United Nations
Environment Programme

Global Environment Facility

UNEP/GEF
South China Sea Project

SEA START RC

UNEP/GEF/SCS/EW.1/3
Original: ENGLISH
Distr. Restricted
9th August 2002

UNEP/GEF/SCS and SEA START RC, GIS Workshop
in support of the UNEP/GEF Project
"Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand"

Bangkok, Thailand, 7th – 9th August 2002

REPORT OF THE UNEP/GEF/SCS AND SEA START RC, GIS WORKSHOP IN SUPPORT OF THE UNEP/GEF PROJECT *"REVERSING ENVIRONMENTAL DEGRADATION TRENDS IN THE SOUTH CHINA SEA AND GULF OF THAILAND"*

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1. OPENING OF THE WORKSHOP

1.1 Welcome address

1.1.1 The Project Director, Dr. John Pernetta, opened the workshop on behalf of UNEP and SEA START, and provided an introduction to the UNEP/GEF Project entitled "*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*" and its overall objectives. He stated that this significant GEF project (32 million US$), implemented by UNEP, represents the first attempt to develop regionally co-ordinated programmes of action designed to reverse environmental degradation particularly in the area of coastal habitat degradation and loss, halt land-based pollution and address the issue of fisheries over-exploitation.

1.1.2 Dr. Snidvongs then gave a brief background to the work of the Southeast Asia START (*Global Change SysTem for Analysis, Research and Training),* Regional Centre (SEA START RC) an organisation hosted by Chulalongkorn University. The purpose of the Regional Centre is to encourage multidisciplinary research on the interactions of human populations and environment affecting and being affected by, global changes. SEA-START RC has established a regional GIS database comprising numerous publicly available data sets from both the natural and social sciences domains, which can potentially be used as a GIS platform for the UNEP/GEF Project.

1.2 Introduction of participants

1.2.1 The Participants briefly introduced themselves to the workshop and provided an outline of their background and level of expertise in using GIS systems. The list of participants is appended as Annex 1 to this report. All countries were represented by participants with a reasonable level of expertise in either GIS or in one of the components (fisheries, land-based pollution, or habitats) covered by the project,

2. RATIONALE FOR THE WORKSHOP

2.1 The Project Director explained the rational for convening the workshop, including the objectives and expected outputs, which were to secure agreement on the technical specifications for the regional GIS database and meta-database to be used in the UNEP/GEF Project. Agreement regarding a common regional approach to data management was required in order that the various national committees could use a common platform in assembling data and information relevant to the three substantive components of the project, namely habitat degradation and loss, land-based pollution and over-exploitation of fisheries. The list of documents and agenda of the meeting are attached as Annexes 2 and 3 respectively. He explained that the use of a common GIS system, will allow the collection of compatible and comparable data that will enable comparisons between countries and between project components and can be used to make recommendations to the Project Steering Committee regarding priorities for action needed to reverse environmental degradation in the area of the South China Sea.

2.2 Dr. Anond Snidvongs enlarged upon the comments of Dr. Pernetta. He highlighted particularly the role that participants could play during the workshop in reaching a common understanding on the geographic units to be used. He stated that the workshop will be informal, and encouraged participants to intervene at any time. He also noted that the GIS work will need to be done as far as possible at the national level, and that the participants, as the designated GIS contact points, will need to relay information on the outcome of the workshop to the Specialised Executing Agencies (SEAs) in each country.

2.3 Ms. Vergara (Philippines) asked whether the agreements on the format of the database reached at this meeting would be placed in a formal protocol. In response Dr. Anond stated that there were some formats, which would need to be discussed and defined, but at this stage a fully comprehensive protocol was not envisaged for all the attributes. The first step would be to develop and agree on a base map for the region in order that by the end of this year, the project should have, for example, regional distributions for all the major habitats in the region. The framework and format for the site-specific characterisations that would take place in the second year will be refined during the second round of component and sub-component Regional Working Group (RWG) Meetings. Thus it would be premature to establish a strict protocol for this set of activities at this stage.

2.4 Dr. Pernetta explained that during the first RWG meetings, the kinds of data, and information to be assembled had been discussed and decided. However, it is likely that much of this information will not be available at the level of detail discussed, if at all. Therefore the requirements are likely to be re-defined and reduced in extent during the second round of RWG meetings later this year. At this workshop the intention was to develop an overall framework in which that data and information can be placed.

2.5 Mr. Jiang noted that there is a large variation in available data. For example, there is an abundance of information on coral reefs, but very little data available on sea grass. He added that this workshop was not originally planned, but after the first round of RWG meetings, it became apparent that there was a need for regional agreement on the format for the data and information. The framework agreed during this workshop will be used at the 2nd RWG meetings, starting in September, as the basis for further deliberations on the data and information that can reasonably be expected to be collected.

2.6 Mr. Winardi, from Indonesia, asked at what scale the base map is to be. He also expressed some confusion on the relationship between the GIS designated individuals in this workshop and the 6 Regional Working Groups, and asked if there was to be a separate budget allocation for the GIS work in country.

2.7 In response to the first question, Dr. Anond noted that initially a scale of 1:250,000 would be used for the regional base map, but that a higher resolution may be possible later, depending on the available data. In answering Mr. Winardi's second question Dr. Pernetta said that the GIS activity was not outside the agreed scope of the existing working groups, and national committees and that, funds had been allocated to the national committees for the preparation and assembly of national level data and information. Money can be reallocated from within the existing national budgets, and this could receive support through presentation of the needs to the PSC when the next year's budget was tabled for approval. He noted that there should be technical GIS expertise on the National Committees and stated further that the convening of this workshop had been funded using savings from the first round of Regional Working Group meetings.

2.8 There followed some general discussion regarding the GIS base maps or platforms that would be acceptable, and the transferability from systems, such as that used in China, to ARCview shapefiles, or other internationally accepted GIS format. Dr. Anond stated that there should be no problem with this.

2.9 Mr. Bastiawan (Indonesia) stated that there is also sometimes a problem with data in different formats from different institutions within the country, and asked how this should be addressed. Dr. Anond agreed that this would be a problem common, to a number of countries, and that difficulties such as these suggest that, the project should not attempt to be too ambitious. He felt that each RWG meeting report indicated that the working groups were too ambitious in their data requirements, but he was sure that this would be refined at the second RWG meetings. We can make some recommendations however at this workshop. The questionnaires that were distributed prior to this workshop were not to be completed as is, but are for the consideration of participants, to recommend how we can reduce the data required.

2.10 Mr. Bastiawan (Indonesia) asked who could access the data that is collected during the project. Dr. Pernetta explained that the UN has an open data policy, however, there may be data sets that countries do not wish to make public. In this case, classified information would be considered as not available whilst some other data sets might be partially available in processed form, though the raw data might be classified. Restrictions on data availability and access depend on the individual country and any conditions they might wish to impose on its availability and/or use. Dr. Narawat (Thailand) suggested that the GIS experts and SEAs should consult with the SCS National Focal Point and/or National Technical Focal Points for further information on such restrictions and what information can be provided to the regional database.

3. INTRODUCTION OF THE EXISTING GIS DATABASE AT SEA START RC

3.1 The Director, of the SEA START RC, Dr. Anond Snidvongs, introduced the present structure of the South China Sea GIS database operated by SEA START RC, including the structure, contents, and

sources of existing data, and provided suggestions for further improvements that might be possible with the assistance of the experts from the participating countries. Deatilas of the basemaps are attached in Annex 4 of this report. He noted that the three key elements included the shoreline, administrative boundaries and river drainage network.

3.2 Ms. Vergara asked if the World Vector Shoreline (WVS) is the same as that used by the World Resources Institute and Dr. Anond confirmed that it was.

3.3 Dr. Anond asked participants whether there were shoreline maps available in each country and whether these should be used in place of the WVS shoreline. The responses indicated that the following maps were available:

- Cambodia 1:50k
- China 1:250k
- Indonesia 1:250k, with some areas at higher resolution
- Malaysia available, but not sure of the scale.
- Philippines Not complete, but officially is 1:50k
- Thailand 1:250k
- Vietnam 1:25k, 1:50k, 1:100k,.

3.4 Dr. Anond noted that countries will now need to decide what they want to make available to the project, bearing in mind that whatever is submitted will be made generally available to others. He added that it is up to the group to decide whether to use a remote sensing shoreline, but it will be very difficult within the two months available, to change to something other than WVS. Countries will have to decide whether to use the WVS shoreline or locally available alternatives such as the TEI shoreline for Thailand or the NAMRIA shoreline for the Philippines.

3.5 It was agreed that the following tasks relating to the shoreline base map needed to be completed at the national level prior to the next round of working group meetings:

- To review geographic position of shoreline and correct/replace with a more acceptable GIS if necessary;
- To review any missing/non-existent features (such as islands) and add/remove from map; and,
- If new data from national sources are added or used to replace those on the existing GIS file, provide original coordinate system of that data according to format given in file "GIS coordinate.doc" and dispatch to SEA START RC.

It was noted that the shoreline will be the critical geo-reference for habitat components to locate the position of habitat units, and that it is very important that every component of each country use the SAME shoreline.

3.6 Dr. Anond then presented the regional database of administrative boundaries, based on the CEISIN world database and requested that participants check the names and the boundaries of the administrative units in their own countries, and correct as necessary, as some reorganisation of administrative units may have occurred. He also said that, all countries need to use a standard Roman alphabet script, for consistency.

3.7 Mr. Chen Xiaoxiang from China stated that information on some administrative boundaries in China may be restricted, and how should that problem be addressed? He further stated that the SEA START map presented here is not accurate, and asked whether China should provide data on the presented base map, or the correct one? In response Dr. Anond noted that if there were problems releasing a more accurate map, and if this map is inaccurate, then the existing map could be used, *ad interim* and that the decision regarding the choice of baseline maps lay with the individual countries. Dr. Anond also noted that at this point we do not have a clear definition of the boundaries of the SCS, particularly in the cases of China and Indonesia, countries whose entire shoreline does not border the South China Sea marine basin.

3.8 There followed some general discussion on the ID codes that should be used, and whether the system could use existing codes, for example those used in systems such as Reefbase. Dr. Anond

said that SEA START had in consultation with the UNEP/GEF PCU devised a code in the attribute table. However, they would also look at existing codes to see if they could be used. He added that immediately after this workshop the SEA will decide exactly which provinces would be covered under which component, as these will not be the same across all components.

3.9 Mr. Sokha (Cambodia) reported that Cambodia has changed some administrative boundaries, notably with the establishment of Sihanoukville as a separate administrative unit. He also asked whether the code for Cambodia could be changed from Kh, as this was outdated now. Dr. Anond noted that an alternate could be used but noted further that the Internet code for Cambodia was kh.

3.10 It was agreed that the following tasks relating to the administrative units base map need to be completed at the national level prior to the next round of working group meetings:

- To review and update the WRI/CIESIN geographic position of boundary of general administrative units of the country;
- To review the attribute table and correct for names and other attributes; and,
- If new data from national source are added or to replace to the GIS, provide original coordinate system of that data according to format given in file "GIS coordinate.doc".

It should be noted that, administrative boundaries will be a basic geographic unit used in the Fisheries and Pollution Components, and that administrative units will be represented as 'polygons'.

3.11 Dr. Kirkman queried whether the decision to use latitude and longitude, instead of the UTM system (Eastings and Northings), for locations, was final. Dr. Anond replied that so far Latitude and Longitude had been used, but this was not finally decided, and use of the UTM system was certainly possible. He asked what the countries are currently using. Cambodia, and China, currently use the UTM system, Indonesia uses both geographic and UTM, Malaysia was not sure, Thailand and Viet Nam use both WGS 84 and UTM, and the Philippines are converting Geographic to UTM.

3.12 Dr. Anond then asked the GIS experts whether it would present a problem having a wide range of UTM zones across countries. Mr. Winardi (Indonesia) replied that it would be a problem using the UTM system when map sheets from different zones are used.

3.13 Dr. Anond noted that it would be necessary to establish a central zone for all countries to use, when combining map sheets from countries using the UTM system with different reference zones. Dr. Anond queried what the advantage of using the UTM system would be, within the framework of the project, whereupon Dr. Kirkman replied that distances and areas can be easily measured e.g. distances on shore lines and areas of habitats etc.

3.14 It was agreed that countries could submit data in any form, and that SEA START can convert to the finally agreed format, but that to do so, countries must clearly indicate the co-ordinate system, projection, datum ellipsoid, and meridian, that had been used in assembling the original data set. As data are not being used to define sensitive boundaries or for navigation, minor discrepancies are not of great significance. Mr. Winardi noted that it is extremely important to record the datum in order to convert to WGS 84.

3.15 Dr. Anond reported on the Digital Chart of the World, which has river and drainage network maps at 1:1million and was included in the SEA START database as the catchment maps are important for identifying pollution sources, although he noted that every river and stream may not be needed. He asked countries to check the existing map, and remove the minor tributaries etc. if it is thought that they do not have a significant impact on the coastal area. He requested participants to add the names to the rivers that they considered important, as no names were on the current map.

3.16 In response to a question from the Indonesian participant, Dr. Anond stated that if estuaries are important for wetlands or other habitats, then the information is needed as a polygon.

3.17 In response to a question regarding classified data, Mr. Jiang stated that if China wants to propose a demonstration site, it will need detailed data and information to support its proposal, since the Project Steering Committee was unlikely to agree to demonstration sites for which insufficient data are

presented. He noted further that at this workshop participants are deciding on issues of format and technical details rather than the nature of the data required. It is up to the National Committees to decide what data they will provide, but the less data provided, the weaker the case for a demonstration site in any country.

3.18 Dr. Anond concluded by saying that, if the existing base map and information are used then, work can proceed quickly. However, if countries want to use their own digital shoreline, this needs to be distributed to their SEAs immediately, and also sent to SEA START RC, if the work required before the next RWG2 was to be accomplished on schedule.

3.19 It was agreed that the following tasks relating to the river basins base map (Annex 4), need to be completed at the national level prior to the next round of working group meetings:

- To review and update the DCW river network or replace with national GIS if necessary;
- To select only rivers and segment of rivers that are signification and relevant to the context of the SCS Project, especially to the wetland (estuary) and land based pollution components, and remove other irrelevant river/stream lines;
- Check the position of the selected river mouths and make corrections if necessary;
- For each river segment selected, provide name of river that segment belong to as required in attribute table; and,
- If new data from national sources are added or to replace to the GIS, provide original coordinate system of that data according to the format given in file "GIS coordinate.doc".

4. TECHNICAL DISCUSSION OF THE GIS DATABASE REQUIREMENTS FOR THE HABITAT COMPONENT OF THE UNEP/GEF PROJECT ENTITLED: *"REVERSING ENVIRONMENTAL DEGRADATION TRENDS IN THE SOUTH CHINA SEA AND GULF OF THAILAND"*

4.1 Mangroves

4.1.1 Dr. Anond presented general technical considerations regarding the acquisition and inclusion of data in the GIS database with a view to facilitating discussion and agreement on a regional format for the habitat data sets covering the four habitat sub-components of the project (Annex 5). He noted that in some instances the GIS specialists in each country might be in a position to immediately identify current sources of electronic data relating to mangroves, coral reefs, seagrass and wetlands that could be immediately incorporated into the GIS database. A summary of these general considerations is contained in the introductory section of Annex 5 of this report.

4.1.2 Dr. Anond explained to the meeting that the resolution in the current base map is 1:250,000, however, depending on available data, it may be necessary in some instances to go to 1,000,000. At 1:250,000, anything smaller than 250 m^2 will appear as a single point. Larger areas will be polygons, while areas longer than 250m, but less than 250m wide, would appear as a line.

4.1.3 Dr. Kirkman raised several questions relating to the scope of work involved in the data collection on mangroves, for example density of stand needs to be included, as does the distribution along the shore line, etc. It was agreed that these questions should be passed to the RWG-M2 for resolution.

4.1.4 Dr. Anond went briefly through the draft questionnaire for acquiring the GIS data on mangroves, and Ms. Vergara asked how dynamic information was to be handled since the present list is all static. Dr. Anond responded by stating that the RWG-M had decided to focus initially on a description of the present state of mangroves and that issues relating to change in state can be further discussed with SEAs in each country, for consideration at the next meeting of the RWG-M.

4.1.5 Dr. Anond also noted that if data are not available, then it should be reported as N/A. The codes for availability of data should be included in the agenda for the next round of RWG meetings. Mr. Jiang noted that for wetlands and land-based pollution, there is already an agenda item to present the results of this meeting to the RWGs. The RWG will consider this report and then decide how to collect the data and information required. Dr. Cabanban added that if as a result of this meeting, participants thought

anything should be added to the agendas for the RWG meetings, they should inform the relevant Focal Point in the SEA.

4.1.6 In response to a question on whether the work to be undertaken now would be duplicated when working with the demonstration sites, Mr. Jiang replied that regional information on distribution, and regional significance, were needed before the PSC makes decisions on the choice of demonstration sites, after which the PSC would need site specific information. The decision on demonstration sites will not rely totally on GIS data, as there are other criteria to be developed. The initial requirement is to identify significant sites, from which the demonstration sites can be chosen. A total of nine sites will be selected for funding from current resources, although it is expected that in future additional sites will also be added utilising funds sourced elsewhere.

4.1.7 In response to a question from Ms. Vergara, on acknowledging sources of information, Dr. Anond pointed out the part of the questionnaire where this information was collected.

4.1.8 It was agreed that the following tasks relating to the mangrove subcomponent (Annex 5) need to be completed at the national level prior to the next round of working group meetings:

- To review the position and name of each mangrove polygon from R@R/WCMC and make corrections if necessary, especially to conform with the nationally agreed shoreline;
- To add data from national sources as polygon, line (arc) or point according to the project's arbitrary criteria;
- To give an ID to the feature in each theme as xxyyyy, where xx = country code and yyyy = number from 0001 to 9999; and,
- If new or replacement data from national sources are added to the GIS, provide original coordinate system of that data according to the format given in file "GIS coordinate.doc".

4.2 Coral Reefs

4.2.1 Dr. Anond presented the reefs at risk data on the base map to the meeting, as a guideline. He asked that the CR SEA in each country review the names and correct position, size, and shape, and update as much as possible the data in the table for each site. The first three fields in each table are the bare minimum required.

4.2.2 In response to a question from Dr. Kirkman on the scale of the maps, Dr. Anond stated that the scale was appropriate at this stage for the available regional information. As more information is available, it can be added to the table, and it may then be appropriate to reduce the scale to 1 in 50,000.

4.2.3 Dr. Anond then presented the draft questionnaire for coral reefs for the consideration of the meeting. Ms. Vergara informed the meeting that the Philippines had already reviewed the questionnaire, and sent comments for consideration by the SEA START and PCU. Mr. Jiang informed the meeting that each national SEA needs to check the information on the CDs that will be distributed during this meeting, and make corrections. If SEA START does not get the verification of the existing data, or corrections, they will assume that the data set is acceptable as the baseline for the Project. It was the responsibility of participants to pass the results of this meeting to the component working groups. An information paper with contact details for each Working Group had been distributed during the meeting. The PCU will distribute the report of this meeting to the National Technical Focal Points and the Focal Points in the Specialised Executing Agencies in each country.

4.2.4 Dr. Cabanban provided some clarification on the data that were put into reef base for the reefs at risk, and noted in particular that, different projections, were used by, different countries. When the information is reviewed, this should be considered. She also referred the meeting to the Reefs at Risk website for further information.

4.2.5 It was agreed that the following tasks relating to the coral reefs sub-component (Annex 5) need to be completed at the national level:

- To review the position and name of each coral reef theme from R@R and make necessary corrections, especially to conform with the nationally agreed shoreline;
- Verify R@R points that are close to each other if they are the same location;
- To add and update coral reef feature data as polygon or line (arc) or point as appropriate;
- To classify each coral reef into predefined types

Code	Type
1	Atoll
2	Barrier
3	Fringing
4	Patch

- To give an ID for each coral reef in each theme as xxyyyy, where xx = country code and yyyy = number from 0001 to 9999; and,If new or replacement data from national sources are added to the GIS, provide original coordinate system of that data according to the format given in file "GIS coordinate.doc".

4.3 Seagrass

4.3.1 Dr. Anond said that at present, he was not aware of any regional GIS data available on seagrass, though paper maps are available for some areas. It is however a simple matter to digitise any existing paper maps, and asked the meeting to share any existing information they had on seagrass distributions with the PCU and SEA START RC. The responses from participants indicated that there are some GIS data available on seagrass in Cambodia, and that Malaysia has some paper maps of seagrass distribution. Dr. Anond then showed the base map, and demonstrated how to add data to the map.

4.3.2 In response to a question from Ms. Vergara on the use of drop down menus to make selections, to minimise data entry errors, Dr. Anond said that his team would investigate and see what was possible.

4.3.3 Dr. Kirkman pointed out that the resolution agreed at the first meeting of the RWG-S was 1 hectare, i.e. a scale of 1:100,000, not 1:250,000, and that this needs to be addressed at next the RWG-S meeting.

4.3.4 Dr. Anond then went through the draft questionnaire for seagrass. There followed some general discussion on classifications and codes, particularly for substrate. Ms. Vergara informed the meeting of the ASEAN-Australia Living Coastal Resource database, which has categories for corals, which could be perhaps also used for seagrass. There was also a UNEP publication (Fortes, 1996) that could be used as reference. It was agreed that Dr. Kirkman will bring up the classification of seagrass and substrate at the next RWG-S meeting.

4.3.5 It was agreed that the following tasks relating to the seagrass sub-component (Annex 5) need to be completed at the national level:

- To input the digital position and name of each seagrass bed based on the nationally agreed shoreline as polygon or line (arc) or point according to the project's arbitrary criteria;
- To classify each seagrass bed by substrate (or degree of exposure) into predefined types:

Code	Type
1	Sand coralline (exposed)
2	Muddy (non-exposed)
3	Transition (mixed: sandy-muddy);

- To give ID for each seagrass bed in each theme as xxyyyy, where xx = country code and yyyy = number from 0001 to 9999; and,
- If new or replacement data from national sources are added to the GIS, provide original coordinate system of that data according to the format given in file "GIS coordinate.doc".

4.4 Wetlands

4.4.1 Dr. Anond stated that at the RWG-W it had been decided to cover only estuaries (including deltas), coastal lagoons, and intertidal flats. He noted that there is a Digital Chart of the World, (DCW) available, which locates the mouths of major rivers, some coastal lagoons, and hence provides some relevant existing GIS information, but this is not very detailed. Each country should enter the information that they want to appear on the GIS database for the South China Sea, though the DCW data could be used as an initial guide.

4.4.2 There followed discussion on the definitions for coastal lagoon, intertidal flat, and estuary, as definitions can overlap considerably. The meeting was informed that the definition of the scope of work under this component is under review by the RWG-W, and may be extended to include coastal freshwater habitats, but that the definitions to be used followed the agreed Ramsar definitions.

4.4.3 In response to a query from Dr. Anond on available data, participants indicated that some is available for all countries. In the Philippines some data is already available, while other useful information can be easily generated. China also has the data for the three categories, and more types if required.

