



**National Committee on  
Levee Safety**  
Review Team Meeting #1

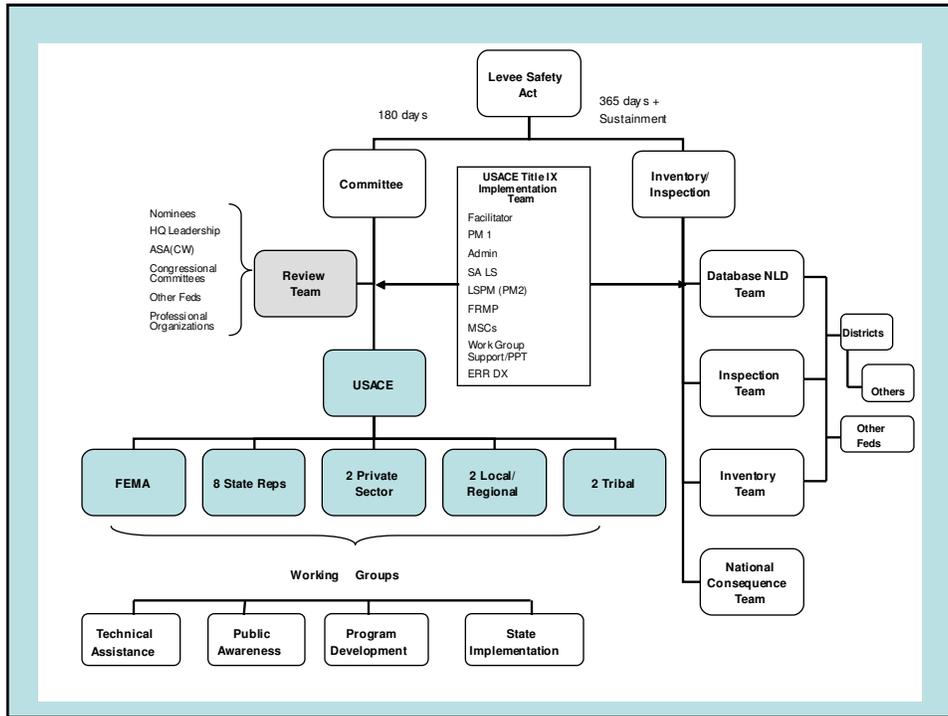
*Presentation by Eric Halpin, Committee Vice Chair*



30 October 2008

## Agenda for Today, 0900-1230 hours

- Opening: “The Charge from Congress”, Eric Halpin
  - Background and History
  - Committee Approach
  - Vision of a National Levee Safety Program
- “Definition of a Levee”, Les Harder
- “National Levee Safety Program - Goals of the Levee Safety Act and Proposed Key Questions to Address by the Committee”
  - Work Group 1: Technical Goals, Les Harder
  - Work Group 2: Public Awareness Goals, Robert Turner
  - Work Group 3: Program Goals, Karin Jacoby
  - Work Group 4: Implementation/Delegation Goals, Mike Stankiewicz
- Facilitated Comment and Feedback

