of the National Committee on Levee Safety

Eric Halpin, NCLS Vice Chair, USACE  
Susan Gilson, Private Sector Representative  
Les Harder, Private Sector Representative  
Karin Jacoby, Local/Regional Representative  
Bob Turner, State Representative

Dusty Williams, Local/Regional Representative  
Linda Manning, Council Oak (Support)  
Nick Brubaker, Council Oak (Support)  
Pat Tallarico, Council Oak (Support)

## Appendix B: Breakout Group Summaries

The discussions held at the breakout tables answered participants' questions, clarified recommendations for a NLSP, and solicited feedback from participants on the recommendations. These ideas, and others received during other regional stakeholder workshops and interactions across the country will be used to inform the NCLS as they shape their implementation strategy for establishing a NLSP.

### Create a National Levee Safety Program and State Programs

**Comment:** I would like all these agricultural levees to be excluded from the NLSP as they are just protecting their own area and not entire urban communities as other levees may.

**Question:** What is levee safety?

**NCLS Response:** The NCLS members discussed this at length; it is not about building the biggest levee. Structural integrity is important, but we also want people to understand their exposure to residual risk (overtopping, failure, etc.) and be involved in making better decisions. Evacuation plans should accurately reflect community behaviors.

**Question:** Is accreditation a part of levee safety?

**NCLS Response:** The 1% annual chance standard for the NFIP is not a safety standard. The information gathered during the levee accreditation process can inform levee safety decisions.

**Question:** The NLD contains several characteristics or criteria associated with levee safety. Will these criteria be used to help establish the program framework?

**NCLS Response:** Yes, it will. Good policy is also informed by better data, so the database will be helpful from that perspective as well.

### Federal Alignment: Coordination between agencies

**Question:** Is part of the goal of the new National Levee Safety Commission to improve the alignment of federal programs around levee safety issues?

**NCLS Response:** One of the recommendations of the NCLS is to align federal programs so that all agencies that have some responsibilities for levee safety are working towards a common purpose. This is one way to provide national leadership on this issue. Strong state programs are then needed to implement and oversee these programs.

**Comment:** When I look at levee safety, I see that USACE and FEMA are both involved. It seems that getting their organizations in alignment with each other and with state programs will be a challenge.

**Comment:** There are already 12 federal agencies involved in levee safety as identified on Page 27 of the Recommendations report. A state should only have to deal with one point of contact; someone will need to instruct the other 12 agencies about what they do or don't do in relation to this new structure.

**NCLS Response:** We envision it would be the Commission's responsibility to coordinate among those agencies. Figuring out how to do this without being a bottleneck is the tricky part.

**Comment:** One of best things we could do is get the USACE out of the environmental business and get them building levees.

**Comment:** We are concerned about putting something through Congress that puts a hold on FEMA's push on levee certification. Our certification needs to happen by next year.

**NCLS Response:** Many communities are facing this same issue, and Congress is very aware of it. The NCLS feels that providing the most up-to-date risk information shared with communities and individuals is important and that any changes to FEMA's levee accreditation process should not inhibit informing communities of the condition of their levee and their risk.

**Comment:** Similar federal regulation and oversight has hindered flood mitigation efforts. Although infrastructure has been growing (more paving and development), federal regulations have prevented state and local governments from making improvements. For example, flood insurance programs prevent increasing levee height.

**NCLS Response:** Part of the task of this program is to make sure that our aging systems keep up with increase in flooding events and growing development.

### **Federal Alignment: Combine Dam and Levee Safety**

It was suggested that a new NLSP be combined with the existing National Dam Safety Program. The NCLS had considered this option and recommended that a NLSP be established separately from the National Dam Safety Program for a number of reasons, including the inherent competition between levees and dams in terms of funding. Although there are some similarities in the technical aspects of dams and levees (e.g., similar impacts, seepage issues, flood magnitude thresholds, animal borrows, etc.), there are also some significant differences.