4.4.4 In response to a question from Ms. Vergara on the currency used for values, Mr. Jiang said that the issue was discussed at the RSTC meeting, and it was decided to express the value in local currency. It can always be converted to $US later. A US$ exchange rate foot note could be added to any report to reflect the exchange rate current at the particular time the values were assessed.

4.4.5 Dr. Anond went through the questionnaire, and asked for comments. It was agreed that the questionnaire was acceptable as a draft for further consideration by the RWG-W. Dr. Anond asked if there was anything that the SEA START team should do in the next two days to clarify any issues before the closure of the workshop.

4.4.6 It was agreed that the following tasks relating to the wetland sub-component (Annex 5) need to be completed at the national level:

- To review the position, extent and name of each DCW estuary/lagoon and make corrections if necessary, especially to conform with the nationally agreed shoreline;
- To add the location and name of intertidal flats into themes;
- To classify (and sub-classify) each wetland into predefined type:

Code	Type
1	Estuary
2	Coastal lagoon
3	Intertidal flat

- To check and make corrections so that each wetland is properly represented as polygon, line (arc), or point, according to the project's arbitrary criteria;
- To give an ID for each wetland in each theme as xxyyyy, where xx = country code and yyyy = number from 0001 to 9999; and,
- If new or replacement data from national sources are added to the GIS, provide original coordinate system of that data according to the format given in file "GIS coordinate.doc".

4.4.7 Dr. Kirkman noted that there were some items missing in the components. For example, the valuation of seagrass is missing from that component, and he would raise the issue at the next RWG-S meeting.

4.4.8 Mr. Jiang again reminded participants to share the base maps with each component, and Dr. Anond agreed to make 7 copies available on CD to each country by the end of the workshop for immediate distribution to the SEAs.

4.4.9 Dr. Anond presented the outcomes of an informal discussion during the previous evening when the ID code and the reefbase code system of Latitude and Longitude, had been discussed. He explained that, using this system the object can be only defined as a point. He suggested that as agreed during

the previous days plenary session each country works in the Country agreed ID system, and it can be consolidated and redefined at SEA START RC.

4.4.10 Regarding the issue of whether the Lat/Long or UTM system was the most appropriate for the regional database, he noted that if the project is concerned with location, then Latitude and Longitude may be the more appropriate system. However, if measuring size and distance are required, then UTM is more appropriate. He invited comments on the two and Mr. Jiang noted that from the project perspective, at least in the initial stages, the location is more important and hence Lat/Long, would be more appropriate. It was also noted that at least in the case of the mangrove working group more that one pair of co-ordinates had been specified by the group. There was a general agreement that when work was required at the site level, the UTM system would be more appropriate, as size and precise distances were important.

5. TECHNICAL DISCUSSION OF THE GIS DATABASE REQUIREMENTS FOR THE POLLUTION COMPONENT OF THE UNEP/GEF PROJECT ENTITLED: *"REVERSING ENVIRONMENTAL DEGRADATION TRENDS IN THE SOUTH CHINA SEA AND GULF OF THAILAND"*

5.1 Dr. Anond presented the technical considerations regarding the acquisition and inclusion of pollution related data in the GIS database with a view to facilitating discussion and agreement on a regional format for the pollution component. Participants were invited to comment on the GIS base map for the land-based pollution component in the South China Sea and the Gulf of Thailand. This was discussed and agreed upon. Dr. Anond informed the meeting that in general the project would be working with administrative units of 10,000 km^2 or less. What was needed at this stage was: a general indication of pollution loading along the coast line. The position of the administrative boundary is not as important as details on any pollution monitoring stations.

5.2 It was agreed that each country SEA would need to provide the ID for the monitoring stations The extent of the area to be included is up to the countries to decide. For example, how far up the rivers that should be included in pollution loading data will depend on a number of factors that would require local knowledge. Mr. Jiang asked why only a code of 1 or 0, yes or no, was used for loading or health impact. Dr. Anond explained that this information was for use in deciding whether further information on the area needed to be included in the map, and not to indicate the extent of the problem.

5.3 Mr. Bastiawan suggested using watershed or catchments as a reporting unit, in place of administrative units, as it was hard for Indonesia to link the loading to one province. Mr. Jiang said that it might also be better for China, if watershed or catchment areas can be defined, since administrative boundary definition can be difficult. Mr. Mean and Mr. Sokha from Cambodia agreed that including catchment areas for big rivers, such as the Mekong river, and Tonle Sap Great Lake, even though well inland, was useful as they can still be a source of pollution. They also suggested setting up regional standards for determining pollution levels.

5.4 Dr. Anond said that his understanding of what was required for this project was an indication of hotspots in terms of impacts and type of pollution, as there is another parallel UNEP project, which will be measuring and identifying sources of pollution. Mr. Jiang confirmed that he was also involved in that project, and that the loading is not the focus of the present project, as it is covered under the parallel regional Global Programme of Action project.

5.5 It was agreed that, the following tasks relating to, the land-based pollution component of the project (See annex 7), need to be completed at the national level:

- To input the digital position and name of each environmental monitoring station as a point based on the nationally agreed shoreline;
- To provide the types of sample collected from each station, as water, sediment or biological;
- To input the digital position and name of each hospital to which any impacts of pollution on human health will most likely be reported, as a point;
- To give an ID for each pollution monitoring station and hospital as xxyyyy, where xx = country code and yyyy = number from 0001 to 9999;
- To check and correct for the coastal administration units for the reporting of the human health impact;
- To check and correct for the administration units along the coastline and upstream in the basins for the reporting pollutant loading;
- To check and correct the catchments/drainage basins for the reporting of pollutant loading, including dissolving subcatchment polygons into main catchment; and,
- If new or replacement data from national sources are added to the GIS, provide original coordinate system of that data according to format given in file "GIS coordinate.doc".

5.6 Dr. Anond then presented the questionnaire that countries will use to provide the required data, as agreed at the first RWG-LbP meeting, for consideration of the workshop. He displayed a map of catchment boundaries, from the DCW, but said that these boundaries may also need to be corrected.

Dr. Anond further informed participants that when the questionnaires are finalised they would be better documented, with explanations for completing each field.

6. TECHNICAL DISCUSSION OF THE GIS DATABASE FOR THE FISHERIES COMPONENT OF THE UNEP/GEF PROJECT ENTITLED: *"REVERSING ENVIRONMENTAL DEGRADATION TRENDS IN THE SOUTH CHINA SEA AND GULF OF THAILAND"*

6.1 Dr. Anond presented technical considerations regarding the acquisition and inclusion of fisheries related data in the GIS database with a view to facilitating discussion and agreement on a regional format for the fisheries data sets.

6.2 Mr. Passfield explained that this component of the project was largely concentrating on transboundary issues, which include migratory species and straddling stocks, and the habitats that are significant in maintaining these stocks. A list of those families and/or species has been circulated for consideration by the National Fisheries Committees.

6.3 A GIS base map for the fisheries component in the South China Sea and the Gulf of Thailand was discussed. Some suggestions for administrative units, which border the SCS for some countries, were made. Mr. Passfield offered to assist with terminology in the questionnaires and GIS map before the documents are finalised.

6.4 It was agreed that, the following tasks relating to, the fisheries component (See annex 6), need to be completed at the national level:

- To review and correct for the coastal administration units for the reporting of fishery statistics;
- To input the digital position and name of each fishing port/landing as a point based on the nationally agreed shoreline for the reporting of fishery statistic;
- To provide the location (as polygon) of the areas that are important in the maintenance of exploited fish stocks, and for each area provide names for up to 5 fishes/shellfishes (using SEAFDEC Code) which are caught in the area, or that use the area as a spawning ground, nursery ground, or feeding ground;
- To give ID for each port/landing and stock maintenance area as xxyyyy, where xx = country code and yyyy = number from 0001 to 9999; and,
- If new or replacement data from national sources are added to the GIS, provide original coordinate system of that data according to the format given in file "GIS coordinate.doc".

6.5 Mr. Passfield noted that there were a number of things in the questionnaire that would need to be discussed and agreed upon at the next RWG-F. He pointed out that annual data from 1990 was agreed upon at the first RWG-F meeting, though the data at 10-year intervals suggested here was also useful if available. A single set of questionnaires for all components and subcomponents for one country (Indonesia) is contained in Annex 8 of this report.

7. FORMAT OF THE REGIONAL META-DATABASE

7.1 A draft regional meta-database format, for the South China Sea Project was introduced by Dr. Anond (Annex 9). He explained how the format was developed from a combination of other formats, and utilised MS Word, as it was the most commonly used software in the region. Participants discussed the format presented and agreed on the regional meta-database format to be used at both national and regional levels taking into account existing regional and national meta-databases.

7.2 In response to a question from Ms. Vergara, Dr. Anond explained that the GIS would be linked to a database such that it could be queried on line. In addition, countries could add data via the Internet through e-mail messages to SEA START RC, or through sending hard copies if necessary. He added a request that countries do not overlook any data, including internal reports and other grey literature, including tide tables, or maps that, may be accessible in each country, and to please convey these to the appropriate SEAs.

7.3 Mr. Jiang reminded participants that the development of a meta-database is a commitment made by each country, and covered by the existing Memoranda of Understanding that each country and Specialised Executing Agency had signed. He requested that participants share this message with the SEAs in their countries.

7.4 As the meeting was running ahead of schedule, the afternoon session was devoted to technical presentations by the participants. Presentations demonstrating the range and value of existing databases were made by Ms. Vergara and Mr. Ferdinand from the Philippines, Mr. Sokhla from Cambodia; Mr. Chen from China; and Mr. Bastiawan and Mr. Winardi from Indonesia.

8. POTENTIAL TECHNICAL ASSISTANCE TO BE PROVIDED BY SEA START RC AND THE PROJECT COORDINATING UNIT TO THE FOCAL POINTS FOR THE PROJECT COMPONENTS AND SUB-COMPONENTS

8.1 Based on the information and agreements reached under the foregoing agenda items concerning the form of the GIS database and regional meta-database, participants were invited to consider their requirements for technical assistance in implementing these agreements. Countries were invited by Dr. Anond to make any technical assistance requirements known to the PCU and SEA START.

8.2 Mr. Esa from Malaysia said he would need to discuss with his superiors and the SEAs regarding any requirements for assistance, but asked whether it is possible for UNEP to provide training. In response, it was noted that whilst UNEP could support training if necessary this would be provided through a third party.

8.3 Ms. Vergara said the Philippines has some expertise for GIS in pollution and mangroves, but would follow Malaysia's lead on going back to the country to determine any further needs. Mr. Yen from Vietnam informed the meeting that they have some expertise, but may need some training on seagrass and fisheries in terms of how to input data, and help with other (external) sources of data. Mr. Pirochana Saikliang from Thailand, said there was no GIS expertise in the fisheries committee, but they can provide all the information required Could this be submitted to SEA START RC to input data? He added that some fishing port locations will be difficult to get exactly, but can get approximate location from navigation chart. He reminded the meeting that each component may have different shoreline maps, so must agree on one.

8.4 Dr. Anond noted that actual inputting should be done by the SEA or contracted out to institutions, at the national level. SEA START RC and PCU are for coordination. He noted further that geographic location data, based on 1:250,000 scale maps should be appropriate for the purpose of this regional scale GIS.

8.5 Dr. Anond noted that training would need to be very specifically designed since data collection was a national responsibility and activities such as linking a table to an object is basic, and the expertise should already exist in various institutions in each country.

8.6 In response to wuestions relating to the possibility of training raised by a number of participants, Dr. Pernetta said that the project cannot offer training from within the PCU, but training can be organised if needed. However, he said that he was aware that there is a lot of GIS expertise available in the countries, and that often the problem was one of access to the expertise rather than the need for training. SEAs have funds for sub-contracting expertise from other institutions. Some funds have been disbursed to all countries, except Malaysia, which has not signed the MOUs.

8.7 The participants from each country have a responsibility to liaise with each SEA FP on technical matters and their financial requirements in undertaking the work. Funds have already been disbursed to the SEAs and include allocations, which can be used in support of the GIS and meta-database development since these are outputs envisaged in the Memoranda of Understanding between UNEP and each SEA. JP will contact each NFP to advise them of the outcome of this meeting and suggest that they consider the levels of support, which can be provided from within existing resources. In the case of any difficulties the participants were advised to contact the PCU.

8.8 Mr. Esa noted that he would need to consult with the SEAs regarding the extent to which the work could be completed within the time frames envisaged. In the event that there were technical questions the SEAs may contact SEA START RC directly. Dr Anond said yes, but we would expect some basic data would be presented at the next RWG meetings. Malaysia is quite advanced with GIS and much of the required data is probably already available in GIS format, hence it would be a question of contacting the right people in the country. It was noted that the LbP Committee in Thailand will have a meeting at the end of this month, so the workshop report will be presented to them then.

8.9 Mr. Winardi raised the possibility of assistance in obtaining Satellite imagery data And Dr. Anond noted that satellite imagery would be useful in the second step of phase 1, by which time UNEP should be able to provide these images. He noted that there was insufficient time to obtain imagery before the next round of regional meetings.

8.10 Dr. Pernetta confirmed that UNEP will provide access to Land Sat images and that all that was required were the geographical coordinates of the area for which imagery was required. Dr. Anond Informed the meeting that SEA START RC had prepared a list of approximately 70 LandSat images required to cover the coastal area of the South China Sea

8.11 Replies from Indonesia and China to a question from Dr. Anond to the participants, led to a consensus that countries would need 6 months to analyse LandSat images. Based on this, Dr. Pernetta and Dr. Anond agreed to ensure the images would be available to the countries before the end of 2002, so that they could be analysed by the time of step 3 of the workplan (April-June, 2003).

8.12 It was also agreed that an e-forum of GIS experts be established with participants and other GIS experts in the region, to facilitate progress on the agreed tasks.

9. GENERAL DISCUSSION AND PRESENTATION OF SUMMARY OF THE WORKSHOP CONCLUSIONS

9.1 Dr. Anond presented a draft workplan and timetable for discussion by the participants. He noted that the decisions on the shoreline map to be used for each country would need to be taken by the end of next week 16 August. He also advised that any data provided from other GIS systems should be compatible with SEA START system. ARCview and MapInfo were suitable, but some nationally developed software may not be. The workplan as discussed and agreed is contained in Annex 10 of this report.

9.2 Mr. Chen expressed some concern at committing here to a timetable, since decisions regarding the release of data may take some time. Dr. Anond reminded the meeting that all countries, at the first PSC meeting, had agreed the overall project workplan and that it is up to all participants to try and meet the schedule. Dr. Pernetta advised that a revision of the schedule may be presented to the next PSC in December, after progress achieved by the end of the second round of RWG meetings, as a workplan to the end of 2004 needs to be finalised at that meeting.

9.3 The workshop agreed that the work to be done before the second round of Regional Working Group meetings should be focussed on the setting up of the GIS layout at a regional scale including agreement on shorelines, administrative boundaries, rivers and the location of habitats, which should be completed for each component 1 week prior to the scheduled date of the second meetings. During the intersessional period between the second and third regional working group meetings work would be focussed on the compilation of regional data and linkage of those data to the Geographic Units established earlier. Between the third and fourth regional working group meetings the work will focus on the compilation of site specific data to be used to support the decisions of the Project Steering Committee with respect to the selection of demonstration sites.

9.4 In response to a question from Dr. Pernetta as to whether another technical GIS meeting such as this would be required, prior to the initiation of step 3 of the workplan. It was agreed that an email forum would probably be all that is required. Cambodia did say they have some problems with email service, so would prefer a second meeting and it was agreed that this issue would be kept under review. The e-forum would involve all the participants from this workshop together with the SEA focal points and

any other appropriate experts. Participants were invited to provide names and contact details of appropriate individuals to the SEA START RC.

10. ADOPTION OF THE REPORT AND TECHNICAL AGREEMENTS

10.1 The draft report and technical agreements, prepared by the workshop secretariat, were presented to the workshop which discussed amended and agreed the report as it appears in this document. The PCU was authorised to finalise the editing and formatting of the text in consultation with Dr. Anond.

11. CLOSURE OF THE WORKSHOP

11.1 Dr. Anond closed the workshop after thanking participants for the hard work and constructive attitude he expressed the wish that successful regional cooperation would result in achieving the anticipated outcomes.

ANNEX 1

List of Participants
Country Nominated Experts

Cambodia

Mr. Suon MEAN, Chief
GIF/Remote Sensing Unit
Department of Natural Resource and Environmental Data Management
Ministry of Environment
#48 Samdech Preah Sihanouk
Tonle Bassac, Chamkamon
Phnom Penh, Cambodia

Tel: (855 23) 212580; (855) 11 873993
Fax: (855 23) 427844, 219164
E-mail: 012893001@mobitel.com.kh

Mr. Chrin SOKHA, Chief
Water and Soil Quality Management
Department of Environmental Pollution Control
Ministry of Environment
#48 Samdech Preah Sihanouk
Tonle Bassac, Chamkamon
Phnom Penh
Cambodia

Tel: (855 23) 210492; (855) 12 893001
Fax: (855 23) 987880
E-mail: 012893001@mobitel.com.kh

China

Mr. CHEN Xiaoxiang
Centre for Remote Sensing
Zhongshan (San Yet-sen) University
135 Xingangxi Road
Guangzhou 510275, China

Tel: (86 20) 8411 2496; (86) 13022048145
Fax: (86 20) 8411 3678
E-mail: eescxx@zsu.edu.cn

Mr. FANG Huaiyang
South China Institute of Environmental Sciences, SEPA
7 West Street, Yuancun
Guangzhou 510655, China

Tel: (86 20) 8553 8223; (86) 139 2605 4539
Fax: (86 20) 8555 7064
E-mail: sunnyhouse@scies.com.cn

Indonesia

Mr. Benny BASTIAWAN
Senior Technical Supporting GIS Staff
Coastal and Marine Ecosystem Affairs
Ministry of Environment
Jl. Panjaitan Kav. 24A
Building 5th Floor, Kebon Nanas
Jakarta 13410, Indonesia

Tel: (62 21) 8590 5638; (62) 812 9952542
Fax: (62 21) 85904929
E-mail: pkepl@bapedal.go.id;
bastiawan@hotmail.com

Mr. WINARDI
Remote Sensing & GIS for Marine Application Researcher
Research Center for Oceanography (PPO)
Indonesian Institute of Sciences (LIPI)
Jl. Pasir Putih I, Ancol Timur
Jakarta 14430, Indonesia

Tel: (62 21) 683850 ext. 308;
62 812 9206683
Fax: (62 21) 681948; 62 21 682287
E-mail: winardi@coremap.or.id
winardi@hotmail.com

Malaysia

Mr. Hazizi ESA
Environmental Control Officer
Department of Environment
Ministry of Science, Technology and the Environment, Level 6, Block C4
Federal Government Administrative Centre
Pusat Pentadbiran Kerajaan Persekutuan
62662 Putrajaya, Malaysia

Tel: (603) 8885 8293; 8885 8200
Fax: (603) 8889 1045; 8888 9987
E-mail: he@jas.sains.my

Philippines

Mr. Francis Ferdinand DIZON
Information Systems Analyst II
Management Information Systems Unit
Environmental Management Bureau
Department of Environment & Natural Resources
Visayas Avenue, Diliman, Quezon City, Philippines

Tel: (632) 920 2232; 920 2280; 639192491165
Fax: (632) 927 1518
E-mail: infinia09@yahoo.com

Ms. Sheila G. VERGARA
International Center for Living Aquatic Resources Management
Mabango Street, Jubileeville
Masaya Bay, Laguna 4033
Philippines

Tel: (632) 845 0563/69/70/73/75 ext. 6892
Fax: (632) 8911292
E-mail: s.vergara@cgiar.org

Thailand

Dr. Nawarat KRAIRAPANOND
Chief of Coastal and Marine Resources Group
Natural Resource and Environmental Management Co-ordination Division
Office of Environmental Policy and Planning
60/1 Soi Phibunwattana 7, Rama VI Road
Bangkok 10400, Thailand

Tel: (662) 279 5202; 279 8088
Fax: (662) 279 8088; 271 3226
E-mail: nawarat@oepp.go.th

Mr. Sanay ROJANADIT
Department of Geography
Faculty of Education
Ramkhamkaeng University
Huamark
Bangkok 10240
Thailand

Tel: (661) 653 7739
Fax: (662)
E-mail: sanayr@hotmail.com

Viet Nam

Mr. Tran Cong YEN
Senior, GIS Specialist
Ministry of Science, Technology and Environment
39 Tran Hung Dao
Hanoi, Viet Nam

Tel: (844) 943 8346; (84) 09 13321872
Fax: (844) 825 2733
E-mail: yencong@yahoo.com

Observers

Mr. Somsak BOONDOWN
Chief of Soil and Land Resources Section
Natural Resource and Environmental Management Co-ordination Division
Office of Environmental Policy and Planning (SEAs-Wetlands)
60/1 Soi Phibunwattana 7, Rama VI Road
Bangkok 10400, Thailand

Tel: (662) 279 5202; 279 8088
Fax: (662) 279 8088; 271 3226
E-mail: somsak@oepp.go.th

Mr. Hugh KIRKMAN
Coordinator EAS/RCU
United Nations Environment Programme
Regional Coordinating Unit for East Asian Seas
9th Floor, Block A, United Nations Building
Rajdamnern Avenue
Bangkok 10200
Thailand

Tel: (662) 288 1860
Fax: (662) 281 2428
E-mail: kirkman.unescap@un.org

Dr. Sura PATTANAKIAT
Assistant Professor
Faculty of Environment and Resources Studies
Mahidol University (SEAs-Seagrass)
Phuttamonthon 4, Salaya
Nakhon Phatom, 73170
Thailand

Tel: (662) 441 5000 ext. 172
Fax: (662) 441 9509-10
E-mail: enspt@mahidol.ac.th

Mr. Sirichai ROUNGRIT
Environmental Specialist
Natural Resource and Environmental Management
Co-ordination Division
Office of Environmental Policy and Planning
60/1 Soi Phibunwattana 7, Rama VI Road
Bangkok 10400, Thailand

Tel: (662) 279 5202; 279 8088
Fax: (662) 279 8088; 271 3226
E-mail: sirichai48@hotmail.com

Mr. Pirochana SAIKLIANG
Senior Fishery Biologist (SEAs-Fisheries)
Upper Gulf Marine Fisheries Development Center
49 Soi Phrarachaveriyaporn 16
Bangphoung, Prapradeang
Samutprakarn 10130, Thailand

Tel: (662) 816 7635-8 ext 15; 018439887
Fax: (662) 816 7634
E-mail: pirochas@fisheries.go.th

Dr. Tanuwong SANGTIEAN
Forest Official
Royal Forest Department (SEAs-Mangroves)
61 Paholyothin Rd
Chatuchak, Bangkok 10900
Thailand

Tel: (662) 579 8626; 01 988 0114
Fax: (662) 579 8626
E-mail: tanuwong@forest.go.th

