Economic Valuation of Large Marine Ecosystems

Report from the IUCN workshop, July 29-30, 2007

Interactive Online Version

IUCN Global Marine Programme

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Report compiled by James Oliver (IUCN)

Workshop on Economic Valuation of Large Marine Ecosystems

July 29-30, 2007 at the Hotel Commodore, Cape Town

Background information

Number of Participants: 21 representing South Africa, Madagascar, Namibia, Kenya, Tanzania, Mozambique, the Benguela current LME, the Caspian Sea region, the Yellow Sea region, the Mediterranean, Europe & Central Asia regional seas, and the Pacific Islands.

Worksite:
http://earthmind.net/marine

Online Resources:
Participants list
Photo gallery
Focussed Learning Discussion at IWC4
Workshop personal action plan form
Further reading on Economic Valuation
Useful websites

Contents

Introductory Session

Caspian Environment Programme: Experiences and lessons learnt

Hamidreza Ghaffarzadeh, Caspian Environment Programme

- There are different views on EV: some might say outright that the environment is “not for sale” and therefore disagree with using the concept. Others may say that it is practically impossible to assign values or that values are so far off the mark that they are almost useless.
- Supporters of using EV would counter that such an attitude leads to the environment being excluded from the decision-making process altogether.
- EV is useful for establishing a “red line” that should not be crossed e.g. in the case of fisheries.
- Money talks so EV helps find the optimum level of use, extraction, distribution, income-generation etc.

Challenges to Caspian EV

- Absence of markets
- Distortions (subsides etc)
- Assumptions open to question
- Poor data
- Bias
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Benefits and Costs: What are the issues?

Francis Vorhies, IUCN Economics Adviser

FISHERIES

- Impacts can be very visible
- Wide livelihood dependency
- Types of activity and uses include commercial, artisinal, aquaculture, ornamental, sports and non-consumptive (e.g. whale watching)
- A reality check is needed in the industry and setting of priorities
- Of all scenarios, most are in decline – aquaculture the only growth area

MINERAL RESOURCES

- Out of sight (often)
- Capital intensive
- Cash-flow of limited universal benefit
- Oil and gas projects typically over 10 to 15 years (5x typical environmental project)
- Diamonds through seabed mining: can in some cases help set up an infrastructure for aquaculture thereby presenting economic opportunity offsets)
- In developing countries, both fisheries and extractive industries are subject to a “full steam ahead” approach. There are no trade off arguments.
- In developing countries, there are often different ministries for fisheries and extractive industries for obtaining permits and a lack of coordination between sectors
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Related comments

- Price does not equal value. Value is what society is willing to pay (the area under the demand curve)
- 30-40 years down the line, interest rates render values insignificant and unrealistic
- In South Africa, there have been Business Plans over 80 years (for mining), but this is exceptional
- For biological resources, such as whales, you need to look at the growth rate to know what a sustainable harvest can be. Whales may grow as little as 2% p.a. in which case any extraction over 2% equates to "mining" the species resource. Orange roughy and Patagonian Toothfish are other similar low-growth examples.
- In the BCLME, the underlying productivity can mean that good management could bring back valuable fisheries. It is therefore important to establish baselines: what is it worth now? What was it worth in the 50s and 60s? What if it disappears? What investment is needed to get it back to the level of the 1950s?
- Spending money on reduced harvesting can really pay off. The big challenges are management of migratory species, international cooperation is difficult to achieve.

Who are the customers of EV of LMEs?

Yellow Sea experience – the economics of environmental management actions

Isao Endo, UNDP/GEF Yellow Sea Project

1 ENVIRONMENTAL VALUATION AND COST-BENEFIT ANALYSIS OF MANAGEMENT ACTIONS

Basics of environmental valuation

The presentation explained the basics of economic analysis of environmental management actions:

- Economic Value can be defined as the sum of Consumer Surplus and Producer Surplus.
- To measure value, estimate demand & supply for concerned goods.
- Consider negative externality, if any.
- Various valuation techniques are available, including empirical technique, Travel Cost Method (TCM), and Contingent Valuation Method (CVM).
- Multiple-step procedure for Cost-Benefit Analysis CBA) of management actions, including:
    - Monetise the benefits and costs.
    - Calculate the net present value of the benefits and costs.
    - Conduct a sensitivity analysis.
- Compare with-or-without action scenarios.
- Management actions make sense if their benefits > costs.
- The cost-benefit analysis helps in making an environmental decision-making efficient, and therefore in justifying the decision in public.

Cost-benefit analysis of management actions in the Yellow Sea Project

Yellow Sea Project conducts the cost-benefit analysis of management actions in the preparation of the Project's Strategic Action Programme.

- A possible target of the analysis is mariculture. The maricultrue production in the Yellow Sea region accounts for more than 70% of the world's mariculture production.
- Regional experts have proposed to introduce sustainable mariculture practices such as "polyculture." The polyculture is a type of aquaculture to grow different complementary species (i.e., finfish, shellfish, and marine plants) together. It is expected that polyculture not only increases revenues in aquaculture production, but also reduces environmental impacts by removing excess nutrients.
- The cost-benefit analysis will examine the economy of this management action by addressing the following research question: Does introducing polyculture make sense economically?

Related comments

- When you bring poverty into the equation, it is very important to conduct representative sampling in the methodology and samples must be random to minimise bias
- A weakness of Contingency Valuation (willingness to pay approach) is that use by poor communities is devalued as compared to affluent users
- All income levels must be represented or at least all players in the market (some are excluded if services are not affordable to them)
- Assumptions set the boundaries of the valuation. A huge number are necessary but they must be listed.
- Willingness to pay: more accurate when sorted and weighted by income group (ability to pay).

