



United Nations Development Programme
Countries: People's Republic of China, and Republic of Korea



PROJECT DOCUMENT

Project Title: Implementing the Strategic Action Programme for the Yellow Sea Large Marine Ecosystem: Restoring Ecosystem Goods and Services and Consolidation of a Long-term Regional Environmental Governance Framework

UNDAF Outcome 1: China: Government and other stakeholders ensure environmental sustainability, address climate change, and promote a green, low carbon economy.

UNDP Strategic Plan Environment and Sustainable Development Primary Outcome:

Output 2.5 Legal and regulatory frameworks, policies and institutions enabled to ensure the conservation, sustainable use, and access and benefit sharing of natural resources, biodiversity and ecosystems, in line with international conventions and national legislation.

Output Indicator 2.5.3 Number of countries implementing national and sub-national plans to protect and restore the health, productivity and resilience of oceans and marine ecosystems.

UNDP Strategic Plan Secondary Outcome: Output 2.4. Frameworks and dialogue processes engaged for effective and transparent engagement of civil society in national development

Expected CPAP Output (s)

5.1 A strengthened policy, legal, institutional framework for the sustainable use of land, water, the conservation of biodiversity, and other natural resources in fragile ecosystems is enforced.

5.2 The integration of gender, vulnerability assessments, risk reduction and adaptation to climate change into local development planning and service delivery in support of poor communities is promoted.

Executing Entity: UNOPS

Brief Description

This project builds upon four years of regional cooperation for the sustainable use of the Yellow Sea Large Marine Ecosystem (YSLME) put in place by China and the Republic of Korea, supported by the Democratic People’s Republic of Korea, the Yellow Sea Partnership and the Global Environment Facility (GEF). The initial project completed a regional Transboundary Diagnostic Analysis (TDA) and finalized a regional Strategic Action Programme (SAP), the implementation of which will be operationalized by the national SAP.

The project’s objective is to foster a long-term sustainable institutional, policy, and financial arrangements for effective ecosystem-based management of the Yellow Sea (YS). To achieve this objective, the project will support the formation of an YSLME Commission that will oversee the implementation of the SAP; and will support the states' efforts to reduce the decline in biological resources and to restore depleted fish stocks in the Yellow Sea..

In line with the GEF-5 International Waters (IW) strategic priorities, GEF will assist the countries reach an agreement on ecosystem-based joint action for the sustainable management of the Yellow Sea Large Marine Ecosystem, and to catalyse institutional reforms and support the implementation of policies aimed at reducing over-fishing and benefiting communities. There are four components of the project: 1) Sustainable national and regional cooperation for ecosystem based management; 2) Improved Ecosystem Carrying Capacity with respect to provisioning services; 3) Improved Ecosystem Carrying Capacity with respect to regulating and cultural services; 4) Improved Ecosystem Carrying Capacity with respect to supporting services.

The key outcomes sought are: 1) establishment of a self-sustaining cooperative mechanism for ecosystem-based management; 2) recovery of depleted fish stocks and improved mariculture production and quality; 3) improved ecosystem health; 4) improved inter-sectoral coordination and mainstreaming of ecosystem based management principles at the national level, maintenance of habitat areas, strengthened stakeholder participation in management and improved policy making; and 4) skills and capacity significantly developed for region-wide ecosystem-based management

Programme Period:	2014-2017	Total resources required	233,044,196
Atlas Award ID:	00074724	Total allocated resources:	233,044,196
Project ID:	00087001	GEF	7,562,430
PIMS #	4552	UNDP	1,692,000
Start date:	January 2014	Other:	
End Date:	December 2017	o Government in cash	26,785,812
Management Arrangements : Agency execution (UNOPS)		o Government in-kind	195,203,954
PAC Meeting Date :	TBD	o Other	1,800,000

Agreed by (Government):

Date/Month/Year

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Date/Month/Year

Agreed by (UNDP):

Date/Month/Year

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I. ACRONYMS

APR	Annual Progress Report (UNDP)
CPAP	Country Programme Action Plan
DPRK	Democratic People's Republic of Korea
ESCO	Energy Service Company
GEF	Global Environment Facility
HAB	Harmful Algal Bloom
IMCC	Inter-Ministry Co-ordinating Committee
IW	International Waters (GEF)
LME	Large Marine Ecosystem
MPA	Marine Protected Area
MSTP	Management Science and Technical Panel
NSAP	National Strategic Action Plan
NC	National Co-ordinator
NFP	National Focal Point
NGO	Non-Governmental Organisation
NPC	National Project Coordinator
NWG	National Working Group [NWG-F = Fisheries; NWG-M = Mariculture; NWG-H = Habitats; NWG-P = Pollution; NWG-A = Assessment; NWG-G = Sustainability (Finance and Governance)]
PAH	Polycyclic Aromatic Hydrocarbon
PIF	Project Identification Form (GEF)
PIR	Project Implementation Review (GEF)
PRC	People's Republic of China
POP	Persistent Organic Pollutant
RCU	Regional Coordinating Unit
ROK	Republic of Korea
RWG	Regional Working Group [RWG-F = Fisheries; RWG-M = Mariculture; RWG-H = Habitats; RWG-P = Pollution; RWG-A = Assessment; RWG-G = Sustainability (Finance and Governance)]
SAP	Strategic Action Programme
SBAA	Standard Basic Assistance Agreement
SP	Strategic Priority (of the GEF)
TDA	Transboundary Diagnostic Analysis
TOR	Terms of Reference
UNDP	United Nations Development Programme
UNOPS	United Nations Office for Project Services
WWF	World Wide Fund for Nature
YSCWM	Yellow Sea Cold Water Mass
YSLME	Yellow Sea Large Marine Ecosystem

1. SITUATION ANALYSIS

1.1 Context and global significance

1.1.1 Environmental context

1. In terms of the TDA and SAP, the geographic area of the Yellow Sea Large Marine Ecosystem (YSLME) was defined as the body of water bounded: to the west by the Chinese coastline south of Penglai; to the north by a line from Penglai to Dalian; to the east by the Korean Peninsula and Jeju Island and a line drawn from Jindo Island off the south coast of the Korean mainland to the Chaguido, west coast of Jeju Island; and to the south by a line running from the north bank of the mouth of the Yangtze River (Chang Jiang) to the south-western coast of Jeju Island. It covers an area of 400,000 km² and measures approximately 1,000 km by 700 km.



2. The seafloor is a post-glacially inundated portion of the continental shelf with an average depth of 44m and a maximum depth of 140m: the seafloor slopes gently seawards from the Chinese coast and more steeply from the Korean peninsula to a trough in the eastern portion of the basin that runs south to the Okinawa Trench. This trough was carved by the ancient Yellow River (Huang He) when the Yellow Sea was dry during the last glacial period. Meteorologically, the region is located between the Siberian High and the subtropical Pacific Low, which results in cold-dry winters and warm-wet summers.

3. The bio-geochemistry of the sea is strongly influenced by fresh water and airborne (aeolian) material. Rivers discharge approximately 1.6 billion tonnes of sediment and 1,500 billion tonnes of freshwater into the Yellow Sea annually and 460 billion tonnes of water from rainfall. The huge freshwater inputs result in temperature and salinity differences that limit the water exchange between the Yellow Sea and the East China Sea resulting to a low flushing rate of once every seven years. The low flushing rate combined with weak water circulation makes this sea vulnerable to pollution and its coastal areas highly susceptible to localized pollution discharges. The Yellow Sea is under the influence of the

Asian monsoon system, and circulation is predominantly influenced by winter cooling and summer heating, freshwater discharge and the inflow of warm saline waters in a branch of the Kuroshio current.

4. The major water masses of the Yellow Sea are: 1) the Yellow Sea Cold Water Mass at the bottom of the basin; 2) the Yellow Sea Warm Current Water, which is relatively saline and flows north-west between Sokotra Rock and Jeju island into the Jeju Strait and eastern Yellow Sea; and 3) the Yangtze River mixed water, which predominantly flows to the South but in the summer extends north-eastwards towards Jeju Island and lowers the salinity of the water. Summer circulation consists of the southward flowing Chinese coastal current, northward flowing Yellow Sea Warm Current, and north-eastward moving water from the East China Sea resulting in a central cyclonic gyre. In the winter the cyclonic gyre is not as pronounced and a southward coastal flow is seen adjacent to the Korean Peninsula.

5. The Yellow Sea is part of the temperate shelf seas of the North temperate Indo Pacific Ocean and supports five major, highly productive, marine habitats. YS supports a large population of fish, birds, mammals and invertebrates. These form a substantial living marine resource base for the large human coastal population. The warm temperate-water species that dominate the fauna and flora account for more than 70% of the total biomass. Seventeen species of whales and dolphins and four species of seals are found in the Yellow and Bohai Seas. The larger species such as the grey and fin whales have been severely depleted. Endangered marine mammals in the YS include the black right whale, white fin dolphin, Kurile harbour seal, spotted or largha seal, Japanese sea lion and the striped dolphin. It is estimated that at least two million shore birds use the region during their northward migration - representing approximately 40% of all migratory shorebirds using the East-Asian-Australasian Flyway.

6. The fish diversity is comparatively high with 339 species recorded from the Yellow Sea, of which around 45% are warm water species, 46% are warm temperate forms and 9% are cold temperate forms. As noted below the structure of the fish communities have changed significantly over the last thirty years. Polychaete species number around 100, molluscs 171, crustaceans 107, and echinoderms 22.

7. Landings of the ten most important species in the Yellow Sea area increased from 400,000 tonnes in 1986 to 2.3 million tonnes in 2004. However, this level of exploitation is not sustainable. Over-exploitation of the fish stocks has changed the catch composition. Fish catch from the Yellow Sea once consisted of large, long-lived, valuable demersal fish such as hairtail and small yellow croaker but are now dominated by short-lived, smaller, lower trophic level and less valuable species such as anchovy and sandlance.

8. The combined loss of wetlands, deterioration in coastal water quality and over-exploitation of resources has reduced the capacity of the Yellow Sea to provide goods and services. The nutrient assimilative capacity of the Sea has been exceeded such that increased nutrient inputs are driving changes in the marine food chain that may result in changes to ecosystem productivity.

1.1.2 Socio-economic Context

9. Five large coastal cities with tens of millions of inhabitants border the sea Qingdao, Dalian and Shanghai in the People's Republic of China (PRC); Seoul/Incheon in the Republic of Korea (ROK), and Pyongyang/Nampo in the Democratic People's Republic of Korea (DPRK). This population relies on the Yellow Sea LME's "ecosystem carrying capacity" to provide such services as: provision of capture fisheries resources (in excess of two million tonnes per year) and mariculture (14 million tonnes per year), the support of wildlife; provision of bathing beaches and tourism, and its capacity to absorb nutrients and other pollutants.

10. Commercial use of the living marine resources of the Yellow Sea dates back several centuries. The introduction of the bottom trawl in the early twentieth century has intensified capture fisheries. This resulted in the rapid loss of economically important species such as the red seabream by the 1930s. Fishing effort had increased threefold between the 1960s and early 1980s during which time the proportion of demersal species, such as small and large yellow croakers, hairtail, flatfish and cod, declined by more than 40% in terms of biomass.