Dr. Somboon SIRIRAKSOPHON
Southeast Asian Fisheries Development Center
SEAFDEC/Training Department
P.O.Box 97, Phrasamutchedi
Samutprakan 10290
Thailand

Tel: (662) 425 6100 to 9; 425 6137
Fax: (662) 425 6110 to 1
E-mail: somboon@seafdec.org

Ms. Wimolporn WILAIRATANADILOK
Pollution Control Department
(SEAs-Land-based pollution)
92 Soi Pahon Yothin 7, Pahon Yothin Rd.
Samsen-Nai, Phaya Thai
Bangkok 10400, Thailand

Tel: (662) 298 2241-2; 669 683 6211
Fax (662) 298 2240
E-mail: wimolporn@hotmail.com

Southeast Asia START Regional Centre
(SEA START RC)

Dr. Anond SNIDVONGS, Director
Southeast Asia START Regional Centre
SWU Pathumwan 5 Building, 5th Floor
Henri Dunant Road
Bangkok 10330, Thailand

Tel: (66 2) 218 9464
Fax: (66 2) 251 9416
E-mail: anond@start.or.th

Mr. Boonlue KACHENCHART
Researcher
Faculty of Environment and Resource studies
Mahidol University, Salaya
Nakhon Pathom 73170, Thailand

Tel: (66 2) 441 5000 ext. 122
Fax: (66 2) 441 9509 to 10
E-mail: boonlue@rocketmail.com;
boonlue@mju.ac.th

Ms. Kannika KOMWONG
Research Associate
Southeast Asia START Regional Centre
SWU Pathumwan No.5, 5th floor
Henri Dunant Road, Pathumwan
Bangkok 10330, Thailand

Tel: (66 2) 218 9466
Fax: (66 2) 251 9416
E-mail: kannika@start.or.th

Mr. Chanutchai PORNSALNUWAT
Research Assistant
Southeast Asia START Regional Centre
SWU Pathumwan No.5, 5th floor
Henri Dunant Road, Pathumwan
Bangkok 10330, Thailand

Tel: (66 2) 219 9463
Fax: (66 2) 251 9416
E-mail: chanutchai@start.or.th

United Nations Environment Programme
UNEP/GEF Project Co-ordinating Unit

Dr. John PERNETTA, Project Director
UNEP/GEF Project Co-ordinating Unit
United Nations Environment Programme
9th Floor, Block A, United Nations Building
Rajdamnern Avenue
Bangkok 10200, Thailand

Tel: (66 2) 288 1886
Fax: (66 2) 281 2428
E-mail: pernetta@un.org

Mr. Yihang JIANG, Senior Expert
UNEP/GEF Project Co-ordinating Unit
United Nations Environment Programme
9th Floor, Block A, United Nations Building
Rajdamnern Avenue
Bangkok 10200, Thailand

Tel: (66 2) 288 2084
Fax: (66 2) 281 2428
E-mail: jiang.unescap@un.org

Mr. Kelvin Passfield, Expert
UNEP/GEF Project Co-ordinating Unit
United Nations Environment Programme
9th Floor, Block A, United Nations Building
Rajdamnern Avenue
Bangkok 10200, Thailand

Tel: (66 2) 288 1116
Fax: (66 2) 281 2428
E-mail: passfield@un.org

Dr. Annadel CABANBAN
Expert – Community Based Management
UNEP/GEF Project Co-ordinating Unit
United Nations Environment Programme
9th Floor, Block A, United Nations Building
Rajdamnern Avenue, Bangkok 10200, Thailand

Tel: (66 2) 288 2279
Fax: (66 2) 281 2428
E-mail: cabanban@un.org

Ms. Charuvan KALYANGKURA
Administrative Assistant, EAS/RCU
United Nations Environment Programme
9th Floor, Block A, United Nations Building
Rajdamnern Avenue
Bangkok 10200, Thailand

Tel: (66 2) 288 1894
Fax: (66 2) 281 2428
E-mail: kalyangkura@un.org

Ms. Unchalee KATTACHAN
Secretary, UNEP/GEF Project Co-ordinating Unit
United Nations Environment Programme
9th Floor, Block A, United Nations Building
Rajdamnern Avenue
Bangkok 10200, Thailand

Tel: (66 2) 288 1670
Fax: (66 2) 281 2428
E-mail: kattachan.unescap@un.org

ANNEX 2

List of Documents

~~Working documents~~

UNEP/GEF/SCS/RWG-EW.1/1	Provisional agenda
UNEP/GEF/SCS/RWG-EW.1/2	Annotated provisional agenda
UNEP/GEF/SCS/RWG-EW.1/3	Report of the meeting (prepared during the meeting)
UNEP/GEF/SCS/RWG-EW.1/4	Data and information needs for the Mangrove Sub-component
UNEP/GEF/SCS/RWG-EW.1/5	Data and information needs for the Coral Reefs Sub-component
UNEP/GEF/SCS/RWG-EW.1/6	Data and information needs for the Seagrass Sub-component
UNEP/GEF/SCS/RWG-EW.1/7	Data and information needs for the Wetlands Sub-component
UNEP/GEF/SCS/RWG-EW.1/8	Data and information needs for the Pollution Component
UNEP/GEF/SCS/RWG-EW.1/9	Data and information needs for the Fisheries Component

~~Information documents~~

UNEP/GEF/SCS/RWG-EW.1/INF.1	Provisional list of documents
UNEP/GEF/SCS/RWG-EW.1/INF.2	Provisional list of participants
UNEP/GEF/SCS/RWG-EW.1/INF.3	Draft programme
UNEP/GEF/SCS/RWG-EW.1/INF.4	Burke, L., E. Selig, and M. Spalding. 2002. Reefs at Risk in Southeast Asia, Washington, DC. : World Resources Institute. 72 pp.

ANNEX 3

Agenda

1. OPENING OF THE WORKSHOP

1.1 Welcome address
1.2 Introduction of participants

2. RATIONAL FOR THE WORKSHOP

3. INTRODUCTION OF THE EXISTING GIS DATABASE AT SEA-START RC

4. TECHNICAL DISCUSSION OF THE GIS DATABASE REQUIREMENTS FOR THE HABITAT COMPONENT OF THE UNEP/GEF PROJECT ENTITLED: *"REVERSING ENVIRONMENTAL DEGRADATION TRENDS IN THE SOUTH CHINA SEA AND GULF OF THAILAND"*

4.1 Mangroves
4.2 Coral Reefs
4.3 Seagrass
4.4 Wetlands

5. TECHNICAL DISCUSSION OF THE GIS DATABASE REQUIREMENTS FOR THE POLLUTION COMPONENT OF THE UNEP/GEF PROJECT ENTITLED: *"REVERSING ENVIRONMENTAL DEGRADATION TRENDS IN THE SOUTH CHINA SEA AND GULF OF THAILAND"*

6. TECHNICAL DISCUSSION OF THE GIS DATABASE FOR THE FISHERIES COMPONENT OF THE UNEP/GEF PROJECT ENTITLED: *"REVERSING ENVIRONMENTAL DEGRADATION TRENDS IN THE SOUTH CHINA SEA AND GULF OF THAILAND"*

7. FORMAT OF THE REGIONAL META-DATABASE

8. POTENTIAL TECHNICAL ASSISTANCE TO BE PROVIDED BY SEA START RC AND THE PROJECT COORDINATING UNIT TO THE FOCAL POINTS FOR THE PROJECT COMPONENTS AND SUB-COMPONENTS

9. GENERAL DISCUSSION AND PRESENTATION OF SUMMARY OF THE WORKSHOP CONCLUSIONS

10. ADOPTION OF THE REPORT AND TECHNICAL AGREEMENTS

11. CLOSURE OF THE WORKSHOP

ANNEX 4

SEA START RC Presentation of Common Base Maps

COMMON BASE MAPS (to be shared by several components)

- Shoreline
- Administration units (preferably <10,000 km2)
- Rivers

WORLD VECTOR SHORELINE (WVS)

- Original source of data: Defense Mapping Agency now National Imagery and Mapping Agency (NIMA)
- World-wide coverage
- Suitable for scales close to 1:250,000
- Accuracy; requirement for this data is that 90% of all identifiable shoreline features be located within 500 meters (2.0mm at 1:250,000) circular error of their true geographic positions with respect to the preferred datum (WGS 84)
- Horizontal Datum - World Geodetic System (WGS 84)
- Vertical Datum - shoreline based on Mean High Water (MHW)

Advantages of Using WVS as Basemap

- Available for every country.
- Compatible with many other global and regional GIS projects, so data can be transferred and overlay without much adjustment.

Digital Shorelines from National Sources

- Viet Nam
- Philippines

Viet Nam Shoreline

Produced by:	Unknown
Production Year:	Unknown
Digitizing Accuracy:	~500m
Format:	MapInfo Polygon
Projection:	Geographic
Availability:	Whole country
Original Source Maps:	Unknown
Original Scale:	1:200,000?
Survey Year:	Unknown

Philippines Shoreline

Produced by:	National Mapping and Resource Information Agency (NAMRIA)
Production Year:	~2000?
Digitizing Accuracy:	Unknown
Format:	Autocad DWG Line
Projection:	UTM Zone 51
Availability:	Cagayan-Pangasinan; Zambales-Batangas; Palawan (N & S tips only)
Original Source Maps:	NAMRIA
Original Scale:	1:250,000
Survey Year:	1993?

National Tasks for Shorelines

- To review geographic position of shoreline and correct/replace with a more acceptable GIS if necessary;
- To review any missing/non-existent features (such as islands) and add/remove from map; and,
- If new data from national sources are added or used to replace those on the existing GIS file, provide original coordinate system of that data according to format given in file "GIS coordinate.doc" and dispatch to SEA START RC.

Notes:

- The shoreline will be the critical geo-reference for habitat components to locate the position of habitats;
- It is very important that every component of each country use the SAME shoreline.

Working GIS Themes

From WVS

cn_shore_wvs	id_shore_wvs	kh_shore_wvs	my_shore_wvs
ph_shore_wvs	th_shore_wvs	vn_shore_wvs	

ADMINISTRATIVE BOUNDARIES WRI/CIESIN

	NAME 1	NAME 2	NAME 3
Cambodia	Koh Kong	Thmar Baing	N.A.
China	Hainan	Wenchang	N.A.
Indonesia	Jambi	Tanjung jabung	N.A.
Malaysia	Kelantan (Negara	N.A.	N. A.
Philippines	Reg 1 (Iiocos)	La Union	Bangar
Thailand	Eastern (Pak)	Cholburi (Changwat)	Sriracha (Amphur)
Viet Nam	Minh hai (Tinh)	Bac Lieu (Huyen)	N.A.

National Tasks for Administrative Boundaries

- To review and update the WRI/CIESIN geographic position of boundary of general administrative units of the country;
- To review the attribute table and correct for names and other attributes; and,
- If new data from national source are added or to replace to the GIS, provide original coordinate system of that data according to format given in file "GIS coordinate.doc"

Notes:

- Administrative boundary will be a basic geographic unit used in Fisheries and Pollution Components.
- Administrative units will be represented as 'polygons'.

Working GIS Themes (all are from WRI/CIESIN)

cn_admin_wri	id_admin_wri	kh_admin_wri	my_admin_wri
ph_admin_wri	th_admin_wri	vn_admin_wri	

Supporting GIS Themes

cn_shore_wvs	id_shore_wvs	kh_shore_wvs	my_shore_wvs
ph_shore_wvs	th_shore_wvs	vn_shore_wvs	

DCW RIVER AND DRAINAGE NETWORK

Source:	ESRI Digital Chart of the World (DCW)
Original Scale:	1:1,000,000
Year Published:	1993
Format:	Line
Criteria:	From theme DNNET (line)

National tasks for rivers and drainage networks

- To review and update the DCW river network or replace with national GIS if necessary;
- To select only rivers and segment of rivers that are signification and relevant to the context of the SCS Project, especially to the wetland (estuary) and land based pollution components, and remove other irrelevant river/stream lines;
- Check the position of the selected river mouths and make correction if necessary;
- For each river segment selected, provide name of river that segment belong to as required in attribute table; and,
- If new data from national source are added or to replace to the GIS, provide original coordinate system of that data according to format given in file “GIS coordinate.doc”.

Working GIS Themes (all from DCW)

cn_river_dcw	id_river_dcw	kh_river_dcw	my_river_dcw
ph_river_dcw	th_river_dcw	vn_river_dcw	

Supporting GIS

cn_shore_wvs	id_shore_wvs	kh_shore_wvs	
my_shore_wvs	ph_shore_wvs	th_shore_wvs	
vn_shore_wvs			

Attributes of Th_river_dcw.shp

Shape	Fnode_	Tnode_	Lpoly_	Rpoly_	Length	Water_	Water_id	Name
PolyLine	20740	20822	1	1	0.000	22384	5	
PolyLine	20822	20857	3770	1	0.016	22422	5	
PolyLine	20822	20886	1	3770	0.006	22457	5	
PolyLine	20939	20857	1	3770	0.057	22460	5	
PolyLine	20928	20886	1	1	0.012	22501	5	
PolyLine	20933	20928	1	1	0.003	22505	5	

DEVELOPMENT OF THE REGIONAL GIS DATABASE

Step 1. To establish the regionally consistent GIS basemap that contain geographic unit for data reporting (this should be accomplished before the next RWG meetings);

Step 2. To provide attributed data for each feature in the basemap (to be completed in 2003?).

Data in Step 2 will be linked to the GIS features in Step 1 through the ID of the feature in each theme--i.e. once an ID is assigned to a feature it can NOT be changed, but that feature may be deleted as well as a new feature with new ID may be added at any time.

ANNEX 5

Habitat Component GIS Requirements: Mangrove, Coral Reef, Seagrass, and Wetland

General location and extent of 'large' sites will be represented either as Line (Arc) for site that is longer than ~250m but less than ~250m wide, or Polygon for a site that is longer than ~250m and wider than ~250m. Points will serve 2 purposes:

1. As an indication of the position of 'small' sites, or sites with 'unknown' size, or;
2. To indicate that the particular location may have additional data/information available.

MANGROVES SUB- COMPONENT

Available GIS/Maps Distribution of Mangrove

Source:	WRI Reef at Risk Southeast Asia
Year Published:	2002
Format:	Polygon
Projection:	Geographic
Availability:	
Original Source:	WCMC

National GIS Tasks for Mangrove Sub-Component

- To review the position and name of each mangrove polygon from R@R/WCMC and make corrections if necessary, especially to conform with the nationally agreed shoreline;
- To add data from national sources as polygon, line (arc) or point according to the project's arbitrary criteria;
- To give an ID to the feature in each theme as xxyyyy, where xx = country code and yyyy = number from 0001 to 9999; and,
- If new or replacement data from national sources are added to the GIS, provide original coordinate system of that data according to format given in file "GIS coordinate.doc".

Working GIS Themes (Available data in polygon (pol) themes were from WRI R@R/WCMC)

cn_m_pol	cn_m_arc	cn_m_pnt	id_m_pol
id_m_arc	id_m_pnt	kh_m_pol	kh_m_arc
kh_m_pnt	my_m_pol	my_m_arc	my_m_pnt
ph_m_pol	ph_m_arc	ph_m_pnt	th_m_pol
th_m_arc	th_m_pnt	vn_m_pol	vn_m_arc
vn_m_pnt			

Supporting Data Themes

cn_shore_wvs	id_shore_wvs	kh_shore_wvs	my_shore_wvs
ph_shore_wvs	th_shore_wvs	vn_shore_wvs	

Attributes of Th_m_pol.shp

Shape	Area	Perimeter	M_id	M_name
Polygon	0.000117	0.070628	TH0001	Khlung
Polygon	0.000170	0.099687	TH0002	Ao Nang

Attributes of Th_m_arc.shp

Shape	M_id	M_name
PolyLine	TH0001	Narathiwat1
PolyLine	TH0002	Narathiwat2

Attributes of Th_m_pnt.shp

Shape	M_id	M_name
Point	TH0001	Sadet
Point	TH0002	Dang

CORAL REEFS SUB-COMPONENT

Available GIS/Maps Distribution of Coral Reefs

Source:	WRI Reef at Risk Southeast Asia
Year Published:	2002
Format:	Polygon, Line, Point
Projection:	Geographic
Availability:	
Original Source:	ICLARM ReefBase

National GIS Tasks for Coral Reef Sub-component

- To review the position and name of each coral reef theme from R@R and make necessary corrections, especially to conform with the nationally agreed shoreline;
- Verify R@R points that are close to each other if they are the same location;
- To add and update coral reef feature data as polygon or line (arc) or point as appropriate;
- To classify each coral reef into predefined types:

Code	Type
1	Atoll
2	Barrier
3	Fringing
4	Patch

- To give an ID for each coral reef in each theme as xxyyyy, where xx = country code and yyyy = number from 0001 to 9999; and, If new or replacement data from national sources are added to the GIS, provide original coordinate system of that data according to format given in file "GIS coordinate.doc".

Working GIS Themes (Available data in all these themes were from WRI R@R SEA)

id_cr_pol	ph_cr_pol	th_cr_pol	vn_cr_pol	id_cr_arc
kh_cr_arc	my_cr_arc	ph_cr_arc	th_cr_arc	vn_cr_arc
id_cr_pnt	kh_cr_pnt	my_cr_pnt	ph_cr_pnt	th_cr_pnt
vn_cr_pnt				

Supporting Data Themes

id_shore_wvs	kh_shore_wvs	my_shore_wvs
ph_shore_wvs	th_shore_wvs	vn_shore_wvs

Attributes of Cr_pnt_rr.shp

Shape	Reef_pnt_i	Cr_id	Cr_name	Cr_type	A_reefid	A_country	A_latitude	A_longitud	A_year	A_stress
Point	17	PH0001	Medio Island (San Antonio)	3	13N120E0015	Philippines	13.533333330		1979	Blast fishi
Point	55	PH0002	Apo Reef	3	12N120E0001	Philippines	12.683333330		1984	Drive-in ne
Point	110	PH0003	Amongan Point	4	15N119E0003	Philippines	15.400000000		1979	Blast fishi

Attributes of Cr_arc_rr.shp

Shape	Reef_arc_i	Cr_id	Cr_name	Cr_type
PolyLine	1	TH0001	Tlan Cape (Laem Tian)	3
PolyLine	2	TH0002	Faan	3
PolyLine	3	TH0003	Bang Po	4

SEAGRASS SUB-COMPONENT (Available GIS/Maps Distribution of seagrass)

None National GIS Tasks for Seagrass Sub-component

- To input the digital position and name of each seagrass bed based on the nationally agreed shoreline as polygon or line (arc) or point according to the project's arbitrary criteria;
- To classify each seagrass bed by substrate (or degree of exposure) into predefined types:

Code	Type
1	Sand coralline (exposed)
2	Muddy (non-exposed)
3	Transition (mixed: sandy-muddy)

- To give ID for each seagrass bed in each theme as xxyyyy, where xx = country code and yyyy= number from 0001 to 9999; and,
- If new or replacement data from national sources are added to the GIS, provide original coordinate system of that data according to format given in file "GIS coordinate.doc".

Working GIS Themes (There are no seagrass data available in these themes)

cn_sg_pol	cn_sg_arc	cn_sg_pnt
id_sg_pol	id_sg_arc	id_sg_pnt
kh_sg_pol	kh_sg_arc	kh_sg_pnt
my_sg_pol	my_sg_arc	my_sg_pnt
ph_sg_pol	ph_sg_arc	ph_sg_pnt
th_sg_pol	th_sg_arc	th_sg_pnt
vn_sg_pol	vn_sg_arc	vn_sg_pnt

Supporting Data Themes

cn_shore_wvs	id_shore_wvs	kh_shore_wvs	my_shore_wvs
ph_shore_wvs	th_shore_wvs	vn_shore_wvs	

Attributes of Th_sg_pnt.shp

Shape	Sg_id	Sg_name	Sg_type
Point	TH0001	Ta pla	3
Point	TH0002	Pirate cave	1

Attributes of Th_sg_arc.shp

Shape	Sg_id	Sg_name	Sg_type
PolyLine	TH0001	Songhla1	1
PolyLine	TH0002	Songhla2	3

WETLANDS SUB-COMPONENT

Attributes of Th_sg_pol.shp

Shape	Sg_id	Sg_name	Sg_type
Polygon	TH0001	Chonburi1	1
Polygon	TH0002	Chonburi2	2

Available GIS/Maps

Distribution of Estuaries+Coastal Lagoons

Source:	ESRI Digital Chart of the World (DCW)
Original Scale:	1:1,000,000
Year Published:	1993
Format:	polygon
Criteria:	From DNNET and Dnpytype = 1

Distribution of Intertidal Flats

Source:	None

National GIS Tasks for Wetlands Sub-component

- To review the position, extent and name of each DCW estuary/lagoon and make corrections if necessary, especially to conform with the nationally agreed shoreline;
- To add the location and name of intertidal flats into themes;
- To classify (and sub-classify) each wetland into predefined type:

Code	Type
1	Estuary
2	Coastal lagoon
3	Intertidal flat

- To check and make corrections so that each wetland is properly represented as polygon, line (arc), or point, according to the project's arbitrary criteria;
- To give an ID for each wetland in each theme as xxyyyy, where xx = country code and yyyy = number from 0001 to 9999; and,
- If new or replacement data from national sources are added to the GIS, provide original coordinate system of that data according to format given in file "GIS coordinate.doc".

Working GIS Themes

cn_w_pol	cn_w_arc	cn_w_pnt
id_w_pol	id_w_arc	id_w_pnt
kh_w_pol	kh_w_arc	kh_w_pnt
my_w_pol	my_w_arc	my_w_pnt
ph_w_pol	ph_w_arc	ph_w_pnt
th_w_pol	th_w_arc	th_w_pnt
vn_w_pol	vn_w_arc	vn_w_pnt

(Estuary and coastal lagoon data in polygon themes were from DCW)

Supporting Data Themes

~~Shoreline~~

cn_shore_wvs	id_shore_wvs	kh_shore_wvs	my_shore_wvs
ph_shore_wvs	th_shore_wvs	vn_shore_wvs	

River network from DCW

cn_river_dcw	id_river_dcw	kh_river_dcw	my_river_dcw
ph_river_dcw	th_river_dcw	vn_river_dcw	

Attributes of Th_w_pnt.shp

Shape	W_id	W_name	W_type	W_sub_type
Point	TH0001	Prasae	3	Muddy
Point	TH0002	Thale Luang	2	N.A.

Attributes of Th_w_arc.shp

Shape	W_id	W_name	W_type	W_sub_type
PolyLine	TH0001	Bang Pakong Estuary	1	N.A.
PolyLine	TH0002	Mae Klong Estuary	1	N.A.

Attributes of Th_w_pol.shp

Shape	Area	Perimeter	W_id	W_name	W_type	W_sub_type
Polygon	0.000216	0.123696	TH0001	Sai Buri	1	N.A.
Polygon	0.000150	0.130533	TH0002	Thale Noi	2	N.A.

