

## The Knowledge-to-Governance Disconnect A Proposed Dynamic Management Approach



The economic and societal value of the world's aquatic resources is enormous in terms of revenues and in terms of food security and livelihoods.

Governments, industry and communities alike depend on these goods and services and therefore upon their sustainable management.

Yet still today aquatic resources are managed within a single-sector 'silo' approach that allows for very little in the way of interaction between the various service providers, users and potential impactors.

This approach not only fails to capture the interactions that must, by necessity, be understood and properly managed, it also encourages the exploitation by a single-sector interest to the detriment of other users and dependent citizens

The Tragedy of the Commons continues to haunt us!

Management of Aquatic Ecosystems requires accurate knowledge upon which to base decisions (including ‘best assessments’ of trends and predictions)

It then needs institutional mandates and effective resources to implement those decisions

Policy Makers need to prioritise actions for effective management both in terms of:

- A. Available knowledge and
- B. Available and appropriate resources

This Management and Policy approach needs to be adaptive to capture the inputs from changing/improving information and prediction

GEF International Waters Projects traditionally follow a sequential approach based on:

The Transboundary Diagnostic Analysis

The Strategic Action Programme

The TDA aims to capture a comprehensive and representative baseline of factual data, on the principle that...

**You cannot manage what you don't understand!**

This drives the development of the SAP which will then be negotiated and adopted at the policy level and will lead then to a SAP Implementation stage

Aquatic ecosystems are already showing signs of anthropogenic impacts

These include:

- Range shifts, with species moving both polewards and to deeper waters
- Changes in water column stratification and significant de-oxygenation
- Increased frequency of harmful algal blooms and changes in water quality (including acidification)
- Shifts in species composition in phyto/zooplankton communities (mainly large to small individuals) and changes in diversity and species richness of fishes
- Species acting as 'invasives' creating negative ecosystem impacts
- Changes in fisheries distribution and associated fleet structure and operations
- Management implications for harvesting of 'shifting biomass', especially across jurisdictional boundaries
- Over-exploitation of living marine resources beyond sustainable levels
- Changing and/or unpredictable weather patterns resulting in extremes of flooding or drought
- Regions with naturally high environmental variability appear to be equally vulnerable to change and are not necessarily pre-adapted
- Synergistic effects such as increased frequency of extreme events and temperature changes may prevent biomass rebuilding after a reduction in fishing effort

Gradually we are developing standard indicators of change for aquatic ecosystems and comparable monitoring approaches

But what do we actually do now with all of the incoming data from this monitoring and identification of change?

Managers and Policy-makers have expressed an urgent need for accurate and reliable information, prediction and guidance upon which to base governance at the national and regional level

How do we feed the information to where it is needed most in order to manage these aquatic ecosystems effectively and sustainably?

Scientific data and knowledge are essential to guide and advise management and policy

Yet equally, managers and policy-makers need to better define the information that they need (scientific) and what are their priorities

In order for this relationship to be effective there needs to be a better understanding by the **'Users of the Information'** of the implications of scientific results/conclusions BUT...

There also needs to be sensitivity and pragmatism in terms of guidance given to policy-makers by data collectors and analysts

Conclusions and advice on options needs to be realistic in their understanding of wider policy issues and resource constraints

In attempting to address this 'Disconnect', it is understood that often scientific results are not entirely conclusive and there is a tendency to want to do more studies on the same topic to refine the conclusions (achieving reliable **Confidence Limits**)

In terms of Aquatic Ecosystem management we need to embrace the **Precautionary Approach**, but we need to go further and develop a mechanism that can arrive at a '**Weight of Evidence**' related to evolving 'trends' in data and conclusions that:

- A. Can be accepted by scientific peers to be reliable enough to guide management decisions and..
- B. Upon which decision-makers can act immediately while accepting that the science may need further 'fine-tuning'

One very real challenge will be developing the skill-set that can define the reliable '**Weight of Evidence**' and can translate existing science into '**Confident**' advice for policy-makers and managers

The traditional 'Confidence-Based' approach relies on conclusions that are drawn based on mathematically-proven 95% or 99% confidence limits in the scientific data and findings

Problem:

**Scientists** are highly confident in their conclusions and predictions. Very reliable but usually requires detailed and repetitive studies over a long time period

**Managers** and **Policy-Makers** cannot risk waiting for these 'high-confidence' conclusions and have to act faster to protect the interests of their 'stakeholders' (primarily the community at large)

## Problem:

**Managers** are uncomfortable at basing their management plans/strategies on what is often seen as ‘supposition’ or limited observation with limited supportive scientific evidence

**Policy-Makers** do not feel fully justified in making policy decisions which may threaten or impact on other social or economic priorities unless they have reliable ‘justification’ (clear advice from scientists) to support their decisions