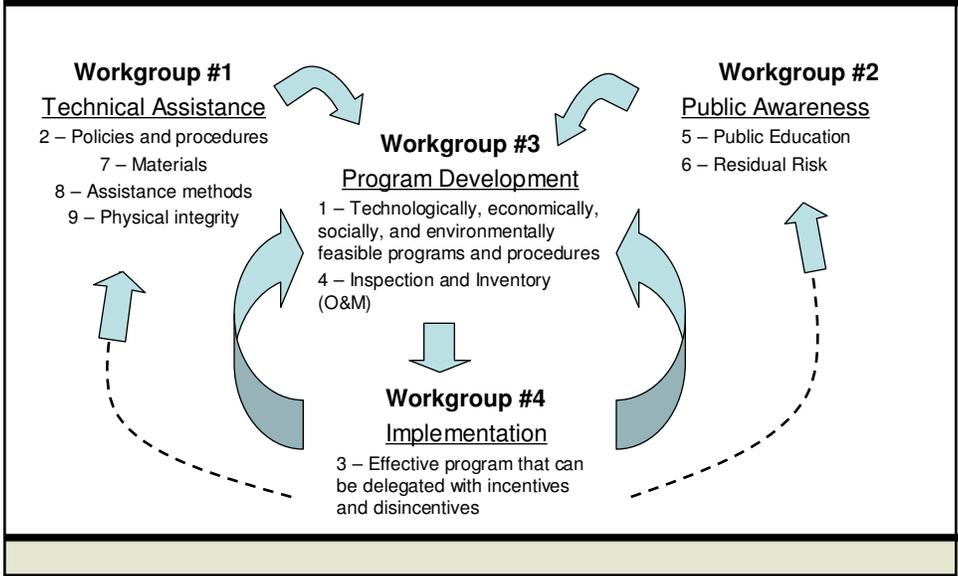


## Mission Statement for the National Committee on Levee Safety

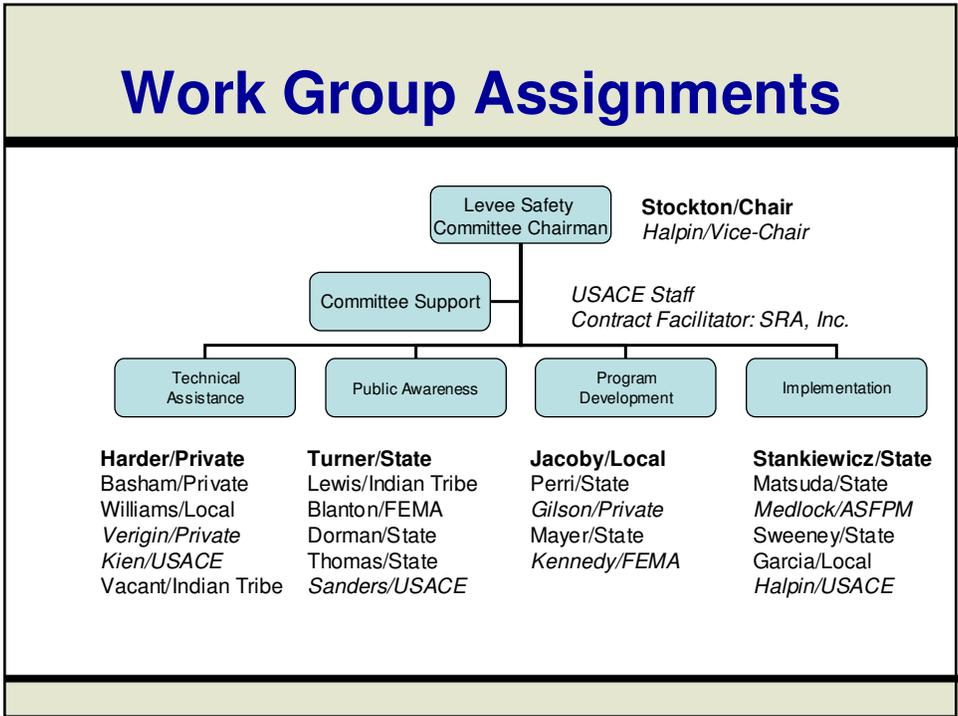
- “The committee shall develop **recommendations** for a National Levee Safety Program, including a **strategic plan** for implementation of the program.”

# National Committee on Levee Safety

The purpose of the National Committee on Levee Safety is to develop recommendations for a national levee safety program, including the strategic plan for implementation.