#### *Federal Alignment: Prioritizing Funding*

**Comment:** Each of the different federal agencies plays different roles in levee safety. The Commission could play a role in management of grant funding – getting funding for projects that are needed that can't be funded directly by agencies.

**NCLS Response:** Yes. The Commission can also look at processes for prioritizing funding. The proposal is to eventually conduct prioritization through a tolerable risk guidelines approach, which takes a broad approach to risk. The report references populations of 10,000, which is typically the break point when you talk about risk management. States will have guidelines within their states to help prioritize, but we need to have some metrics for the program that can make the case to Congress that a project is needed.

When you start talking about safety, you start talking about lives. Priorities should be based on other metrics such as economic impact. If a town only has 13,000 people, it probably won't qualify based on population. However, if you consider that the town's administrative buildings, schools and central business district are protected by a levee, the potential impact is significant.

**Question:** How do you anticipate funds will be divided among states?

**NCLS Response:** In similar programs, funds are distributed based on a formula that takes into account factors such as population, infrastructure, etc. We need to figure out how those funds could be distributed

to get the most “bang for the buck” in terms of levee safety. We need a commission or advisory body that can make recommendations.

**Question:** Will levee funding compete with other funding programs (e.g., from FEMA programs)? Is the availability of funds related to insurance payments or rehabilitation of funds going to be based on a state’s adoption of a levee safety program?

**NCLS Response:** It is not clear at this time; it is not the intention of the NCLS to replace or duplicate any current funding sources. The NCLS has thought about incentives and disincentives. Participation may be considered but will likely not be a requirement for things such as pre-mitigation funding. Emergency assistance should not be impacted.

#### *State Levee Safety Programs*

**Comment:** Schedules or organization charts would help explain what you are trying to do and help sell this idea, especially when you talk about involving state agencies.

**Comment:** The NCLS needs to get more state people engaged in meetings to discuss how you are going to have states implement these programs.

**NCLS Response:** This is one place to receive that kind of feedback. We have also identified key groups to meet with and states are one of those groups. Highways and railroads are also on the list.

**Question:** If a state only has 40 miles of levees, will they be required to have a whole program or can they get the federal government to run the program for them?

**NCLS Response:** We did realize that some states will not want to take on a program. This will also impact the ability of local governments to get access to funds. It doesn’t seem to make sense that we would deny access to funds to local projects because a state chose not to have a program. The NCLS tried to recognize there may be a local levee safety program that could meet requirement, and we think they should have access to funding.

**Question:** Is there already a document that details the requirements for state levee safety programs?

**NCLS Response:** This is in the NCLS’s recommendations to Congress (page 49-50); this is about pushing the responsibility to the states because feds don’t have money. Levees involve a lot of local land use decisions. Structural integrity alone doesn’t mean a safe levee – it’s also about what’s behind the levee. The federal agencies don’t develop evacuation programs and don’t make local land use decisions; these things happen at the state and local level. That’s why Congress directed that the program include state levee safety programs.

**Question:** Is state delegation open for discussion?

**NCLS Response:** There might be room for discussing how much of the program is implemented through states versus through existing agencies, but there will not be a program without strong state programs. This program framework seems a lot like the way education is handled. The federal government provides funds for 60% of education, but they are constantly adding new requirements that state and local governments have to meet without adding any funds. I see the Commission coming up with rules that

states have to meet without adding any funding. I also see a big burden coming to counties and cities because they will foot bill for this. My fear is more regulation without funding.

**Question:** Are there any good examples of states that have taken steps on this already?

**NCLS Response:** We are hearing about more examples, but Pennsylvania and California both have programs in place. In California, they voted for \$1 billion tax to fix levees. They also have good information on standards. We also have information from them on how they decide on funding. New York is a little different. The State is the sponsor of all levees – there are no local sponsors. There is concern about how quickly things would be implemented at state level and about technical oversight. There needs to be a balance between federal oversight and state implementation.