11. About 100 species including cephalopods and crustaceans are commercially harvested but most of the species are not abundant. Only 23 of the 100 species exceed 10,000 metric tonnes; which represent 40 to 60 percent of the total landings per annum. During the 1950s and early 1960s, the dominant species were the small yellow croaker, and hairtail with mean body length of the catch exceeding 20cm. Pacific herring, Chub and Spanish mackerel became dominant in the 1970s and the mean body length of the catch had declined to 12 cm. In the 1980s, smaller bodied, fast growing and short lived species such as the anchovy and scaled sardine dominated the catch with a consequent decline in the quality of the fisheries resources. Recently, even catches of anchovy have declined and have been replaced by the sand lance species.

12. In 1978, China used 148,000 ha for mariculture and had expanded to 540,000 ha by 1997. The yield of flesh from bivalves in 1978 was 200,000 tonnes or 44% of the mariculture yield. In 1997 this had risen to 300,000 tonnes. Scallops, sea cucumbers and mussels dominate production in China while the dominant species in ROK are oysters, 20% of production, and mussels, 6% of production. A variety of other species including abalone, short-necked clam, hard clam, ark and pen shells and hen calms are also cultivated in various areas of both countries.

13. Seaweeds are an important crop in the Yellow Sea but some of the species such as *Pelvetia siliquosa* (deer horn seaweed) which was historically exported in large quantities from ROK to China have declined in abundance and had been replaced by other species. The most important cultivated seaweed in China is the brown alga *Laminaria japonica*, introduced from Japan. This is now grown in more than 3,000 hectares with a production of 10,000 dry tonnes per year. Half of this is consumed directly and half is used in the production of alginates.

1.1.3 Problems to be Addressed

14. The semi-enclosed nature of the Yellow Sea and the rapid economic development of the surrounding area have resulted in an increasingly polluted and over-exploited sea. This large marine ecosystem (LME) faces major transboundary problems. These are: 1) a dramatic increase in fisheries landings that have grown from 400,000 tonnes to 2.3 million tonnes in the past 20 years; 2) increasing discharge of pollutants; 3) changes to ecosystem structure and function leading to an increase in jellyfish and harmful algal blooms; and 4) 40% loss of coastal wetlands from reclamation and conversion projects representing a major loss of habitat for many species resulting in a significant degradation of biological diversity. On top of these immediate threats is the potential impact of climate change and sea level rise, and in particular, changes in basin circulation and the extent of the Yellow Sea “warm pool”.

15. The Transboundary Diagnostic Analysis (TDA) of the Yellow Sea and the associated causal chain analysis provided an analysis of the root causes of the environmental issues and problems of the Yellow Sea and identified the priorities for management actions to address the problems. Nine major transboundary environmental concerns have been identified: 1) Pollution and Contaminants, 2) Eutrophication, 3) Plankton Community Changes, 4) Fishing effort exceeding Ecosystem Capacity to provide Provisioning Services, 5) Problems of Sustainability in Mariculture, 6) Habitat Loss and Degradation, 7) Jellyfish Blooms, and 8) Climate Change related issues.

16. Pollution and Contaminants. The Regional Working Group (RWG) on Pollution identified inorganic nitrogen and phosphate, faecal contaminants, heavy metals, persistent organic pollutants (POPs), polycyclic aromatic hydrocarbons (PAHs) and marine litter as the major contaminants in the Yellow Sea. Inorganic nitrogen and phosphate are important nutrients that sustain phytoplankton (single celled algae) communities that form the basis of the marine food chain. However, high concentrations of these nutrients stimulate rapid phytoplankton growth at a rate that exceeds the consumption rate of the zooplankton and thus leads to the depletion of oxygen in water (eutrophication) and promotes the growth of harmful algal blooms (HABs). Contamination of coastal marine waters by bacteria and viruses derived from direct discharge of untreated domestic waste can result in contamination of seafood, particularly mussels, oysters and scallops. The resulting illnesses vary from minor stomach ailments to dysentery and typhoid. Heavy metals, although possibly important locally around industrial areas, are not considered a transboundary problem. PAHs are also likely to be a more localised issue associated with certain industrial processes although this class of compound can be mutagenic or carcinogenic. Incorporation of POPs into the marine food chain is, however, part of a global problem and can lead to increased health risks to humans.

17. Eutrophication. The extensive and over-use of chemical fertilizers and the increased discharges of untreated and/or partially treated industrial and domestic wastes have raised the concentration of dissolved inorganic nitrogen in the coastal waters of the Yellow Sea. The Yellow Sea is vulnerable to eutrophication as it is isolated from the East China Sea by a strong thermohaline front, has weak circulation internally, and the flushing time is around seven years. Algal production during a eutrophic episode frequently results in depletion of the nutrients and collapse of the bloom with mass mortality of the algae that sink to the bottom. The resulting bacterial decomposition causes oxygen depletion in the bottom water causing fish kills and mass mortality of other less mobile organisms, especially in mariculture establishments. Decreased Benthic biomass and increased proportion of polychaetes are changes associated with increasing eutrophication of the sediments. The reduced diversity of the benthic community could have significant consequences as it is an important food source for many commercially important demersal fish species.

18. Plankton Community Changes. Silicate (Si) is the result of the erosion and weathering of rocks carried to the sea by rivers, ground water and by the wind as dust. As a result of changing freshwater flows due to irrigation and hydroelectric projects, much of the silicates no longer reach the sea. The decreased silicate inputs in combination with increased nitrogen (N) concentrations have changed the nutrient ratio in the coastal waters of the Yellow Sea. This Si:N ratio is vital in sustaining the growth of diatoms. Diatoms are the most important group of phytoplankton in economically productive systems, accounting for approximately 60% of primary production by biomass in the world's oceans. However, when the ratio of Si:N falls below a ratio of 1:1, diatoms are not able to form their silica body walls due to insufficient supply of silica and thus promotes the growth of flagellate species. Since 1980, the Si concentration in the Yellow Sea has been close to the ecological threshold required for diatom growth. The ratio of diatoms to dinoflagellates was reported to have decreased in recent years, due to the increasing eutrophication and decreased ratio of Si:N. A number of these flagellates produce blooms (red tides and HABs) that are either toxic to higher organisms, causing for example, paralytic shellfish poisoning of human consumers, or reducing the palatability of seafood. Intense blooms can also reduce survival of fish and shellfish through gill clogging and reduced levels of dissolved oxygen. Changes in the biomass and composition of phytoplankton and zooplankton communities could have serious consequences for fisheries productivity as these groups form the basis of the marine food chain. The national reports by the YSLME project indicated increases in the biomass of phytoplankton fraction $> 77 \mu\text{m}$, but decreases in the zooplankton $> 500 \mu\text{m}$ on the Chinese side, while on the Korean side increased biomass of zooplankton $> 330 \mu\text{m}$ was recorded.

19. Fishing Effort Exceeding Ecosystem Capacity to provide Provisioning Services: Over-exploitation is evidenced by the decrease in mean size at catch of most species since 1986. In addition the composition of the catch has dramatically changed. In general, large commercially valuable species have been replaced by smaller, lower trophic level, less valuable pelagic species. Furthermore, the mean trophic level of the main commercial species in the Yellow Sea has decreased due to dietary changes as a result of 1) ontogenetic shifts in diet; 2) potential temperature induced changes in availability of dietary items that may reflect climate change impacts; and 3) over-fishing of the prey items of carnivorous fish including anchovy. Changes in species abundance as a consequence of over-fishing affect the overall structure and productivity not only of the fish community but the entire aquatic food chains in the wider Yellow Sea ecosystem. The decline of the Yellow Sea fisheries directly affects the livelihoods and food security of the local people, as well as significant socioeconomic impacts due to the extremely high value placed on these biological resources.

20. Problems of Sustainability in Mariculture Mariculture and freshwater aquaculture production from China and ROK have grown significantly. In 2005 these countries accounted for 44 million metric tonnes or 70% of the world's total production. China accounted for the bulk of the growth. Mariculture accounted for approximately 14 million metric tonnes in 2004 of which the greatest increase was from mollusc culture. There are signs however that further increase in mariculture and aquaculture production are not sustainable. Recently, the productivity per unit area has begun to fall as the area under cultivation grows. This fall in productivity may be due to the fact that only unsuitable cultivation areas now remain, or that increased proximity of farms has resulted in increased disease transmission between farms, raised concentrations of organic wastes and increased competition for food resources amongst cultivated organisms. These factors increase stress and lower the growth and survival rates of the cultured organisms, thus reducing productivity.

21. Habitat Loss and Degradation: Habitat loss has been at a staggering rate. Almost 40% of coastal wetlands have been converted into other uses. Notwithstanding, these countries have further development plans. Coastal construction has altered coastal habitats; industrial, agricultural and domestic effluent had further degraded these habitats. The coastal wetlands are important habitat for shellfish resources and their culture, and many of the commercially important fish species use these areas as nursery or feeding grounds at some stage in their life cycle. Many endangered bird species also depend on these wetlands as feeding and breeding grounds on their migration routes. Moreover, the wetlands perform important biogeochemical functions such as sediment retention, carbon sequestration, nutrient cycling, prevention of saltwater intrusion and coastline stabilization.

22. Jellyfish Blooms: The joint cruises conducted under the UNDP/GEF YSLME first project and other studies reported that jellyfish has increased in recent years causing the clogging of fishing nets and increasing the likelihood of bathers being stung. The recent regional fishery stock assessment cruises provide similar evidence of an increase in jellyfish abundance. The increase in marine litter and construction of concrete structures such as jetties and wharfs has also increased the habitat available to the asexual reproductive stage of these jellyfish. In addition, the reduction of plankton-eating fish stocks brought about by over-fishing, combined with the change from predominantly diatoms to dinoflagellates, has increased the food available to support the growth of jellyfish blooms. There appears to be a growing consensus that pollution, acidification of the sea and changing phytoplankton communities are leading to increased jellyfish densities in many regions. Not only do high jellyfish densities impact the tourists and fishermen in the Yellow Sea, they also adversely impact fish stocks. Jellyfish feed on the fish larvae reduces the availability of zooplankton which is an important food source for larval fish. The increase in jellyfish has wider transboundary implications as a consequence of movements of jellyfish out of the Yellow Sea to neighbouring seas.

23. **Potential Climate Change-related Impacts:** Air temperatures over the Korean Peninsula have increased at a rate of 0.23°C/decade since the 1960's. Although annual variation in sea surface temperatures appear to be connected with other major climate/ocean systems (e.g. El Nino/Southern Oscillation and the Aleutian Low), mean sea surface temperatures have increased 0.38 – 0.94°C/decade in the Yellow Sea. This warming trend appears to have been accelerating in recent decades and there has been a northward movement of isotherms during the period. Most of the major commercial fish species over-winter in the bottom cold water mass is located in the central southern portion of the Yellow Sea. Shrinkage of this cold water mass due to climate change could have serious consequences for these stocks. Some cold-water species, such as Pacific cod and herring, are no longer found in commercial numbers due to either over-fishing or warming of the cold water mass or a combination of both. The increase in carbon dioxide emissions due to anthropogenic activities causes acidification of seawater and a decrease so far of 0.1 pH units. A 30% increase in the H⁺ ion concentration has already been observed. Links between jellyfish density and acidification have been reported. Potentially, the impacts of climate change could result in the mistiming of the arrival and breeding season of migratory birds with respect to food availability as evidenced in other seas. In addition, climate driven changes in sea level could have significant impacts on the food available to wading birds by reducing the area of tidally exposed mudflats.