ANNEX 6

Fisheries Component GIS Requirements

AVAILABLE GIS/MAPS

Administrative Unit Boundary

Source: WRI/CIESIN and national GIS for Thailand and Viet Nam

Fishing Ports/Landings

Source: None

Areas of importance in the maintenance of exploited fish stocks

Source: None

NATIONAL GIS TASKS FOR FISHERIES COMPONENT

- To review and correct for the coastal administration units for the reporting of fishery statistic;
- To input the digital position and name of each fishing port/landing as a point based on the nationally agreed shoreline for the reporting of fishery statistic;
- To provide the location (as polygon) of the areas that are important in the maintenance of exploited fish stocks, and for each area provide names for up to 5 fishes/shellfishes (using SEAFDEC Code) which are caught in the area, or that use the area as a spawning ground, nursery ground, or feeding ground;
- To give ID for each port/landing and stock maintenance area as xxyyyy, where xx = country code and yyyy = number from 0001 to 9999; and,
- If new or replacement data from national sources are added to the GIS, provide original coordinate system of that data according to format given in file “GIS coordinate.doc”.

WORKING GIS THEMES

Coastal Administration Unit for Fishery Statistic (polygon)

cn_admin_f	id_admin_f	kh_admin_f	my_admin_f
ph_admin_f	th_admin_f	vn_admin_f	

Fishing Ports/Landings for Fishery Statistic (point)

cn_port	id_port	kh_port	my_port
ph_port	th_port	vn_port	

Areas of importance in the maintenance of exploited fish stocks

cn_spawning	id_spawning	kh_spawning	my_spawning
ph_spawning	th_spawning	vn_spawning	
cn_nursing	id_nursing	kh_nursing	my_nursing
ph_nursing	th_nursing	vn_nursing	
cn_feeding	id_feeding	kh_feeding	my_feeding
ph_feeding	th_feeding	vn_feeding	
cn_fishing	id_fishing	kh_fishing	my_fishing
ph_fishing	th_fishing	vn_fishing	

SUPPORTING DATA THEMES
Shoreline from WVS

cn_shore_wvs	id_shore_wvs	kh_shore_wvs	my_shore_wvs
ph_shore_wvs	th_shore_wvs	vn_shore_wvs	

Attributes of Th_spawning.shp

Shape	Spawni_id	Spawn_area	Species_1	Species_2	Species_3	Species_4	Species_5
Polygon	TH0001	Ao Nang	2401	3301	3304	2501	3308
Polygon	TH0002	Ao Tian	3310	3314	3306	3303	3401

Attributes of Th_admin_f.shp

Shape	Area	Perimeter	Admin_f_id	Adm_f_name	Adm_fishi
Polygon	8614798581.920000	483832.851022	TH0059	Kampaeng Phet	0
Polygon	4265441002.760000	360350.963479	TH0060	Phichit	0
Polygon	9517298591.100000	667274.129946	TH0061	Nakhon Sawan	0
Polygon	6663166970.940000	472918.898696	TH0062	Uthai Thani	0
Polygon	2469662.785150	7960.369905	TH0063	Chumphon	1
Polygon	1502560.546870	5766.343102	TH0063	Chumphon	1

Attributes of Th_port.shp

Shape	Port_id	Port_name
Point	TH0001	Laem Chabang
Point	TH0002	Ang Sila

Attributes of Th_nursing.shp

Shape	Nursi_id	Nursi_area	Species_1	Species_2	Species_3	Species_4	Species_5
Polygon	TH0001	Ao Krung Kra Ben	2401	3101	3308	3314	3405
Polygon	TH0002	Ao Nang	3305	2402	2401	3306	3314

Attributes of Th_fishing.shp

Shape	Fishi_id	Fishi_area	Species_1	Species_2	Species_3	Species_4	Species_5
Polygon	TH0001	Ao Nang	3101	2501	3312	3404	3305
Polygon	TH0002	Ao Phai	2401	2402	3308	3309	3320

Attributes of Th_feeding.shp

Shape	Feedi_id	Feedi_area	Species_1	Species_2	Species_3	Species_4	Species_5
Polygon	TH0001	Ao Nok	3102	3307	2401	3309	2402
Polygon	TH0002	Ao Wai	3401	3317	3308	3103	2501

ANNEX 7

Pollution Component GIS Requirements

AVAILABLE GIS/MAPS

Administrative Unit Boundary

Source: WRI/CIESIN and national GIS for Thailand and Viet Nam

Pollution Monitoring Station

Source: None

NATIONAL GIS TASKS FOR POLLUTION COMPONENT

- To input the digital position and name of each environmental monitoring station as a point based on the nationally agreed shoreline;
- To provide the types of sample collected from each station, as water, sediment or biological;
- To input the digital position and name of each hospital to which any impacts of pollution on human health will most likely be reported, as a point;
- To give an ID for each pollution monitoring station and hospital as xxyyyy, where xx = country code and yyyy = number from 0001 to 9999;
- To check and correct for the coastal administration units for the reporting of the human health impact;
- To check and correct for the administration units along the coastline and upstream in the basins for the reporting pollutant loading;
- To check and correct the catchments/drainage basins for the reporting of pollutant loading, including dissolving subcatchment polygons into main catchment; and,
- If new or replacement data from national sources are added to the GIS, provide original coordinate system of that data according to format given in file “GIS coordinate.doc”.

WORKING GIS THEMES

~~Pollution Monitoring Station (point~~)

cn_poll_st	id_poll_st	kh_poll_st	my_poll_st
ph_poll_st	th_poll_st	vn_poll_st	

~~Administration Unit for Health Impact (polygon)~~

cn_admin_h	id_admin_h	kh_admin_h	my_admin_h
ph_admin_h	th_admin_h	vn_admin_h	

~~Hospital (point)~~

cn_hospital	id_hospital	kh_hospital	my_hospital
ph_hospital	th_hospital	vn_hospital	

~~Administration Unit for Pollutant Loading (polygon)~~

cn_admin_l	id_admin_l	kh_admin_l	my_admin_l
ph_admin_l	th_admin_l	vn_admin_l	

~~Catchments/Drainage Basins~~

cn_basin_start	id_basin_start	kh_basin_start	my_basin_start
ph_basin_start	th_basin_start	vn_basin_start	

SUPPORTING DATA THEMES

WVS shoreline

cn_shore_wvs	id_shore_wvs	kh_shore_wvs	my_shore_wvs
ph_shore_wvs	th_shore_wvs	vn_shore_wvs	

River network from DCW

cn_river_dcw	id_river_dcw	kh_river_dcw	my_river_dcw
ph_river_dcw	th_river_dcw	vn_river_dcw	

Population Density

cn_pop	id_pop	kh_pop	my_pop
ph_pop	th_pop	vn_pop	

Cities

cn_cities	id_cities	kh_cities	my_cities
ph_cities	th_cities	vn_cities	

List of administrative units for Cambodia mapped on the base map for Land-Based Pollution

Koh Kong	Tonle Sap	Kampot
		Pursat

List of administrative units for China mapped on the base map for Land-Based Pollution

New Territories	Dianbai	Sanya shi
Kowloon and New Kowloon	Lianjiang	Raoping
Lufeng	Hepu	Zhao`an
Chenghai	Yangxi	Nan`ao
Chaoyang	Wuchuan	Conghua
Shantou SXQ	Beihai SXQ	Zengcheng
Huiyang	Suixi	Hua xian
Huidong	Zhanjiang: Potou qu	Guangzhou SXQ
Haifeng	Zhanjiang shi CC	Nanhai
Huilai	Haikang	Foshan SXQ
Dongguan shi	Xuwen	Shunde
Panyu	Wenchang	Heshan
Shanwei SXQ	Qiongshan	Jiangmen SXQ
Bao`an	Haikou shi (SXQ) +	
Xinhui	Chengmai	
Zhongshan shi	Lin`gao	
Shenzhen SXQ	Dan xian	
Qinzhou shi	Changjiang Lizu zizhixian	
Taishan	Qionghai	
Zhuhai SXQ	Dongfang Lizu zizhixian	
Doumen	Wanning	
Yangjiang SXQ	Ledong Lizu zizhixian	
Fangcheng Gezu Zizhixian	Lingshui Lizu zizhixian	

List of administrative units for Indonesia mapped on the base map for Land-Based Pollution

Sambas	Indragiri Hilir	Ogan Kemering Ilir
Kampar	Ketapang	Belitung
Riau Kepulauan	Tanjung Jabung	Bengkalis
Pontianak	Bangka	Indragiri Hulu
	Musi Banyuasin	

List of administrative units for Malaysia mapped on the base map for Land-Based Pollution

Sabah	Terengganu	Pahang
Kelantan	Sarawak	Johor

List of administrative units for Philippines mapped on the base map for Land-Based Pollution

Tarlac	Island in Lake Taal	Bulacan
Rizal	Ilocos Norte	Pampanga
Laguna	Ilocos Sur	Bataan
Laguna De Bay	La Union	Manila
Batangas	Pangasinan	Cavite
Lake Taal	Zambales	Occidental Mindoro
		Palawan

List of administrative units for Thailand mapped on the base map for Land-Based Pollution

Chumphon	Chanthaburi	Prachuap Khilikhan
Surat Thani	Rayong	Phatthalung
Nakhon Si Tammarat	Trad	Nakhon Nayok
Songkhla	Bangkok	Pathum Thani
Pattani	Samut Sakhon	Nakhon Pathom
Narathiwat	Samut Prakarn	Nonthaburi
Chachoengsao	Samut Songkham	Ratchaburi
Chonburi	Phetchaburi	

List of administrative units for Vietnam mapped on the base map for Land-Based Pollution

Ha Noi	Quang Binh	Binh Thuan
Hai Phong	Quang Tri	Tien Giang
Hai Hung	Thua Thien-Hue	Dong Thap
Ha Tay	Quang Ngai	An Giang
Quang Ninh	Binh Dinh	Can Tho
Quang Nam-Da Nang	Phu Yen	Kien Giang
Thai Binh	Khanh Hoa	Phu Quoc
Hoa Binh	Tay Ninh	Ben Tre
Nam Ha	Ninh Thuan	Vinh Long
Ninh Binh	Ho Chi Minh City	Soc Trang
Thanh Hoa	Dong Nai	Tra Vinh
Lang Son	Binh Phuoc	Minh Hai
Nghe An	Long An	Vinh Phu
Ha Tinh	Ba Ria - Vung Tau	Thai Nguyen

ANNEX 8

Example Set of Questionnaires for all Components and Sub-components for Indonesia

Indonesia - Data and information needs for the mangrove component

Indonesia - Data and information needs for the coral reef component

Indonesia - Data and information needs for the seagrass component

Indonesia - Data and information needs for the wetland component

Indonesia - Data and information needs for the fishery component

Indonesia - Data and information needs for the land-based pollution component

Indonesia

Data and information needs for the mangrove component

M1 Distribution of mangrove in the South China Sea part of Indonesia

Table M1.1 Available GIS map of mangrove distribution

- Geographic coverage ☐ None ☐ Whole country
☐ Parts of country, Species general locations

(1) .....…… Mapping or survey year ….....…..... Original scale ….....…..

(2) .....…...…….. Mapping or survey year ….....…..... Original scale .....

(3) .....…...…… Mapping or survey year ….....…..... Original scale .....

(4) .....…...…… Mapping or survey year ….....…..... Original scale .....

(5) .....…...…… Mapping or survey year ….....…..... Original scale .....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, Species……... ☐ Ground survey
☐ Nautical chart ☐ Other, ..……

- Estuaries feature represented as ☐ Polygon ☐ Line ☐ Point

☐ Other, ...……

- **Please attach samples of attribute tables for the features**

Table M1.2 Available non GIS map of mangrove distribution

- Format ☐ Paper map, scale ……. ☐ Image file (gif, jpeg, tif, etc.)

☐ Other, ……

- Geographic coverage ☐ None ☐ Whole country
☐ Parts of country, Species general locations

(1) .....…… Mapping or survey year ….....…..... Original scale ……...…..

(2) .....…...…….. Mapping or survey year ….....…..... Original scale .....

(3) .....…...…… Mapping or survey year ….....…..... Original scale .....

(4) .....…...…… Mapping or survey year ….....…..... Original scale .....

(5) .....…...…… Mapping or survey year ….....…..... Original scale .....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, Species…….. ☐ Ground survey
☐ Nautical chart ☐ Other, ..……

- **Please attach samples of map**

Table M1.3 Available non map data for mangrove distribution

- Format

☐ x,y coordinate file ☐ Other, (1).....…… ☐ Other, (2).....

- Geographic coverage ☐ None ☐ Whole country
☐ Parts of country, Species general locations

(1) .....…… Data year ….....….....….....

(2) .....….....…….. Data year….....….....….....

(3) .....….....……. Data year ….....….....….....

(4) .....….....……. Data year ….....….....….....

(5) .....….....……. Data year ….....….....….....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, Species…….. ☐ Ground survey
☐ Nautical chart ☐ Other, ..……

- **Please attach samples of data**

M2. Environmental data of <u>each</u> mangrove in the South China Sea part of Indonesia

Mangrove Name ……

The geographical coordinates (latitude and longitude) of the approximate centre of each mangrove, expressed in degrees and minutes.

Latitude…… Longitude……..

(Please reproduce this table M2 for more mangrove site)

Table M2.1	**Category**	**Unit**	**Data**	**Remark***
<u>Physical Environment</u> (Present status)				
1. Average soil texture	Sand	%		
	Silt	%		
	Clay	%		
2. Average cross sectional slope		degree		
3. Present (Year 2000) area		hectare		
4. Average rate of change over the last decade in area cover		hectare/year		

* Add more papers if space provided is not enough

Table M2.2	**Category**	**Unit**	**Data**	**Remark***
<u>Vegetation</u> (Present status)				
1. Number of zone (by dominant species)		number		Specify:
2. Total number of tree species		number		
3. Average height (all species)		m		
4. Average height of dominant species (by species)	Species (1) ……...…… ……	m		
	Species (2)…… ……	m		
	Species (3)…… ……	m		
5. Average girth (all species)		cm		
6. Average girth of dominant species (by species)	Species (1) ……...…… ……	cm		
	Species (2)…… ……	cm		
	Species (3)…… ……	cm		
7. Tree density (all species)		number/ hectare		
8. Density of dominant tree species (by species)	Species (1) ……...…… ……	number/ hectare		
	Species (2)…… ……	number/ hectare		
	Species (3)…… ……	number/ hectare		
9. Present (year 2000) vegetation canopy cover (all species)		%		
10. Present (year 2000) vegetation canopy cover (by species)	Species (1) ……...…… ……	%		
	Species (2)…… ……	%		
	Species (3)……	%		

* Add more papers if space provided is not enough

Table M2.3	Category	Unit	Data	Remark*
Other organism				
1. Number of phytoplanktons genera&species		number& number		
2. Density of phytoplanktons		number/ m^3		
3 Number of zooplanktons genera&species		number& number		
4. Density of zooplanktons		number/ m^3		
5. Number of macrobenthos genera&species		number& number		
6. Density of macrobenthos		number/ m^2		
7. Number of crustacea genera&species		number& number		
8. Density of crustacea		number/ m^2		
9. Number of bivalve genera&species		number& number		
10. Density of bivalve		number/ m^2		
11. Number of gastropods genera&species		number& number		
12. Density of gastropods		number/ m^2		
13. Number of polychaete genera&species		number& number		
14. Density of polychaete		number/ m^2		
15. Number of resident fish genera&species		number& number		
16. Abundance of resident fish		ton		
17. Number of transient fish genera&species		number& number		
18. Abundance of transient fish		ton		
19. Number of resident reptiles/ amphibient genera&species		number& number		
20. Density of resident reptiles/amphibient		number/ hectare		
21. Number of resident birds species		number& number		
22. Abundance of resident birds		number		
23. Number of migratory birds species		number& number		

* Add more papers if space provided is not enough

Table M2.4	**Category**	**Unit**	**Data**	**Remark***
24. Abundance of migratory birds (at peak)		number		
25. Number of resident mammal species		number& number		
26. Abundance of resident mammals		number		

* Add more papers if space provided is not enough

Table M2.5	Category	Unit	Data	Remark*
Uses and services valuation (approximate year 2000)				
1. Landuse type and area	Aquaculture	hectare		
	Agriculture	hectare		
	Urbanization	hectare		
	Other (1)…….....	hectare		
	Other (2)…….....	hectare		
2. Values of direct use	Timber	IDR/year		
	Charcoal	IDR/year		
	Living marine resource	IDR/year		
	Other (1)…….....	IDR/year		
	Other (2)…….....	IDR/year		
3. Values of indirect use	Carbon sequestration	IDR/year		
	Ecotourism	IDR/year		
	Nursery areas for shrimps	IDR/year		
	Other (1)…….....	IDR/year		
	Other (2)…….....	IDR/year		

* Add more papers if space provided is not enough

Table M2.6	**Category**	**Unit**	**Data**	**Remark***
4. Values from environmental services	Coastal protection	IDR/year		
	Sediment stabilisation	IDR/year		
	Water quality enhancement	IDR/year		
	Contaminant sink	IDR/year		
	Reduction of wave energy& erosion	IDR/year		
	Other (1)…….....	IDR/year		
	Other (2)…….....	IDR/year		
5. Average investment value	Restoration	IDR/year		
	Replanting	IDR/year		
	Other (1)…….....	IDR/year		
	Other (2)…….....	IDR/year		
6. Average value of potential or sustainable use		IDR/year		
7. Total economic value		IDR/year		

* Add more papers if space provided is not enough

Table M2.7

	Category	Unit	Data	Remark*
Management				
1. Proportion of natural versus managed area		ratio		
2. Ownership	Federal		☐ Yes	
	State		☐ Yes	
	Community		☐ Yes	
	Private		☐ Yes	
	Other (1)…………................... Other (2)…………...................			
3. Management regime	Landuse planning		☐ Yes	
	Institutional framework		☐ Yes	
	Stakeholder co-ordination		☐ Yes	
	Forestry practices		☐ Yes	
	Restoration replanting		☐ Yes	
	Stakeholder investment		☐ Yes	
	Fishery practices		☐ Yes	
	Other (1)…………...................			
	Other (2)…………...................			

* Add more papers if space provided is not enough

Table M2.8	**Category**	**Unit**	**Data**	**Remark***
4. Existing management plans (provide short detail)	- Long-term		☐ Yes	Detail:
	- Medium-term		☐ Yes	Detail:
	- Short-term		☐ Yes	Detail:
5. Existing international recognition	Ramsar site	Established year		
	World heritage site	Established year		
	Other (1)…….....	Established year		
	Other (2)…….....	Established year		
6. Commitment with international agreements/ issues			☐ Yes	Specify:
7. Existing national recognition (IUCN Category) www.iucn.org/themes/marine/pdf/mpaguid.pdf	- Strict nature reserve	Established year		
	- Wilderness area	Established year		
	- National park	Established year		
	- Natural monument	Established year		
	- Habitat/Species management area	Established year		
	- Protected landscape/Sea scape	Established year		
	- Managed resource protected area	Established year		
	Other (1)…….....	Established year		
	Other (2)…….....	Established year		

* Add more papers if space provided is not enough

Table M2.9

	Category	Unit	Data	Remark*
Stress/pressure information				
1. Intrinsic/internal sources of change	Resident human population	number		
	Average of typhoon frequency	number/year		
	Change in allocthonous sediment inputs over last decade	%/decade	☐ +> 100% ☐ +50 to 100% ☐ +10 to 49% ☐ -10 to +10% ☐ -50 to -10 % ☐ ->50%	
	Average marine based flooding frequency	number/year		
2. Extrinsic/external sources of change	Dam constructions in the catchment	number		
	Water diversion projects in the catchment	number		
	Other (1)…….....	number		
	Other (2)…….....	number		
	Other (3)…….....	number		
3. Social and economic drivers of change in environmental state over last decade	Population growth	%/year		
	Immigration	%/year		
	Average GDP growth	%/year		

* Add more papers if space provided is not enough

Indonesia

Data and information needs for the coral reef component

C1 Distribution of coral reef in the South China Sea part of Indonesia

Table C1.1 Available GIS map for coral reef distribution

- Geographic coverage ☐ None ☐ Whole country
☐ Parts of country, specify general locations

(1) .....…… Mapping or survey year ….....…..... Original scale …...…..

(2) .....…...…….. Mapping or survey year ….....…..... Original scale .....

(3) .....…...……. Mapping or survey year ….....…..... Original scale .....

(4) .....…...……. Mapping or survey year ….....…..... Original scale .....

(5) .....…...……. Mapping or survey year ….....…..... Original scale .....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, specify…….. ☐ Ground survey
☐ Nautical chart ☐ Other, ..……

- Estuaries feature represented as ☐ Polygon ☐ Line ☐ Point

☐ Other, ...……

- **Please attach samples of attribute tables for the features**

Table C1.2 Available non GIS map for coral reef distribution

- Format ☐ Paper map, scale ……. ☐ Image file (gif, jpeg, tif, etc.)

☐ Other, ……

- Geographic coverage ☐ None ☐ Whole country
☐ Parts of country, specify general locations

(1) .....…… Mapping or survey year ….....…..... Original scale ….....…..

(2) .....….....…….. Mapping or survey year ….....…..... Original scale .....

(3) .....….....……. Mapping or survey year ….....…..... Original scale .....

(4) .....….....……. Mapping or survey year ….....…..... Original scale .....

(5) .....….....……. Mapping or survey year ….....…..... Original scale .....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, specify…….. ☐ Ground survey
☐ Nautical chart ☐ Other, ..……

- **Please attach samples of map**

Table C1.3 Available non map data for coral reef distribution

- Format

☐ x,y coordinate file ☐ Other, (1).....…… ☐ Other, (2).....

- Geographic coverage ☐ None ☐ Whole country
☐ Parts of country, specify general locations

(1) .....…… Data year ….....….....….....

(2) .....…...…….. Data year ….....….....….....

(3) .....…...……. Data year ….....….....….....

(4) .....…...……. Data year ….....….....….....

(5) .....…...……. Data year ….....….....….....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, specify…….. ☐ Ground survey
☐ Nautical chart ☐ Other, ..……

- **Please attach samples of data**

C2 Environmental data of each coral reefs in the South China Sea part of Indonesia

Coral reef site name…….

The geographical coordinates (latitude and longitude) of the approximate centre of the coral reef site, expressed in degrees and minutes.

Latitude…… Longitude…….