#### *State Levee Safety Programs: Funding*

**Comment:** Don't know if states will have the funds to implement programs unless levee districts stand up part of that match. It will take a lot of money to set up a robust, compliant program. The 50% match is too high. It would be helpful if at least a portion of this match could be in-kind as opposed to cash.

#### *Local Government Engagement with the National Levee Safety Program*

**Question:** Can cities get direct access to the Commission and get assistance to implement levee safety programs?

**NCLS Response:** It is more likely that cities would get program technical assistance from state programs. State programs would be supported by the NLSP. The NCLS shares your concern that if a state doesn't have a levee safety program, local communities won't have access to the Commission's resources. We have tried to develop an approach to working around this issue, but Congress's direction to the NCLS is that the program could be delegated to qualified states for implementation.

**Question:** It is unlikely that the state of Kansas is going to be ready to accept a delegated program. The NCLS Recommendations state that if a state doesn't accept the program, a city in that state will not have access to funds and assistance. How is the federal government going to help states get to the point where they can take on or comply with this new program?

**NCLS Response:** The draft legislative framework is available on the NCLS website and has additional detail about how the program could be structured. There will need to be some financial and technical assistance and standards for states to develop their programs. It is anticipated that one of the roles of the Commission would be to advocate for funding for program development and implementation.

#### *The National Levee Rehabilitation, Improvement, and Flood Mitigation Fund*

**Question:** Other funding programs require funding analyses, cost-benefit analyses, and parameters on how funding can be used. I would envision this kind of program would have similar types of rules or parameters. It should also have a mitigation planning requirement, but it seems that levee safety planning should be kept separate from multi-hazard mitigation planning or other related programs.

Why not just recommend the USACE develop and manage a grant program instead of adding another layer of bureaucracy?

**NCLS Response:** The USACE primary focus is as a technical experts, rather than grant-makers. USACE leadership has expressed a willingness to explore creative solutions, such as partnering with FEMA to administer a grant program, etc. if the NLSP were to be established within USACE.

#### *Stakeholder Involvement*

**Comment:** There should not be any new programs or changes to programs without getting input from people they affect.

**NCLS Response:** There are four standing advisory committees intended to coordinate stakeholder involvement in those four areas. We heard this same sentiment from reviewers. Although the NCLS did not have a lot of time to engage stakeholders in the development of the recommendations due to the timing of the process, stakeholder involvement will be an important part of the program.

#### *Public Understanding of Risk*

- People are more or less aware of levees and flooding issues depending on where they are. When there is an event, everyone pays attention. When it subsides, people stop paying attention.
- A lot of stakeholders are unaware because they don't get any information or aren't directly impacted by flooding or a levee. We have a levee tax which raises awareness for people in the leveed area. Other places may not have a way to help general citizens understand they are near a levee.
- We struggle helping people to understand the critical zone and why major corporations located right by a floodwall.
- I wonder how much public understanding is based on research – how many know, how many know and don't care, etc.
- People don't care about infrastructure until it doesn't work.

#### **Federally Fund a National Levee Inventory and the National Levee Database**

##### *Ideas for finding levees that no one knows about*

- Photos from floods
- Aerial photos flown but not processed
- LIDAR (has multiple purposes) – the US Environmental Protection Agency or US Fish and Wildlife Service could be a source of LIDAR data
- Advanced hydrologic services – finding anomalies through National Weather Service
- County property tax assessments
- State hydrologists
- Target areas for flood mitigation efforts
- “Report Your Levee” option on the Internet
- Local/State GIS coordinators
- Universities
- Secretary of State
- Department of Agriculture
- US Geological Survey

- USACE permit database/ORM 2 database (the Operations & Maintenance Information Business Link Regulatory Module database)

#### *Ideas About Data to be Collected*

- Materials in levee
- Dynamics of exposure (e.g., holds water all the time)
- Hydrology, floodplain, floodway

#### *Training*

- Make available to local governments
- Make it web-based

#### *Other*

- Include local input on levee policies
- Consider state NFIP coordinators as potential state NLD coordinators

### **Create a National Levee Rehabilitation, Improvement, and Flood Mitigation Fund**

Education and outreach to politicians: Many locals have to fund their own levee rehabilitation efforts so access to a shared cost-responsibility fund might be a good way to get politicians involved.

