Achieving Sustainable Ecosystems in the Future: A Framework for Today’s Restoration Planning Programs

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• Some background
• Climate change adaptation in the United Kingdom
• Applying lessons learned in coastal Louisiana
What is Planning?

• Planning is a structured approach to problem solving.

• Supported by best available science and engineering.

• Stakeholder engagement is key.

Source: Planning Primer, IWR 97-R-15
• **Open communication (there are no secrets)**
  – Public and stakeholders are vital parts of the process
  – Independent scientific and technical reviews of complex efforts ensures credibility
  – *A priori* buy-in to the process improves probability of acceptance of results

• **Clear understanding of problem to be solved**
  – Don’t get caught with “cut-and-paste” planning

• **Clear linkage of problems to objectives**
Planning Essentials

• Clear link of measurable evaluation metrics and decision criteria to objectives
  – Quantitative or qualitative, must be based on data that you understand (source, methodology, limitations)
  – Must be linked to factors important to decision-makers

• Adaptability - planning is an iterative process that is always messy and never runs to plan

• Commitment - need to follow the process where it goes.
Temperature change

Several models all SRES envelope

Model ensemble all SRES envelope

Bars show the range in 2100 produced by several models
- Mitigation actions influence drivers of climate change
- Adaptation actions influence impacts of climate change
- Mitigation and adaptation effects are interlinked - via interactions between human (socio-economic) and natural (physical and environmental) systems
UK Sustainable Development Principles

- **Living within environmental limits** – “... to improve our environment and ensure that the natural resources needed for life are unimpaired and remain so for future generations”

- **Ensuring a strong, healthy and just society** – “meeting the diverse needs of all people in existing and future communities ... creating equal opportunity for all”

- **Achieving a sustainable economy** – “building a strong stable and sustainable economy which provides prosperity and opportunities for all ... and efficient resource use is incentivized”

- **Using sound science responsibly** – “ensuring policy is developed and implemented on the basis of strong scientific evidence, whilst taking into account scientific uncertainty as well as public attitudes and values”

- **Promoting good governance** – “actively promoting effective participative systems of governance ... engaging people’s creativity, energy, and diversity”
Climate Change Bill

Objectives:

• establish an economically credible emissions reduction pathway to 2050
• provide greater clarity and predictability for UK industry to plan effectively for, and invest in, a low-carbon economy;
• provide a strong evidence-base and expertise to underpin statutory targets;
• establish a duty on the Government to regularly assess the risks from climate change and draw up a program to address them; and
• creating a power for the Government to ask a range of public authorities or statutory undertakers to **assess and address the impacts of climate change**.
Laying the groundwork by:

- improving the evidence base for the impacts and consequences of climate change
- raising awareness of the need to take action
- measuring success; and taking steps to ensure effective delivery
- working across Government at national, regional and local levels to embed adaptation into Government policies, programme and systems

Defra, 2008
Program to develop long-term adaptation plans for all river basins and coastal cells in England & Wales
- Shoreline Management Plans
- Catchment Flood Management Plans

Aim to identify sustainable, adaptive policies to manage flood and erosion risks

Consider 20, 50 and 100-year time steps

Integration of approaches to flood risk management, including:
- land use
- development planning
- flood protection works
- flood warning and emergency response

Reviewed every 5-10 years
Sustainable Risk Management Framework

Catchment & Shoreline Management Plans

- Strategy Plan
  - Project detail design
  - Project detail design
  - Project detail design
- Development Control
- Strategic Habitat Management
A framework for risk-based decision making:

- What aspects of system(s) that are vulnerable to the effects of climate (and other) change?
- What are the potential risks and opportunities arising from climate (and other) change, and their costs and benefits?
- What adaptive responses to these risks and opportunities could maintain or enhance in a sustainable manner those aspects of the system that are most valued?
## Comparison of the Risk Management Frameworks

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<tr>
<th>PRO-ACTIVE</th>
<th>REACTIVE</th>
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<tr>
<td><strong>UK</strong></td>
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<tr>
<td>- National Climate Projections available</td>
<td>- Project-by-project global downscaling</td>
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<td>- Climate change allowances specified by government</td>
<td>- Planning typically based on present day hazards</td>
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<td>- Long-term risk management planning, incorporating climate change</td>
<td>- Risk mitigation driven by disasters</td>
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<td>- Integration of engineering and planning</td>
<td>- Hazard management often undertaken in isolation from land use planning</td>
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<td>- Adaptation toolkit available to managers</td>
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Pre-Katrina Situation

- Coastal Wetlands Planning Protection and Restoration Act
- Louisiana Coastal Area Chief’s Report
- Separate flood protection projects
- Active CZM programs at State and local level
- All disconnected programs
- No state-wide land use planning
Post-Katrina Mandates

- Within 4 months:
  - Two separate USACE directives for comprehensive and integrated planning and design
  - One Governor’s Executive Order to frame planning for long-term recovery
  - One State legislative mandate to integrate protection and restoration

- All positive steps to take a broader view
Simultaneous Planning Efforts
Summary Planning Statistics

- Over the course of 13 months, the Planning team held or participated in:
- 9 plan formulation workshops with technical stakeholders and government entities
- Nearly 50 focused stakeholder meetings
- 12 public meetings and hearings
- 6 technical review meetings
- 6 electronic newsletters distributed via e-mail
- Web page
Comprehensive Visions

Filling in the Gaps
Concluding Remarks

• Ecosystem restoration is part of a comprehensive approach to climate change adaptation.

• A comprehensive vision is needed to integrate ecology, economy, and community.

• A common vision unites the effort.

• All on the team have different roles to play.

• BUT, all on the team must understand and embrace their roles.
THANK YOU.

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