# Work Group Assignments



## Approach to Building Recommendations and a Strategic Implementation Plan

- Developing a Common Foundation and Operating Norms (Committee Meeting #1)
  - Background Presentations
  - Charter & Operating Rules
  - Vision Statement
  - Plan & Organize
- Understanding and Building a Framework for the Goals of the Levee Safety Act (Meeting #2):
  - Provide Clarifications and Understand Assumptions of the Goals of the Act
  - Formulate questions that would need to be answered to make recommendations for goals within workgroup purview.
  - Identify data, input, advice needed for formulation of recommendations.
- **Have Review Team Provide an Azimuth Check (Review Team Meeting #1)**
- Building the Report One Goal at a Time (Meetings 3 and 4):
  - Obtain data and inputs needed.
  - Analyze Data and Inputs
  - Answer questions, formulate specific recommendations, and draft report
- **Have Review Team Review Draft Report (Review Team Meeting #2)**
- Incorporate Feedback on Draft Report (Meeting #5)
- **Public Meeting on Draft Report**
- Finalize Decisions Describing Consensus and Finalize Report (Meeting #6)
- Provide to Congress 15 January 2009

## Vision Statement for the National Levee Safety Program

- “An informed public and reliable levee systems working as part of an integrated approach to protect people and property.”

## Review Team Meeting Objectives

- Communicate the direction that the National Committee on Levee Safety is taking in addressing a National Levee Safety Program
- Provide an opportunity for input on levee definitions, assumptions about goals, and key questions needed to address the goals, by:
  - Clarifying Questions
  - Follow Up Written Comments

## Key Background Documents to Review



<http://www.iwr.usace.army.mil/ncls/>

- National Levee Safety Act
- Charter, National Committee on Levee Safety
- Project Management Plan, National Committee on Levee Safety
- Background Presentations to the National Committee on Levee Safety
- Information and data Input from Subject Matter Experts
- **Review Team Compilation: Draft Questions and Needed Inputs for Nine Goals**

# Levee Definition and Classification

*Presentation by Les Harder, Chair, Working Group 1*



30 October 2008

## Guiding Principles

- Need to further refine the definition of a levee in order to develop policies and criteria
- Definitions are intended for interim use (say ~10 years)
- Definitions and classifications should initially be based on the magnitude of consequences of levee failure
- Consequences of levee failure can include the parameters associated with:
  - ✓ Number of people at risk
  - ✓ Depth of potential flooding
  - ✓ Area of potential flooding
  - ✓ Height of levee
  - ✓ Purpose of levee.
- Should endeavor to use parameters and definitions consistent with those in use by other agencies (e.g. State of California, FEMA)

1

## Title IX Levee Definition

- “(A) In GENERAL. – The term “levee” means an embankment, including floodwalls –*
- (i) the primary purpose of which is to provide hurricane, storm, and flood protection relating to seasonal high water, storm surges, precipitation, and other weather events; and*
  - (ii) that normally is subject to water loading for only a few days or weeks during a year.*
- (B) INCLUSION. – The term includes structures along canals that constrain water flows and are subject to more frequent water loadings but that do not constitute a barrier across a water course.”*

2

## Proposed Expanded Definition

*Embankments and floodwalls that provide flood protection to lands below sea level and other lowlands and that may be subject to water loading for much, if not all, portions of the year, but that do not constitute barriers across water courses or managed as dams*

3

## Suggested Levee Classification

Hazard Potential Classification	Number of People Potentially Inundated	Number of People Inundated to Depths $\geq 3$ feet
Very High	$\geq 10,000$	$\geq 10,000$
High	$\geq 10,000$ $< 10,000$	$< 10,000$ $0 < N < 10,000$
Significant	$< 10,000$	0
Low	$< 1,000$	0

4

## Structures Exempt from NLSP

Must meet *all* of the following criteria:

- Must not be part of a federal flood control project;
- Must not be an accredited levee by FEMA;
- Must not be greater than 3 feet high;
- Must not protect a population greater than 50 people; and
- Must not protect an area greater than 1,000 acres

5



# Technical Assistance

## Working Group 1

*Presentation by Les Harder, Chair, Working Group 1*



30 October 2008

## Title IX Goals Related to Technical Assistance

- Goal 2 – Encouraging use of the best available engineering policies and procedures for levee site investigation, design, construction, operation and maintenance, and emergency preparedness.
- Goal 7 – Developing technical assistance materials for State and national levee safety programs.
- Goal 8 – Developing methods to provide technical assistance relating to levee safety to non-Federal entities.
- Goal 9 – Developing technical assistance materials, seminars, and guidelines relating to the physical integrity of levees in the United States.