Table C2.1	**Category**	**Unit**	**Data**	**Remark***
Physical environment				
1. Reef type	Fringing (mainland & island)		☐ Yes	
	Barrier		☐ Yes	
	Atoll		☐ Yes	
	Patch		☐ Yes	
	Other (1)……..……...			
	Other (2)……..……...			
2. Depth Range	☐ Mean	m		
	☐ Maximun	m		
	☐ Minimum	m		
3. Average cross sectional slope		degree		
4. Present (Year 2000) area		hectare		
5. Average Rate of change over the last decade in area cover		hectare /year		

* Add more papers if space provided is not enough

Table C2.2	Category	Unit	Data	Remark*
Present environmental state				
1. Coral				
1.1 Number of coral zone (by dominant species)		number		
1.2 Number of hard coral genera/species		number /number		
1.3 Number of soft coral genera/species		number		
1.4 Hard coral diversity index		number		
1.5 Soft coral diversity index		number		
1.6 Live coral cover (all species)		percent		
1.7 Change live coral cover area over last decade (all species)		percent/decade (+/-)		
2. Algae				
2.1 Number of algae genera/species		number /number		
2.2 Present algae cover		percent		
2.4 Change algae cover area over last decade		percent/decade (+/-)		
3. Molluscs				
3.1 Number of molluscs genera/species		number /number		
3.3 Molluscs density		number/m^2		

* Add more papers if space provided is not enough

Table C2.3	Category	Unit	Data	Remark*
4. Crustacean				
4.1 Number of crustacean genera/species		number /number		
4.2 Crustacean density		number /m^2		
5. Echinoderm				
5.1 Number of echinoderm genera/species		number /number		
5.2 Echinoderm density		number/m^2		
6. Polychaete				
6.1 Number of polychaete genera/species		number /number		
6.2 Polychaete density		number/m^2		
7. Coral reef fish				
7.1 Number of coral reef fish genera/species		number /number		
7.3 Coral reef fish density		number/ha		
8. Transient fish				
8.1 Number of transient fish genera/species		number /number		
8.3 Transiesnt fish density		number/ha		

* Add more papers if space provided is not enough

Table C2.4	Category	Unit	Data	Remark*
9. Mammal				
9.1 Number of mammal species		number		
9.3 Mammal density		number/ha		
10. Larvae				
10.1 Number of larvae genera/species		number /number		
10.3 Larvae density		number/m^3		
11. Exploitation				
11.1 Major exploited species and level of exploitation	- Species (1) …….…..	kg./year		
	- Species (2) ……...	kg./year		
	- Species (3) ……....	kg./year		
12 Ecosystem interaction				
12.1 No. of other ecosystems interact with this coral reef		number		Specify:

* Add more papers if space provided is not enough

Table C2.5	Category	Unit	Data	Remark*
Regional and/or global significance				
Number of endemic species		number		Specify:
Number of indigenous species		number		Specify:
Number of rare species		number		Specify:
Number of endangered and threatened species (IUCN Red List Categories)	- Critically Endangered (CR)	number		Specify:
	- Endangered (EN)	number		Specify:
	- Vulnerable (VU)	number		Specify:
Existing international recognition	Ramsar site	Established year		
	World heritage site	Established year		
	Other (1)……	Established year		
	Other (2)……	Established year		

* Add more papers if space provided is not enough

Table C2.6	Category	Unit	Data	Remark*
National significance				
Existing management plans (provide short detail)	- Long-term		☐ Yes	Detail:
	- Medium-term		☐ Yes	Detail:
	- Short-term		☐ Yes	Detail:
Existing status (IUCN Category) www.iucn.org/themes/marine/pdf/mpaguid.pdf	- Strict nature reserve	Established year		
	- Wilderness area	Established year		
	- National park	Established year		
	- Natural monument	Established year		
	- Habitat/Species management area	Established year		
	- Protected landscape/Sea scape	Established year		
	- Managed resource protected area	Established year		
Management or reservation activities on site			☐ Yes	Identify:
Existing level and quality of site management			☐ High ☐ Medium ☐ Low	
Existing support to institutional management			☐ High ☐ Medium ☐ Low	
Long-term sustainability including prospects for revenue generation (identify activities)			☐ Yes	Identify:
Potential aspects that can be developed wisely in the site (identify activities)			☐ Yes	Specify:
Average level of direct stakeholder involvement in management			☐ High ☐ Medium ☐ Low	
Long term environmental perspective			☐ High ☐ Medium ☐ Low	

* Add more papers if space provided is not enough

Table C2.7	Category	Unit	Data	Remark*
Threats to this area				
1. Present threats				
1.1 Destructive harvestation	Bombing	number/year	☐ 1-10 ☐ 11-50 ☐ >50 ☐ None	
	Poisoning	number/year	☐ 1-10 ☐ 11-50 ☐ >50 ☐ None	
	Bottom trawl		☐ Yes	
	Plant/animal removal		☐ Yes	
	Other (1)…….....			
	Other (2)…….....			
1.2 Pollution	Sediment		☐ Yes	
	Oil		☐ Yes	
	Heavy metals		☐ Yes	
	Organic pollutants		☐ Yes	
	Eutrophication		☐ Yes	
	Salinity change		☐ Yes	
	Thermal		☐ Yes	
	Pesticides		☐ Yes	
	Other (1)…….....			
	Other (2)…….....			
1.3 Coastal development	Dredging		☐ High ☐ Medium ☐ Low ☐ None	
	Tourism		☐ High ☐ Medium ☐ Low ☐ None	
	Other (1)…….....			
	Other (2)…….....			

*: Add ... if ... provide ... remark

Table C2.8	**Category**	**Unit**	**Data**	**Remark***
1.4 Natural disaster	Storm		☐ High ☐ Medium ☐ Low ☐ None	
	Volcano		☐ High ☐ Medium ☐ Low ☐ None	
	Land subsidance		☐ High ☐ Medium ☐ Low ☐ None	
	Sea level rise		☐ High ☐ Medium ☐ Low ☐ None	
	Case of bleaching of coral over last decade		☐ High ☐ Medium ☐ Low ☐ None	
	Other (1)…….....			
	Other (2)…….....			
1.5 Other	Starfish Crown of Thorn	number/m^2		
	Bleaching event	Number/decade		

* Add more papers if space provided is not enough

Table C2.9	Category	Unit	Data	Remark*
2. Future threats				
	Development plan			
	Distance to the coral reef area	km^2		
Stress-pressure information				
Social and economic drivers of change in environmental state	Population growth	Percent/year		
	Resident human population	Number		
	Immigration	Percent/year		
	Average GDP growth during the last decade	Percent/year		

* Add more papers if space provided is not enough

Table C2.10	Category	Unit	Data	Remark*
Management				
Ownership	Federal		☐ Yes	
	State		☐ Yes	
	Community		☐ Yes	
	Private		☐ Yes	
	Common property		☐ Yes	
	Other (1)…….....			
	Other (2)…….....			
Management regime	Landuse planning		☐ Yes	
	Coastal zoning		☐ Yes	
	Institutional framework		☐ Yes	
	Stakeholder co-ordination		☐ Yes	
	Restoration		☐ Yes	
	Stakeholder investment		☐ Yes	
	Fishery practices		☐ Yes	
	Other (1)…….....			
	Other (2)…….....			

* Add more papers if space provided is not enough

Table C2.11	**Category**	**Unit**	**Data**	**Remark***
Current use	Commercial			
	Subsistance			
	Fishing ground			
	Tourism			
	MPA			
	Other (1)……..			
	Other (2)……..			
Tradition use	 (1)……..			
	 (2)……..			
	 (3)……..			
Potential use	Tourism			
	MPA			
	Other (1)……..			
	Other (2)……..			

* Add more papers if space provided is not enough

Table C2.12	**Category**	**Unit**	**Data**	**Remark***
Uses and services				
Extractive use (year 2000)	Reef related fish landing	IDR/year		
	Subsistence fishery	IDR/year		
	Other (1)…….	IDR/year		
	Other (2)…….	IDR/year		
Non extractive use -Tourism (year 2000)	Number of visitors	number/year		
	Number of people involved in industry	number		
	Number of chalets/hotels operators	number		
	Number of ferry/boasts operators	number		
	Number of guide/agents	number		
	Other (1)…….			
	Other (2)…….			
Other non extractive use (year 2000)	Specify (1)……			
	Specify (2)……			
Environmental services	Coastal protection	IDR/year		
	Sediment stabilisation	IDR/year		
	Water quality enhancement	IDR/year		
	Contaminant sink	IDR/year		
	Reduction of wave energy& erosion,	IDR/year		
	Other (1)…….	IDR/year		
	Other (2)…….	IDR/year		

* Add more papers if space provided is not enough

Indonesia

Data and information needs for the seagrass component

S1 Distribution of estuaries in the South China Sea part of Indonesia

Table S1.1 Available GIS map of seagrass distribution

- Geographic coverage ☐ None ☐ Whole country
☐ Parts of country, specify general locations

(1) .....…… Mapping or survey year ….....….....Original scale ….....

(2) .....….....…….. Mapping or survey year ….....….....Original scale ….....

(3) .....….....……. Mapping or survey year ….....….....Original scale ….....

(4) .....….....……. Mapping or survey year ….....….....Original scale ….....

(5) .....….....……. Mapping or survey year ….....….....Original scale ….....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, specify…….. ☐ Ground survey
☐ Nautical chart ☐ Other.....……

- Estuaries feature represented as ☐ Polygon ☐ Line ☐ Point

☐ Other .....……

- **Please attach samples of attribute tables for the features**

Table S1.2 Available non GIS map of seagrass distribution

- Format ☐ Paper map, scale …….. ☐ Image file (gif, jpeg, tif, etc.)

☐ Other……...……..

- Geographic Coverage ☐ None ☐ Whole country
☐ Parts of country, specify general locations

(1) .....…… Mapping or survey year ….....….....Original scale ….....

(2) .....….....…….. Mapping or survey year ….....….....Original scale ….....

(3) .....….....……. Mapping or survey year ….....….....Original scale ….....

(4) .....….....……. Mapping or survey year ….....….....Original scale ….....

(5) .....….....……. Mapping or survey year ….....….....Original scale ….....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, specify…….. ☐ Ground survey
☐ Nautical Chart ☐ Other.....……

- **Please attach samples of map**

Table S1.3 Available non map data of seagrass distribution

- Format :

☐ x,y coordinate file ☐ Other, (1).....…… ☐ Other, (2).....

- Geographic Coverage ☐ None ☐ Whole country
☐ Parts of country, specify general locations

(1) .....…… Data year ….....….....….....

(2) .....….....…….. Data year ….....….....….....

(3) .....….....……. Data year ….....….....….....

(4) .....….....……. Data year ….....….....….....

(5) .....….....……. Data year ….....….....….....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, specify…….. ☐ Ground survey
☐ Nautical Chart ☐ Other.....……

- Please attach samples of data

S2 Environmental data of each seagrasss in the South China Sea part of Indonesia

**** Limited to seagrass bed larger than 1 hectare***

Seagrass site name……..……
The geographical coordinates (latitude and longitude) of the approximate centre of the seagrass site, expressed in degrees and minutes.

Latitude…… Longitude…….

Table S2.1	**Category**	**Unit**	**Data**	**Remark***
1. Topography				
1. Substrate				
- Mean particle size		micron		
2. Class of seagrass	- Sandy coralline (exposed)		Yes	
	- Muddy (non-exposed)		Yes	
	- Transition (mixed; sandy-muddy)		Yes	
3. Depth Range	Mean	m		
	Maximum	m		
	Minimum	m		
4. Present (year 2000) area		hectare		

* Add more papers if space provided is not enough

Table S2.2	Category	Unit	Data	Remark*
2. Present environmental state				
1. Seagrass				
- Number of seagrass species		number		
- Dominant seagrass density	Species 1 ……..…….	g/m^2		
	Species 2 ……	g/m^2		
	Species 3 ……	g/m^2		
- Seagrass productivity		$mg/m^2/d$		
2. Penaeids				
- Number of penaeids genera/species		number/ number		
- Penaeids density		$number/m^2$		
3. Gastropods				
- Number of gastropods genera/species		number/ number		
- Gastropods density		$number/m^2$		
4. Seahorses				
- Number of seahorses genera/species		number/ number		
- Seahorses density		$number/m^2$		
5. Urchins				
- Number of urchins genera/species		number/ number		
- Urchins density		$number/m^2$		
6. Siganids				
- Number of siganids genera/species		number/ number		
- Siganids density		$number/m^2$		

* Add more papers if space provided is not enough

Table S2.3	Category	Unit	Data	Remark*
7. Holothurians				
- Number of holothurians genera/species		number/ number		
- Holothurians density		number/m^2		
8. Starfish				
- Number of starfish genera/species		number/ number		
- Starfish density		number/m^2		
9. Number of endemic species		number		Specify:
10. Number of indigenous species		number		Specify:
11. Number of rare species		number		Specify:
12. Number of endangered and threatened species (IUCN Red List Categories)	- Critically Endangered (CR)	number		Specify:
	- Endangered (EN)	number		Specify:
	- Vulnerable (VU)	number		Specify:
13. Number of Migratory species		number		Specify:
14. Ecological Diversity				
- Number of other ecosystems interact with this seagrass bed		number		Specify:

* Add more papers if space provided is not enough

Table S2.4	Category	Unit	Data	Remark*
3. Present threats				
1. Salinity fluctuation	Distance to freshwater inflow	km		
	Extreme lowest salinity	ppt		
	Extreme highest salinity	ppt		
2. Water quality	Heavy metals	mg/l		Specify:
	POPs	mg/l		Specify:
	Nutrients	mg/l		Specify:
	Algal blooms	events/year		
3. Suspended sediment from dredging and reclamation	Sediment traping rate	$g/m^2/d$		
	Secchi disk depth	m		
4. Fishing damage	Damaged shoot	$shoots/m^2$		
	Damaged biomass	g/m^2		
	Damaged area	m^2		
5. Over fishing	Declining in CPUE over last decade	%/decade		
6. Trampling and gleaning	Damaged seagrass	$shoots/m^2$		
	Gleaned organisms	$number/m^2$		

* Add more papers if space provided is not enough

Table S2.5	Category	Unit	Data	Remark*
4. Management status				
1. Existing status (IUCN Category) www.iucn.org/themes/marine/pdf/mpaguid.pdf	- Strict nature reserve	Established year		
	- Wilderness area	Established year		
	- National park	Established year		
	- Natural monument	Established year		
	- Habitat/Species management area	Established year		
	- Protected landscape/sea scape	Established year		
	- Managed resource protected area	Established year		
	Other (1)……..…	Established year		
	Other (2)……..…	Established year		

* Add more papers if space provided is not enough

Indonesia

Data and information needs for the wetland component

I. Estuary

WE1 Distribution of estuaries in the South China Sea part of the country

Table WE1.1 Available GIS map of estuaries distribution

- Geographic coverage ☐ None ☐ Whole country
☐ Parts of country, specify general locations

(1) .....…… Mapping or survey year ….....….....Original scale ….....

(2) .....…...…….. Mapping or survey year ….....….....Original scale ….....

(3) .....…...……. Mapping or survey year ….....….....Original scale ….....

(4) .....…...……. Mapping or survey year ….....….....Original scale ….....

(5) .....…...……. Mapping or survey year ….....….....Original scale ….....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, specify…….. ☐ Ground survey
☐ Nautical chart ☐ Other, ...……

- Estuaries feature represented as ☐ Polygon ☐ Line ☐ Point

☐ Other, ...……

- **Please attach samples of attribute tables for the features**

Table WE1.2 Available non GIS map of estuaries distribution

- Format ☐ Paper map, scale ……. ☐ Image file (gif, jpeg, tif, etc.)

☐ Other, ……

- Geographic Coverage ☐ None ☐ Whole country

☐ Parts of country, specify general locations

(1) .....…… Mapping or survey year ….....….....Original scale ….....

(2) .....…...…….. Mapping or survey year ….....….....Original scale ….....

(3) .....…...……. Mapping or survey year ….....….....Original scale ….....

(4) .....…...……. Mapping or survey year ….....….....Original scale ….....

(5) .....…...……. Mapping or survey year….....….....Original scale ….....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, specify…….. ☐ Ground survey

☐ Nautical Chart ☐ Other, ...……

- **Please attach samples of map**

Table WE1.3 Available non map data of estuaries distribution

- Format :

☐ x,y coordinate file ☐ Other, (1).....…… ☐ Other, (2).....

- Geographic Coverage ☐ None ☐ Whole country
☐ Parts of country, specify general locations

(1) .....…… Data year ….....….....….....

(2) .....…...…….. Data year ….....….....….....

(3) .....…...……. Data year ….....….....….....

(4) .....…...……. Data year ….....….....….....

(5) .....…...……. Data year ….....….....….....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, specify…….. ☐ Ground survey
☐ Nautical Chart ☐ Other, ...……

- Please attach samples of data

WE2 Environmental data for <u>each</u> estuary in the South China Sea part of the country

Estuary name ……

The geographical coordinates (latitude and longitude) of the approximate center of the estuary, expressed in degrees and minutes.

Latitude…… Longitude…….

Table WE2.1	**Category**	**Unit**	**Data**	**Remark***
<u>1. Biological diversity</u>				
1.1 Species diversity				
- Number of species of plants		Number		
- Density of plants (all species)		Number/ha		
- Number of species of:	Phytoplantons	Number		
	Zooplantons	Number		
	Macrobenthos	Number		
	Resident fishes	Number		
	Transient fishes	Number		
	Resident mammals	Number		
	Resident birds	Number		
	Migratory birds	Number		
1.2 Ecosystem diversity				
- Number of types of adjacent aquatic habitats/ecosystems	-	Number		Specify:

* Add more papers if space provided is not enough

Table WE2.2	Category	Unit	Data	Remark*
2. significance				
2.1 Number of species that spawn in this estuary		Number	☐ None ☐ 1-10 ☐ 11-50 ☐ > 50	
2.2 Number of species that feed or roost in this estuary		Number	☐ None ☐ 1-10 ☐ 11-50 ☐ > 50	
2.3 Number of species that migrate through/to this estuary		Number	☐ None ☐ 1-10 ☐ 11-50 ☐ > 50	
2.4 Number of people that visit in this estuary for	Tourism	Number/ year	☐ None ☐ 1-1,000 ☐ 1,001-10,000 ☐ > 10,000	
	Fishing	Number/ year	☐ None ☐ 1-1,000 ☐ 1,001-10,000 ☐ > 10,000	
	Other (1)……	Number	☐ None ☐ 1-1,000 ☐ 1,001-10,000 ☐ > 10,000	
	Other (2)……	Number	☐ None ☐ 1-1,000 ☐ 1,001-10,000 ☐ > 10,000	
2.5 Top 3 international goods that produced in this estuary	Type (1)…….			
	Volume per year			
	Value per year			
	Major destination			
	Type (2)…….			
	Volume			
	Value per year			
	Major destination			
	Type (3)…….			
	Volume			
	Value per year			
	Major destination			

* Add more papers if space provided is not enough

Table WE2.3

Category	Unit	Data	Remark*
3. Regional and/or global 3. significance			
3.1 Number of endemic species	Number		
3.2 Number of indigenous species	Number		
3.3 Number of rare species	Number		
3.4 Number of endangered and threatened species (IUCN Red List Categories) - Critically Endangered (CR)	Number		
3.4 Number of endangered and threatened species (IUCN Red List Categories) - Endangered (EN)	Number		
3.4 Number of endangered and threatened species (IUCN Red List Categories) - Vulnerable (VU)	Number		
3.5 Existing international recognition - Ramsar site	Established year		
3.5 Existing international recognition - World heritage site	Established year		
3.5 Existing international recognition - Other (1)……	Established year		
3.5 Existing international recognition - Other (2)……	Established year		

* Add more papers if space provided is not enough

Table WE2.4	Category	Unit	Data	Remark*
4. National significance				
4.1 Existing management plans (provide short detail)	- Long-term		☐ Yes	Detail:
	- Medium-term		☐ Yes	Detail:
	- Short-term		☐ Yes	Detail:
4.2 Commitment with international agreements/ issues			☐ Yes	Specify:
4.3 Existing status (IUCN Category) www.iucn.org/themes/marine/pdf/mpaguid.pdf	- Strict nature reserve	Established year		
	- Wilderness area	Established year		
	- National park	Established year		
	- Natural monument	Established year		
	- Habitat/Species management area	Established year		
	- Protected landscape/sea scape	Established year		
	- Managed resource protected area	Established year		
	Other (1)……	Established year		
	Other (2)……	Established year		
4.4 Management or reservation activities on site			☐ Yes	Identify:
4.5 Existing level and quality of site management			☐ High ☐ Medium ☐ Low	
4.6 Existing support to institutional management			☐ High ☐ Medium ☐ Low	
4.7 Average level of direct stakeholder involvement in management			☐ High ☐ Medium ☐ Low	

* Add more papers if space provided is not enough

Table WE2.5	Category	Unit	Data	Remark*
5. Extent of threats				
5.1 Intrinsic/internal sources of change	- Existing resident human population	Number		
	- Frequency of typhoon	Number/ year		
	- Change in allocthonous sediment inputs		☐ High ☐ Medium ☐ Low	
	- Marine based flooding	Number/ year		
	Other (1)……	……		
	Other (2)……	……		
5.2 Extrinsic/external sources of change	- Dam construction		☐ High ☐ Medium ☐ Low	
	- Water diversion		☐ High ☐ Medium ☐ Low	
	- Other changes in catchment basin		☐ High ☐ Medium ☐ Low	Specify:
	Other (1)……	……		
	Other (2)……	……		
5.3 Socio-economic drivers of change in environmental state	- Population growth	% /year		
	- Migration	% /year (+/-)		
	- GDP Development		☐ High ☐ Medium ☐ Low	
	Other (1)……	……		
	Other (2)……	……		
5.4 Rate of change in the estuarine area over the past decade		% /decade (+/-)		

* Add more papers if space provided is not enough

Table WE2.6	Category	Unit	Data	Remark*
6. Financial and practical considerations				
6.1 Average investments for existing management or reservation activities		IDR/year		
6.2 Trend of investment for management in the future			☐ Increase ☐ Decrease ☐ Stable	
6.3 Average level of local revenue generation over the past decade		IDR/year		
6.4 Level of stakeholder support		IDR/year		
6.5 Potential for external investment			☐ High ☐ Medium ☐ Low	
6.6 Estimated revenue if estuary is sustainably managed		IDR/year		
6.7 Long-term sustainability including prospects for revenue generation			☐ Yes	Identify:
6.8 Potential aspects that can be developed wisely in the site			☐ Yes	Identify:
6.9 Long term environmental perspective			☐ High ☐ Medium ☐ Low	

* Add more papers if space provided is not enough

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Data and information needs for the wetland component

II. Intertidal flat

WTF1 Distribution of intertidal flat in the South China Sea part of the country

Table WTF1.1 Available GIS map of intertidal flat distribution

- Geographic coverage ☐ None ☐ Whole country
☐ Parts of country, specify general locations

(1) .....…… Mapping or survey year ….....….....Original scale ….....

(2) .....…...…….. Mapping or survey year ….....….....Original scale ….....

(3) .....…...……. Mapping or survey year ….....….....Original scale ….....

(4) .....…...……. Mapping or survey year ….....….....Original scale ….....

(5) .....…...……. Mapping or survey year ….....….....Original scale ….....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, specify…….. ☐ Ground survey
☐ Nautical chart ☐ Other, ...……

- Intertidal flat feature represented ☐ Polygon ☐ Line ☐ Point

☐ Other, ...……

- **Please attach samples of attribute tables for the features**

Table WTF1.2 Available non GIS map of intertidal flat distribution

- Format ☐ Paper map, scale ……. ☐ Image file (gif, jpeg, tif, etc.)

