UNDP/GEF/YS/RSP-PSC.7/9 rev.1
Date: 28 January 2011
English only

Seventh Meeting of the Regional Scientific and Technical Panel
And Project Steering Committee
For the UNDP/GEF Yellow Sea Project
Beijing, China, 23-25 February 2011

Draft Summary Book Structure

Preface (Yihang Jiang)

Logical consideration of the summary book

(i) The chapter 1 provides the facts that the project has found, according mainly to the project components. The main focuses are the status and trends of various problems identified in the national reports, TDA, and the regional science conference;

(ii) The chapter 2 contains analysis of the problem according to the ecological linkages. This chapter will provide basis for the ecosystem based management actions as identified by the SAP. Descriptions of this chapter will be different comparing with the SAP document. "Good stories" generated from the project should be included in this chapter.

(iii) Chapter 3 descripts the ecosystem-based management actions. Apart from the management targets and actions, the focus of this chapter should be the explanations on the ecological linkages of the management actions to indicated how the ecosystem-based approach is used.

Chapter 1. TRADITIONAL KNOWLEDGE AND UNDERSTANDING OF THE YELLOW SEA MARINE ENVIRONMENT (95 pages)-conditions

"Traditional" in this chapter means the project components that be used for collecting data and information, and to develop the TDA, namely, Fisheries, Biodiversity, Pollution, Ecosystem, and Investment;

"Knowledge and understanding" should only include those facts of environmental status and trends. It will also include some "new" findings during the project period. There is no intention to have complicated analysis of the problems.

History: How our knowledge evolved (Yihang Jiang)

Social economic conditions (Isao Endo) (15 pages)

This section should provide basic social economic situation of the Yellow Sea areas, to further indicate the fundamental reasons for the Yellow Sea to receive very strong environmental stress.

We do have some social economic information in the TDA process. It is anticipated that those data and information would be useful. We may need to find more information.

There were number of mistakes in the Project Document on social economic conditions. The question here is to what extend we need to include the social economic condition from the participating countries. The initial thought is to include the social economic conditions in the national reports. For instance, in the fishery component there are some information on social economic conditions relevant to the fishery. Can we also find following information on the respective purposes? We can find general statistics (status and trend). For example, the Human Development Reports provide data on some of the following major indexes:

(i) Populations and population increase – for understanding stresses the Yellow Sea is receiving; total population, annual growth rate, urban population (%)
(ii) Economic growth – for understanding environment impacts received from these developments; GDP total, per capita; change in industrial structure; imports and exports of goods and services
(iii) Changes in living styles (this would be difficult) – for understanding of new requirements from the sea; electricity consumption per capita; CO2 emission per capita; people's awareness of environmental issues

It is anticipated that with the above data, we can talk the industrialization, urbanization, and moralization(?) of the region.

(iv) It is informative if the book can include the government policies toward conservation? E.g., status of major int'l conventions, regional projects, national laws and regulations.

Physical Conditions (Yihang Jiang) (8 pages)

Natural conditions should include basically the following aspects:

(i) circulation pattern in the Yellow Sea;
(ii) T, S distribution, etc.
(iii) New findings, (e.g. Yellow Sea cold water mass)
(iv) Climate change and its impacts

There are a lot of efforts during the 1st phase of the YSLME, including the data and information generated from the co-operative cruises.

Chapter 2. ENVIRONMENT ISSUES

Ecosystem change at Lower Trophic level (Sinjae Yoo & Mingyuan Zhu) (20 pages)

The basic elements of this section will include:

(i) Plankton communities, status and trends (reduce 10 times during last 40 years).(Mingyuan Zhu)
(ii) Primary Productivity (Chl-a and YOC) (Sinjae Yoo)
(iii) Impacts of climate change (Sinjae Yoo)
(iv) Massive blooms of certain species, such as algae, jellyfish, sea stars and macro algae, etc (Mingyuan Zhu)

The description should include status in different time, and the change trends and rates in the Yellow Sea. Preliminary analysis on the possible reasons for the changes should be included, but not in very detailed way, as there will be extensive analysis in the Chapter 2.

Fishery Resources (Xianshi Jin) (15 pages)

Fishery should include the following elements:

(i) Changes in species composition, trophic level; mean size at capture
(ii) Data discrepancies between the two countries, difference in reporting
(iii) Regional stock assessment – findings and impacts of enhancement
(iv) Mariculture – increase, change from seaweed to shellfish to fish/shrimp production dominance – the impacts of net N imports to net N exporters
(v) Mariculture – rebuilding fish stocks
(vi) Mention the fisheries and mariculture demo activities here, but more details will provided in the in Ch. 3

This is clear enough for drafting. We need to have clear picture on status and changing trends of fishery and mariculture.