## Assumptions & Interpretations

*The Committee has decided that the definition of a levee needs to be expanded and that it should establish classifications to help define/describe policies.*

## Assumptions & Interpretations

*Many engineering firms in the private sector are now refusing to be involved with levee certification, evaluations, inspections, designs, or even peer review of such work because of potential liability. As a result, the pool of potential engineering expertise is becoming limited and there are implications with regard to accomplishing needed levee work.*

## Questions by Goal

- Question 2-1: What is the best approach for encouraging the use of best engineering practices – developing general guidelines? Or developing and adopting a single set of “national” engineering policies, procedures, and criteria?
- Question 2-2: Who would be required to use “national” engineering policies/criteria and what would be the consequences of not using it, and/or incentives for using them (i.e., how to get Corps, Bureau of Reclamation, FEMA, States, local agencies, and the private sector to accept them)?
- Question 2-3: Until “national” engineering policies/criteria are developed (perhaps requiring 5-10 years), what should be used in the interim?

## Questions by Goal

- Question 2-4: How should the National Levee Database currently being developed by the Corps be expanded beyond a voluntary basis for non-federal levees?
- Question 2-5: How should the concepts of “tolerable risk” and risk-informed analyses be used in establishing engineering policies and criteria?
- Question 2-6: How should core engineering competencies be encouraged, developed, and maintained?
- Question 2-7: Should the National Levee Safety Program provide some type of liability relief to the private sector? If so, should this also be given in one form or another to state and local agencies as well?

## Questions by Goal

Question 7-1: What elements go into and what technical assistance is needed to establish and maintain levee safety programs? The following is an initial list of possible technical elements:

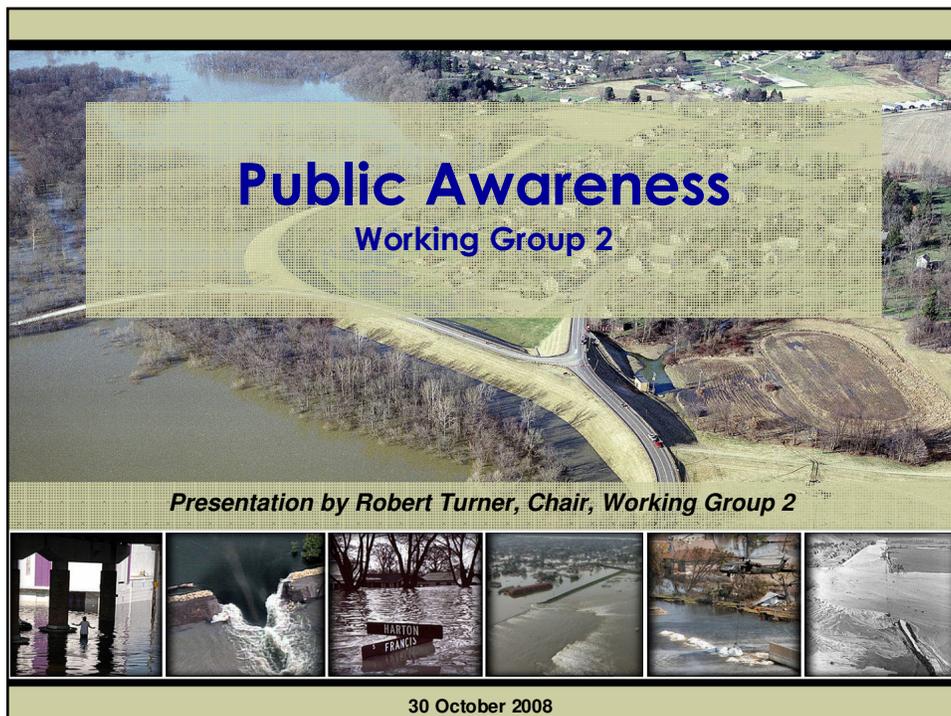
- Levee inventories
- Levee inspections
- Geotechnical explorations and site characterization
- Geotechnical evaluations and analyses
- Hydrologic and hydraulic analyses
- Structural analyses
- Seismic evaluations
- Mechanical/Electrical components
- Levee Penetrations (e.g. pipelines)
- Construction administration and inspection
- Operations and Maintenance (including vegetation management)
- Encroachments
- Security
- Risk Analysis, including levee fragility evaluations
- Performance Instrumentation
- Residual Risk and risk communication
- Levee Professional Certification Programs
- Emergency Preparedness and Response, including Emergency Action Plans, Floodwarning Systems, and Floodfighting
- Performance documentation following flood events
- Interim risk reduction measures
- Evacuation
- Mapping and risk notification
- Surveys
- Training (inspectors, flood-fighters, general public, etc...)
- Environmental permitting