1.2 Threats and Root Causes

24. Land reclamation poses the strongest threats to coastal habitats as most coasts bordering the Yellow Sea are consist of depositional shorelines except for some rocky coasts in Liaoning and Shandong Provinces in China and Jeju Do, and Chollanam Do in ROK. Between 1950 and 1985 one third (2.94 million ha) of tidal flats in the People's Republic of China were reclaimed. Similarly, between 1988 and 1998, ROK reclaimed 810 km² or 25% of the total area of tidal flats. Plans already exist to reclaim around 800,000 hectares of mud-flats over the next 10 years in China. Reclamation is driven by demand for additional land for urban expansion, port and oil refinery development, and agriculture.

25. Habitat degradation is also caused by severe pollution. More than 100 million tonnes of domestic sewage and around 530 million tonnes of industrial wastewater are discharged into the near shore areas of the Yellow Sea annually. The eastern Yellow Sea is seriously polluted and subject to persistent red tides. The zooplankton community has been affected showing declines in copepods and arrow worms. Mass mortalities of the hard clam have occurred in the western regions of ROK due to high densities of pathogenic bacteria, parasitic cercaria and high concentrations of pesticides. Such events have caused serious losses in the aquaculture industry.

26. Habitat conversion and intensification of uses is occurring along the landward fringe of the Yellow Sea with consequent loss of wetlands. This includes intensification of drainage, intensification of grazing and increased removal of timber products, and increased construction of shrimp and mariculture ponds. These changes are due to increased demands for seafood caused by the growing population along the coastal areas and from lifestyle changes and increased coastal tourism.

27. Around 122 species of plants and animals were found to be vulnerable due to changes in habitat and suitability of migratory habitats, marine pollution, over-exploitation of marine resources and changes in water circulation and surface temperatures. Underlying causes for these changes are: 1) increase in human population numbers and activities in the coastal zone; 2) limitations of waste treatment facilities; 3) excessive numbers of fishing boats; and 4) construction and port enlargement. In part, these causes reflect an inadequate valuation of the ecosystem goods and services during development planning, a lack of public awareness of the values of natural systems, weak legal instruments and inadequate enforcement of laws and regulations.

28. An estimated 223 or more species of plants and animals had been introduced in ROK by 1996, of which a number of barnacles have become naturalized. Of 30 seashore areas surveyed, 27 had at least one introduced marine organism present; *Balanus amphitrite* and *Ciona intestinalis* were found in 21 and 19 areas, respectively. While a number of species have been introduced deliberately for mariculture or for stabilizing coastal dune areas, a number appears to have been introduced accidentally, possibly via ballast water discharge.

29. The data on fisheries in the Yellow Sea suggest that harvest is far above the level of a sustainable harvest. This has resulted in decreased individual size in target species and reduced population numbers, hence, reduced mature breeding fish in the population and harvest. Excessive number of fishing vessels has been recognized as the primary cause of over-exploitation of the YS. Therefore, the need to reduce the size of the fishing fleet by 25-30% by 2020 to address this problem. Another contributing factor to the decline in fisheries resources is a traditional, narrow management approach to fisheries rather than an ecosystem based management approach. The traditional approach focuses on particular resources without considering the interconnection between the target fish, the food web and ecosystem on which they depend.

30. To respond to these problems, the UNDP/GEF Yellow Sea Large Marine Ecosystem (YSLME) project supported a regional "Transboundary Diagnostic Analysis" (2005), and a regional "Strategic Action Programme (SAP)" (2008) and the "National Strategic Action Plans" (2009) in the Republic of Korea and China. These countries recognized the need for scientific knowledge to be translated into regional policy, legal and management actions and not restricted to each nation, as environmental problems are not limited by geographic boundaries. The SAP identifies 11 regional targets aimed at maintaining the ecosystem's capacity to provide the four ecosystem services (provisioning, regulating, cultural and supporting) to the region and beyond. It provides adaptive ecosystem-based management actions to reach these targets.

31. A significant barrier to a concerted regional approach to a sustainable management of the YS is the absence of a regional governance mechanism. To address this barrier, an YSLME Commission will be established to oversee joint actions addressing the transboundary issues identified in the SAP. The Commission will ensure that regional targets are met through the implementation of the "on-the-ground" management actions spelled out in the SAP. For the Commission to become self-sufficient and sustainable, the project will support the establishment of appropriate financial mechanisms, capacity building workshops, stakeholder participation, and public awareness activities. It is expected that the global environmental benefits of the proposed project would include: 1) restoration of globally important fish stocks by reducing up to 30% of the current fishing effort; 2) increased uptake of sustainable mariculture techniques in an industry responsible for 1/3 of global production; 3) improved management of globally significant habitats for migratory birds and mammals; 4) decreased eutrophication through reduction in nutrient discharges by 10% every 5 years; and thus, 5) an overall restoration of ecosystem carrying capacity. Moreover, the project's unique approach to formulating a SAP, during the first YSLME project, based on ecosystem services, serves as an inception point for introducing ecosystem based management approaches at the national level.

32. The management targets listed in the SAP, e.g. reducing 30% fishing boats and reducing 10% nutrient discharge every 5 years, were based on the current national plans approved by the participating countries' respective governments. In the case of China, the National 12th 5-year Plan has the same management targets. RO Korea has a similar national plan. The Plans were reviewed by regional experts and the national and provincial governments based on realistic implementation considerations. During the first project, demonstration projects were implemented to study the usefulness and effectiveness of the management actions. Results from the demonstration activities will input into the implementation of the proposed project.

1.3 Long-term Solution and Barriers to Achieving the Solution

33. The root causes of the environmental problems of the Yellow Sea stem from the increasing demand for environmental goods and services which has already exceeded the natural supply capacity of the system. The Ecosystem Carrying Capacity (ECC) of the YS has been exceeded not merely in terms of direct exploitation but also in the capacity of the system to absorb contaminants resulting in algal and jellyfish blooms and other problems outlined above. The Strategic Action Programme notes that ECC may be defined in terms of: provisioning services (e.g. wild and cultured seafood), regulating services (e.g. regulation of climate change and water quality), cultural services (e.g. tourism), and supporting services (e.g. nutrient cycling & primary production).

34. The long-term goal of the YSLME SAP is to preserve the ECC of the Yellow Sea in order to continue providing its ecosystem services. As such, an effective long-term solution to the environmental problems of the Yellow Sea is to meet all the targets of the regional SAP to restore environmental quality and productivity.

35. Traditionally, management actions target problems. However, this traditional approach is of limited effectiveness as environmental problems are not normally the result of a single cause. Declining fish landings are not simply the result of over-fishing, but are also the result of pollution, over supply of nutrients into coastal waters and loss of habitat used by fish for spawning and feeding. The sector approach to management cannot adequately address all the underlying causes. Based on the ecosystem-based approach advocated by the YSLME SAP, there is a need for a holistic approach to multiple ecosystem services to sustain the ECC of the Yellow Sea.

36. The immediate cause of problems such as over-fishing is over-capitalization of the industry such that too many boats are seeking to catch an ever declining stock of fish. The increased demand for seafood stems from the coastal population itself, the increasing numbers of tourist visitors together with external demand both within China and in neighbouring East Asian Countries. This growing demand has not only resulted in over-harvesting of wild stocks but also in increased mariculture production. Areas of inter-tidal and sub-tidal habitats are being converted to mariculture facilities.

37. Long-term solutions to these problems involve a substantial reduction in the size of the current fishing fleet, with the concurrent provision of alternative livelihoods for displaced fishermen; improved aquaculture production in both quantity and quality, while at the same time a reduction in the environmental impacts of mariculture operations; better production systems that reduce contaminant outputs, more efficient and effective means of controlling pollutants at source and preventing their spread in the marine environment.

38. The solutions for each individual set of problems cannot be addressed in isolation but must be tackled in a coherent and coordinated manner that reflects the goods and services provided by the Yellow Sea Large Marine Ecosystem and the demands placed upon it by human populations and activities.

39. The situation is further complicated by the involvement of all the coastal countries in the use of the Yellow Sea and its resources. The current development actions of each country independently impact upon the health of the Yellow Sea Ecosystem and just as there is a need to coordinate actions between sectors at the national level, there is a need to coordinate the use of the YS Ecosystem and its resources by all coastal countries. The long-term solution to the problems of regional coordination requires the establishment of an appropriate regional entity with political and financial support from all the coastal

countries. It can serve as a forum for the development of appropriate sustainable management plans and have the power and authority to oversee the implementation and execution of such plans.

1.4 Stakeholder and Baseline Analysis

1.4.1 Stakeholder Analysis

40. The central governments of the two participating countries are the most important stakeholders since the project seek to establish and strengthen the regional governance regime with respect to the protection and conservation of the Yellow Sea's ecosystem. The role of each of the central governments of the participating countries has been important in the past in promoting regional approaches.

41. Below the central governments are the Provincial and Municipal Governments that have jurisdiction over various aspects of coastal land and water uses, planning, licensing and enforcing local regulations and standards. These government entities are significant stakeholders with the power and authority to control and regulate the actions of both public and private sector enterprises operating in the coastal zone.

42. The coastal communities are stakeholders that derive benefit directly and indirectly from the various services of the coastal ecosystems. (e.g. agriculture, mariculture, tourism and for subsistence). At the same time, these communities are affected by ecosystem changes occurring as a result of both their own actions and those of others. For example small scale tourist businesses, or mariculture operations that depend on the quality of the marine environment can be adversely impacted by red tides and harmful algal blooms that cause mass mortality of marine organisms and human health problems. During the first UNDP/GEF YSLME Project the Rongcheng Fisheries Association and a number of commercial mariculture companies in Sanggou Bay, in China and the Fisheries Co-operative of ROK have been involved in workshops, publicity campaigns, protection of seagrass beds and the conduct of SAP demonstration activities.

Several international organisations have supported regional governance. UNDP has actively participated in the regional governance mechanisms while UNEP has been involved through the Regional Seas Programme in general, and NOWPAP in particular; the IMO through the operation of the various earlier phases of PEMSEA, and the implementation of ballast water demonstration project in Dalian. The existing partnerships and MOU between the first project of YSLME and PEMSEA is to develop and facilitate the necessary cooperation and coordination between the two projects in the context of the UNDP/GEF East Asian Seas (EAS) Program Framework Document (PFD), as well as the Sustainable Development Strategy for the Seas of East Asia (SDS/SEA). The existing MOU with PEMSEA will be renewed as it has been given the task of coordinating the EAS Program and also because of the complementary approaches and activities in the Yellow Sea. The MOUs with other international organizations and projects, e.g. UNEP NOWPAP, IOC/WESTPAC, WWF, Wetland International will be reviewed and renewed accordingly, if appropriate. These organizations are usually invited and participate during the Project Steering Committee Meetings during the first phase of the project. This provided the venue for discussing opportunities for collaboration and coordination that emerge during project implementation. The project will continue the practice and will, at the same time, be opportunistic during implementation. The project will work closely with IWLearn on exchanging experiences and learns learn, including set up an international training for IMTA in the project component 2, the experiences sharing on ecosystem assessments in the project component 3, the sharing experiences on application of the regional algorithm on chlorophyll-a in the project component 4, and the updating & maintaining project's homepage in the project component 5.

43. The scientific and academic communities have participated in both the regional and national levels. They have participated in conducting regional analyses during the first project and in providing scientific and technical advice to the political decision makers represented on the Project Board. It is anticipated that these institutions and individuals will continue to provide such functions in the implementation of the second Yellow Sea project and in providing advice to the Yellow Sea Large Marine Ecosystem Commission when established.