**Scientists** are therefore understandable reticent to ‘stick their necks out’ and provide advice/guidance based on anything less than very high confidence limits (95% +)

## ADOPTING A MORE DYNAMIC MANAGEMENT APPROACH

One possible approach that has been discussed recently at Ocean Governance roundtables and Ministerial meetings is:

- A. Moving immediately from the **Precautionary** approach to identify appropriate Indicators that will provide an early 'indication' of trends
- B. Seek to establish a **Weight-of-Evidence** that scientists and their peers feel comfortable in agreeing defines a clear indication or trend - and which can give managers and policy-makers sufficient confidence upon which to act (even if not 95% certain)
- C. Use this WoE to initiate predictive modelling to support conclusions and upon which to compare continued monitoring of Indicators
- D. Fine-tune models and guidance to Managers and Policy-Makers as move toward acceptable confidence limits

# Advise and Guide Policy and Management Decisions

Too slow for effective  
Management decisions

Fast-Track decision-making  
supported by expert opinion

Too unreliable for effective  
Management decisions

Extensive Peer Review  
(multi-sectoral)

**Weight-of Evidence Approach**

- Combines both Traditional & Precautionary Approaches
- Provides an indication of trends
- Enables faster action
- Allows adaptive management
- Prioritises issues for further study to achieve 95%+ confidence
- Indicators and modelling used as tools

Limited Peer Review  
(1-3 Specialists?)

Limited or No  
Peer Review

**Traditional Approach**

**Precautionary Approach**

Large body of work

Few, detailed studies

Scientific Research

- 95% confidence required
- Very reliable but data demanding
- Often based on long term studies (too long to wait)

- No confidence limits
- Managers / policy makers reluctant to base decisions on 'supposition'

## The Advantages to the Scientific Community

This will raise the profile and importance of science generally in the policy-making and management process and encourage more support and funding to arrive at more reliable results as quickly as possible

It will also provide more precise guidance to the scientific community on which areas of research are priority and most likely, therefore, to attract funding

## The Advantages to the Policy-makers

This approach will take decision-making beyond the 'precautionary' approach which is often seen as being based more on supposition than strong evidence and which therefore leaves policy-makers feeling vulnerable and indecisive

It will also provide senior government leaders at the economic/finance level and management level with clearer guidance on where to prioritise activities and funding in terms of both immediate management needs and further research (this also extends to the funding agencies of course)

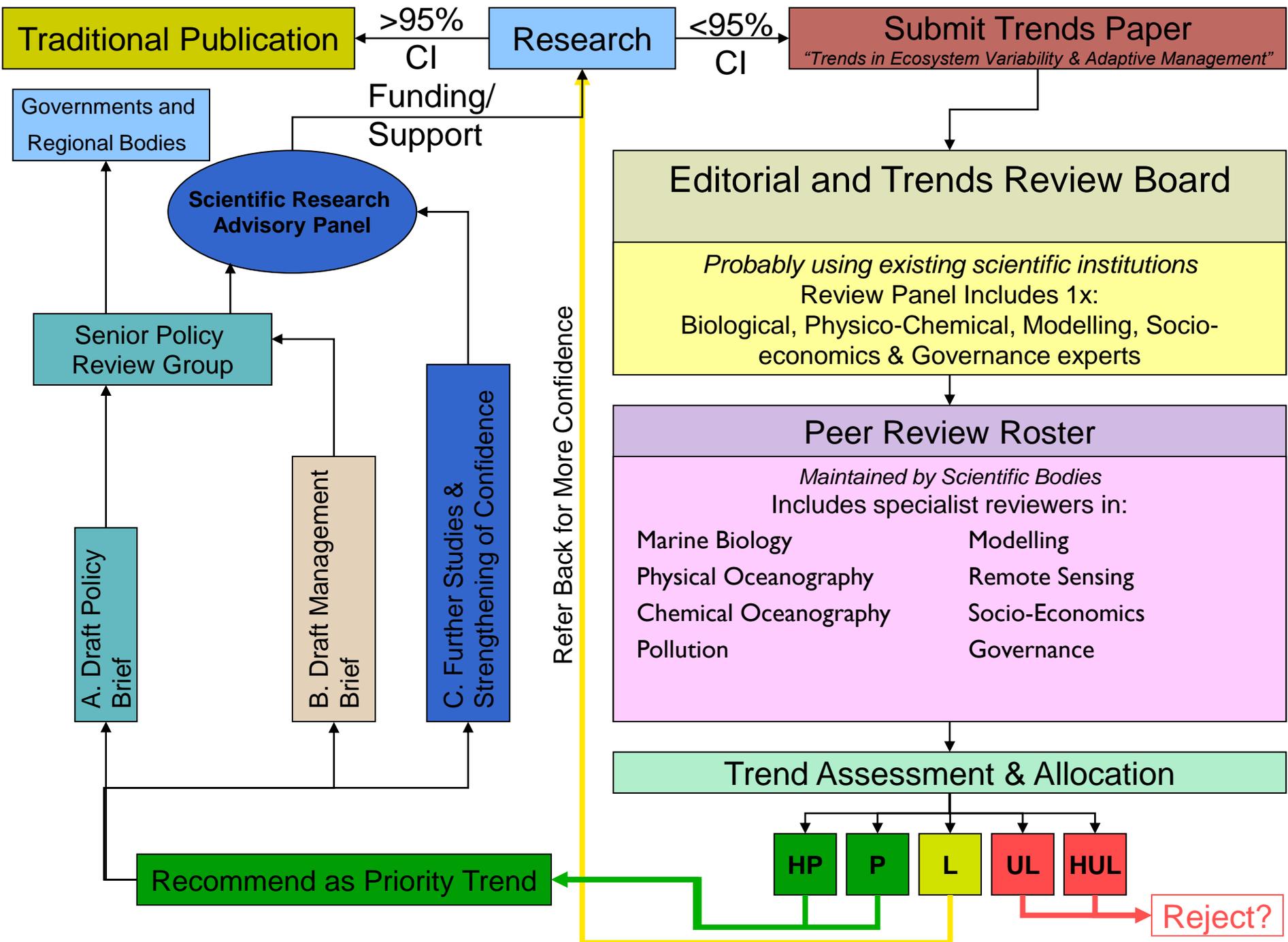
But how do we do this?