## Questions by Goal

- Question 7-2: Who is best suited to develop, maintain, and periodically update requirements and/or technical assistance materials for State and National Levee Safety Programs?
- Question 8-1: How can technical assistance be best provided to non-federal entities?
- Question 9-1: What are the best delivery methods for providing technical assistance materials and guidance?

## Questions by Goal

- Question 9-2: What does physical integrity mean?
- Question 9-3: What expertise is associated with and what technical assistance is needed relating to the physical integrity of levees?



**Public Awareness**  
Working Group 2

*Presentation by Robert Turner, Chair, Working Group 2*

30 October 2008

The slide features a large aerial photograph of a river and a levee system. A semi-transparent green box with a grid pattern is overlaid on the image, containing the title and subtitle. Below the main image is a horizontal strip of six smaller photographs showing various scenes of flooding and infrastructure damage. The date '30 October 2008' is printed at the bottom center of the slide.

## Title IX Goals Related to Public Awareness

- Goal 5 – Developing and supporting public education and awareness projects to increase public acceptance and support of State and national levee safety programs.
- Goal 6 – Building public awareness of the residual risks associated with living in levee protected areas.

## Assumptions & Interpretations

*Building Awareness =  
communicating risk + recommending  
actions to deal with risk.*

## Questions by Goal

- Question 5-1: What messages/information do we want to get out using public education and awareness projects?
- Question 5-2: Who is best suited to develop public education and awareness projects and why (level of government/agency)?
- Question 5-3: Who is best suited to deliver public education and awareness projects to the following targeted audiences?
  - Congress
  - Federal, State, Local, and Tribal agencies
  - General Public
  - Public at Risk
  - State and Local Governments
  - Technical Societies
  - Non-Governmental Organizations
  - Others

## Questions by Goal

- Question 5-4: How should we propose to sequence execution of the public awareness program?
- Question 5-5: What is the most effective way to disseminate the information to target audiences?
- Question 5-6: What existing successful public awareness programs might be leveraged to assist or complement this effort (FEMA, USACE, states, NGOs)?

## Questions by Goal

- Question 6-1: What is the definition of residual risk (based on the entire system - levees, drainage, pumps – entire basin)?
- Question 6-2: What constitutes a “levee protected area?”
- Question 6-3: What do people (e.g., public, local government, legislators) already know about risks associated with living in levee protected areas?

## Questions by Goal

- Question 6-4: Who will determine the level of risk in a particular levee protected area?
- Question 6-5: How can risk be communicated when we don't know the level of risk?
- Question 6-6: What actions are we trying to drive?

## Questions by Goal

- Question 6-7: Who can best implement a public awareness program to communicate the reality of risk associated with living in a levee protected area (governance, incentives/disincentives)?
- Question 6-8: What criteria should be used to establish outreach and communication priorities?