Structural vs. Non-Structural: The Fund will be available for both structural and non-structural solutions to risk reduction.

Urban vs. Rural: Many participants noted that specifically mentioning “urban areas” in the Fund write-up could potentially be misconstrued. The Fund will not specifically target urban areas but rather will utilize a risk-based approach to potential damage assessment where the protection of urban areas may be a strong factor. Other factors will be taken into account, such as levees that protect water sources, highways, and other infrastructure.

Access to other funding sources: Some participants suggested that part of the funding criteria should include whether or not the levees have access to alternate funding sources, suggesting that if a project can be funded through other means, perhaps the Fund would be better spent on another project.

Risk factor criteria: It was suggested that the risk analysis tool must include a wide variety of factors above and beyond costs of potential damage, such as physical structure and likeliness of failure to internal drainage and protection of non-urban infrastructure. Several participants noted that having clearer definition of the consequence equation / risk factor criteria is needed as part of the Fund language.

Length of approval/allocation time: Many participants noted that the allocation process for current funding sources is extremely bureaucratic and slow. An expedited or streamlined process for funding approval/allocation would be greatly beneficial to the program.

Cost share: Many participants noted that the current suggestion of a 35/65 cost share may be a significant barrier for local governments or individual levee managers. Reducing the cost share percentage or offering loans should be considered. It was also suggested that efforts could be made to seek contributions from levee beneficiaries. One participant noted an approach currently being drafted for public works projects that determines cost share on a case-by-case basis. This allows for the cost share to be on a sliding scale in order to factor in such things as size of the tax base, priority of the project, potential impact, etc.

No- / low-interest revolving loan fund: Several participants suggested that a no-interest or low-interest loan to cover the non-federal cost share portion of project financing would be extremely beneficial to ensure projects are completed in a timely manner. For an example refer to the Missouri wastewater flood revolving loan fund.

Funding access criteria: Some participants stated that it was unclear whether or not the 35% cost share included money spent on meeting the Fund criteria or whether those criteria had to be met prior to getting funding approval.

Incentivizing higher standards or establishing criteria: It was recommended that the Fund include criteria that would incentivize building to higher protection standards. It was also suggested that federal minimum standards be developed in the event of a disagreement between the federal government and local sponsor. Other participants noted that given the high variation in levees throughout the nation that it may be very difficult to establish a “one-size-fits-all” standard for local sponsors to meet.

Cost/benefit analysis: Some participants noted that ‘buying down risk’ must undergo a thorough analysis process to ensure that finances are spent on projects that will have the greatest impact, for example a large sum of money may be able to upgrade several levee systems or partially contribute to one large levee and it must be determined where the funds will have the most impact.

Level of funding: The needed level of funding will not be fully known until the national inventory is completed. Once the level is determined it will then rest on the shoulders of Congress to determine whether or not the full funding will be allocated.

Pre- vs. post-disaster funding: The Fund is intended for pre-disaster improvement projects which will also ensure a clear dividing line in funding sources from various agencies under various authorities. Some participants noted that while the clear dividing line is desirable, there is a potential issue in post-disaster scenarios where funding allocated can only be used to rebuild the levee to the state it was before the disaster, rather than allowing for improvements.

Risk/benefit ratio: Participants discussed the potential catch-22 scenario that will occur from levee improvement which will provide more assurance to residents and businesses which will likely lead to increased development in the area which in-turn raises risk if the levee was to fail.