



# Module 14



## Selecting tools for local application

In our earlier discussions, we presented a toolbox. Because each application is unique, we must have ways to select from within the toolbox





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## Selecting tools for local application





# Choosing and applying – Tasks

**Task 1:** How do you **involve all members of society** in decisions associated with the management of land, water and living resources (stakeholders) ?

**Task 2:** How do you ensure management is decentralized to **the lowest appropriate level**?

**Task 3:** How do you ensure the **effects of management actions (potential or actual) on adjacent** and other ecosystems are taken into account?

**Task 4:** How can the **economic context** be understood so that market distortions that affect biological diversity are reduced, incentives are developed to promote biodiversity and sustainable use, and ecosystem costs and benefits are externalized?





# Choosing and applying – Tasks

**Task 5:** What measures could be used to **conserve ecosystem structure and functioning** so as to maintain ecosystem services?

**Task 6:** What measures can be taken to ensure ecosystems are managed within the limits of their functioning?

**Task 7:** What **actions** can be taken so that the problem(s) is (are) addressed at the **appropriate temporal and spatial scales**?

**Task 8:** How can **varying temporal scales and lag-effects** be taken into account when considering the sustainable use of ecosystems?





# Choosing and applying – Tasks

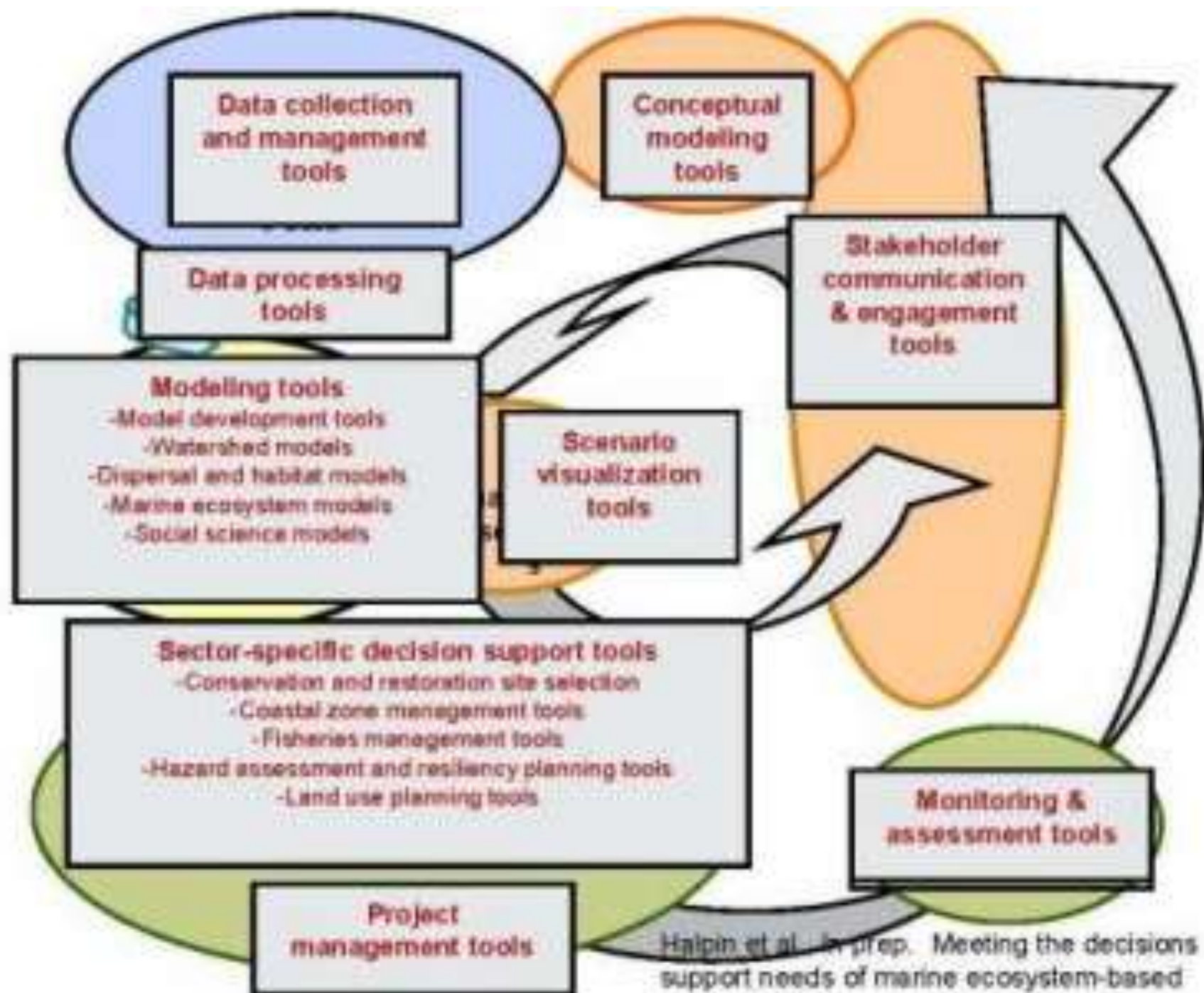
**Task 9:** How can **adaptive management** be used to address the problem(s) identified?

**Task 10:** How can an appropriate **balance** be sought between, and integration of, **conservation and use of biological diversity**?

**Task 11:** How do you ensure all forms of **relevant knowledge** including, scientific, indigenous and local knowledge, innovations and practices are included?

