

Flood Protection and Ecosystem Restoration Professional Development Program
Flood Protection Course for Levee Board Members
Louisiana Transportation Research Center
Transportation Training & Education Center
4099 Gourrier Ave
Baton Rouge, LA

Tuesday, November 27, 2007

7:30 – 8:30 am
8:30 am

Registration
Welcome, Opening Remarks

Dr. William Jenkins, President Emeritus,
Louisiana State University System

Bruce Thompson and William Marchal, Flood Protection Alliance

Day 1

Flood Protection Policy & Administration

9:00 – 9:50 am

Session 1: *Protecting Communities: Introduction to Louisiana's Comprehensive Master Plan*
Ms. Sidney Coffee, Chair, Governor's Executive Assistant for Coastal Activities

Introduction to Louisiana's Comprehensive Master Plan for a Sustainable Coast. What is at stake? Clarify the assumptions, tradeoffs and challenges to the comprehensive plan? How do levees and other structural controls fit within a plan for a sustainable coast? What can levee boards do to contribute to the Louisiana's master plan?

10:00 – 10:50 am

Session 2: *Agency Roles and Legal Authorities*
Mr. Jim Wilkins, Louisiana Sea Grant, Louisiana State University

What is the function and legal authority of the Levee Districts in flood control and protection? Do any of the levee districts have additional responsibilities or serve unique roles because of their size, geographic area served? What is the levee district's relationship with state and federal agencies that have responsibilities for flood protection, emergency management, planning, or the management of natural resources? What are the legal authorities of state and federal agencies and how do they impact levee districts?

10:50 – 11:10 am

BREAK

11:15 - 12:15 pm

Session 3: *Levee Board Legal Issues*
Mr. Jim Wilkins, Louisiana Sea Grant, Louisiana State University

What are the legal issues associated with levee board operations including: expropriation or taking of private property, acquisition of property, relocation of existing structures, easements and access to property, liability for failure, damage or negligence, development rights, and mineral rights? What is the levee district's responsibility for securing state and federal permits prior to initiation of a levee project?

12:15 – 1:15 pm

LUNCH

1:15 – 2:15 pm Session 4: *Regional Evolution of Levee Districts*
Mr. Eddie Brooks, U.S. Army Corps of Engineers, Vicksburg, MS

How have levee districts evolved? How does the system of levee districts in the United States differ? How have levee districts evolved over the years? Is the approach used in one state similar to how other states approach flood protection? Are all levee systems the same? What regional approaches to flood protection exist in the Mississippi river basin? What are the coordination and communication issues between the levee boards and these regional entities?

2:25 – 3:15 Session 5: *Financial Management*
Dr. Thomas Lynch, Professor, Public Administration Institute,
Louisiana State University

What is levee district board member's role and responsibility for the financial management? What financial management tools and techniques are available to board members to ensure that adequate funds will be available for operations and maintenance and that the organization operates in a sound manner (including evaluation strategies for short and long term financing of construction projects)?

3:15 – 3:30 pm **BREAK**

3:30 – 4:30 pm *Financial Management (continued)*

4:30 – 4:45 pm *Summary, Closing Remarks, Lessons Learned*
Dr. John C. Pine, Director, Disaster Science & Management, LSU

Wednesday, November 28, 2007

DAY 2 Structural Controls

8:30 – 9:30 am Session 1: *Introduction to Flood Protection Systems*
Dr. Reda M. Bakeer, Tulane University

Introduction to flood protection – clarification of terms. Characteristics of flood protection structures (levees, I-walls, T-walls, floodgates, etc.). Clarify basic concepts of soil mechanics and foundation engineering pertaining to the design of flood protection structures. What design forces, parameters and criteria are used in the design of flood protection structures? Explain the process for the construction of flood control structures. Clarify the importance of QA/QC during design and construction phases.

9:40 – 10:30 am Session 2: *Planning of Flood Protection Systems*
Dr. Reda M. Bakeer, Tulane University

Explain the role that flood control (dams and reservoirs, dikes and levees, retaining ponds, flood channels, and floodwalls) play in protecting property from flooding and coastal hazards. Compare individual structures versus a flood protection "system"? What is the use of multiple elements and redundancy (pumping systems/drainage is part of flood control) in drainage and flood protection systems? Explain the level of risk/reliability associated with different structures. Explain design parameters that may impact selection of a flood protection structure (right of way, ground elevation, factors of safety, level of protection, SWL, waves, etc.). Clarify risk versus cost/benefit ratio based design. Explain the prioritization of flood protection projects.