Biodiversity Conservation (Gyung-Soo Park) (12 pages)

There are some information available during the TDA process. There are additional information for the biodiversity assessments in the major habitats, jointly done with WWF.

(i) Loss, conversion and degradation of habitat, the past and future.
(ii) Apparent loss of biodiversity of shrimp stocks due to overexploitation and restocking
(iii) Community based efforts to preserve habitats
(iv) New Challenges on Protection of Habitats, such as land reclamation, tidal power plants, etc.

Apart from the status and changes trends, it is very important to have information on the losing rate of habitats in the region. It is anticipated that some preliminary analysis should be done there on the impacts of losing coastal habitats. Regional efforts in conservation of marine biodiversity should be highlighted.

Polluants Distribution and Concentration (Quan Wen) (20 pages)

This section should include following elements:

(i) Status and changes trends of the major pollutants, including distribution, concentration and hot spots;
(ii) Understanding of nutrient ratio changes and their impacts
(iii) Current efforts in pollution control

It is not possible to include every element in the same details. There must be priorities, e.g. as indicated in the TDA. Nutrients (river inputs, atmospheric inputs and from mariculture),

organic matter should be the priorities. However, as TDA listed oil pollution has less priority, but it happened in the region already. Some oil pollution should also be included. Hypoxia problem was found from our cruise, and we may wish to include it briefly.

Environment Governance (Suh-Yong Chung) (15 pages)

Following governance analysis, both national and regional, governance issue receives more and more attention. This section includes:

(i) Legal situation relevant to the environment protection and sustainable uses of marine and coastal resources;
(ii) Institutional arrangements for environment protection and sustainable uses of marine and coastal resources;
(iii) Regional and national co-operation and co-ordination in the Yellow Sea context.

It is anticipated that some findings and agreements during the YSLME project should be included, such as the proposal on a YSLME Commission, the analysis of Suh-Yong on regional institutional arrangements and suggestions.

Chapter 3. ECOLOGICAL LINKAGES OF THE ENVIRONMENTAL PROBLEMS IN THE YELLOW SEA ECOSYSTEM (Sinjae Yoo) (63)

This Chapter will apply ecosystem-based approach to discuss the environmental problems in the Yellow Sea. The intention is that the problems descript in the Chapter 1 are interlinked. Instead to link everything together that is very difficult, the attempt here is to provide knowledge and information based on several “ecological linkage”. The purposes of this exercise are (i) to provide better understanding of the environmental problems in a more logical ways; and (ii) to form bases for the management actions that contain in the next Chapter.

Ecosystem Carrying Capacity Concept (Sinjae Yoo) (8 pages)

This section provides definition of the “ecosystem carrying capacity” used in the project in particular in the SAP. To discuss the concept, it should be noted that (i) “population” in the defined area; (ii) productivity in the defined area; and (iii) “population” and “productivity” in the define area. Considering the graphic that we prepared to describe the diatom/dinoflagellate and fishery, it would be more appropriate to define the carrying capacity using the option (iii).

Habitat-based Consideration (Gyung-Soo Park) (20 pages)

There will be two approaches be considered in the ecosystem-based management, one is habitat-based and another is food-chain based approaches.

Habitat-based consideration is to use marine habitats (not only the coastal ones, but also habitats for fishes, e.g. Yellow Sea Cold Water Mass) as main logical line to provide analysis on the linkage of various environmental problems. For instance:

(i) impacts of modification of habitats to biologic diversity and fishery;
(ii) pollution impacts to the habitats;

(iii) loss of habitats will loose “filters” for certain pollutants, e.g. nutrients
(iv) loss of wetlands will reduce potential for carbon absorption and sediment retention, which could affect near shore primary productivity as a result of the decreased light intensity.

It is anticipated that the description should include:

- concept of habitat-based approach;
- implications of the habitat-based approach;
- practical examples (preferably 2-3) on the management considerations which followed the habitat-based approach.

Food chain-based considerations, including Diatoms – Dinoflagelates-based consideration (Mingyuan Zhu) (20 pages)

Food chain-based consideration can link the problems from lower trophic level to fishery. In the meantime, we may also need to consider the pollution impacts to the food chain.