**Task 12:** What measures can be taken to facilitate the involvement of all stakeholders including **all sectors** of society and scientific disciplines?





Halpin et al. In prep. Meeting the decisions support needs of marine ecosystem-based management



# Choosing and applying tools to achieve specific outcomes (1)

- **Linked to land tenure and water rights systems**
- **Aim to coordinate environmental and land use policies for more effective landscape planning**





# Choosing and applying tools to achieve specific outcomes

- Managers need to understand which ecosystem services are valued most highly and how to quantify goods/services
- Need to know which tools are appropriate, which resources are available and how resources can be used to increase sustainability
- Specifics depend on local characteristics







# Repeated value of water

- Water is repeatedly used and re-used
- As the water passes along its channels toward the sea, its quality is changed; we invest a great deal of energy in managing changes in distribution and quality
- Continual and repeated use of water means every management decision has potential downstream implications - *potential or actual effects on other ecosystems*



# Rich versus Poor

- A common management mistake is to adopt tools **from developed countries** which have a specific culture, applying them **to a developing country** that has a different culture
- The same intervention may have different outcomes even within a country
- Advisors may make incorrect assumptions about local values
- *Example: If individuals are living in poverty and worried about immediate sources of energy or food, they will be **less concerned about aesthetics, or tourist value of a tree or wild animal in the landscape***





# System Function

- **Management principles appropriate in one natural system may not work in another** because natural systems differ in their functions
- *Before natural-resource managers advise land managers in an area, they need to know how the natural system functions and identify current land management practices*
- **For example, fire in tropical forest systems causes widespread devastation. Savannas have similarities to tropical systems in that they have trees, but trees are dispersed with a grass layer that is seasonally flammable. Savannas are fire prone; suppressing fire in such a landscape would be unwise and impossible**





# Land Tenure

- **Government:** Generally set aside for a **specified purpose**; management tools must take into account the **primary purpose of the land**
- **Communal:** Common, especially in the developing world; **community-based approaches** can be valuable for management of communal lands
- **Local authority:** Generally **responsible for management of urban land**; often custodians of communal lands. Land is often intensively used and highly impacted
- **Private ownership:** Generally owners have more rights to land than other owners or managers. Interventions of land managers must lead to better livelihood options (economics) for land owners





# Water Tenure

- **Private good** In many countries, access to natural flows is linked to land ownership, meaning that **landowners own the water that flows over their land**
- Actions of land managers must be **well informed, properly regulated, and lead to better economics for the land owner**
- **Groundwater is a management challenge; surface land management influences groundwater flow and recharge.** Groundwater abstraction policies are influenced by surface ownership independent of the flow path of the groundwater
- **Public good** Some progressive water legislation has recognized water as a **public good and stipulates that land managers can only register use of a certain amount of water.** Regulation through appropriate legislation is generally the most commonly used tool to manage water resources.
- **Management approaches need to fit in the regulatory framework**



# Cultural beliefs and practices

- Management approaches need to take into account **cultural beliefs and local practices**
- **Ignoring cultural beliefs and practices has led to failure of otherwise sound management programmes**



# Bundling tools and markets

- **No single tool** will solve all management problems in a country or a region
- Need to **integrate multiple approaches**
- Natural-resource management, socio-economic development, payments for ecosystem services, incentives, advocacy and education can all be bundled in a regulatory framework to improve management





# Impact of perverse incentives/subsidies

- Land users may be discouraged from managing for biodiversity or ecosystem services through perverse or divergent legal incentives
- Natural forests may be unsustainably harvested to make way for “more economically productive” landscapes based on introduced species
- Land users may struggle to obtain licenses to harvest native species
- Managers must remain aware of such legislation in their countries and develop strategies to deal with it







# Environmental Flows

- **Over-subscription of a resource can lead to natural system collapse**
- **Over-extraction of water has wide implications**
- **Make sure the livelihood profile after an intervention outweighs the livelihood profile before the intervention**





# Exercise

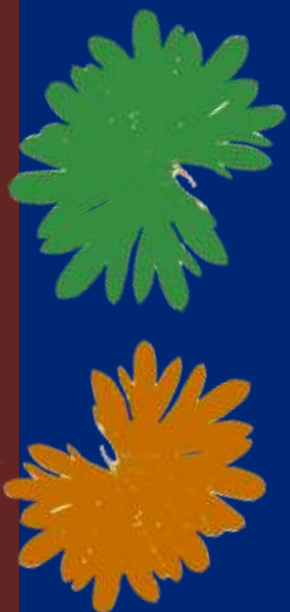
- **Thinking about your catchment: define what you see as management objectives, and list practices that might achieve those objectives.**
- **Identify the 4 highest priority practices.**
- **Choose tools supporting adoption of desired practices (*refer next slide*)**
- **Elect a spokesperson to present in plenary (20 min)**





# Building the Toolbox

- **Role of government is important in management**
- **Because of this, some tools cannot readily be selected by a catchment manager**
- **Tools to consider:**
  - **Advocacy & extension**
  - **Economic development incentives**
  - **Legislation & regulation**
  - **Markets (including rewards) for ecosystem services**
  - **Stewardship**
  - **Community-based natural-resource management**
  - **Labeling, marketing & targeting**
  - **Micro-credit schemes**
  - **Natural-resource accounting**





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## Selecting tools for local application

**In this application, we again are using peer review to help people think through their choices. Do you see that being helpful in your leadership? Are there other approaches you might use here?**