What sort of process or vehicle can we create that can make this Dynamic approach work in terms of taking the information from the scientists to the management and governance users?

How can we produce a feedback process that helps managers and policy-makers to define their priorities?

How do we encourage scientists to release/share their important findings at an earlier stage and then further encourage and help them to achieve reliable confidence limits?

One possible model has been developed by the ASCLME Project for trial...



There are a variety of different institutional approaches to management of aquatic resources and the developing effective governance for International Waters

Some regional LME projects, for example, opt for a 'Commission' approach which is valid if there are no appropriate existing regional bodies

Others focus equally appropriately on strengthening existing 'weak' and/or 'non-interactive' regional bodies that already have the required mandates but, for whatever reasons, cannot deliver on those mandates

A third way is more of a compromise between the two with a recognised and semi-autonomous institutional arrangement (often an Alliance-style partnership) which facilitates dialogue and interaction between the mandated regional bodies **WITHOUT** having an overarching function or responsibility over them

Regardless of the approach chosen, the following basic needs are requisite for effective regional governance within International Waters:

- Effective and active intersectoral bodies (e.g. Inter-Ministerial Committees) with a clear terms of reference and mandate to endorse management processes and to advice policy decisions
- These need to be underpinned by an equally effective and active science-and-knowledge advisory process/body(ies)
- Such bodies can only be as effective as the data and information which they receive, therefore it **MUST** be recognised that the management and governance process is impotent and ineffectual without continuous inputs of information
- Consequently any attempts at policy, institutional or legislative reforms can **NEVER** deliver or demonstrate results in the absence of on-going and parallel monitoring and analysis of appropriate indicators
- Furthermore, the outputs from the monitoring (through analysis and modelling) must be fast-tracked through a reliable peer-review process and fed into the management/governance mechanisms at the earliest opportunity

The traditional approach then in a GEF IW Project is a two stage process (represented by two consecutive Projects)

### Stage One:

- A. Developing and approving The Transboundary Diagnostic Analysis
- B. Negotiating and endorsing The Strategic Action Programme

### Stage Two:

Implementing the Strategic Action Programme through a set of activities focused purely on institutional, legislative and policy reforms and realignments

There are two problems which consistently arise from this traditional approach

Problem 1: We noted earlier that the TDA process aims to capture a comprehensive and representative baseline of factual data, on the principle that...

**You cannot manage what you don't understand!**

However, for any SAP implementation process and associated management and governance strategies to be truly effective and sustainable, the SAP needs to ensure that the data capture and monitoring process continues effectively because....

**You cannot adapt to change if you cannot recognise and measure that change!**

In essence, there is no realistic management process unless it is underpinned by effective monitoring of indicators (Biochemical, physical, social, economic, etc)

What all-too-frequently occurs (the common scenario) is that major emphasis is placed on policy and legislative reforms and adoption of new (i.e. intersectoral management approaches) for the 'SAP implementation' phase with very little support given to the ongoing monitoring processes which are essential for effective adaptive management

The statement (commonly used) is that the science and research were done during the initial TDA stage and now funding must focus on management implementation (i.e. no more funding to support monitoring – the countries/region must now take responsibility for this)

Whether this is fair or not is one question for consideration - but the over-riding concern is that IW regions then frequently end up with a potential effective management strategy and implementation process on paper but no monitoring of changes to drive and support that process.