- Assumption analysis may be enough on its own (without figures to support) to dissuade investment in a project – particularly when the discount rate (interest vs. future benefits) and alternative uses are factored in
- Further resources: www.ecosystemvaluation.org
- The methodology choice is key and may be influenced by
    - o

The economics of LMEs: The case of the Benguela Current Large Marine Ecosystem (BCLME)

Tony Leiman, University of Cape Town

1 ECONOMICS IN LARGE MARINE ECOSYSTEMS: THE CASE OF THE BCLME

1 LECTURE NOTES

- Large Marine Ecosystems are dynamic interdependent communities: the effects at one end of the ecosystem will have an affect at the other end.
- As soon as an ecosystem boundary crosses borders, the management becomes that much more difficult. The countries of the BCLME have different socio-economic characteristics:
  - Angola: very high oil revenue: fisheries, both industrial and artisinal, are lower priority
  - Namibia: fisheries (mostly industrial in nature) are important to the economy and are under threat
  - South Africa: fisheries are important but account for a small % of GDP. South Africa has a more broad-based economy.

- Modelling looking to maximise global income from fisheries should start first with a biological model with species interaction, and then look at extraction scenarios of predator and prey species.
- The problem of property rights is complicated by migration, straddling stocks and the lack of regulation in the high seas
- The legal systems differ across BCLME countries (penalties, permits, etc.)
- Maximising rent requires a “jump of logic”. It is not unusual to find three different

Using valuations to influence decision-making: The economic value of marine protected areas along the Garden Route coast

Deon Nel, Manager WWF Aquatic Unit, South Africa

The issue tackled by WWF was the question of whether to allow sports fishing in South Africa's oldest MPA. The situation was highly political and because the area concerned was of national importance, it was necessary to consult at national level. Until WWF intervention, there had been very narrow stakeholder consultation. Based on interviews, figures for visitor behaviour and willingness to pay were thrown into the mix: a decrease of 16% in the number of visitors, a 4 million one-off gain for allowing sports fishing versus a 4.1 million annual income if the restriction was maintained.

The main lesson learnt was that Economic Va

Examples of EV successes and failures

Understanding how valuation can and

Designing and implementing valuation studies in the GCLME region

Chika Ukwe, Industrial Development Officer (International Waters), UNIDO (Vienna)

1 DESIGNING AND IMPLEMENTING VALUATION STUDIES IN THE GCLME REGION

Experiences

- Challenges emanate from the fact that some data is held privately and there is a reluctance to share
- Two scenarios were applied to calculate Resource Rents: with and without GEF funding with differences attributable to licencing issues, control of illegal fishing, and better management of transboundary resources. Assumptions included full implementation of the Strategic Action Plan (SAP), successful project design, and full achievement of all other objectives
- One valuation looked at the consumptive use of an invasive species: the Nipa palm and presented an increased added value approach
- There was some success in getting the oil and gas industry to support mangrove restoration
- High environmental stress leads to a situation where predictability diminishes and variation increases
- Ten year scenarios often used as this reflects available funding from the GEF cycle

Goals

- Increased awareness of the local population with respect to the value of local ecosystems and resources
- Increased tax revenues to allow national governments to pay back loans (the rationale being that better management would lead to higher revenues)
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Designing and implementing valuation studies: A roadmap

Francis Vorhies, IUCN Economics Adviser

1 DESIGNING AND IMPLEMENTING VALUATION STUDIES: A ROADMAP

- An early focus is critical
- A total economic valuation is not always necessary, just a cluster of values
- Gauge who will react to the message (even if unintended)
- A team of people with diverse skills is needed to conduct stakeholder engagement

Related comments

- The media (especially now) will publish almost anything. This "power" should be used cautiously and responsibly by environmental practitioners
- In the Yellow Sea area, policy-makers are not scientists: interest can be generated with just provisional figures thereby sparking demand for a more comprehensive set of figures
- Involve policy-makers at an early stage
- In Gabon, the presentation of a film (the GCLME film together with the Al Gore film) sparked increased awareness, interest and a thirst for action
- Within the framework of a project, resources for EV are necessary to monitor and follow-up factors such as the evolution of employment, market prices (esp. for fisheries-related work etc. throughout the length of a project life cycle
- All stakeholders should be convinced that they do have a say and hold status
- A cost-efficient methodology should be a priority
- EV was a useful tool in the context of uranium mining within protected areas
- Use of EV in the Pacific is currently not well documented. There is little awareness at the level where political decisions are made.
- Artisinal and recreational fisheries are difficult to value
- An EV with credible figures boosts the commitment of resources
- EV can be a valuable tool in helping allocate restricted resources efficiently

Perceived future application of the workshop experience by participants

- For influencing decisions at national policy level and engaging with the private sector and so remain part of the debate (Deon)
- For the introduction of a work programme on EV and to raise awareness at convention level (Johnson)
- For targeting the national level where priorities are set esp. ministries responsible for fisheries development and MPAs, and to help frame issues so that they become priorities. (Jacob)
- For the assessment of projects potentially affecting the marine environment (at inter-ministerial level) and use EV to lobby for strategic resources and influence mining decisions (Haja)
- To engage World Bank managers and high-level ministerial representatives in a dialogue on Caspian bio-resources and fisheries issues (Amy)
- To scale down fisheries and to push for the setting up of fisheries and environmental commissions (Hamid)
- To target sectors where the resources are concentrated and for advocacy in resource allocation (Teo)
- To lobby the Ministry of Planning and Development for a more sectoral approach, to bring on board provincial government representatives and to scour the wider region to find EV expertise (Eben)
- To help Pacific Island states to build their own fishing capacity instead of relying on selling rights (Barbara)
- To take regional extrapolation to local level (Chika)

Related comments

- Good examples exist within the LME community, some of them influential in the decision-making process and for leveraging more resources

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