

Joint Workshop on Decision Support for Water and Power Management Progress and Prospectives

2005 MCEER Annual Meeting

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Utility Performance Objectives Workshop

Decision Support for Earthquake
Water and Power Management

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Utility Performance Objectives Workshop

■ Purpose:

- Advance research and practice in decision support systems for the engineering management of critical lifelines, with an emphasis on earthquake utility performance objectives

■ Development

- Outcome of MCEER 2004 annual meeting session on Lifelines “Challenging Research/Implementation Issues”



Workshop Program & Participants

- Program:
 - 1-day presentations
 - ½-day tour LADWP facilities
 - ½-day discussion session
- Participants included broad ranges of expertise:
 - Utility, Disaster, Government, and Community
 - Managers, Practitioners, and Researchers
 - Lifeline and Earthquake Engineering, Socio-economics, Finance, Disaster preparedness, Community Resilience

Progress

Workshop Advancements:

- Multidisciplinary cooperation for research, development, and implementation of decision support systems.
- Understanding of current utility earthquake performance criteria.
- Identification of important areas of future activity.
- Collaborating opportunities for future developments in decision support.

Prospectives

■ Needs

- Post-earthquake fire flow requirements
- Prioritizing service restoration
- Disaster response forecasting
- Performance level metrics
- Water purification advisory impacts (Boil water notice)
- Conservation policies
- Multihazard considerations

Prospectives

NEED

Tools needed for decision support

OPPORTUNITY

Research and development opportunities

COOPERATIVE VENTURE

Organizations and professions who may take opportunity in fulfilling the need

Prospectives

NEED

Post-earthquake fire flow requirements

OPPORTUNITY

Research for fire flow with broken pipes based on construction type and urban density. Include economic loss from fires and locations of critical facilities (hospitals, chemical storage, etc.)

COOPERATIVE VENTURE

Fire department, water department, system and GIS modeling, social sciences, economics

Prospectives

NEED

Prioritizing service restoration

OPPORTUNITY

Research and develop coordination of restoration activities and plans between fire department and water, power, and gas utilities to optimize service and minimize fire. Include inter-system operability and economic impact for support of prioritization.

COOPERATIVE VENTURE

Fire department, water, power, and gas departments, disaster management, economics, political entities

Prospectives

NEED

Disaster response forecasting

OPPORTUNITY

Develop models for use in disaster response to aid in disaster planning and post-disaster resource allocation. Include impacts of transportation corridors.

COOPERATIVE VENTURE

Disaster managers, utility and transportation operations engineers

Prospectives

NEED

Performance level metrics

OPPORTUNITY

Develop internal and external metrics for evaluating, comparing, and communicating system performance levels to the organization and customers

COOPERATIVE VENTURE

Social sciences, utilities, engineering, political entities

Prospectives

NEED

Water Purification (boil water) Advisory impacts

OPPORTUNITY

Develop models for understanding and predicting community impacts from a water purification (boil water) advisory.

COOPERATIVE VENTURE

Economics, social sciences, water department, system modeling

Prospectives

NEED

Conservation policies

OPPORTUNITY

Research and develop post-disaster resource conservation (e.g. water, power) guidelines for officials to utilize in planning and administering.

COOPERATIVE VENTURE

Economics, social sciences, water and power departments, system modeling, disaster management, political entities

Prospectives

NEED

Multihazard considerations

OPPORTUNITY

Incorporate a multihazard approach in consideration that the needs are not constrained to earthquake disasters and capitalize on other hazard research funding. Include system functional modeling applicable to impacts from other hazards

COOPERATIVE VENTURE

All possible

Outlook Summary

- Vast array of information on communicated during workshop
- Specific needs opportunities and cooperative ventures identified
- On the path to developing important tools for improving the decision making process
- Interest in future workshops with explicit model results