☐ Other, ……

- Geographic Coverage ☐ None ☐ Whole country

☐ Parts of country, specify general locations

(1) .....…… Mapping or survey year ….....….....Original scale ….....

(2) .....…...…….. Mapping or survey year ….....….....Original scale ….....

(3) .....…...……. Mapping or survey year ….....….....Original scale ….....

(4) .....…...……. Mapping or survey year ….....….....Original scale ….....

(5) .....…...……. Mapping or survey year….....….....Original scale ….....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, specify…….. ☐ Ground survey

☐ Nautical Chart ☐ Other, ...……

- **Please attach samples of map**

Table WTF1.3 Available non map data of intertidal flat distribution

- Format :

☐ x,y coordinate file ☐ Other, (1).....…… ☐ Other, (2).....

- Geographic Coverage ☐ None ☐ Whole country
☐ Parts of country, specify general locations

(1) .....…… Data year ….....….....….....

(2) .....…...…….. Data year ….....….....….....

(3) .....…...……. Data year ….....….....….....

(4) .....…...……. Data year ….....….....….....

(5) .....…...……. Data year ….....….....….....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, specify…….. ☐ Ground survey
☐ Nautical Chart ☐ Other, ...……

- Please attach samples of data

WTF2 Environmental data for <u>each</u> intertidal flat in the South China Sea part of the country

Intertidal flat name ……

The geographical coordinates (latitude and longitude) of the approximate center of the intertidal flat, expressed in degrees and minutes.

Latitude…… Longitude…….…….

Table WTF2.1	Category	Unit	Data	Remark*
1. Biological diversity				
1.1 Species diversity				
- Number of species of plants		Number		
- Density of plants (all species)		Number/ha		
- Number of species of:	Phytoplantons	Number		
	Zooplantons	Number		
	Macrobenthos	Number		
	Resident fishes	Number		
	Transient fishes	Number		
	Resident mammals	Number		
	Resident birds	Number		
	Migratory birds	Number		
1.2 Ecosystem diversity				
- Number of types of adjacent aquatic habitats/ecosystems	-	Number		Specify:

* Add more papers if space provided is not enough

Table WTF2.2	Category	Unit	Data	Remark*
2. significance				
2.1 Number of species that spawn in this intertidal flat		Number	☐ None ☐ 1-10 ☐ 11-50 ☐ > 50	
2.2 Number of species that feed or roost in this intertidal flat		Number	☐ None ☐ 1-10 ☐ 11-50 ☐ > 50	
2.3 Number of species that migrate through/to this intertidal flat		Number	☐ None ☐ 1-10 ☐ 11-50 ☐ > 50	
2.4 Number of people that visit in this intertidal flat for	Tourism	Number/ year	☐ None ☐ 1-1,000 ☐ 1,001-10,000 ☐ > 10,000	
	Fishing	Number/ year	☐ None ☐ 1-1,000 ☐ 1,001-10,000 ☐ > 10,000	
	Other (1)……	Number	☐ None ☐ 1-1,000 ☐ 1,001-10,000 ☐ > 10,000	
	Other (2)……	Number	☐ None ☐ 1-1,000 ☐ 1,001-10,000 ☐ > 10,000	
2.5 Top 3 international goods that produced in this intertidal flat	Type (1)…….			
	Volume per year			
	Value per year			
	Major destination			
	Type (2)…….			
	Volume			
	Value per year			
	Major destination			
	Type (3)…….			
	Volume			
	Value per year			
	Major destination			

* Add more papers if space provided is not enough

Table WTF2.3	Category	Unit	Data	Remark*
3. Regional and/or global 3. significance				
3.1 Number of endemic species		Number		
3.2 Number of indigenous species		Number		
3.3 Number of rare species		Number		
3.4 Number of endangered and threatened species (IUCN Red List Categories)	- Critically Endangered (CR)	Number		
	- Endangered (EN)	Number		
	- Vulnerable (VU)	Number		
3.5 Existing international recognition	Ramsar site	Established year		
	World heritage site	Established year		
	Other (1)……	Established year		
	Other (2)……	Established year		

* Add more papers if space provided is not enough

Table WTF2.4	Category	Unit	Data	Remark*
4. National significance				
4.1 Existing management plans (provide short detail)	- Long-term		☐ Yes	Detail:
	- Medium-term		☐ Yes	Detail:
	- Short-term		☐ Yes	Detail:
4.2 Commitment with international agreements/ issues			☐ Yes	Specify:
4.3 Existing status (IUCN Category) www.iucn.org/themes/marine/pdf/mpaguid.pdf	- Strict nature reserve	Established year		
	- Wilderness area	Established year		
	- National park	Established year		
	- Natural monument	Established year		
	- Habitat/Species management area	Established year		
	- Protected landscape/sea scape	Established year		
	- Managed resource protected area	Established year		
	Other (1)……	Established year		
	Other (2)……	Established year		
4.4 Management or reservation activities on site			☐ Yes	Identify:
4.5 Existing level and quality of site management			☐ High ☐ Medium ☐ Low	
4.6 Existing support to institutional management			☐ High ☐ Medium ☐ Low	
4.7 Average level of direct stakeholder involvement in management			☐ High ☐ Medium ☐ Low	

* Add more papers if space provided is not enough

Table WTF2.5	Category	Unit	Data	Remark*
5. Extent of threats				
5.1 Intrinsic/internal sources of change	- Existing resident human population	Number		
	- Frequency of typhoon	Number/ year		
	- Change in allocthonous sediment inputs		☐ High ☐ Medium ☐ Low	
	- Marine based flooding	Number/ year		
	Other (1)……	……		
	Other (2)……	……		
5.2 Extrinsic/external sources of change	- Dam construction		☐ High ☐ Medium ☐ Low	
	- Water diversion		☐ High ☐ Medium ☐ Low	
	- Other changes in catchment basin		☐ High ☐ Medium ☐ Low	Specify:
	Other (1)……	……		
	Other (2)……	……		
5.3 Socio-economic drivers of change in environmental state	- Population growth	% /year		
	- Migration	% /year (+/-)		
	- GDP Development		☐ High ☐ Medium ☐ Low	
	Other (1)……	……		
	Other (2)……	……		
5.4 Rate of change in the estuarine area over the past decade		% /decade (+/-)		

* Add more papers if space provided is not enough

Table WTF2.6	Category	Unit	Data	Remark*
6. Financial and practical considerations				
6.1 Average investments for existing management or reservation activities		IDR/year		
6.2 Trend of investment for management in the future			☐ Increase ☐ Decrease ☐ Stable	
6.3 Average level of local revenue generation over the past decade		IDR/year		
6.4 Level of stakeholder support		IDR/year		
6.5 Potential for external investment			☐ High ☐ Medium ☐ Low	
6.6 Estimated revenue if Intertidal flat is sustainably managed		IDR/year		
6.7 Long-term sustainability including prospects for revenue generation			☐ Yes	Identify:
6.8 Potential aspects that can be developed wisely in the site			☐ Yes	Identify:
6.9 Long term environmental perspective			☐ High ☐ Medium ☐ Low	

* Add more papers if space provided is not enough

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III. Coastal brackish/saline lagoon

WL1 Distribution of Coastal brackish/saline lagoon in the South China Sea part of the country

Table WL1.1 Available GIS map of coastal brackish/saline lagoon distribution

- Geographic coverage ☐ None ☐ Whole country
☐ Parts of country, specify general locations

(1) .....…… Mapping or survey year ….....….....Original scale ….....

(2) .....…...…….. Mapping or survey year ….....….....Original scale ….....

(3) .....…...……. Mapping or survey year ….....….....Original scale ….....

(4) .....…...……. Mapping or survey year ….....….....Original scale ….....

(5) .....…...……. Mapping or survey year ….....….....Original scale ….....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, specify…….. ☐ Ground survey
☐ Nautical chart ☐ Other, ...……

- Coastal brackish/saline lagoon fe☐e represente☐s Polyg☐ Line Point

☐ Other, ...……

- **Please attach samples of attribute tables for the features**

Table WL1.2 Available non GIS map of coastal brackish/saline lagoon distribution

- Format ☐ Paper map, scale ……. ☐ Image file (gif, jpeg, tif, etc.)

☐ Other, ……

- Geographic Coverage ☐ None ☐ Whole country

☐ Parts of country, specify general locations

(1) .....…… Mapping or survey year ….....….....Original scale ….....

(2) .....…...…….. Mapping or survey year ….....….....Original scale ….....

(3) .....…...……. Mapping or survey year ….....….....Original scale ….....

(4) .....…...……. Mapping or survey year ….....….....Original scale ….....

(5) .....…...……. Mapping or survey year….....….....Original scale ….....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, specify…….. ☐ Ground survey

☐ Nautical Chart ☐ Other, ...……

- **Please attach samples of map**

Table WL1.3 Available non map data of coastal brackish/saline lagoon distribution

- Format :

☐ x,y coordinate file ☐ Other, (1).....…… ☐ Other, (2).....

- Geographic Coverage ☐ None ☐ Whole country
☐ Parts of country, specify general locations

(1) .....…… Data year ….....….....….....

(2) .....…...…….. Data year ….....….....….....

(3) .....…...……. Data year ….....….....….....

(4) .....…...……. Data year ….....….....….....

(5) .....…...……. Data year ….....….....….....

(Please add more areas on separate sheets of papers)

- Original data source ☐ Remote sensing, specify…….. ☐ Ground survey
☐ Nautical Chart ☐ Other, ...……

- Please attach samples of data

WL2 Environmental data for <u>each</u> coastal brackish/saline lagoon in the South China Sea part of the country

Coastal brackish/saline lagoon name ……
The geographical coordinates (latitude and longitude) of the approximate center of the coastal brackish/saline lagoon, expressed in degrees and minutes.

Latitude…… Longitude…….

Table WL2.1	**Category**	**Unit**	**Data**	**Remark***
<u>1. Biological diversity</u>				
1.1 Species diversity				
- Number of species of plants		Number		
- Density of plants (all species)		Number/ha		
- Number of species of:	Phytoplantons	Number		
	Zooplantons	Number		
	Macrobenthos	Number		
	Resident fishes	Number		
	Transient fishes	Number		
	Resident mammals	Number		
	Resident birds	Number		
	Migratory birds	Number		
1.2 Ecosystem diversity				
- Number of types of adjacent aquatic habitats/ecosystems	-	Number		Specify:

* Add more papers if space provided is not enough

Table WL2.2	Category	Unit	Data	Remark*
2. significance				
2.1 Number of species that spawn in this coastal brackish/saline lagoon		Number	☐ None ☐ 1-10 ☐ 11-50 ☐ > 50	
2.2 Number of species that feed or roost in this coastal brackish/saline lagoon		Number	☐ None ☐ 1-10 ☐ 11-50 ☐ > 50	
2.3 Number of species that migrate through/to this coastal brackish/saline lagoon		Number	☐ None ☐ 1-10 ☐ 11-50 ☐ > 50	
2.4 Number of people that visit in this coastal brackish/saline lagoon for	Tourism	Number/ year	☐ None ☐ 1-1,000 ☐ 1,001-10,000 ☐ > 10,000	
	Fishing	Number/ year	☐ None ☐ 1-1,000 ☐ 1,001-10,000 ☐ > 10,000	
	Other (1)……	Number	☐ None ☐ 1-1,000 ☐ 1,001-10,000 ☐ > 10,000	
	Other (2)……	Number	☐ None ☐ 1-1,000 ☐ 1,001-10,000 ☐ > 10,000	
2.5 Top 3 international goods that produced in this Coastal brackish/saline lagoon	Type (1)…….			
	Volume per year			
	Value per year			
	Major destination			
	Type (2)…….			
	Volume			
	Value per year			
	Major destination			
	Type (3)…….			
	Volume			
	Value per year			
	Major destination			

* Add more papers if space provided is not enough

Table WL2.3	Category	Unit	Data	Remark*
3. Regional and/or global 3. significance				
3.1 Number of endemic species		Number		
3.2 Number of indigenous species		Number		
3.3 Number of rare species		Number		
3.4 Number of endangered and threatened species (IUCN Red List Categories)	- Critically Endangered (CR)	Number		
	- Endangered (EN)	Number		
	- Vulnerable (VU)	Number		
3.5 Existing international recognition	Ramsar site	Established year		
	World heritage site	Established year		
	Other (1)……	Established year		
	Other (2)……	Established year		

* Add more papers if space provided is not enough

Table WL2.4

Category	Unit	Data	Remark*
4. National significance			
4.1 Existing management plans (provide short detail)	- Long-term		☐ Yes	Detail:
	- Medium-term		☐ Yes	Detail:
	- Short-term		☐ Yes	Detail:
4.2 Commitment with international agreements/ issues			☐ Yes	Specify:
4.3 Existing status (IUCN Category) www.iucn.org/themes/marine/pdf/mpaguid.pdf	- Strict nature reserve	Established year		
	- Wilderness area	Established year		
	- National park	Established year		
	- Natural monument	Established year		
	- Habitat/Species management area	Established year		
	- Protected landscape/sea scape	Established year		
	- Managed resource protected area	Established year		
	Other (1)……	Established year		
	Other (2)……	Established year		
4.4 Management or reservation activities on site			☐ Yes	Identify:
4.5 Existing level and quality of site management			☐ High ☐ Medium ☐ Low	
4.6 Existing support to institutional management			☐ High ☐ Medium ☐ Low	
4.7 Average level of direct stakeholder involvement in management			☐ High ☐ Medium ☐ Low	

* Add more papers if space provided is not enough

Table WL2.5	Category	Unit	Data	Remark*
5. Extent of threats				
5.1 Intrinsic/internal sources of change	- Existing resident human population	Number		
	- Frequency of typhoon	Number/ year		
	- Change in allocthonous sediment inputs		☐ High ☐ Medium ☐ Low	
	- Marine based flooding	Number/ year		
	Other (1)……	……		
	Other (2)……	……		
5.2 Extrinsic/external sources of change	- Dam construction		☐ High ☐ Medium ☐ Low	
	- Water diversion		☐ High ☐ Medium ☐ Low	
	- Other changes in catchment basin		☐ High ☐ Medium ☐ Low	Specify:
	Other (1)……	……		
	Other (2)……	……		
5.3 Socio-economic drivers of change in environmental state	- Population growth	% /year		
	- Migration	% /year (+/-)		
	- GDP Development		☐ High ☐ Medium ☐ Low	
	Other (1)……	……		
	Other (2)……	……		
5.4 Rate of change in the estuarine area over the past decade		% /decade (+/-)		

* Add more papers if space provided is not enough

Table WL2.6

Category	Unit	Data	Remark*
6. Financial and practical considerations			
6.1 Average investments for existing management or reservation activities		IDR/year	
6.2 Trend of investment for management in the future			☐ Increase ☐ Decrease ☐ Stable
6.3 Average level of local revenue generation over the past decade		IDR/year	
6.4 Level of stakeholder support		IDR/year	
6.5 Potential for external investment			☐ High ☐ Medium ☐ Low
6.6 Estimated revenue if Coastal brackish/saline lagoon is sustainably managed		IDR/year	
6.7 Long-term sustainability including prospects for revenue generation			☐ Yes
6.8 Potential aspects that can be developed wisely in the site			☐ Yes
6.9 Long term environmental perspective			☐ High ☐ Medium ☐ Low

* Add more papers if space provided is not enough

Indonesia

Data and information needs for the fishery component

Administrative units to be include in this component

a. Bangka
b. Belitung
c. Indragiri Hilir
d. Kampar
e. Ketapang
f. Musi Banyuasin
g. Ogan Kemering Ilir
h. Pontianak
i. Riau Kepulauan
j. Sambas
k. Tanjung Jabung

Indonesia

F1: General landing statistic by administrative unit: Bangka

		Recent, ….	1990	1980	1970	1960
All Species	Catch (ton/y)					
	Value (VND[2])					
Top 10 landing fisheries or inveterates						
1st	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
2nd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
3rd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
4th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
5th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
6th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
7th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
8th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

		Recent, ….	1990	1980	1970	1960
9th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
10th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

Note:
1. Select from common name list in annex 1
2. Value (VND) = Value at the actual year (VND)

Indonesia

F1: General landing statistic by administrative unit: Belitung

		Recent, ….	1990	1980	1970	1960
All Species	Catch (ton/y)					
	Value (VND[2])					
Top 10 landing fisheries or inveterates						
1st	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
2nd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
3rd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
4th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
5th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
6th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
7th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
8th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

		Recent, ….	1990	1980	1970	1960
9th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
10th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

Note:
1. Select from common name list in annex 1
2. Value (VND) = Value at the actual year (VND)

Indonesia

F1: General landing statistic by administrative unit: Indragiri Hilir

		Recent, ….	1990	1980	1970	1960
All Species	Catch (ton/y)					
	Value (VND[2])					
Top 10 landing fisheries or inveterates						
1st	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
2nd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
3rd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
4th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
5th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
6th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
7th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
8th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

		Recent, ….	1990	1980	1970	1960
9th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
10th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

Note:
1. Select from common name list in annex 1
2. Value (VND) = Value at the actual year (VND)

Indonesia

F1: General landing statistic by administrative unit: Kampar

		Recent, ….	1990	1980	1970	1960
All Species	Catch (ton/y)					
	Value (VND[2])					
Top 10 landing fisheries or inveterates						
1st	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
2nd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
3rd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
4th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
5th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
6th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
7th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
8th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

		Recent, ….	1990	1980	1970	1960
9th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
10th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

Note:
1. Select from common name list in annex 1
2. Value (VND) = Value at the actual year (VND)

Indonesia

F1: General landing statistic by administrative unit: Ketapang

		Recent, ….	1990	1980	1970	1960
All Species	Catch (ton/y)					
	Value (VND[2])					
Top 10 landing fisheries or inveterates						
1st	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
2nd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
3rd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
4th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
5th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
6th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
7th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
8th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

		Recent, ….	1990	1980	1970	1960
9th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
10th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

Note:
1. Select from common name list in annex 1
2. Value (VND) = Value at the actual year (VND)

Indonesia

F1: General landing statistic by administrative unit: Musi Banyuasin

		Recent, ….	1990	1980	1970	1960
All Species	Catch (ton/y)					
	Value (VND[2])					
Top 10 landing fisheries or inveterates						
1st	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
2nd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
3rd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
4th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
5th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
6th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
7th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
8th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

		Recent, ….	1990	1980	1970	1960
9th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
10th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

Note:
1. Select from common name list in annex 1
2. Value (VND) = Value at the actual year (VND)

Indonesia

F1: General landing statistic by administrative unit: Ogan Kemering Ilir

		Recent, ….	1990	1980	1970	1960
All Species	Catch (ton/y)					
	Value (VND[2])					
Top 10 landing fisheries or inveterates						
1st	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
2nd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
3rd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
4th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
5th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
6th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
7th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
8th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

		Recent, ….	1990	1980	1970	1960
9th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
10th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

Note:
1. Select from common name list in annex 1
2. Value (VND) = Value at the actual year (VND)

Indonesia

F1: General landing statistic by administrative unit: Pontianak

		Recent, ….	1990	1980	1970	1960
All Species	Catch (ton/y)					
	Value (VND[2])					
Top 10 landing fisheries or inveterates						
1st	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
2nd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
3rd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
4th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
5th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
6th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
7th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
8th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

		Recent, ….	1990	1980	1970	1960
9th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
10th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

Note:
1. Select from common name list in annex 1
2. Value (VND) = Value at the actual year (VND)

Indonesia

F1: General landing statistic by administrative unit: Riau Kepulauan

		Recent, ….	1990	1980	1970	1960
All Species	Catch (ton/y)					
	Value (VND[2])					
Top 10 landing fisheries or inveterates						
1st	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
2nd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
3rd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
4th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
5th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
6th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
7th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
8th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

		Recent, ….	1990	1980	1970	1960
9th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
10th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

Note:
1. Select from common name list in annex 1
2. Value (VND) = Value at the actual year (VND)

Indonesia

F1: General landing statistic by administrative unit: Sambas

		Recent, ….	1990	1980	1970	1960
All Species	Catch (ton/y)					
	Value (VND[2])					
Top 10 landing fisheries or inveterates						
1st	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
2nd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
3rd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
4th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
5th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
6th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
7th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
8th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

		Recent, ….	1990	1980	1970	1960
9th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
10th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

Note:
1. Select from common name list in annex 1
2. Value (VND) = Value at the actual year (VND)

Indonesia

F1: General landing statistic by administrative unit: Tanjung Jabung

		Recent, ….	1990	1980	1970	1960
All Species	Catch (ton/y)					
	Value (VND[2])					
Top 10 landing fisheries or inveterates						
1st	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
2nd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
3rd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
4th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
5th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
6th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
7th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
8th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

		Recent, ….	1990	1980	1970	1960
9th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
10th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

Note:
1. Select from common name list in annex 1
2. Value (VND) = Value at the actual year (VND)

Indonesia

F2: General landing statistic by fishery ports or landing site:

Port/Landing site name …….

The geographical coordinates (latitude and longitude) of the approximate centre of the fishery ports or landing site, expressed in degrees and minutes.

Latitude…… Longitude…….

