

## **CIT Economic Gain Spatial Analysis—Fisheries**

### **Peer Review by Ussif Rashid Sumaila**

This is a review of a project that, according to ‘Background and general questions for the EGSA peer reviewers’ was commissioned to “generate estimates, for each landscape/seascape in the Coast Information Team (CIT) region, of “economic gains” that could be generated by the fisheries/aquaculture sector, under the assumption that the sector has access to exploit the given landscape/seascape. Economic gains as understood by the CIT include both net benefits to society, as well as economic impacts (jobs, wages, government revenues, profits to enterprises). For CIT purposes, “economic gains were to be estimated over at least the years 2004-2023 (in 5 year increments), under three different sets of future conditions (optimistic, intermediate and pessimistic)”.

My review is based entirely on the quotations in the above paragraph. It will focus on identifying the remaining weaknesses in the report to help the authors in their revision of the work. The review is structured as follows:

#### ***General comments***

##### **1. On the methodology used by the authors for estimating economic gains**

My overall assessment of the methodology is that it lacks a clearly defined structure. More structure will help improve the analysis. Many of the material needed to answer the terms of reference are in the current report, but it needs to be structured with the key objective of addressing the issues raised in paragraph 1 above. The report needs a theme that runs all through it to help avoid repetition and thereby enhance the flow of material.

The report needs to be structured around sections such as:

- Background to the CIT region.
- Landscapes/seascapes in the CIT region.
- Current fishing/aquaculture activities in each seascape/landscape.
- Potential new fishing/aquaculture scenarios.
- The cost benefit analysis framework:
  - What are costs – all costs need to be counted, both those to society as a whole (e.g., environmental and social costs), and those to private actors;
  - What are benefits - all benefits need to be identified and included (market and non-market, or benefits to society as a whole, and benefits in terms of jobs wages, government revenues, profits to enterprises);
  - How do you measure the benefits and costs?
  - How do you deal with flows of benefits and costs over time?

- How are the costs and benefits distributed among the different groups in a given landscape/seascape?
- How do we deal with uncertainty with respect to assumptions, data and estimates of economic gains?
- Application of cost benefit analysis:

The framework outlined above should be used systematically to (i) determine the net benefits from the current (actual) fisheries/aquaculture activities in each landscape/seascape, and (ii) estimate net benefits in each landscape/seascape from each of the alternative fishing/aquaculture scenarios, and for each projected possible future (optimistic, intermediate and pessimistic).

## 2. On the use of resource and economic information

I think there is some scope for the use of more economic and resource information in the literature to (i) define the costs benefit analysis frame, (ii) define the alternative scenarios, (iii) formulate the assumptions underlying the study, (iv) define the optimistic, intermediate and pessimistic future scenarios, for each landscape/seascape, (v) estimate net benefits, and (vi) identify and state the limitations of the work.

## 3. Are the results of the analysis a meaningful and useful input to land use decisions?

The results of the analysis could provide some useful insights into land use policy decisions, but as the authors state on page 94 of the report, ‘this paper only provides a conceptual insight in this matter’. The analysis in the report clearly needs more work before it can truly serve as an input to land use decisions. Revision of the analysis in line with the comments in this review should help take it closer to this goal.

## 4. Does the report make explicit the limitations of the analysis?

The limitations of the study in terms of (i) the assumptions that underlie the analysis, (ii) the valuation methodology, (iii) the different alternative scenarios, and (iv) the data used in the analysis, need to be made explicit to help land use decision makers in their use of the results.

### ***Specific Comments***

*Scenarios for economic gain:* Under this section (page 11), eight reform scenarios are identified. I do not understand why ‘community-based management’ is among the eight listed. I guess my question here is what kind of scenarios are these? Are they management scenarios? If yes then other management arrangements are not included. If, on the other hand, the answer is no then ‘community-based management’ appears to be out of place. It seems to me that this is meant to be a list of possible fisheries/aquaculture activities that currently exist in the landscapes/seascapes, or those that could be established in the future. These issues need to be clarified.

*Opportunity cost of labour:* Labour and wages are very central to the analysis. Labour wages appear to be the only economic benefit being counted in the analysis, right? As far as I can tell, the opportunity cost of labour is not taken into account when calculating wages. To determine the true economic gain from increased employment, it is the gap between potential wages and the opportunity cost of labour that is important.

*From page 38 to 75:*

The assumptions and sources of data used in the discussion here need to be clearly stated and defended. For instance, it appears to me that ‘economic gain’ is defined simply as ‘potential wages’. If this is correct then it is a very strong assumption that needs to be clearly stated and defended.

The assumptions underlying the analysis of ‘scenario potential’ need to be stated and supported with sources all through. For example, it is stated on page 47 that aquaculture is ‘not recommended for this region’ – you need to explain why.

*Mapping critical uncertainties*

To improve the flow of material, this section should be merged with Section 1’s ‘The Art of Long View’.

You need to explain the tables in this section – they are difficult to understand in their current form.

I was expecting to see from your analysis of uncertainty results such as “under the optimistic, intermediate and pessimistic scenarios, seascape  $x$  will deliver,  $y_1$ ,  $y_2$ , and  $y_3$  dollars of economic gain, respectively”.

*Minor comments*

A number of typos in report – careful proofreading needed to identify and correct them.

The figures on pages 5-6 are not correctly labeled, making them difficult to understand.

Some references not listed, e.g., Copes (2003).

Save us from decimals in figures such as \$31,243.26 (page 42): Your estimates are not that accurate, or are they?

Appendix B was difficult to follow because the tables were not labeled. Comments and notes need to be added to explain some of the calculations carried out.

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