44. Other stakeholders including parliamentary organisations, international NGOs such as WWF and local ones together with private sector groups such as mariculture associations have participated in the regional governance less actively than other stakeholder groups to date. In the ROK, NGOs such as Birds Korea; Citizens Institute for Environmental Studies, the Eco-horizon Institute, Korea Marine Rescue Center, Shihwa Lake Saver, and the PGA Wetlands Ecology Institute, and in China, the Global Village of Beijing, had undertaken activities during the first project under the small grants programme. Incorporation of stakeholders into the various decision-making systems related to marine resource management, coastal zone management, pollution management and other aspects of SAP implementation is encouraged. At the national level, coordination is also desirable between scientists, managers, fishermen, farmers, and government officers. **During the project implementation, the relevant stakeholders of the project will approach the UNDP Small Grant Project to assist in on-the-ground activities of the SAP implementation to ensure maximum benefits to the participating countries.**

45. Securing the participation of all the coastal countries and relevant stakeholders in the regional governance while necessary will be an enormous task. Capacity building of some stakeholder groups particularly local NGOs and governments will be required before they are in a position to fully participate in the regional governance and management decision making. It is anticipated that involvement of both the NGO community and private sector enterprises will build on the successes of the first project and the range of organisations will be expanded to include industries, small and medium sized enterprises and tourism operators.

46. In order to enhance overall effectiveness of SAP implementation, strengthening partnerships with existing regional cooperative institutions is necessary including, but not limited to, bilateral cooperation mechanisms such as the Joint Committee on Environmental Cooperation, the Joint Fisheries Commission, China-Korea Joint Ocean Research Center and further strengthening the current Yellow Sea Partnership.

47. This project marks the second stage of GEF financial support to the Yellow Sea. It also marks a change in focus and a change in the stakeholder mix of the project itself. By focusing on the problems of depleted fisheries and conservation of biodiversity, this project places more emphasis on sustainable development. It also recognizes the critical importance of regional governance where the most important stakeholder groups are the Ministries responsible for: Foreign Affairs, Maritime Affairs, the Environment/Natural Resources, and fisheries in each country.

48. The major government stakeholder institutions in each country are listed below.

People's Republic of China
Ministry of Foreign Affairs
Ministry of Finance
State Oceanic Administration
Ministry of Environment Protection
Ministry of Communication
Ministry of Agriculture
Provincial and Municipal Governments

Republic of Korea
Ministry of Foreign Affairs
Ministry of Ocean and Fishery
Ministry of Agriculture, Food, and Rural Affairs
Ministry of Environment
Ministry of Unification

1.4.2 Baseline Analysis

49. There is a marked declining trend in extent and status of the coastal ecosystems of the Yellow Sea. This trend line is disturbingly downward as described in earlier sections. There were significant losses of area and degradation of coastal habitats and ecosystem functions. In a baseline or business as usual scenario this trend would likely to continue, either declining or bottoming out, with little to no improvement in the near to medium term.

50. The lack of experience and knowledge, and other capacity constraints with respect to ecosystem-based management will hinder the Yellow Sea coastal countries from understanding key ecological relationships such as the link between changes in nutrient ratios and jellyfish blooms, and applying this understanding to practical resource management decision making. Capacity constraints will hamper the region's ability to develop effective management decision support tools that would enable regional and national institutions to link resource management to conservation objectives in the context of an ecosystem-based management framework. Capacity constraints may also inhibit improved regional collaboration adversely affecting the effectiveness of management actions across the Yellow Sea Large Marine Ecosystem.

51. Under a business as usual (or baseline) scenario, individual countries will continue their regular monitoring programmes of various environmental and ecological parameters and not in accordance with agreed regional standards and protocols for monitoring of Yellow Sea ecosystem health. This means that the data from each country will be difficult to compare and contrast because data are collected in different ways and at different times. This makes it difficult to use national data in regional management and policy making, hence preventing the development of a basin wide picture of the Yellow Sea's ecosystem health.

52. The decline in habitat status and biodiversity are closely linked through food chains and feeding patterns. A disturbance in the nutrient ratios of the phytoplankton and zooplankton communities may impact species at higher trophic levels. The disturbance is caused by changes in the frequency of red tides and harmful algal blooms, eutrophication and mass mortalities of benthic organisms under a baseline scenario.

53. Declining trends in the average size of wild-caught fish, in catch per unit effort and in total landings are well recognized by both countries as an indication that the current harvest is beyond sustainable levels. Without joint actions to reduce total catch, it is likely that these resources will continue to decline both in quantity and quality in the foreseeable future. While the excessive levels of harvests are viewed as the primary cause of the decline observed over the last three decades, it is clear that the loss of coastal habitats that resulted in significant reduction in nursery and spawning grounds has contributed to declines in fish recruitment. Increased pollution has exacerbated the problem with the declining water quality negatively affecting the availability of larval fish food sources.

54. The decline in the average size of fish catch reflects both declines in size of individuals within each target species and consequently in the economic value of the catch. These have been observed to occur over the last two decades. Without concrete and coordinated action these trends will continue.

55. Under the baseline scenario in the fisheries sector, the Yellow Sea countries are expected to maintain past management practices based on the assumptions that people can control natural systems and can compensate for ecosystem degradation and overexploitation to achieve maximum sustainable yields through practices such as release of significant numbers of hatchlings and fingerlings without ascertaining the ecological effectiveness of such actions. In a baseline situation, there is little attention on how to increase reproduction of target fish species through ecologically-based approaches that improve the quality of the environment for conserving nursery and spawning habitats and reducing pollution.

2. STRATEGY

2.1 Project Rationale and Policy Conformity

56. This project fits within and complements the GEF portfolio of International Waters projects since the project builds upon a country-driven regional Strategic Action Programme developed with GEF support. This will enable the project to generate many useful lessons and will serve as a mature model for many other transboundary initiatives in GEF's worldwide portfolio. It will also contribute to the strengthening of the overall GEF-IW portfolio, through participation in IW:LEARN activities. Moreover, the project is designed to incorporate lessons from other GEF IW initiatives such as projects on the Benguela Current, the Rio de la Plata, and the Black Sea. .

57. The YSLME SAP proposes the use of an innovative "ecosystem-based management approach" as advocated in the Millennium Development Goals (MDGs) in order to manage the complicated relationships between the environmental stresses and the resulting problems. This ecosystem-based approach uses scientific knowledge to guide appropriate management actions that preserve the ecosystem functions of the YSLME and its Ecosystem Carrying Capacity (ECC).

58. This project is consistent with GEF's International Waters strategy, in that it represents a project to implement the Strategic Action Programme developed with GEF assistance and based on a detailed Transboundary Diagnostic Analysis. The GEF funding will: enable regionally coordinated implementation of the SAP through the YSLME Commission; and foster the removal of sectorial barriers to the integrated management of the YS ECC.

59. Within the GEF International Waters Strategic Priority #1, the project will address the need for bilateral and multi-lateral programmes of action to enhance fish stocks; encourage the implementation of the FAO Code of Conduct for Responsible Fisheries; engage the fishing and mariculture industries in sustainable management solutions that provide profit to these stakeholders, while not negatively impacting the Yellow Sea Ecosystem.

This project also addresses the GEF International Waters Strategic Priority 2 (IW-SP2) through measures to reduce nutrient loads, in fulfilment of the articles in pollution-related conventions; through translating regional monitoring results into policies; and providing mechanisms to exchange data among agencies and across borders. IW-SP2 is closely linked to protection of critical habitats through improving and/or establishing management plans and marine protected areas. Regular monitoring of the impacts of pollutants on habitats, surrounding areas, and assessment of affected stakeholders will be covered and the project will utilize ecosystem-based approaches and adaptive management schemes to manage these transboundary water problems. Moreover, management actions will cover potential impacts of and adaptation to climate change.

60. The project will also deliver such outcomes as: enhanced public awareness; strengthened stakeholder's capacity to carry out actions; and institutional sustainability that ensures the SAP and the YSLME Commission will be self-sufficient in the long-term. Involvement of all coastal countries in the Yellow Sea, will enhance regional environment management and regional peace and stability.

61. The Yellow Sea represents a marine environmental resource shared among the coastal countries hence GEF involvement is critical in overcoming the geopolitical complexities and potential conflict among resource users in the Yellow Sea. Benefits resulting from the inclusion of all partners will accrue in terms of expanded regional and international marine conservation and management efforts in the East Asian Seas region.

62. The current sector-management of the marine environment in the countries bordering the Yellow Sea prevents implementation of coordinated, integrated and ecosystem-based management as defined in the SAP. GEF assistance in the institutional, policy and management reforms will move the process from the business-as-usual approach to integrated management across sectors. Managing to improve ecosystem carrying capacity will be a novel process for the region to engage in. There is an urgent need to move the region's perception of marine environmental management in this direction. As a result of the SAP implementation, the capacity of individual agencies to play a pivotal role in facilitating more holistic management will be improved. Use of GEF resources together with national financial commitments will also facilitate the sharing of experiences and lessons-learned on national and regional scales, ultimately aimed at increasing the replication potential for the project's impacts. Implementation of YSLME SAP will assist the implementation of the "Sustainable Development Strategies for the Seas of the East Asia (SDS-SEA)" at the sub-regional level. This will provide valuable benefits to strengthen regional infrastructure established under GEF's efforts.

2.2 Country Ownership: Country Eligibility and Country Drivenness

63. The countries have formally endorsed the SAP for the Yellow Sea developed during the implementation of the UNDP/GEF first project as follows: China (19 Nov. 2009), DPRK (as observer) (8 Dec. 2008), and ROK (28 Nov. 2008). China and ROK have developed and approved the National Strategic Action Plans (NSAPs) to implement the SAP at the national level. These NSAPs are consistent with the National Biodiversity Strategic Action Programs of China and ROK.

64. This project is consistent with the UNDP Country Programme Document (CPD) for China contributing to UNDAF (2011-2015) Outcome 1, Government institutions and other stakeholders will ensure environmental sustainability, address climate change, and promote a green, low carbon economy.

65. An official letter was received from DPRK supporting the TDA and SAP prepared for the Yellow Sea, following a detailed introduction of these topics at a training workshop, organised during the first project.

66. The Republic of Korea is no longer eligible for UNDP and GEF assistance. The actions and activities programmed in the regional Strategic Action Programme will be financed through the government's recurrent budget within the national institutional framework.

2.3 Design Principles and Strategic Considerations

67. As noted above a critical element of any long-term solution to the environmental problems of the Yellow Sea lies in the creation of a sustainable management mechanism at the regional level supported by cross-sector management actions at the national level. This project aims, among others, to establish an

intergovernmental YSLME Commission that is sustainably funded in the long term and possesses sufficient authority and credibility to direct the management of the Yellow Sea Large Marine Ecosystem and its resources with a view to restoring the Ecosystem Carrying Capacity of the system.

68. Critical to the achievement of the long term environmental goals is the development of a strong capacity for ecosystem based management of the Yellow Sea and its associated resources and a substantial proportion of the project's activities are directed towards achieving this capacity.

2.4 Project Objective, Outcomes and Outputs/Activities

Objective: To achieve adaptive ecosystem-based management of the Yellow Sea Large Marine Ecosystem by fostering long-term sustainable institutional, policy, and financial arrangements for effective ecosystem-based management of the Yellow Sea in accordance with the YSLME Strategic Action Programme.

Following the ecosystem-based approach designed in the regional SAP, there are four components planned for the implementation of the SAP. The first component is the enhancement of regional cooperation for ecosystem based management. The three other components are aimed at improving ecosystem carrying capacities based on the provisioning, supporting, regulating and cultural services of the ecosystem. The major outcomes, outputs and activities as described below are based on the discussion, negotiation and agreements with the governments and experts of the participating countries.