		Recent, ….	1990	1980	1970	1960
All Species	Catch (ton/y)					
	Value (VND[2])					
Top 10 landing common						
1st	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
2nd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
3rd	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
4th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
5th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
6th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
7th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
8th	Common name:					
	Catch (ton/y)					
	Value (VND[2])					

		Recent, ….	1990	1980	1970	1960
9th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					
10th	Common name[1]:					
	Catch (ton/y)					
	Value (VND[2])					

Note: 1. Select from common name list in annex 1
2. Value (VND) = Value at the actual year (VND)

(Please reproduce this table for more ports)

Annex 1

List of Marine Species

SEAFDEC		Family/Scientific name	
Code No.	**Name**		
2401	1. Shads	Clupeidae	- *Anodontostoma chacunda* - *Pellona ditchela*
2402	2. Milkfish	Chanidae	- *Chanos chanos*
2501	1. Barramundi	Centropomidae	- *Lates calcarifer*
3101	1. Flounders	Bothidae	
3102	2. Indian halibuts	Psettodidae	
3103	3. Tongue soles	Cynoglossidae	
3104	4. Soles	Soleidae	
3301	1. Marine catfishes	Ariidae	
3302	2. Catfish eels	Plotosidae	- *Plotosus* spp.
3303	3. Lizard fishes	Synodontidae	- *Saurida* spp., *Trachinocephalus myops*
3304	4. Sharp-toothed pike eels, conger eels	Muraenesocidae	- *Muraenesox* spp. (including Congridae, Muraenidae and Synbranchidae)
3305	5. Groupers	Serranidae	-*Epinephelus* spp., *Plectropomus* spp.
3306	6. Sillago whitings	Sillaginidae	
3307	7. Red snappers	Lutjanidae	- *Lutjanus* spp. (*L. argentimaculatus, L. sabae, L. malabaricus,* *L. sanguineus, L. altifrontalis, L. bohar*)
3308	8. Other snappers	Lutjanidae	- *Lutjanus* spp. (*L. johni, L. vitta, L. russelli, L. lineolatus,L. latjanus,* *L. fulviflamma, L. monostigma, L. kasmira, L. vaigiensis*) - *Pristipomoides* spp.
3309	9. Fusiliers	Lutjanidae	- *Caesio* spp.
3310	10. Threadfin breams	Nemiplendae	- *Nemipterus* spp. (including *Scolopsis* spp.)
3311	11. Pony fishes	Leiognathidae	
3312	12. Grunters & sweetlips	Pomadasyidae	
3313	13. Drums & croakers	Sciaenidae	
3314	14. Goat fishes	Mullidae	- *Upeneus* spp.
3315	15. Emperor breams	Lethrinidae	- *Lethrinus* spp. (including *Gymnocranius* spp.)
3316	16. Big-eye snappers	Priacanthidae	- *Priacanthus* spp.
3317	17. Breams	Sparidae	
3318	18. Horseheads	Branchiostegidae	
3319	19. Rabbitfishes	Siganidae	- *Siganus* spp.
3320	20. Other species	Main groups to be indicated, if possible	
3401	1. Halfbeaks and needlefishes	Exocoetidae	- *Hemirhamphus* spp. (including Cypselurus spp.)
3402	2. Barracudas	Belonidae	- *Tylosurus* spp.
3403	3. Mullets	Sphyraenidae	- *Sphyraena* spp
3404	4. Threadfins	Mugilidae	
3405	5. Round scads	Polynemidae	

SEAFDEC		Family/Scientific name	
Code No.	Name		
3406	6. Jacks, cavalla, trevallies	Carangidae	- *Decapterus* spp.
		Carangidae	- *Caranx* spp. *Gnathanodon speciosus* (including *Alectis* spp., *Atropus atropus, Caranx chrysophrys, C. malabaricus,* *C. ignobilis*)
3407	7. Selar scads	Carangidae	- *Selar crumenophthalmus Selaroides leptolepis* (including *Alepes* spp., *Selar* spp.)
3408	8. Hardtail scad	Carangidae	- *Megalaspis cordyla*
3409	9. Queenfishes	Carangidae	- *Scomberoides (= Chorinemus*) spp.
3410	10. Black pomfret	Formionidae	- *Formio niger*
3411	11. White pomfrets	Stromateidae	- *Pampus argenteus* (including *Pamopus chinensis*)
3412	12. Other species	Main groups to be indicated, if possible	
3501	1. Sardines	Clupeidae	- *Sardinella* spp.
3502	2. Round herring	Clupeidae	- *Dussumieria acuta*
3503	3. Anchovies	Engraulidae	- *Stolephorus* spp.
3504	4. Clupeoids	Clupeoidei	
3505	5. Wolf herring	Chirocentridae	- *Chirocentrus dorab*
3601	1. Skipjack tuna	Scombridae	- *Katsuwonus pelamis*
3602	2. Yellowfin tuna	Scombridae	- *Thunnus albacares*
3603	3. Big-eye tuna	Scombridae	- *Thunnus obesus*
3604	4. Longtail tuna	Scombridae	- *Thunnus tonggol*
3605	5. Albacore	Scombridae	- *Thunnus alalunga*
3606	6. Eastern little tuna	Scombridae	- *Euthynnus affinis*
3607	7. Frigate and bellet tuna	Scombridae	- *Auxis thazard, A. rochei*
3608	8. Indo-Pacific swordfish, sailfishes and marlins	Istiophoridae	- *Istiophorus* spp., *Makaira* spp.
		Xiphiidae	- *Xiphias* spp.
3609	9. Narrow-barred king mackerel	Scombridae	- *Scomberomorus commerson*
3610	10. King mackerels	Scombridae	- *Scomberomorus guttatus*
3701	1. Indian mackerels	Scombridae	- *Rastrelliger kanagurta* (including *R. Faughni*)
3702	2. Indo-Pacific mackerels	Scombridae	- *Rastrelliger brachysoma*
3703	3. Hairtails	Trichiuridae	
3801	1. Sharks	Carcharhinidae, Sphynidae, Orectolobidae, etc.	
3802	2. Rays	Trygonidae, Sphyrnidae, Myliobatidae,etc.	
3901	1. Miscellaneous	Mixed species	
3902	2. Trash fish		
4201	1. Swimming crabs	Portunidae	- *Portunnus* spp.
4202	2. Mangrove crab	Portunidae	- *Scylla serrata*
4301	1. Spiny lobsters	Palinuridae	- *Panulirus* spp.
4302	2. Slipper lobster	Scyllaridae	- *Thenus orientalis*
4501	1. Tiger prawn	Penaeidae	- *Penaeus monodon*
4502	2. Penaeid prawns	Penaeidae	- *Penaeus* spp. - *Metapenaeus* spp.
4503	3. Other prawns	Penaeidae	- *Parapenaeopsis* spp.
		Sergestidae	- *Acetes* spp.
		Solenoceridae	- *Solenocera* spp.
4701	1. Miscellaneous	Mixed species	

SEAFDEC		Family/Scientific name
Code No.	**Name**	
5301	1. Flat oysters	Ostreidae - *Ostrea* spp.
5302	2. Cupped oysters	Ostreidae - *Cassostrea* spp.
5401	1. Sea mussels	Mytilidae - *Mytilus* spp., *Modiolus* spp., *Perna* spp., *Glauconome* spp.
5501	1. Scallops	Pectinidae
5601	1. Blood cockles	Arcidae - *Anadara* spp.
	2. Clams and cone shells	Mactridae, Veneridae, Tridacnidae, Conidae
5701	1. Cuttlefishes	Sepiidae, Sepiolidae
5702	2. Squids	Loliginidae - *Loligo* spp.
5703	3. Octopuses	Octopodidae - *Octopus* spp.
5801	1. Miscellaneous	Other mollusks
7201	1. Sea turtles	Chelonia
7501	1. Sea urchins	Echinoidea
7502	2. Sea cucumbers	Holothurioidea
7601	1. Jellyfishes	Rhopilema spp.
7701	1. Miscellaneous aquatic animals	Invertebrata
8101	1. Mother-of-pearl	Pearl oyster shells
8102	2. Other shells	Ex Mollusca
8201	1. Corals	Faviidae
8301	1. Sponges	Spongidae
9101	1. Brown seaweeds	Phaeophyceae
9201	1. Red seaweeds	Phodophyceae
9301	1. Green seaweeds	Chlorophyceae
9401	1. Miscellaneous aquatic plants	Algae

Indonesia

F3: Fishing effort as number of fishing days per year by gear by administrative unit: Bangka

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F3: Fishing effort as number of fishing days per year by gear by administrative unit: Belitung

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F3: Fishing effort as number of fishing days per year by gear by administrative unit: Indragiri Hilir

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F3: Fishing effort as number of fishing days per year by gear by administrative unit: Kampar

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F3: Fishing effort as number of fishing days per year by gear by administrative unit: Ketapang

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F3: Fishing effort as number of fishing days per year by gear by administrative unit: Musi Banyuasin

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F3: Fishing effort as number of fishing days per year by gear by administrative unit: Ogan Kemering Ilir

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F3: Fishing effort as number of fishing days per year by gear by administrative unit: Pontianak

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F3: Fishing effort as number of fishing days per year by gear by administrative unit: Riau Kepulauan

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F3: Fishing effort as number of fishing days per year by gear by administrative unit: Sambas

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F3: Fishing effort as number of fishing days per year by gear by administrative unit: Tanjung Jabung

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F4: Fishing effort as number of boats per year by gear by administrative unit: Bangka

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F4: Fishing effort as number of boats per year by gear by administrative unit: Belitung

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F4: Fishing effort as number of boats per year by gear by administrative unit: Indragiri Hilir

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F4: Fishing effort as number of boats per year by gear by administrative unit: Kampar

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F4: Fishing effort as number of boats per year by gear by administrative unit: Ketapang

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F4: Fishing effort as number of boats per year by gear by administrative unit: Musi Banyuasin

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F4: Fishing effort as number of boats per year by gear by administrative unit: Ogan Kemering Ilir

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F4: Fishing effort as number of boats per year by gear by administrative unit: Pontianak

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F4: Fishing effort as number of boats per year by gear by administrative unit: Riau Kepulauan

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F4: Fishing effort as number of boats per year by gear by administrative unit: Sambas

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F4: Fishing effort as number of boats per year by gear by administrative unit: Tanjung Jabung

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

Indonesia

F5: Fishing effort as number of fishing days per year by gear by Port/Landing site name……

The geographical coordinates (latitude and longitude) of the approximate centre of the fishery ports or landing site, expressed in degrees and minutes.

Latitude…… Longitude…….

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

(Please reproduce this table for more ports)

Indonesia

F6: Fishing effort as number of boats per year by gear by Port/Landing site name……

The geographical coordinates (latitude and longitude) of the approximate centre of the fishery ports or landing site, expressed in degrees and minutes.

Latitude…… Longitude…….

	Recent, ….	1990	1980	1970	1960
Surrounding net					
Seine net					
Trawl					
Lift net					
Falling net					
Gill net					
Trap					
Hook & Line					
Scoop net					
Drive-in-net					
Dredges					
Miscellaneous gear					

(Please reproduce this table for more ports)

Indonesia

F7: Importance of the fisheries sector in terms of employment & dependence by administrative unit: Bangka

		Year
Number of fishermen		
Number of fishing household members		
Number of fish processing plants or factories		
Number of employees in fish processing industry		
Estimate proportion fishery product consumed locally	☐ <10 ☐ 10-50 ☐ >90	

(Please round-up number to the nearest 1,000)

Indonesia

F7: Importance of the fisheries sector in terms of employment & dependence by administrative unit: Belitung

		Year
Number of fishermen		
Number of fishing household members		
Number of fish processing plants or factories		
Number of employees in fish processing industry		
Estimate proportion fishery product consumed locally	☐ <10 ☐ 10-50 ☐ >90	

(Please round-up number to the nearest 1,000)

Indonesia

F7: Importance of the fisheries sector in terms of employment & dependence by administrative unit: Indragiri Hilir

		Year
Number of fishermen		
Number of fishing household members		
Number of fish processing plants or factories		
Number of employees in fish processing industry		
Estimate proportion fishery product consumed locally	☐ <10 ☐ 10-50 ☐ >90	

(Please round-up number to the nearest 1,000)

Indonesia

F7: Importance of the fisheries sector in terms of employment & dependence by administrative unit: Kampar

		Year
Number of fishermen		
Number of fishing household members		
Number of fish processing plants or factories		
Number of employees in fish processing industry		
Estimate proportion fishery product consumed locally	☐ <10 ☐ 10-50 ☐ >90	

(Please round-up number to the nearest 1,000)

Indonesia

F7: Importance of the fisheries sector in terms of employment & dependence by administrative unit: Ketapang

		Year
Number of fishermen		
Number of fishing household members		
Number of fish processing plants or factories		
Number of employees in fish processing industry		
Estimate proportion fishery product consumed locally	☐ <10 ☐ 10-50 ☐ >90	

(Please round-up number to the nearest 1,000)

Indonesia

F7: Importance of the fisheries sector in terms of employment & dependence by administrative unit: Musi Banyuasin

		Year
Number of fishermen		
Number of fishing household members		
Number of fish processing plants or factories		
Number of employees in fish processing industry		
Estimate proportion fishery product consumed locally	☐ <10 ☐ 10-50 ☐ >90	

(Please round-up number to the nearest 1,000)

Indonesia

F7: Importance of the fisheries sector in terms of employment & dependence by administrative unit: Ogan Kemering Ilir

		Year
Number of fishermen		
Number of fishing household members		
Number of fish processing plants or factories		
Number of employees in fish processing industry		
Estimate proportion fishery product consumed locally	☐ <10 ☐ 10-50 ☐ >90	

(Please round-up number to the nearest 1,000)

Indonesia

F7: Importance of the fisheries sector in terms of employment & dependence by administrative unit: Pontianak

		Year
Number of fishermen		
Number of fishing household members		
Number of fish processing plants or factories		
Number of employees in fish processing industry		
Estimate proportion fishery product consumed locally	☐ <10 ☐ 10-50 ☐ >90	

(Please round-up number to the nearest 1,000)

Indonesia

F7: Importance of the fisheries sector in terms of employment & dependence by administrative unit: Riau Kepulauan

		Year
Number of fishermen		
Number of fishing household members		
Number of fish processing plants or factories		
Number of employees in fish processing industry		
Estimate proportion fishery product consumed locally	☐ <10 ☐ 10-50 ☐ >90	

(Please round-up number to the nearest 1,000)

Indonesia

F7: Importance of the fisheries sector in terms of employment & dependence by administrative unit: Sambas

		Year
Number of fishermen		
Number of fishing household members		
Number of fish processing plants or factories		
Number of employees in fish processing industry		
Estimate proportion fishery product consumed locally	☐ <10 ☐ 10-50 ☐ >90	

(Please round-up number to the nearest 1,000)

Indonesia

F7: Importance of the fisheries sector in terms of employment & dependence by administrative unit: Tanjung Jabung

		Year
Number of fishermen		
Number of fishing household members		
Number of fish processing plants or factories		
Number of employees in fish processing industry		
Estimate proportion fishery product consumed locally	☐ <10 ☐ 10-50 ☐ >90	

(Please round-up number to the nearest 1,000)

Indonesia

F8: Top ten species of regional, global and/or transboundary significance

Species and/or common name Number 1.....

Fish Type

- ☐ Large pelagic fishes
- ☐ Small pelagic fish species
- ☐ Demersal fish species
- ☐ Commercially exploited invertebrates
- ☐ Other, specify ……

IUCN status (http://www.redlist.org/info/categories_criteria.html)

- ☐ Extinct (EX)
- ☐ Extinct in the wild (EW)
- ☐ Critically endangered (CR)
- ☐ Endangered (EN)
- ☐ Vulnerable (VU)
- ☐ Lower risk (LR)
- ☐ Data Deficient (DD)
- ☐ Not evaluated (NE)

Special concerns

- ☐ Endemic
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……
- ☐ None

Status of population

Year	CPUE Unit ……...	Stock Size Unit ……	MSY Unit ……
Recent, ……..…….			
1990			
1980			
1970			
1960			

Major threats to the species (please select upto 3 most important threats)

Present

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……..

Future (next decade)

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Species and/or common name Number 2.....

Fish Type

- ☐ Large pelagic fishes
- ☐ Small pelagic fish species
- ☐ Demersal fish species
- ☐ Commercially exploited invertebrates
- ☐ Other, specify ……

IUCN status (http://www.redlist.org/info/categories_criteria.html)

- ☐ Extinct (EX)
- ☐ Extinct in the wild (EW)
- ☐ Critically endangered (CR)
- ☐ Endangered (EN)
- ☐ Vulnerable (VU)
- ☐ Lower risk (LR)
- ☐ Data Deficient (DD)
- ☐ Not evaluated (NE)

Special concerns

- ☐ Endemic
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……
- ☐ None

Status of population

Year	**CPUE** Unit ……...	**Stock Size** Unit ……	**MSY** Unit ……
Recent, ……..…….			
1990			
1980			
1970			
1960			

Major threats to the species (please select upto 3 most important threats)

Present

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……..

Future (next decade)

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Species and/or common name Number 3.....

Fish Type

- ☐ Large pelagic fishes
- ☐ Small pelagic fish species
- ☐ Demersal fish species
- ☐ Commercially exploited invertebrates
- ☐ Other, specify ……

IUCN status (http://www.redlist.org/info/categories_criteria.html)

- ☐ Extinct (EX)
- ☐ Extinct in the wild (EW)
- ☐ Critically endangered (CR)
- ☐ Endangered (EN)
- ☐ Vulnerable (VU)
- ☐ Lower risk (LR)
- ☐ Data Deficient (DD)
- ☐ Not evaluated (NE)

Special concerns

- ☐ Endemic
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……
- ☐ None

Status of population

Year	**CPUE** Unit ……...	**Stock Size** Unit ……	**MSY** Unit ……
Recent, ……..…….			
1990			
1980			
1970			
1960			

Major threats to the species (please select upto 3 most important threats)

Present

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……..

Future (next decade)

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Species and/or common name Number 4.....

Fish Type

- ☐ Large pelagic fishes
- ☐ Small pelagic fish species
- ☐ Demersal fish species
- ☐ Commercially exploited invertebrates
- ☐ Other, specify ……

IUCN status (http://www.redlist.org/info/categories_criteria.html)

- ☐ Extinct (EX)
- ☐ Extinct in the wild (EW)
- ☐ Critically endangered (CR)
- ☐ Endangered (EN)
- ☐ Vulnerable (VU)
- ☐ Lower risk (LR)
- ☐ Data Deficient (DD)
- ☐ Not evaluated (NE)

Special concerns

- ☐ Endemic
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……
- ☐ None

Status of population

Year	**CPUE** Unit ……...	**Stock Size** Unit ……	**MSY** Unit ……
Recent, ……..…….			
1990			
1980			
1970			
1960			

Major threats to the species (please select upto 3 most important threats)

Present

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……..

Future (next decade)

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Species and/or common name Number 5.....

Fish Type

- ☐ Large pelagic fishes
- ☐ Small pelagic fish species
- ☐ Demersal fish species
- ☐ Commercially exploited invertebrates
- ☐ Other, specify ……

IUCN status (http://www.redlist.org/info/categories_criteria.html)

- ☐ Extinct (EX)
- ☐ Extinct in the wild (EW)
- ☐ Critically endangered (CR)
- ☐ Endangered (EN)
- ☐ Vulnerable (VU)
- ☐ Lower risk (LR)
- ☐ Data Deficient (DD)
- ☐ Not evaluated (NE)

Special concerns

- ☐ Endemic
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……
- ☐ None

Status of population

Year	**CPUE** Unit ……...	**Stock Size** Unit ……	**MSY** Unit ……
Recent, ……..…….			
1990			
1980			
1970			
1960			

Major threats to the species (please select upto 3 most important threats)

Present

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……..

Future (next decade)

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Species and/or common name Number 6.....

Fish Type

- ☐ Large pelagic fishes
- ☐ Small pelagic fish species
- ☐ Demersal fish species
- ☐ Commercially exploited invertebrates
- ☐ Other, specify ……

IUCN status (http://www.redlist.org/info/categories_criteria.html)

- ☐ Extinct (EX)
- ☐ Extinct in the wild (EW)
- ☐ Critically endangered (CR)
- ☐ Endangered (EN)
- ☐ Vulnerable (VU)
- ☐ Lower risk (LR)
- ☐ Data Deficient (DD)
- ☐ Not evaluated (NE)

Special concerns

- ☐ Endemic
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……
- ☐ None

Status of population

Year	**CPUE** Unit ……...	**Stock Size** Unit ……	**MSY** Unit ……
Recent, ……..…….			
1990			
1980			
1970			
1960			

Major threats to the species (please select upto 3 most important threats)

Present

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……..

Future (next decade)

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Species and/or common name Number 7.....

Fish Type

- ☐ Large pelagic fishes
- ☐ Small pelagic fish species
- ☐ Demersal fish species
- ☐ Commercially exploited invertebrates
- ☐ Other, specify ……

IUCN status (http://www.redlist.org/info/categories_criteria.html)

- ☐ Extinct (EX)
- ☐ Extinct in the wild (EW)
- ☐ Critically endangered (CR)
- ☐ Endangered (EN)
- ☐ Vulnerable (VU)
- ☐ Lower risk (LR)
- ☐ Data Deficient (DD)
- ☐ Not evaluated (NE)

Special concerns

- ☐ Endemic
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……
- ☐ None

Status of population

Year	**CPUE** Unit ……...	**Stock Size** Unit ……	**MSY** Unit ……
Recent, ……..…….			
1990			
1980			
1970			
1960			

Major threats to the species (please select upto 3 most important threats)

Present

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……..

Future (next decade)

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Species and/or common name Number 8.....

Fish Type

- ☐ Large pelagic fishes
- ☐ Small pelagic fish species
- ☐ Demersal fish species
- ☐ Commercially exploited invertebrates
- ☐ Other, specify ……

IUCN status (http://www.redlist.org/info/categories_criteria.html)

- ☐ Extinct (EX)
- ☐ Extinct in the wild (EW)
- ☐ Critically endangered (CR)
- ☐ Endangered (EN)
- ☐ Vulnerable (VU)
- ☐ Lower risk (LR)
- ☐ Data Deficient (DD)
- ☐ Not evaluated (NE)

Special concerns

- ☐ Endemic
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……
- ☐ None

Status of population

Year	**CPUE** Unit ……...	**Stock Size** Unit ……	**MSY** Unit ……
Recent, ……..…….			
1990			
1980			
1970			
1960			

Major threats to the species (please select upto 3 most important threats)

Present

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……..

Future (next decade)

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Species and/or common name Number 9.....

Fish Type

- ☐ Large pelagic fishes
- ☐ Small pelagic fish species
- ☐ Demersal fish species
- ☐ Commercially exploited invertebrates
- ☐ Other, specify ……

IUCN status (http://www.redlist.org/info/categories_criteria.html)

- ☐ Extinct (EX)
- ☐ Extinct in the wild (EW)
- ☐ Critically endangered (CR)
- ☐ Endangered (EN)
- ☐ Vulnerable (VU)
- ☐ Lower risk (LR)
- ☐ Data Deficient (DD)
- ☐ Not evaluated (NE)

Special concerns

- ☐ Endemic
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……
- ☐ None

Status of population

Year	**CPUE** Unit ……...	**Stock Size** Unit ……	**MSY** Unit ……
Recent, ……..…….			
1990			
1980			
1970			
1960			

Major threats to the species (please select upto 3 most important threats)

Present

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……..

Future (next decade)

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Species and/or common name Number 10.....

Fish Type

- ☐ Large pelagic fishes
- ☐ Small pelagic fish species
- ☐ Demersal fish species
- ☐ Commercially exploited invertebrates
- ☐ Other, specify ……

IUCN status (http://www.redlist.org/info/categories_criteria.html)

- ☐ Extinct (EX)
- ☐ Extinct in the wild (EW)
- ☐ Critically endangered (CR)
- ☐ Endangered (EN)
- ☐ Vulnerable (VU)
- ☐ Lower risk (LR)
- ☐ Data Deficient (DD)
- ☐ Not evaluated (NE)

Special concerns

- ☐ Endemic
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……
- ☐ None

Status of population

Year	**CPUE** Unit ……...	**Stock Size** Unit ……	**MSY** Unit ……
Recent, ……..…….			
1990			
1980			
1970			
1960			

Major threats to the species (please select upto 3 most important threats)

Present

- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……..