This creates a redundant governance situation whereby the SAP implementation can ONLY respond to what was identified during the TDA (often several years before) and NOT to immediate or predicted changes

Problem 2. This supposedly two-stage process rarely if ever is actually consecutive in the true sense. Why?

A standard GEF IW first-stage approach (TDA to SAP) is generally given 4-5 years of funding. During that time it must build country ownership, identify appropriate individuals and institutes in each country that can assist with the TDA process, collect data (existing and new) on a wide number of issues, review those data through a causal chain analysis, agree on the threats, impacts, root causes and EQOs, etc

Then it must develop a SAP through a new set of stakeholders (Management and policy level) based on the TDA; negotiate that SAP; 'Sell' the SAP at the Ministerial level; get full endorsement from a variety of ministries in each country

Then it must go through a detailed process for a new project (PIF, technical approval, Council agreement, country endorsement, multiple co-financing letters, submission)

This is hard enough for, say, a 3-country IW Project. Some of our IW Projects are 10, 20 or more countries.... and some of them are multiple Agency as well which creates additional complications

5 years is just not enough time to arrive at a fully endorsed SAP and Project Document for its Implementation

## Problem 2 (continued):

The end-result of this TDA-SAP and SAP Implementation Disconnect?

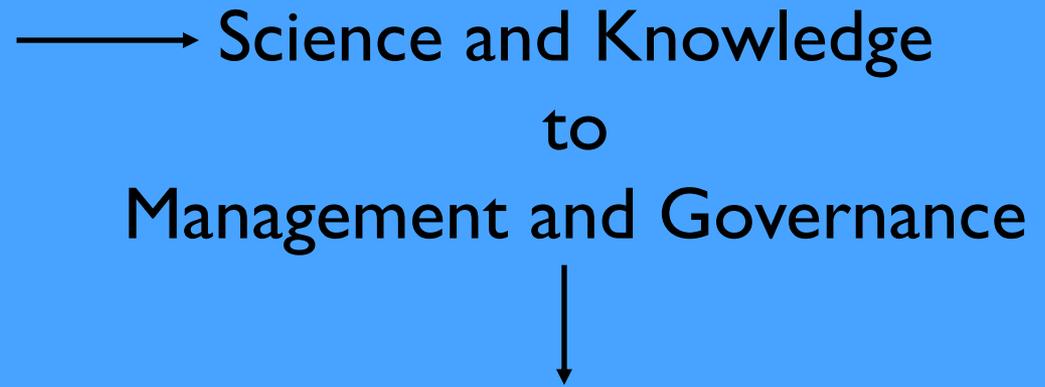
1. The TDA-SAP Project frequently has to struggle to find some way of extending itself
  - A. to finish the SAP process (which usually gets delayed until well into the second half of the Project) and
  - B. to try and maintain continuity between the first stage and approval of the SAP Implementation second stage without a break
2. Inevitably, the SAP usually gets negotiated in a hurry which creates issues and discomfort at the policy level, especially as policy-makers are often only engaged in the last stages of the 5 year project
3. As a result the Project struggles to get co-financing agreed, SAP endorsed and ProDoc signed
4. Add to this the challenges of the GEF Project Cycle (Council meetings and work programmes etc) within which a SAP Implementation submission must fit and...
5. The usual consequence is that the TDA-SAP Project finishes, the PCU closes, Project associated staff move on, technical and policy level contacts in each country change, ministerial responsibilities alter (especially with political cycles)
6. The Result: Loss of continuity; lack of ownership; loss of expertise = The SAP Implementation Project starts on a very shaky foundation and has to rebuild support and awareness as its first objective

This may seem Provocative – But these are some of the real issues that IW Project have to contend with and that we need to address and advise on as Project Managers and associates working on such issues

Bear in mind that all-too-often, Evaluations of IW Projects reach similar conclusions:

- A. Excellent Science! But where are the on-going mechanisms for interpretation of all of this information and to translate it into management and governance actions?
- B. Fancy new institutional and policy reforms and improved legislation are all very well on paper and may look good – but are they really functional management tools?
- C. The Project needed more time and funds and the deliverables were too optimistic
- D. SAP Implementation must have a smooth transition to be successful

How can we overcome this and what should we advise GEF and the Implementing Agencies?



Sometimes it takes a bit of innovative thinking and political commitment!