COMPONENT 1. ENSURING SUSTAINABLE REGIONAL AND NATIONAL COOPERATION FOR ECOSYSTEM BASED MANAGEMENT, BASED ON STRENGTHENED INSTITUTIONAL STRUCTURES, IMPROVED KNOWLEDGE BASE AND STRENGTHENED CAPACITY FOR DECISION MAKING

This component aims to strengthen the regional and national cooperation and coordination in dealing with the protection of the marine environment and sustainable uses of marine and coastal resources. At the regional level, the most important task is to establish the YSLME Commission as the regional body for the cooperation among all the coastal countries of the Yellow Sea. At the national level, enhancing inter-ministerial cooperation and coordination, through the Inter-Ministry Coordinating Committee (IMCC) will be a major action.

An Interim YSLME Commission Council will be established and will be the responsible body for the project implementation, including the relevant negotiations on the establishment of the permanent Commission within the duration of the project.

Enhancing wider participation of all the stakeholders in the implementation of SAP through capacity building and public awareness activities will provide effective implementation and meaningful results. Improved compliance to the international and regional treaties and the agreements will provide sustainable mechanisms to ensure long-term actions at both national and regional levels.

OUTCOME 1.1 REGIONAL GOVERNANCE STRUCTURE - THE YSLME COMMISSION – ESTABLISHED, OPERATIONAL AND SUSTAINED, BASED ON STRENGTHENED PARTNERSHIPS & REGIONAL CO-ORDINATION; WIDER STAKEHOLDER PARTICIPATION AND ENHANCED PUBLIC AWARENESS

The regional governance structure is critical to the sustainable implementation of the regional cooperation within and beyond the project, as noted in the regional SAP. All the coastal countries of the Yellow Sea

had agreed to establish YSLME Commission as the cooperating and coordinating body for the long-term management and operation of all activities in protecting marine environment and sustainable uses of marine and coastal resources.

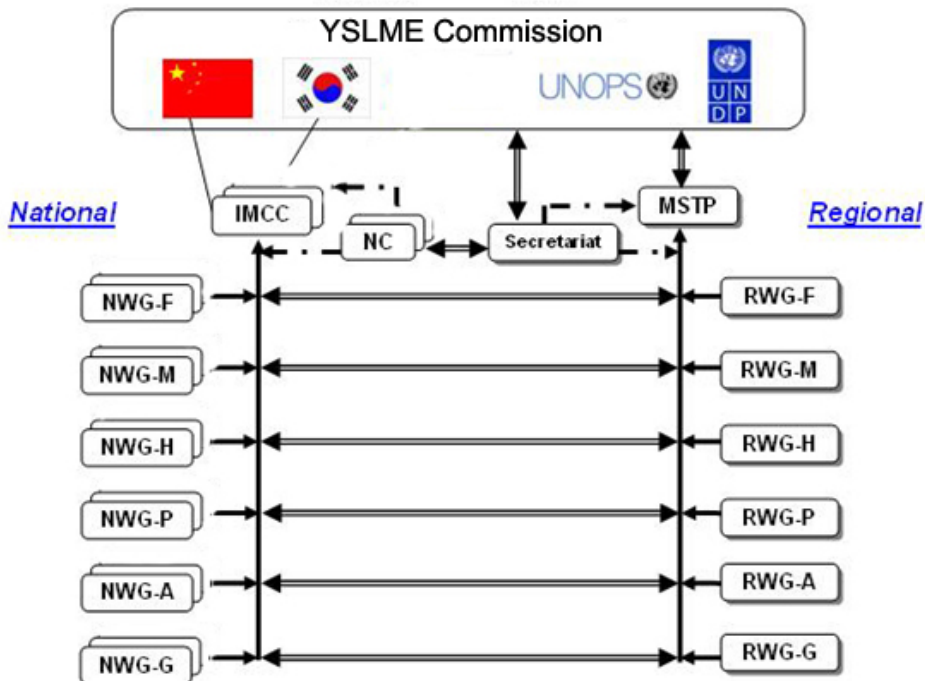
Output 1.1.1 *Regional agreement to establish the YSLME Commission, Management, Science and Technical Panel (MSTP) and Regional Working Group (RWGs); national and regional policies drafted and implemented*

All relevant agreements will be negotiated and agreed upon by all participating countries: to establish the YSLME Commission and associated bodies, the Management Science and Technical Panel (MSTP), Regional Working Groups (RWGs), Inter-Ministry Coordination Committees (IMCC) and National Working Groups (NWGs) and adopt their Terms of Reference (TOR), membership and rules of procedure for the conduct of meetings.

The YSLME Commission is to be a soft, non-legally binding and cooperation based institution. Considering the complex geopolitical situation in the Yellow Sea region, it is not appropriate to have a legally binding treaty-based institution though it could be sought in the future. However, sufficient political will among participating governments should be secured in the form of a joint declaration or an MOU. The YSLME Commission will have 1) a decision-making process to seek agreements among all the partners of the Commission; 2) a conflict resolution process to discuss and resolve conflicts that may arise from use of the Yellow Sea marine environment and resources; and 3) a sustainable financing mechanism to ensure long-term and effective management and operation of the Commission.

The preliminary Terms of the Reference and Rules of Procedures of the Commission as discussed and agreed on by the China and ROK are attached as Annex 3 to this document.

Figure 1 shows the indicative structure of the Commission. This will be finalized through the project.



It is anticipated that the Commission will meet annually and will serve as the supreme body responsible for joint policy development, implementation of the SAP and oversight of the UNDP-GEF project execution. The Management, Science and Technical Panel (MSTP) will also meet annually and the Regional Working Groups (RWGs) will meet as required to execute their responsibilities as defined by the Commission. The reports of all meetings will be made publicly available through the Yellow Sea Large Marine Ecosystem website. The website will also serve as a repository for regional environmental data and information and will be interactive, allowing partners to up-load data and information as appropriate.

The Commission will be serviced by a professional secretariat with responsibility for: preparing annual summaries of costs and draft budgets for the subsequent year, advising on the cost effectiveness of the operation of the Commission, its subsidiary bodies and its Secretariat, providing technical assistance and advice to the National Project Coordinators (NPCs), as required.

OUTCOME 1.2 IMPROVED INTER-SECTORAL COORDINATION AND COLLABORATION AT THE NATIONAL LEVEL, BASED ON MORE EFFECTIVE IMCCS

An Ecosystem-based approach requires strong and effective inter-sector coordination and collaboration at the national level in addition to the regional level. At the national level, traditional fishery management involved only the fishery sector. However controlling pollution and maintaining critical habitats are also important elements for the recovery of fish stock in the Yellow Sea. Scientific findings on jellyfish blooms provided good justification for inter-sector coordination and collaboration to maintain healthy plankton communities and subsequently the food chain in the Yellow Sea ecosystem. The ecosystem-based approach requires the Department of Environment to control land-based pollution; the Department of Science to provide good knowledge and information on the changes of plankton communities with the modifications of environment conditions; the Department of Ocean to maintain the relevant marine habitats and legal enforcement; and the Department of Fishery to enhance fish stock assessment.

Output 1.2.1 *National level agreements regarding ecosystem-based management actions, policies, regulations and standards promulgated, as appropriate*

Activities will involve supporting and strengthening the functioning of the Inter-Ministerial Coordination Committees (IMCCs) in each country by including the IMCC into the project implementation structure; organizing regular IMCC meetings and reporting the IMCC agreements to the Interim Commission Council (ICC) designed for this project;

- During the entire course of the SAP implementation, the national data and information on the institutional arrangement, stakeholder participation will be collected and analysed;
- Guidelines in management and implementation of the relevant national activities will be prepared;
- The inter-sector management boards for selected demonstration sites will be established, including the provincial governments and local communities;

The composition of the IMCCs in China and ROK is listed below. During implementation, the project will, from time-to-time, evaluate the composition and may be expanded to ensure wider cooperation among relevant ministries.

People’s Republic of China
Ministry of Foreign Affairs
Ministry of Finance
State Oceanic Administration

Ministry of Environmental Protection
Ministry of Communication
Ministry of Agriculture
Provincial and Municipal Governments
Republic of Korea
Ministry of Foreign Affairs
Ministry of Ocean and Fishery
Ministry of Agriculture, Food, and Rural Affairs
Ministry of Environment
Ministry of Unification

OUTCOME 1.3 WIDER PARTICIPATION IN SAP IMPLEMENTATION FOSTERED THROUGH CAPACITY BUILDING AND PUBLIC AWARENESS, BASED ON STRENGTHENED YELLOW SEA PARTNERSHIP AND WIDER STAKEHOLDER PARTICIPATION; IMPROVED ENVIRONMENTAL AWARENESS; ENHANCED CAPACITY TO IMPLEMENT ECOSYSTEM-BASED MANAGEMENT

Capacity building and public awareness are critically important for the success of the SAP implementation. The ecosystem-based approach is new to most people bordering the Yellow Sea.

Output 1.3.1 *Agreements with partners on overall environment co-operation and management, relevant fishery management, marine habitat conservation and pollution reduction, at both national and regional levels; cross sector partnerships established and operational*

It is anticipated that at least 15 regional and bilateral agreements will be finalised with the agencies and organisations having interest in the environment of the Yellow Sea and active engagement in SAP implementation.

Based on the regional governance analysis prepared during the first project, the necessary information on legal framework, institutional arrangement and stakeholder participation exist. With the available information, the project will assist the participating countries in harmonising national legislation with regionally agreed standards; develop YSLME Legal clearing house as part of the project website.

The following major areas will be the focus of the agreements based on the national and regional governance analyses during the first project:

Area of agreement	Brief Description	Participating Agencies/Sectors
A. Overall environmental cooperation and management	Agreement on establishing YSLME Commission; Agreement on decision-making process; Agreement on conflict-resolution process Agreement on sustainable financing mechanism and responsibilities	Relevant governmental agencies Research institutes & universities Representatives of NGOs Representatives of the relevant stakeholders
B. Fishery Management	Agreement on reducing fishing efforts;	Departments of fisheries within the government

	Agreement on areas and timing for fishing ban Agreement on joint fishery stock assessment Agreement on sharing mariculture techniques and benefits Agreement on disease prevention and early warning system	Fishery associations as the important stakeholders Research institutes & universities NGOs
C. Marine Habitat Conservation	Agreement on assessing environmental impacts from modification of marine & coastal habitats Agreement on MPA network: sustainable operation	Relevant governmental agencies; Provincial & local governments NGOs Research institutes & universities Coastal communities.
D. Pollution Reduction	Agreement on reducing pollutants discharge Agreement on sharing information on assessment of marine environment	Relevant governmental agencies; Provincial & local governments NGOs Research institutes & universities
E. Other agreements	Agreement in establishing regional monitoring network Agreement on monitoring method and techniques	Relevant governmental agencies; Research institutes & universities

Output 1.3.2 *National public awareness in support of YSLME SAP achieved; data and information collected; jointly managed databases developed, publicly accessible information for implementing management plans at the regional, national and local levels*

This output will be achieved through the existing Yellow Sea Partnership, consists of more than 20 organisations and projects, and the Strategy of Public Awareness and Participation developed during the first project. The strategy includes a regional analysis of the major stakeholders of marine and coastal communities, the roles of each stakeholder; a framework of cooperation and detailed activities.