Future (next decade)

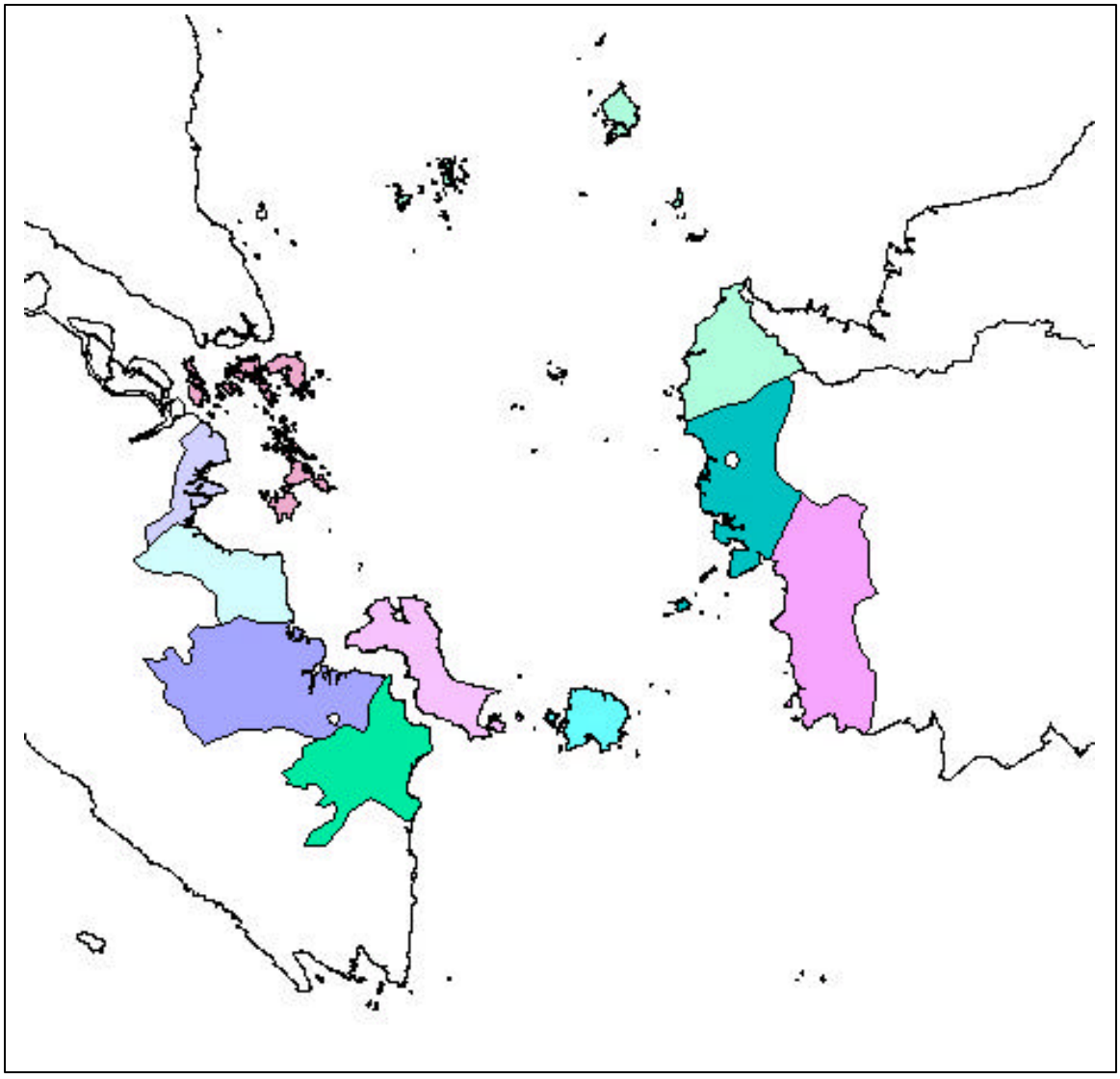
- ☐ Declining in spawning or nursing grounds
- ☐ Over fishing
- ☐ Destructive fishing practices
- ☐ Alien species/disease
- ☐ Pollution
- ☐ Climate change
- ☐ Natural disasters
- ☐ Population fragmentation
- ☐ Unknown
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Indonesia

F9: Areas of importance in the maintenance of exploited fish stocks

Instruction

1. Locate as many areas that are important for maintaining of exploited stocks and indicate their names in the map. (you may substitute this map by any other maps or GIS as appropriate.)
2. For each area in the map provide information in each Table F9.



F10: Name of area ……

The geographical coordinates (latitude and longitude) of the approximate centre of the fishery area expressed in degrees and minutes.

Latitude…… Longitude…….

(Please reproduce this page for more area)

	Common name[1] and/or species of top 5 fishes that use this area for:			
	Spawning grounds	Nursing areas	Feeding grounds	Fishing grounds
1st				
2nd				
3rd				
4th				
5th				

Threats to this area

Present

Destructive harvestation

- ☐ Explosive fishing ☐ Bottom trawl
- ☐ Plant/animal removal
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Pollution

- ☐ Sediment ☐ Oil
- ☐ Heavy metals ☐ Organic pollutants
- ☐ Eutrophication ☐ Salinity change
- ☐ Thermal ☐ Pesticides
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Natural disaster

- ☐ Storm ☐ Volcano ☐ Flood
- ☐ Land subsidance ☐ Drought
- ☐ Fire
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Future (next decade)

Destructive harvestation

- ☐ Explosive fishing ☐ Bottom trawl
- ☐ Plant/animal removal
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Pollution

- ☐ Sediment ☐ Oil
- ☐ Heavy metals ☐ Organic pollutants
- ☐ Eutrophication ☐ Salinity change
- ☐ Thermal ☐ Pesticides
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Natural disaster

- ☐ Storm ☐ Volcano ☐ Flood
- ☐ Land subsidance ☐ Drought
- ☐ Fire
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Global changes

- ☐ Thermal
- ☐ Sea level rise .....
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Coastal development

- ☐ Land fill ☐ Dredging ☐ Tourism
- ☐ Coastal erosion
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Upland development

- ☐ Changing discharge and runoff
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Global changes

- ☐ Thermal
- ☐ Sea level rise .....
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Coastal development

- ☐ Land fill ☐ Dredging ☐ Tourism
- ☐ Coastal erosion
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

Upland development

- ☐ Changing discharge and runoff
- ☐ Other (1), specify ……
- ☐ Other (2), specify ……

F11: Sources of data (Please add more pages if necessary)

Please provide reference to data given

1. ……

……

2. ……

……

3. ……

……

4. ……

……

5. ……

……

Name of data providers

1. Name……..

Address …….

Tel: …… Fax: …… E-mail:…….

2. Name……..

Address …….

Tel: …… Fax: …… E-mail:…….

3. Name……..

Address …….

Tel: …… Fax: …… E-mail:…….

4. Name……..

Address …….

Tel: …… Fax: …… E-mail:…….

Indonesia

Data and information needs for the land-based pollution component

LBP1 Data of <u>each</u> pollution monitoring station in the South China Sea part of Indonesia

Pollution site name …….

The exact geographical coordinates (latitude and longitude) of the pollution monitoring station every 100 km along coastaline, expressed in degrees and minutes.

Latitude…… Longitude…….

Table LBP1.1	**Category**	**Unit**	**Data**		**Remark***
			Annual average ~1990	**Annual average ~2000**	
<u>Coastal impact data</u>					
Ambient water quality	Ammonia	µg-N/l			
	Cadmium	µg/l			
	Chromium (VI)	µg/l			
	Copper	µg/l			
	Temperature	^{o} C			
	Cyanide	mg/l			
	Dissolved oxygen	mg/l			
	Lead	µg/l			
	Mercury	µg/l			
	Nitrate	µg-N/l			
	Nitrite	µg-N/l			
	Oil and grease	mg/l			
	Total phenol	µg/l			
	Phosphate	µg-P/l			
	Tributyltin	µg-Sn/l			
	BOD	mg/l			
	COD	mg/l			
	Total suspended solids	mg/l			
	Bacteria, specify……..				
	Other (1) ……				
	Other (2) ……				

* Add more papers if space provided is not enough

Table LBP1.2	Category	Unit	Data		Remark*
			Annual average ~1990	Annual average ~2000	
Sediment Quality	Sand	percent			
	Silt	percent			
	Clay	percent			
	Cadmium	ppm			
	Chromium (VI)	ppm			
	Copper	ppm			
	Lead	ppm			
	Mercury	ppm			
	Tributyltin	ppm			
	POPs, specify……..	ppm			
	Hydrocarbon	ppm			
	Total N	ppm			
	Total P	ppm			
	Organic carbon	ppm			
	Other (1) ……..				
	Other (2) ……..				

* Add more papers if space provided is not enough

Administration unit name:……

Belong to river catchment or basin name:…….

Table LBP1.3 Impact of pollution on Human health

Year	Cases of diarhea	Cases of PSP	Other (1) ……..	Other (2) ……	Remark*
1990					
1991					
1992					
1993					
1994					
1995					
1996					
1997					
1998					
1999					
2000					

* Add more papers if space provided is not enough

Administration unit name:……

Belong to river catchment or basin name:…….

Table LBP1.4	**Category**	**Unit**	**1990**	**2000**	**2010**	**Remark***
Loading data						
Industrial sources	Type of factory (1) ……	number				
		Annual production ……..				
	Type of factory (2) ……	number				
		Annual production ……..				
	Type of factory (3) ……	number				
		Annual production ……..				
Agriculture source	Rice	Area (hectare)				
		Production (ton/year)				
	Plantation area (fruits, rubber)	hectare				
	Other crop (1) ……	Area (hectare)				
		Production (ton/year)				
	Other crop (2) ……	Area (hectare)				
		Production (ton/year)				

* Add more papers if space provided is not enough

Table LBP1.5	**Category**	**Unit**	**1990**	**2000**	**2010**	**Remark***
Livestock source	Poultry (duck, chicken)	number				
	Lifestock (cow, buffalo, sheep)	number				
	Other livestock (1)……	number				
	Other livestock (2)……	number				
Aquaculture	Pond area	hectare				
	Production	ton/year				
Solid waste	Waste generated	ton/year				
	Waste collected	ton/year				
Waste water treatment facilities	Number of facility	number				
	Capacity	m^3 /d				
Groundwater	Groundwater yield	m^3 /d				

* Add more papers if space provided is not enough

ANNEX 9

Regional Meta-database Format for the UNEP/GEF South China Sea Project

Metadata Entry Form

Example Metadata Entry Form

UNEP/GEF Project "Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand" (UNEP/GEF SCS Project)

Metadata Entry Form

(Save this form under a new filename for each metadata)

1. Entry Identifier: Metadata Form5

2. Data Set Name:

3. Data Set Producer(s):

4. Parameter(s):

LAND SURFACE
- ☐ Topography
- ☐ Soil
- ☐ Land Use/Land Cover
- ☐ Other Land Surface

AGRICULTURE
- ☐ Aquaculture
- ☐ Fisheries
- ☐ Agriculture/Cropping
- ☐ Animal Production
- ☐ Forestry
- ☐ Other Agriculture

SOLID EARTH
- ☐ Geochemistry
- ☐ Geophysics
- ☐ Rocks/Minerals
- ☐ Volcanoes
- ☐ Other Solid Earth

ATMOSPHERE
- ☐ Atmospheric Chemistry/Air Quality
- ☐ Atmospheric Physics/Meteorology/Climate
- ☐ Other Atmospheric Aspects

OCEAN
- ☐ Bathymetry
- ☐ Coastal Processes
- ☐ Marine Geophysics
- ☐ Marine Sediments
- ☐ Marine Chemistry/Water Quality
- ☐ Marine Physics/Physical Oceanography
- ☐ Other Ocean/Marine Aspects

HUMAN DIMENSIONS
- ☐ Attitude/Behavior
- ☐ Boundaries
- ☐ Economics
- ☐ Health
- ☐ Infrastructure
- ☐ Environmental Impacts
- ☐ Other Human Dimension

FRESHWATER
- ☐ Ground Water
- ☐ Surface Water
- ☐ Water Quality
- ☐ Other Hydrosphere

BIOSPHERE
- ☐ Terrestrial Habitats
- ☐ Freshwater Aquatic Habitats
- ☐ Mangrove
- ☐ Coral Reef
- ☐ Seagrass
- ☐ Estuary
- ☐ Lagoon
- ☐ Intertidal
- ☐ Pelagic
- ☐ Other Marine Habitats
- ☐ Ecological Dynamics
- ☐ Microbiota
- ☐ Vegetation
- ☐ Zoology
- ☐ Other Biosphere
- ☐ Vegetation

5. Location(s):

Name(s):

Country(s) ☐ China ☐ Cambodia ☐ Indonesia ☐ Malaysia ☐ Philippines ☐ Thailand ☐ Viet Nam

6. Spatial Coverage:

Horizontal Boundaries:	**Southernmost Latitude:**	
	Northernmost Latitude:	
	Westernmost Longitude:	
	Easternmost Longitude:	
Horizontal Resolution:	**Minimum:**	
	Maximum:	
Vertical Boundaries:	**Minimum Altitude:**	
	Maximum Altitude:	
	Minimum Depth:	
	Maximum Depth:	
Vertical Resolution:	**Minimum:**	
	Maximum:	

7. Temporal Coverage:	**Start Date:**	
	Stop Date:	
Temporal Resolution:	**Minimum:**	

Maximum:

8. Additional Keywords:

9. Data Quality:

Procedures:
Position Accuracy:
Data Accuracy:
Completeness:
Recognition:
Knows errors:

10. Data Set Progress: ☐ Planed ☐ On Going ☐ Complete

11. Summary:

12. Data Center:

Long Name:
Short Name:
Contact Person:
Given Name:
Middle Name:
Family Name:
E-mail:
Phone:
Fax:
Mailing Address:
URL:

12. Access Constraints:

13. Use Constraints:

14. Distribution:

Distribution Media: ☐ Online Internet (HTTP) ☐ Online FTP ☐ E-mail ☐ Other Online Modes ☐ CD-ROM ☐ Diskette ☐ Other Digitally Encoded Media ☐ Hardcopy Media ☐ Photographic Media

Distribution Size:

Distribution Format: ☐ ASCII ☐ BIL ☐ EXCEL ☐ CDF ☐ DBF ☐ DEM ☐ DIF ☐ DOC ☐ DXF ☐ EPS ☐ ERDAS ☐ GIF ☐ GRASS ☐ HDF ☐ HTML ☐ IGES ☐ JPEG ☐ MS Word ☐ MPEG ☐ Native Format ☐ netCDF ☐ PLT ☐ PS ☐ SHP ☐ TIFF ☐ WK1 ☐ WKS ☐ Other

Fee:

15. Metadata Creation Date:

16. Last Revision Date:

17. Metadata Revised by:

Given Name:
Middle Name:
Family Name:
E-mail:
Phone:
Fax:
Mailing Address:

UNEP/GEF Project "Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand" (UNEP/GEF SCS Project)

Metadata Entry Form

(Save this form under a new filename for each metadata)

1. Entry Identifier: SEA START RC 006.doc

2. Data Set Name: High Resolution CTD from the South China Sea, 1996-1999

3. Data Set Producer(s): Southeast Asian Fisheries Development Center

4. Parameter(s):

LAND SURFACE
- ☐ Topography
- ☐ Soil
- ☐ Land Use/Land Cover
- ☐ Other Land Surface

AGRICULTURE
- ☐ Aquaculture
- ☐ Fisheries
- ☐ Agriculture/Cropping
- ☐ Animal Production
- ☐ Forestry
- ☐ Other Agriculture

SOLID EARTH
- ☐ Geochemistry
- ☐ Geophysics
- ☐ Rocks/Minerals
- ☐ Volcanoes
- ☐ Other Solid Earth

ATMOSPHERE
- ☐ Atmospheric Chemistry/Air Quality
- ☐ Atmospheric Physics/Meteorology/Climate
- ☐ Other Atmospheric Aspects

HYDROSPHERE (FRESHWATER)
- ☐ Ground Water
- ☐ Surface Water
- ☐ Water Quality
- ☐ Other Hydrosphere

OCEAN
- ☒ Bathymetry
- ☐ Coastal Processes
- ☐ Marine Geophysics
- ☐ Marine Sediments
- ☒ Marine Chemistry/Water Quality
- ☒ Marine Physics/Physical Oceanography
- ☐ Other Ocean/Marine Aspects

HUMAN DIMENSIONS
- ☐ Attitude/Preferences/Behavior
- ☐ Boundaries
- ☐ Economics
- ☐ Health
- ☐ Infrastructure
- ☐ Environmental Impacts
- ☐ Other Human Dimension

BIOSPHERE
- ☐ Terrestrial Habitats
- ☐ Aquatic Habitats
- ☐ Wetlands
- ☐ Ecological Dynamics
- ☐ Microbiota
- ☐ Vegetation
- ☐ Zoology
- ☐ Other Biosphere

5. Location(s):

Name(s):

Country(s) ☐ China ☐ Cambodia ☐ Indonesia ☒ Malaysia ☒ Philippines ☒ Thailand ☒ Viet Nam

6. Spatial Coverage:

Horizontal Boundaries:	**Southernmost Latitude:**	1N
	Northernmost Latitude:	24E
	Westernmost Longitude:	99E
	Easternmost Longitude:	127E
Horizontal Resolution:	**Minimum:**	0.25 degree
	Maximum:	0.5 degree
Vertical Boundaries:	**Minimum Altitude:**	
	Maximum Altitude:	
	Minimum Depth:	0 m
	Maximum Depth:	2000 m
Vertical Resolution:	**Minimum:**	1 dbar
	Maximum:	1 dbar

7. Temporal Coverage:	**Start Date:**	1996-09-25
	Stop Date:	1999-06-10
Temporal Resolution:	**Minimum:**	3 hour
	Maximum:	155 day

8. Additional Keywords: salinity, temperature, oxygen, fluorescense, profile

9. Data Quality:

Procedures:	Only uninterrupted downcast data were used. Original data were collected at 25 Hz. Data were pressure averaged at every 1bar. Outlier points were removed manually.
Position Accuracy:	+/- 0.005 degree
Data Accuracy:	Temperature +/-0.001 C, salinity +/-0.001 psu, oxygen +/-0.01 ml/l, fluorescense +/-0.01 V
Completeness:	Cover only EEZ of Thailand, Malaysia, Philippines and Vietnam. Only 1-2 cruises per year.
Recognition:	Several scientific papers were published based on this dataset.
Knows errors:	None

10. Data Set Progress: ☐ Planed ☐ On Going ☒ Complete

11. Summary:

CTD data were collected as a part of the SEAFDEC Collaborative Research on Marine Fishery Resources Survey in the South China Sea.

12. Data Center:

Long Name:	Southeast Asian Fisheries Development Center
Short Name:	SEAFDEC
Contact Person:	
Given Name:	Penjan
Middle Name:	
Family Name:	Rojana-anawat
E-mail:	penjan@seafdec.org
Phone:	66 24256100
Fax:	66 24259919
Mailing Address:	P.O. Box 97, Phrasamutchedi, Samut Prakan 10290, Thailand
URL:	www.seafdec.org

12. Access Constraints:

13. Use Constraints:

14. Distribution:

Distribution Media: ☐ Online Internet (HTTP) ☐ Online FTP ☒ E-mail ☐ Other Online Modes ☒ CD-ROM ☒ Diskette ☐ Other Digitally Encoded Media ☒ Hardcopy Media ☐ Photographic Media

Distribution Size: 1 MB

Distribution Format: ☒ ASCII ☐ BIL ☒ EXCEL ☐ CDF ☐ DBF ☐ DEM ☐ DIF ☐ DOC ☐ DXF ☐ EPS ☐ ERDAS ☐ GIF ☐ GRASS ☐ HDF ☐ HTML ☐ IGES ☐ JPEG ☐ MS Word ☐ MPEG ☐ Native Format ☐ netCDF ☐ PLT ☐ PS ☐ SHP ☐ TIFF ☐ WK1 ☐ WKS ☐ Other

Fee:

15. Metadata Creation Date: 1999-1201

16. Last Revision Date: 2002-01-16

17. Metadata Revised by:

Given Name:	Anond
Middle Name:	
Family Name:	Snidvongs
E-mail:	anond@start.or.th
Phone:	66 22189464
Fax:	66 22519416

Mailing Address:

Southeast Asia START Regional Center
SWU Building No. 5
Chulalongkorn University
Henri Dunant Road
BAngkok 10330, Thailand.

ANNEX 10

Agreed Workplan for the GIS Related Activities in the UNEP/GEF South China Sea Project

Year	2002												2003											
Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Step 1																								
[1]Specialised Executing Agencies																								
2nd meetings of the RWGs [2]									x	x														
[3]Southeast Asian START[4] Regional Centre																								
2nd meetings of: Regional Scientific & Technical Committee & Project Steering Committee												x												
Step 2																								
Specialised Executing Agencies																								
Southeast Asian START Regional Centre																								
3rd meetings of the RWGs														x	x									
Step 3																								
Specialised Executing Agencies																								
Southeast Asian START Regional Centre																								
4th meetings of the RWGs																					x	x		
3rd meetings of: Regional Scientific & Technical Committee & Project Steering Committee																								x

The First Phase of the project will be sub-divided into 3 steps to be carried out by the Specialised Executing Agencies in each country in close collaboration with the Southeast Asian START Regional Centre:

Step 1

(SEA): Each SEA in each country locates and identifies the distribution of each habitat, pollution impact sites, and locations that are significantly related to transboundary fish stock onto the national level Geographic Information System. This should be done before the Second RWG for each component.

SEA START RC to commence compilation of national information from SEA's into a regional GIS.

Step 2

SEAs to associate the national locations identified in Step 1 with general data/information to be agreed in the second RWG meetings of each component.
SEA START RC to compile national information from SEA's into a regional GIS.

---

[1] *SEA: Actions to be undertaken by the Specialised Executing Agencies in country*
[2] *RWGs: Regional Working Group meetings*
[3] *Actions to be completed by SEA START RC*
[4] *START: ~~S~~ys~~T~~em for ~~A~~nalysis ~~R~~esearch and ~~T~~raining*

Steps one and two need to be substantially completed by the end of 2002 in time for presentation to the regional Scientific & Technical Committee (RSTC) and Project Steering Committee (PSC) meetings in December 2002. The second RSTC meeting will discuss the criteria to be used in prioritising sites at a regional scale and amongst the different components and sub-components of the project.

The second meetings of the six regional working groups (RWGs), which will take place during September and October 2002, will discuss site selection criteria among sites, which have been prioritised at the national level.

The third meetings of the six regional working groups (RWGs), which will take place from Late February to early April 2003 and will finalise the criteria and undertake and initial prioritisation based on available site data and information in order to test the validity and workability of the criteria.

Step 3

Specialised Executing Agencies will compile detailed data/information required on the basis of the criteria established during the second Regional Working Group meetings for specific sites within each country considered as national priorities for nomination as candidate regional demonstration sites.

SEA START RC to compile national information from SEA's into a regional GIS.

The fourth meetings of the six regional working groups (RWGs), which will take place during late August through to October 2003. These regional working group meetings will recommend to the third RSTC meeting the potential demonstration sites within each component based on the criteria agreed during RWG-3.

The third meeting of the Regional Scientific & Technical Committee will consider the recommendations of the fourth meetings of the Regional Working Groups and evaluate synergies complementarities and duplications across all components and sub-components of the project. This meeting will select and prioritise potential demonstration sites within each component based on the criteria agreed and make recommendation to the third meeting of the Project Steering Committee.

The third meeting of the Project Steering Committee to be convened in December 2003 will make the final decisions regarding the choice of demonstration site selection.