## Questions by Goal

- Question 6-9: Should public awareness programs apply equally to all categories of levee systems (urban, agricultural, etc.)?
- Question 6-10: What existing public awareness programs have proven successful in communicating risk and how are they structured?



**Program Development**  
Working Group 3

*Presentation by Karin Jacoby, Chair, Working Group 3*



30 October 2008

## Title IX Goals Related to Program Development

- Goal 1 – Ensuring the protection of human life and property by levees through the development of technologically, economically, socially, and environmentally feasible programs and procedures for hazard reduction and mitigation relating to levees.
- Goal 4 – Ensuring that levees are operated and maintained in accordance with appropriate and protective standards by conducting an inventory and inspection of levees.

## Assumptions & Interpretations

- *The responsibility of Working Group 3 is to identify the national levee safety program (NLSP), which will include all levels of government.*
- *Working Group 4 is to determine how the program and various program components may be delegated to states and possibly to local governments.*
- *The Committee believes that inventory and inspection of levees will need to be an ongoing effort, not a one-time event.*

## Assumptions & Interpretations

- *The term "inspection" generally means simply a visible inspection and reporting any visual problems such as vegetation, rodent burrows, cracking, slumping, over-steepened slopes, unauthorized encroachments, etc.*
- *Inspections typically do not include performance history investigation, surveys, geological / geomorphological studies, geotechnical investigations (such as drilling, sampling and testing), or engineering analyses. Such activities, typically called evaluations or assessments, can be several orders of magnitude more difficult and expensive than inspections.*

## Assumptions & Interpretations

- *An environmental enhancement that does not provide for increased public safety related to a levee is not included in the definition of mitigation. Mitigation is intended to mean mitigation from flood damage.*
- *In ensuring whether a program component is feasible the Committee is tasked with looking at environmental feasibility, which may lead to recommendations such as permit streamlining procedures as a means to address operation and maintenance issues.*

## Questions by Goal

Question 1-1: What activities/programs would be important to include in the National Levee Safety Program (NLSP)?

NLSP Program components under consideration:

- |  |  |
|--|--|
| - Technical Guidance, Assistance, and Training | - Environmental Compliance Assistance/Streamlining |
| - Engineering Design                           | - Program Performance Reviews/Reporting/Evaluation |
| Standards/Criteria/Procedures                  | - Levee Performance Rating                         |
| - Research & Development                       | - Delegation to Qualified State/Other              |
| - Levee Professional Certification             | - Default for Non-Qualified Delegation             |
| - Operations & Maintenance                     | - Flood Fighting                                   |
| - Risk Assessment/Analysis                     | - Emergency Preparedness & Response                |
| - Independent Peer Review                      | - Risk Reduction (Interim and Long-Term)           |
| - Inventory                                    | - Rehabilitation                                   |
| - Inspection Policy                            | - Improvement                                      |
| - Routine Inspection                           | - Evacuation Plans                                 |
| - Periodic Inspection                          | - Post Flood Recovery                              |
| - Permitting for Encroachments                 | - Public Awareness/Education                       |
| - Security Standards                           | - Floodplain Mapping/Coordination                  |
| - Forensic Analysis                            |  |

## Questions by Goal

- Question 1-2: What activities/programs should be excluded from the NLSP?
- Question 1-3: How much money will it take to fund a robust NLSP, and what funding options exist or could become available?
- Question 1-4: How may the National Flood Insurance Program and its Community Rating System be modified to assist the NLSP?

## Questions by Goal

- Question 1-5: To what extent should the NLSP include hazard reduction and mitigation beyond the levee structures?  
Identified options include:
  - 1) not at all
  - 2) only to the extent that there is a strong relation to the levee and the floodplain protected by the levee
  - 3) to the extent that there is any connection to the levee and the floodplain protected by the levee.