Further efforts will include assembly of data and information on the ecosystem status and changes; monitoring and reporting; wider stakeholder participation at all levels will be fostered through annual workshops and active engagement of NGOs and the private sector (*see Stakeholder Analysis shown in earlier section of this document*) in execution of activities. Considerable efforts will be required in building capacity to implement ecosystem-based management in line with China and ROK's activities initiated during the first project. Necessary training activities and demonstration projects will be organised to upgrade the national and local capacities in implementing ecosystem-based management.

Output 1.3.3 *Transfer of lessons, experiences and best practices between the local demonstration sites*

During the first YSLME project, 23 demonstration and/or pilot projects (*UNDP/GEF 2011, The Scientific Justification for Practical Management in the Yellow Sea*) were implemented. Lessons and experiences were obtained from these efforts. The project will continue to transfer these lessons and experiences to other geographic sites, if applicable and suitable to the local environment conditions. The activities will

include, but not limited to, the activities in recovering fishery stocks, control land-based, sea-based and atmospheric deposition of pollutants, sustainable mariculture and adaptive management of the impacts from climate change.

The transfer of lessons and sharing experiences will be carried out through the Regional Working Groups (6 RWGs) established for the 2nd project. It will vary from one component to another:

- In the case of sustainable mariculture, the experiences in the Sanggou Bay will be further summarised with clear indications on environmental conditions for the Integrated Multi-Trophic Aquaculture (IMTA). At least one demonstration project will be implemented.
- In the case of joint fishery stock assessment, the relevant actions should be planned within the framework of the Regional Monitoring Network. The methods and guidelines will be examined;
- Economic valuation for IMTA has shown its usefulness. Based on the regional guidelines on economic valuation developed during the first project, the economic valuation will also be done for other management activities, e.g. impact assessment of habitat modifications;
- Impacts of climate change on the plankton communities provided basic information on how climate change could affect the ecosystem in the Yellow Sea. Wider assessment and experiments will be continued
- Jellyfish monitoring provided good results on the status of jellyfish blooms during the period when the monitoring was carried out. It is anticipated that further monitoring should be carried out to understand migration patterns of the jellyfish.

Output 1.3.4 *Training of at least 10 stakeholder groups on public participation on relevant management actions, in particular on fishery management, marine habitat conservation and economic assessment*

The major training of the stakeholder groups will include, but not be limited to, the following:

Major trainings	Stakeholder Groups
Major considerations in decision-making process required by ecosystem-based approach	Central, provincial & local governments, media group, parliamentary organs if possible
Ecosystem carrying capacities: major requirements and elements to be considered	The Yellow Sea Partnership
Roles & requirements for long-term regional co-operation: Model UN	University students & media
Alternative livelihood for the ex fishermen after boat buy-back	Fishery associations & relevant communities; NGOs, local governments
Social, environmental & economic benefits of IMTA	Mariculture associations, NGOs, media and local governments
Environmental & economic impacts of modifications to marine & coastal habitats	Local governments, NGOs, relevant public communities & media
Habitat-based & food chain-based approaches for habitat conservation	NGOs, public communities, media, etc.
Regional Guidelines on economic valuation	Governmental officers, MPA managers, media & research groups
Marine Protected Area (MPA) network: skills in management & operations	MPA managers, local governments & coastal communities.

Use of monitoring & assessment results in environmental condition changes	Research institutes & universities, governmental officers and other relevant groups.
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OUTCOME 1.4 IMPROVED COMPLIANCE WITH REGIONAL AND INTERNATIONAL TREATIES, AGREEMENTS AND GUIDELINES

The national and regional governance studies carried out during the first project on the legal, institutional and stakeholders analyses were published. Based on these studies, the major international and regional legal agreements include:

- The United Nations Convention on the Law of the Sea (UNCLOS) acts as the framework treaty governing maritime issues;
- The 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter is a global treaty to address the issue of marine dumping.
- The 1973 International Convention for the Prevention of Marine Pollution from Ships and its 1978 Protocol aim to prevent marine pollution by ships from accidental and operational causes;
- The Convention on Biological Diversity was adopted in 1992 and entered into force in 1993. The main objective of the Convention on Biological Convention is the sustainable use and equitable sharing of benefits of biological assets;
- The Convention on Wetlands of International Importance, more especially known as the Waterfowl Habitat or RAMSAR Convention was adopted in Ramsar, Iran in 1971;
- The Agreement on Environmental Cooperation between the government of the Republic of Korea and the government of the People's Republic of China has provided a bilateral cooperation framework for solving common issues between two countries;
- The FAO Code of Conduct for Responsible Fisheries is not a legally binding instrument, but provides guidelines to states;
- The Republic of Korea and China's Bilateral Fisheries Agreement for the Yellow Sea also deserves attention. This agreement articulates these states' agreement to conserve and manage living resources, manage fishing activities and promote cooperation on fisheries activities in accordance to UNCLOS in the EEZs of the two countries.

The proposed actions included in the regional and national SAPs will be undertaken to harmonise the legal arrangement in the region, including:

- in-depth analysis of the existing national, regional and internal treaties, laws and regulation;
- identify inconsistencies among them with proposed actions
- necessary discussion and negotiation with the relevant government agencies with presentation of the results
- assisting in harmonising the relevant documents.

Outputs 1.4.1 *Enhanced national and regional legal instruments to comply with regional & global treaties, agreements and guidelines*

In order to improve compliance, scope of coverage and enforcement of the legal instruments, actions needed, include, but not limited, to the following:

- Ensuring full implementation of the treaties and/or international agreements, guidelines, in particular the London Dumping Convention and associated protocols; Convention on Biological Diversity, the FAO Code of Contact of Responsible Fishery, and UN Framework Convention on

- Climate Change and associated protocols ;
- Strengthening coordination between the bilateral Fisheries Agreement between China and ROK in the YSLME Commission Context;
- Developing regional guidelines in order to incorporate the FAO Code of Conduct for Responsible Fisheries into the YSLME Commission's Context; and
- Developing regional guidelines on matters not covered in detail by the United Nations Convention on the Law of the Sea, Convention on Biological Diversity and Ramsar Convention, including reducing pollution discharge from sea-based (e.g. mariculture) and atmospheric deposition of pollutant, which is critical to nutrients and other elements..

OUTCOME 1.5 SUSTAINABLE FINANCING FOR REGIONAL COLLABORATION ON ECOSYSTEM-BASED MANAGEMENT SECURED, BASED ON COST-EFFICIENT AND ECOLOGICALLY-EFFECTIVE ACTIONS

With the agreement to establish the YSLME Commission, sustainable financing for regional collaboration will be a fundamental issue for negotiation and agreement by the two countries. The negotiations of sustainable financing mechanism will include, among others, sustainable sources of finance, rules and procedures for utilisation of the resources and monitoring and evaluation of cost effectiveness.

Outputs 1.5.1 *Periodic economic assessments of costs and ecological effectiveness*

In general, economic considerations of ecosystem management in the region is lacking. Few analyses have been conducted on the cost-benefit of conservation activities. The Cost Benefit Analysis (CBA) of major management actions should be conducted to provide more information and to provide basis for decision making at the local level and policy formulation at the national level. To integrate economic aspects into ecosystem management, the project will take the following preparatory actions within the project period with possible actions by 2020:

- Improve the Regional Guidelines for Economic Valuation to build on those developed during the foundational project towards better informed environmental management actions;
- Conduct of pilot CBA and valuation studies on selected demonstration activities of the actions in the following areas: (i) IMTA, (ii) impacts of modification of marine habitats (iii) effectiveness of closing fishing both in areas & in time;
- Organise technical trainings on CBA and valuation to build and/or strengthen the capacity of the participating countries, with priority for partners in demonstration sites; and
- Integrate economic analyses into the workplan of relevant ministries, local governments and MPA management bodies, to design and implement better conservation activities.

Outputs 1.5.2 *Sustainable financing agreed; at least 150% increase in government financing for regional collaboration*

With agreement from the governments of the participating countries, negotiation on the establishment of the YSLME Commission will be carried out during the second project in the Yellow Sea. One of the important issues will be the sustainable financing for the YSLME Commission. The governments of participating countries need to agree on the operation of the Commission and financial support for the secretariat of the Commission and necessary fund raising activities.

Currently there is no systematic planning of budgets for regional cooperation in marine environment protection and sustainable uses of marine and coastal resources in the Yellow Sea. The budgets are

coming from different sources based on temporary agreements and arrangements. It is anticipated that there would be sustainable financing provided for the operation of the YSLME Commission, including its secretariat with major financial support from the national government of the coastal countries and other sources.

Cooperation with other organisations and projects relevant to the Yellow Sea would be another important consideration for the sustainable financing mechanism. It is expected that the various partners of the project and the eventual YSLME Commission will fully finance their participation costs in project and future Commission activities.

COMPONENT 2. IMPROVING ECOSYSTEM CARRYING CAPACITY WITH RESPECT TO PROVISIONING SERVICES

The concept of an ecosystem provides a valuable framework for analyses of the linkages between people and the environment. The ecosystem provisioning services is defined as: "products obtained from ecosystems". (*Millennium Ecosystem Assessment:2005*)

OUTCOME 2.1 RECOVERY OF DEPLETED FISH STOCKS AS SHOWN BY INCREASING MEAN TROPHIC LEVEL

Output 2.1.1 *Reduction of fishing by around 10% in demonstration sites through e.g. boat buy-back scheme over the duration of the project.*

The fishery industry has had rapid development and played an important role in developing the rural economy and increasing farmers' income in the countries around the Yellow Sea. However, in the absence of adequate knowledge on the characteristics of the existing marine fishery resource and fishery economy, marine fishery resources have been overexploited. The increase in fishing vessels and greater horsepower, combined with the modernization of fishing gear and methods, have contributed to the decline in fishery resource in coastal and inshore waters. By the mid-1980s, the production from capture fisheries increased by an average of 20% with catches mainly composed of small pelagic species, which accounted for more than 60 % of the total catch (Figure 2).

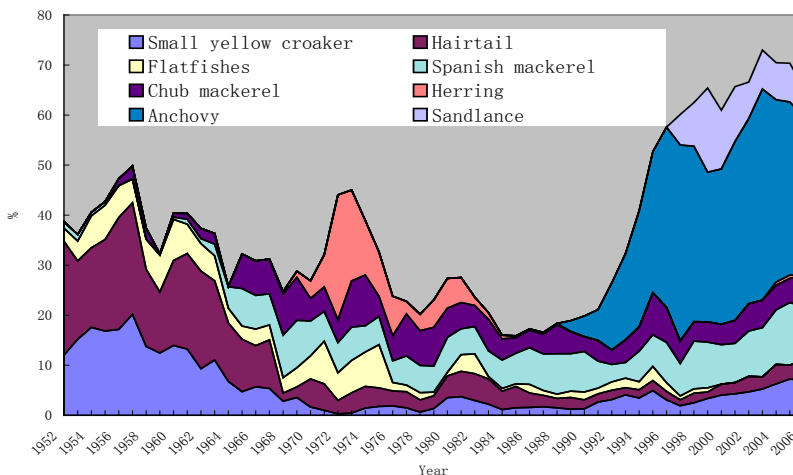


Fig 2. Species composition in the Yellow and Bohai Seas (source: Jin. X)

The boat buy-back scheme has been implemented in China and RO Korea with substantial financial support from their governments. The objective is to reduce the number of fishing vessels by 10% of the current fleet over four years. Total resources committed by the two countries amount to US\$ 3 billion.

