

OPW INTERESTS IN CLIMATE CHANGE RESEARCH

Ray McGrath (Met Eireann)
On behalf of Mark Adamson
Office of Public Works

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ROLE OF THE OPW

- Lead Agency for Flood Risk Management
- Involved with:
 - Flood risk assessment studies
 - Design and implementation of measures
 - Require predictions of:
 - Flood flows
 - Extreme sea levels
- National flood policy emphasises need for the management of future, as well as existing, risks

FLOOD RISK ASSESSMENT AND MANAGEMENT (FRAM) STUDIES

- Focal point for flood risk management
- Deliver key requirements of EU 'Floods' Directive
- Study process includes:
 - Hydrological and hydraulic analysis
 - Flood mapping
 - Development of flood risk management plan
- Long-term – Includes assessment of potential future risk as well as existing

APPROACH TO CLIMATE CHANGE IN 'FRAM' STUDIES

- Future risk assessed using two scenarios
 - 'Mid-Range' future scenario (MRFS - appx average of current predictions for 2100)
 - 'High-End' future scenario (HEFS – appx double increases of MRFS)
- Provision for MRFS in design of measures:
 - Assume change (i.e., include allowance), OR,
 - Allow / design for future adaptation
- Sensitivity test adaptability of options vs HEFS – More robust / adaptable preferred

OPW REQUIREMENTS FROM CLIMATE CHANGE RESEARCH

- Future changes in frequency / severity of flooding – Requires assessment of:
 - Changes in rainfall patterns (short-duration)
 - Catchment responses to changes in rainfall (change in flood magnitude)
 - Increases in sea levels
 - Changes in storm surge frequency / severity
- Aim is to have numerical allowances to use for future scenarios (MRFS / HEFS)

UNCERTAINTY

- Significant uncertainty in current climate change impact predictions
- Assessment using ensemble modelling to generate probability distribution of change
 - Permit identification of appropriate climate change impact allowances (MRFS, HEFS)
 - Permit statistical approach to economics of adaptability

RESEARCH NEEDS / PROPOSAL

- Ensemble climate modelling -> probability distribution of change in rainfall patterns
 - Temporal and spatial variations
- Catchment modelling
 - Estimation of change of flood flows
 - Possible relationship between catchment response and characteristics (e.g., BFI)

RESEARCH NEEDS / PROPOSAL

- Outputs required late 2010
- OPW have been liaising with Met. Eireann on research proposal
- OPW would welcome:
 - Collaboration on research
 - Coordination among research funders
- Mark.adamson@opw.ie --- 01 647 6734

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