Diatoms – Dinoflagelates-based consideration has been used in our SAP as an example. We need to use necessary data and information to provide clearer facts on plankton communities.

The same process as the habitat-based approach should be used here, include:

- concept of food chain-based approach;
- implications of the food chain -based approach;
- practical examples (preferably 2-3) on the management considerations which followed the food chain approach.

Climate change considerations (Sinjae Yoo) (15 pages)

It is not easy at this moment to say what, how and how much the climate change has the impacts to the ecosystem in the Yellow Sea. This section may include following elements:
Impact of climate change – acidification of the sea, loss of cold water mass, movement of spawning grounds

We have carried out a demo project in studying the possible climate change impacts on plankton communities, and the impacts of the yellow sands in the marine environment, which would be included in this section.

Some other consideration, SST etc. can also be added here.

Chapter 4. MANAGEMENT CONSIDERATION AND OPPORTUNITIES (YIHANG JIANG) (85 PAGES)

This Chapter should provide relevant knowledge and understanding on the possible management actions, based on the Chapter 2. Apart from what have been included in the SAP, there are needs to provide logical consideration on

(i) Justifications of the management actions included in the SAP;

(ii) Logical considerations on impacts and outcomes of the management actions, e.g. over-fishing – mariculture – reduce environment impacts, etc.

Ecosystem-based Approach (Sinjae Yoo) (10 pages)

Similar to the text included in the SAP, but it needs more scientific description on why the EBA would work better in manager the environment

Series of the Management actions on – reduction of fishery production – increase mariculture production – reduce environment impacts (Xianshi Jin) (20 pages)

To reduce stress from over-fishing on the ecosystems in the Yellow Sea, there will be reducing of fishing efforts. To use mariculture to provide more protein, will cause negative environment impacts. IMTA will reduce the negative impacts.

Mark and Yihang has published a paper in the book of Sustaining the world's Large Marine Ecosystems. It would be useful for drafting this section. However that paper has not provided enough scientific justification on why the concept worked. It is anticipated that apart from what has been said, more scientific justifications may be useful.

Reducing pollution discharge (Quan Wen) (20 pages)

a) Can link to above fish-mariculture story.
B) Impacts to human health and recreational area.
C) controlling pollution as in our SAP cartoon or controlling pollution and impacts on benthic organisms and food chain, as from the cross component activity.

There has very little been done in the sections. Pollution is a "crossing" problem to almost every aspects in marine environment protection, including fishery, biodiversity, … etc. It is anticipated that following points should be address:

- Reducing pollution has impacts to many elements;
- Hence, the considerations of reducing pollutants should be in all relevant management actions;
- Demon project on reducing pollution in habitat in Gwanghua Island should be included.

Habitat conservation (Gyung-Soo Park) (20 pages)

(i) habitat are the key issues to protect biodiversity
(ii) Conserving habitats will harmonies co-existence of human and animal;
(iii) Conserving habitats has substantial economic benefits

Based on the demon projects in Gwanghwa island, including biodiversity assessment, reduction of pollution, social economic analysis, and public awareness, the cross linkage should be clear. This section should include conceptual description, and practical examples.

Social economic considerations (Suh-Yong Chung) (15 pages)

(i) harmonizing enhance regional and national legislative arrangements;
(ii) Enhance relevant work on economic valuation, with focus on the economic benefits of the management actions ; (Isao Endo)
(iii) Capacity building for all partners within the Yellow Sea region (Yihang Jiang)
;
I think we can discuss the impact of management actions on the economy and society generally (not exactly with numbers). For example:

Direct impact
Fish stock increased/fisheries revenue sustained
Mariculture revenue sustained
Risk caused by pollution on human health reduced
Esthetic value protected/tourism opportunity created

Indirect impact
International co-operation facilitated
Regional peace and stability fostered

Chapter 5. CO-OPERATION MECHANISM FOR THE YELLOW SEA (SUH-YONG CHUNG) (20 PAGES)

This Chapter will describe the results of regional governance analysis and the implementation mechanism that we discussed and agreed, including YSLME Commission.

We may wish to include following elements:

(i) Regional Governance and Co-operation – need for establishing a cooperative mechanism
(ii) Proposed YSLME Commission and its operation

- Composition and function
- Sustainability of the Commission
- Financial management
- Usefulness and effectiveness

(iii) Legislative considerations
(iv) The practical approach towards establishment of the YSLME Commission

Reference

Acknowledgement