The project will support complementary activities to ensure that the target reduction in the number of fishing vessels is met. The project will cover the costs of coordination of actions to facilitate the necessary actions jointly implemented in both countries. The project will carry out the following activities:

- Review of the current national criteria and developing guidelines for vessel selection;
- Identification of appropriate fishing boats; buying back and decommissioning the fishing boats;
- Carry out necessary institutional study on the effects of buy-back on the reduction of fishing effort and recovery of fish stocks;
- Assist in improving licensing system; and
- Implement regional cost-benefit analysis of boat buy-back.

Output 2.1.2 *Provision of alternative livelihoods to fisherfolks taking into account the contribution of women*

Following the actions on boat buy-back, extensive efforts need to be carried out in providing alternative livelihoods, suitable for the affected local communities. Necessary trainings on the alternative livelihoods will be organised. During the implementation of the project activities, full consideration will be given to the participation of women in the implementation following the GEF's ***Policy on Gender Mainstreaming***. As the fishing industry has its special characteristics, the gender issue is critical to the success of the activities. The productive capacities of women will be tapped to compensate for the shortfall in fishing income for families that have been or will be affected by the vessel buy-back.

The planned actions will include: assessment of possible alternative livelihoods and technical training for displaced fishermen; introduction of small loan scheme and tax free incentives for alternative livelihoods. Based on the national and local conditions, necessary surveys will be carried out to identify the possible and feasible alternative livelihood for the fishing communities after buying back the fishing boats. These possible alternative livelihoods would include mariculture, tourism and small businesses.

OUTCOME 2.2 **ENHANCED FISH STOCKS THROUGH RE-STOCKING AND HABITAT IMPROVEMENT**

Output 2.2.1 *Science-based management of fisheries and mariculture*

During the first project, the demonstration projects in *Assessing the Effectiveness of Stock Enhancement in the Yellow Sea (UNDP/GEF 2011)* indicated that increased numbers of healthy and genetically diverse fry of selected commercial stocks will be produced and released to boost natural reproduction.

Through the regional network established by the first project on the regional fishery stock assessment, the continuing efforts on increasing the numbers of healthy and genetically diverse fry of the commercial stocks, and the effectiveness of this programme will be carefully monitored.

Improved management based on sound science; seasonal and area closure as appropriate; improvement in gear selectivity and fish behaviour studies; and improved monitoring and assessment of stock fluctuations including joint regional stock assessments. The major activities will include:

- Evaluating the effectiveness of closure fishing activities (the effects and effectiveness);
- Assisting in enforcement of closure fishing activities;

- Increasing public awareness of the benefits from the closure fishing activities;
- Carrying out joint regional stock assessments, based on the experiences of the project in its first phase;

The artificial reefs that have been used in some coastal areas in the region provide refuges for important demersal fish species and to discourage trawling in certain areas. The project will continue constructing artificial reefs in areas important for enhancing the fish stock; seagrass beds provide nursery and spawning areas for commercially threatened species. More efforts will be carried out in new protected areas for seagrass that are approved and delineated by the governments. In addition to the conservation actions, more seagrass is anticipated to be planted in areas suitable for the expansion of seagrass bed.

OUTCOME 2.3 ENHANCED AND SUSTAINABLE MARICULTURE PRODUCTION, BY INCREASING PRODUCTIVITY PER UNIT AREA, AS A MEANS TO EASE PRESSURE ON CAPTURE FISHERIES

The growth of population has put more demands on fishery products. As the capture fishery is currently over-exploited the only possible means of meeting the ever increasing internal demand is to increase mariculture production (see figure below). It is anticipated that in 2020, about 25 million metric tonnes of seafood needs will be produced from mariculture in China. However, such an increase in production means that sustainable mariculture becomes even more critically important for the countries of the Yellow Sea. Sustainable mariculture will both increase economic yield and reduce environmental impacts.

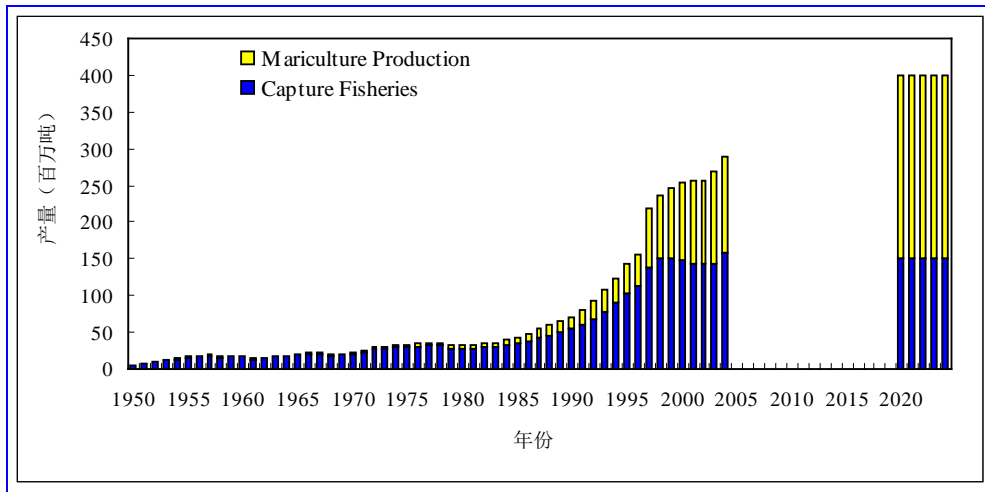


Fig 3. Historical and projected capture fishery & mariculture production in the Yellow Sea (Source: Wang Q, 2009)

Output 2.3.1 *Widespread practice of sustainable mariculture, where appropriate, increasing productivity and reducing pollution.*

The demonstration projects on sustainable mariculture in China and RO Korea provided good examples and techniques for increasing economic yield and reducing negative impacts on the marine environment. To explore suitable sites with appropriate environmental and economic conditions, the integrated multi-trophic aquaculture (IMTA) and heterotrophic mariculture techniques will be introduced. The introduction of these techniques is anticipated to increase productivity by up to 10%, and negative impacts to the environment will be largely reduced.

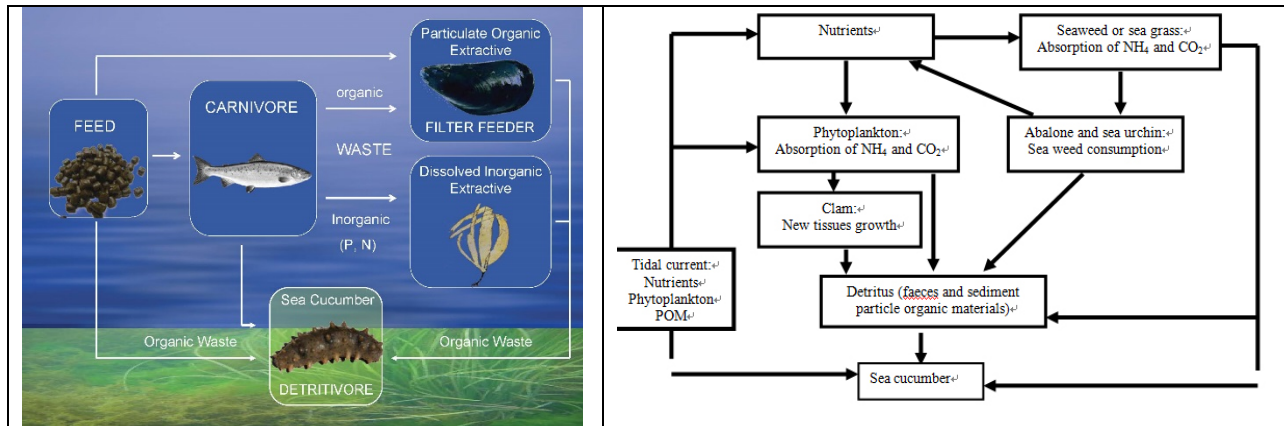


Fig 4. IMTA demonstration

Output 2.3.2 Adoption of integrated multi-trophic aquaculture (IMTA) where appropriate

Based on experiences and outcomes of the demonstration activities conducted in the first project, environmentally friendly mariculture methods and technology will be further developed and their use promoted as widely as possible. These involve a change to integrated multi-trophic aquaculture (IMTA) from monoculture, and arrangement of the production system such that wastes from one unit serve as inputs to production in adjacent units.

The project will explore suitable sites for replicating the experiences of the IMTA and heterotrophic mariculture obtained from the first project. It is anticipated that 3 demonstration sites would be identified on the survey and monitoring of the marine environmental conditions to be undertaken within the first year of the project.

COMPONENT 3. IMPROVING ECOSYSTEM CARRYING CAPACITY WITH RESPECT TO REGULATING AND CULTURAL SERVICES

The ecosystem regulating services are defined as the "benefits obtained from the regulation of ecosystem processes"; and the ecosystem cultural services as: "non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences". (Millennium Ecosystem Assessment:2005)

In the approved regional SAP, the relevant actions on the regulating and cultural services were grouped together, considering the major contents of the two ecosystem services and the regional conditions in relation to the services.

OUTCOME 3.1 ECOSYSTEM HEALTH IMPROVED THROUGH A REDUCTION IN POLLUTANT DISCHARGES (e.g. NUTRIENTS) FROM LAND-BASED SOURCES

The major pollutants from land-based sources are mainly nutrients (mainly N and P) in various forms, and heavy metals, as identified in the Transboundary Diagnostic Analysis (TDA). Considering the nutrients are highly transboundary in nature, the major efforts of the second project will focus on the reduction of nutrient discharge. During the first project, it was determined that the nutrients are mainly transferred

from land to ocean through river inputs and atmospheric deposition. During summer, the hypoxia zones can be identified in the mouth of the Yangtze River, as shown in Fig. 5.

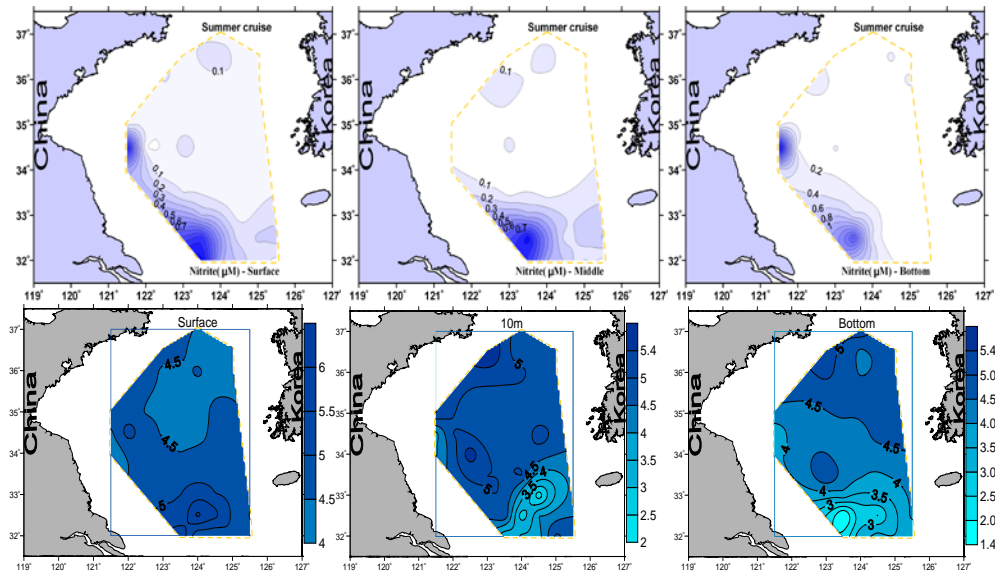


Fig. 5 nutrients and DO distributions in YS (Source: YSLME co-operative cruises)

Output 3.1.1 *Reduced pollutant levels by enforcement and control in demonstration sites*

Based on the TDA, one of the major environmental problems is the enrichment of nutrients in the Yellow Sea, which was the major cause of harmful algal blooms in the region. The problem has been recognized by the governments of the coastal countries. The project will assist the countries to take all necessary actions to reduce the nutrient discharge, including construction of new and/or improve the operations of the existing waste water treatment plants and man-made wetlands.