- Question 4-1: Beyond inspection and inventory, what is needed to ensure adequate operation and maintenance?
- Question 4-2: How can levee inspection and inventory be accomplished in states that do not cooperate?



**Implementation**  
**Working Group 4**

*Presentation by Mike Stankiewicz, Chair, Working Group 4*



30 October 2008

## Title IX Goal Related to Implementation

- Goal 3 – Encouraging the establishment and implementation of an effective national levee safety program that may be delegated to qualified States for implementation, including identification of incentives and disincentives for State levee safety programs.

## Assumptions & Interpretations

- *Systems approach for implementation or delegation may not align with existing political boundaries, but may follow physical or watershed boundaries.*
- *The Committee believes that the delegation component of a National Levee Safety Program is not limited to states and may include other qualified entities.*

## Assumptions & Interpretations

- *Qualified states administering a delegated program may further delegate to a qualified entity in that state's jurisdiction.*
- *Federal levees may be regulated by delegated programs (e.g. a qualified state administering a delegated program may regulate a federal levee asset).*
- *Delegation is optional, not required.*

## Questions by Goal

- Question 3-1: What functions can be delegated, and what functions should be delegated? The following is a list of potentially delegated functions:
  - Review and approve plans and specifications for levee construction, modification or removal
  - Perform periodic inspections to assure compliance with approved plans and specifications
  - Require State approval prior to operation (not as applicable to levees)
  - Perform or require performance of periodic and irregular inspection of levees
  - Require qualified professional supervision of inspections
  - Order procedural or operating changes, maintenance, repair, or removal of levees
  - Promulgate regulations to implement the statutory authority
  - Provide funds to compel action, or take action, to protect public safety
  - Develop and implement emergency procedures for imminent or actual levee failure
  - Identify levees, the failure of which may endanger human life, and determine the magnitude of the consequences of failure
  - Adopt or establish technical standards for construction, operation and maintenance
  - Require operating permit for any jurisdictional levee
  - Authority to enter public or private property for inspection or to take necessary action to protect public safety.

## Questions by Goal

- Question 3-2: Are there any functions that should not be delegated?
- Question 3-3: What qualifications should be met to receive a delegated levee safety program?
- Question 3-4: Should levee safety program be mandatory or optional?

## Questions by Goal

- Question 3-5: What are possible incentives and disincentives (for effective implementation) and how could they be used? Possible incentives and disincentives currently under consideration by the Committee include:
  - State/local regulation (not federal)
  - Favored treatment in CRS, NFIP, Public Assistance and Mitigation grants
  - Priority eligibility / discounted rates for NLSP training
  - Eligibility for loans from infrastructure trust fund
  - Reduced (not eliminated) flood insurance premiums
  - Eligibility in PL84-99 at full federal expense
  - "Good" levee safety ratings and characterizations
  - Eligibility for federally cost-shared levee rehabilitation and/or construction projects
  - Favored treatment for federal funding, e.g. CWA, Transportation, HUD, CBDG. Expand CRS concept to all federal funding programs.
  - Less/no federal oversight (primacy)
  - Eligibility for (yet to be authorized) Federal grant/assistance programs
  - Access to reduced-cost training and technical document programs
  - Access to federally funded technical assistance
  - Local agencies that unreasonably approve new development share liability
  - Penalties/consequences for noncompliance with evacuation order
  - Eligibility for funding from State bonds
  - Eligibility for low/no interest loans
  - Indemnification of delegated program entity by delegating entity, provided delegated program is properly implemented
  - Streamlined environmental permitting
  - National, regional, basin-wide mitigation banking
  - No development in protected area without in-compliance LSP
  - Use funds to maintain undeveloped flood plain land
  - Land purchases should be targeted to flood plain land acquisition

## Questions by Goal

- Question 3-6: Where should the National Levee Safety Program reside?
- Question 3-7: What is the significance of real property ownership related to program implementation?
  - Who owns projects built by USACE and turned over to non-federal sponsor for O&M?
  - What are implications to program if owners cannot be identified?