10:30 – 10:45 am **BREAK**

10:45 – noon

Session 3: *Maintenance of Flood Protection Systems*
Dr. Reda M. Bakeer, Tulane University

Explain the role of operations and maintenance programs in ensuring the integrity and performance of a flood protection system. Clarify the role of the protection of levee servitudes, local permitting processes and drilling. Explain the role of storm water management in effective maintenance systems. Discuss the role of slope protection in a flood protection system. Examine the effect of local and global settlement and ambient environmental conditions on short- and long-term performance and effectiveness. Explain the need for inspection, monitoring and maintenance of flood protection structures. Clarify the role of certifications of a flood protection systems. Discuss the process for repair/replacement prioritization for a flood protection system. Stress the importance of documentation and reporting of inspections, maintenance and repairs of a flood protection system.

12:00 – 1:00 pm

LUNCH

1:00 – 2:00 pm

Session 4: *Failures in Flood Protection Systems*
Dr. J. David Rogers, P.E., R.G., Karl F. Hasselmann Chair
Department of Geological Engineering, University of Missouri, Rollo, MO

Define failure in a flood protection system. Contrast structural failure versus functional failure. Compare local failure versus overall failure. Explain the most common causes of failures and breaches in a flood protection system. Discuss the modes of failure in flood control structures. Explain methods of failure and damage assessment. Explain the process of failure risk reduction. Case study: Failures from Hurricane Katrina

2:10 – 3:00 pm

Session 5: *Failure Monitoring in Flood Protection Systems*
Dr. J. David Rogers, University of Missouri, Rollo, MO

Discuss technologies that are needed to provide real time monitoring and warning of structural failures within a flood protection system. Compare local failure versus global failure. Explain the importance of remedial actions and temporary repairs. Discuss pre-storm preparation.

3:00 – 3:20 pm

BREAK

3:20 – 4:30 pm

Session 6: *Issues Related to Design, Construction and Maintenance of a Flood Protection System*
Dr. J. David Rogers, University of Missouri, Rollo, MO

This session will examine issues related to design, construction and maintenance of flood control structures.

4:30 – 4:45 pm

Summary, Closing Remarks, Lessons Learned
Dr. John C. Pine, Director, Disaster Science & Management, LSU

Thursday, November 29, 2007

DAY 3

Non-structural Controls, Climate, and Risk

8:30 – 9:30 pm

Session 1: *Introduction to Hydrology and Inland Flooding*
Dr. Hassan Mashriqui, P.E., LA Sea Grant, Louisiana State University

What are the basic elements of hydrology and flooding concepts for inland flooding? What is the appropriate geographic scale to understand flooding events? What factors influence drainage in a watershed and basin?

9:30 – 10:45 am *Session 2: Coastal and Riverine Hazard Modeling*
Dr. Hassan Mashriqui, P.E., LA Sea Grant, Louisiana State University

What are the appropriate natural hazard models that can be used with inland flooding? What uncertainties are inherent in natural hazard models? What are the appropriate uses of these models in planning and emergency response? What technology is used to ensure that the most accurate data is included in hazard models?

10:45 – 11:00 am **BREAK**

11:00 – 12:00 pm *Session 3: Climate Forecasting*
Dr. Barry Keim, Associate Professor, Department of Geography and Anthropology, Louisiana State University

What are the federal agency roles in climate forecasting (NOAA, NWS, and NWS Hurricane Center)? What is the uncertainty that is associated with climate forecasting including the probability of error, residual risk, and levels of risk? What has been Louisiana's historical experience from extreme weather events? What lessons learned have we drawn from these events?

12:00 – 1:00 pm **LUNCH**

1:00 – 2:00 pm *Session 4: Introduction to Non-structural Approaches*
Stephen D. Villavaso, FAJCP, J.D.
Villavaso & Associates, LLC. River Ridge, LA

What is risk? What is susceptibility? What are nonstructural approaches and their advantages and disadvantages? Why must nonstructural approaches be a mandatory part of a comprehensive flood damage reduction program.

2:00 – 3:00 *Session 5: Community Planning: Role of Floodplain Management in Flood Damage Reduction*
Stephen D. Villavaso, FAJCP, J.D.

What is the purpose of a local hazard comprehensive plan? How does hurricane and flood hazard mitigation and post-storm reconstruction plans fit within the scope of levee district hazard planning efforts? Why is coordination within the entire watershed so critical to flood damage reduction program efforts? What role does flood hazard mapping have in a local hazard comprehensive plan?

3:00 – 3:15 pm **BREAK**

3:15 – 4:15 pm *Session 7: Risk Communication & Information Dissemination*
Dr. John C. Pine, Director, Disaster Science & Management, LSU

Why should we be concerned with hazards risk communication and public information? What are some examples of community awareness programs and what are their impacts? What role could a levee district have in disaster warning and evacuation planning? What is the value of coordination with other agencies as well as education and training programs in mitigating property losses? What have levee districts in other states done to notify property owners of flood risk, with a focus on the residual risk behind levees.

4:15 – 4:45 pm *Workshop Wrap-up, Assessment and Closing Remarks*
Dr. John C. Pine, Director, Disaster Science & Management, LSU