Based on the regional guidelines developed in the foundational project, this project will further develop economic instruments to reduce pollution; improve development of waste water treatment systems; promote waste reduction technologies; adopt a basin wide strategy to identify and quantify the importance of individual sources and sinks of contaminants will be developed to include consideration of loadings in hot spots and critical habitats.

Under the existing national plans of China and RO Korea, waste water treatment plants are either planned or under construction, with substantial financial supports from the governments. The project will coordinate the national efforts by assisting in necessary assessment of environment status and change trends following the operation of waste water treatment plants.

Regional guidelines (developed during the first project) on application of the economic instruments will be used to provide necessary information on the costs and benefits of reduction of nutrients for better environment and ecosystem in the Yellow Sea. Two demonstration projects will be implemented with major funds provided by the governments as shown in the budget table of this document.

Man-made wetlands have been recognised as effective ways to remove nutrients and other pollutants from land-based sources. Basic surveys will be carried out in the selected sites along the coasts of the Yellow Sea. A demonstration project will be implemented if the conditions are suitable to build such wetlands.

Project implementation activities will be monitored at a regional level. Monitoring will be carried out by a regional monitoring network based on agreed protocols that build on existing activities at the national level and are in conformity with an agreed strategy to control contaminants. Data and information gathered will be shared regionally.

Output 3.1.2 *Enhanced data and information sharing regarding sources and sinks of contaminants*

The current national regulations require sharing of marine environmental data and information. Necessary actions will be undertaken to enhance the data and information sharing regarding the sources and sinks of contaminants to provide effective mechanism and for better understanding of the effects of the pollutant control.

Based on experiences during the preparation of the TDA and cooperative cruises during the first project:

- (i) Discussions and negotiations about permissions for data and information sharing will be carried out with relevant national authorities responsible for the marine environment data sharing and exchange.;
- (ii) Technical feasibility of producing data products (maps, charts etc) will be carried out if permission for some required parameters cannot be obtained. (The regional nutrient distribution maps produced in the first project provided useful experiences on this respect); and
- (iii) Cooperation with other organisations that are responsible for marine environmental data sharing and exchange, e.g. NEAR-GOOD of the IOC WESTPAC, and the Data & Information system of UNEP/ NOWPAP.

OUTCOME 3.2 WIDER APPLICATION OF POLLUTION-REDUCTION TECHNIQUES PILOTED AT DEMONSTRATION SITES.

There is a global and regional consensus that artificial wetlands represent a low cost technology that can reduce the nutrient discharge to the marine environment. Apart from constructing large scale waste water treatment plants in the region, using artificial wetlands in small scale estuarine areas will be more effective with limited financial investment.

Output 3.2.1. *New and innovative techniques for pollution reduction (e.g. artificial wetlands) applied at demonstration sites*

The project will support the development of demonstration sites on artificial wetland construction for control of nutrients discharge, evaluation of their effectiveness and promotion of the use elsewhere if appropriate. Based on further environment information and management actions, 3-4 demonstration sites would be identified to remove nutrients by artificial coastal wetlands. These will be identified within the first 6 months of the project. The activities will include:

- Carrying out regional reviews of current technologies for waste reduction, reuse and recovery;
- Promoting clean production technologies and relevant technology transfer; and
- Implementing the demonstration projects as recommended.

OUTCOME 3.3 STRENGTHENED LEGAL AND REGULATORY PROCESSES TO CONTROL POLLUTION

Output 3.3.1 *Strengthened legal instruments and better regulatory processes to control pollution*

Legislations governing sub-standard waters will be strengthened and improved. Recommended international standards and levels and their suitability for adoption in the participating countries will be evaluated. Stakeholder workshops will be convened in each country to publicize the outcomes and recommendations of the evaluation.

The national and regional governance analyses carried out during the first project identified strengthening legal instruments and better processes to control pollution as issues that need to be addressed in the second project. The relevant activities will include:

- Regional reviews on current policies and regulations in the participating countries dealing with pollution control to identify priority areas that need project actions;
- Regional and national reviews on the current status of technologies used in the waste water treatment facilities, and necessary economic studies on recycling uses;
- Implementation of two demonstration projects, with major funds from the government on recycling economies.

OUTCOME 3.4 MARINE LITTER CONTROLLED AT SELECTED LOCATIONS

Marine litter and its negative impact is becoming a serious problem in the Yellow Sea. Marine litter can damage the fishing gear, destroy the habitats for certain marine animals and have negative impacts on animal and human health. Figure 6 shows the composition of marine litter in China and RO Korea.

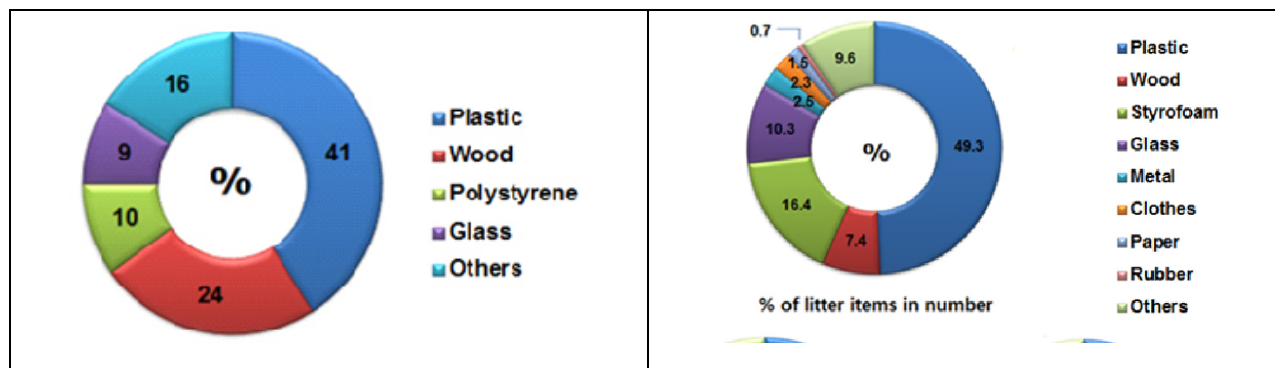


Fig.6. Marine litter compositions in China (left) and ROK (right) (Sources: NOWPAP)

Output 3.4.1 Procedures in place to control and remove marine litter at demonstration sites

Following other organisations that have done a number of activities in the field of controlling marine litter, such as UNEP-NOWPAP, the Marine Rescue Center in RO Korea, the project aims to implement similar activities such as public awareness and cleaning beaches in the selected areas.

The activities will include:

- A regional review of the current policies and regulations regarding solid waste disposal together with a review of current technologies for reducing production of such wastes including recycling opportunities;
- A regional baseline survey of marine litter and a simple monitoring scheme developed for regional application, in cooperation with all other relevant organisation;
- Together with other organisations, and with local authorities (the sites will be selected following consultation with other partners, as indicated above), public awareness of the problems of marine

litter will be improved, and campaigns developed for beach clean-up utilising NGOs and community groups; and

- Collection of necessary data by various partners of the Yellow Sea Partnership, mainly on the beach and coastal areas. To coordinate all these efforts, this project will explore the possibility of incorporating data collected by the tow nets of fishery research vessels to provide more information for the database operated by UNEP NOWPAP.

COMPONENT 4 IMPROVING ECOSYSTEM CARRYING CAPACITY WITH RESPECT TO SUPPORTING SERVICES

The ecosystem supporting services defined as "that are necessary for the production of all other ecosystem services" (*Millennium Ecosystem Assessment: 2005*)

OUTCOME 4.1 MAINTENANCE OF CURRENT HABITATS AND THE MONITORING AND MITIGATION OF THE IMPACTS OF RECLAMATION

Output 4.1.1 *Agreement at all levels to implement the relevant management actions to regulate new coastal zone reclamation projects*

The main cause of habitat loss has been land reclamation, especially in estuaries and shallow bays. Coastal mudflat reclamation has been mainly for expansion of aquaculture and mariculture, building houses, apartment and industrial areas. Approximately 880,000 ha of Yellow Sea mudflat areas have been reclaimed. This comprises 37% of the inter-tidal areas of the Chinese portion of the Yellow Sea, which have been reclaimed since 1950, and 43% of the mudflats on the ROK coast, which have been reclaimed since 1917 (Barter 2002).

The main effect of habitat loss is on the composition of assemblages of organism communities in tidal mudflats, especially benthic organisms, water birds and reduced resting and feeding grounds for migratory birds.

To achieve this output, the project will:

- establish and implement a regional (YSLME-wide) conservation plan for biodiversity conservation with explicit targets for habitat and species conservation;
- develop regional (YSLME-wide) guidelines for coastal habitat management;
- assess negative impacts of the activities resulting in modified marine habitats;
- regulate new coastal reclamation; improve the mitigation of reclamation impacts on adjacent habitats;
- promote public awareness of the benefits of biodiversity conservation; and
- institute mechanisms for early stakeholder consultations regarding development and management plans.

To achieve the outputs, following activities will be carried out:

- (i) A regional evaluation of status in implementation of CBD and RAMSAR conventions at the national and regional levels;
- (ii) Development of explicit goals in the form of regional habitats and species targets and a biodiversity conservation plan to implement provisions of the CBD, Ramsar and other conventions;
- (iii) Develop strategies and governance mechanisms to achieve regional habitat and species targets through expert group meetings;

- (iv) Develop management plan and targets for demonstration sites (one site from each country that will be selected based on the Biodiversity Assessment Report, prepared during the first project); and
- (v) Assess the impacts of modifications of marine habitats and monitoring the effectiveness of management plan in the demonstration sites.

OUTCOME 4.2 MPA NETWORK STRENGTHENED IN THE YELLOW SEA

The total area of intertidal flats in the Yellow Sea is about 20,000 km². More than 30% of the mud foreshores of the Yellow Sea have been lost over the past 30 years due to increased mariculture, opening up to salt-pans and agriculture. The main cause of habitat loss has been land reclamation, especially in estuaries and shallow bays. Coastal mudflat reclamation has been mainly for expansion of aquaculture and mariculture, industrial development and tourism. (UNDP/GEF YSLME TDA).

The “marine protected area” as one of most effective ways to protect coastal habitat is defined as: “Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment”. (Kelleher, G. & Kenchington, R. 1992)

Fig. 7 shows the locations of the MPAs in the Yellow Sea in both China and RO Korea. However, from the biodiversity assessments carried out during the first project of YSLME, many of MPAs have major problems in management, either through lack of enforcement, or lack of scientific and technical support.



Fig. 7 MPAs in the Yellow Sea (Source: Wen, Q & Nam, J)

Output 4.2.1 MPA networks strengthened in the YSLME

The current MPAs in the Yellow Sea are insufficient to conserve the rich biodiversity of the LME and it will be necessary to analyse the biological, environmental and human linkages between the existing sites in order to identify gaps in the system. New MPAs will be developed to ensure the operation of the regionally representative network. Effectiveness of the MPA networks will be evaluated by assessing the maintenance and change of biodiversity in MPAs. MPA managers, NGOs and community groups will be further networked through the project and via exchanges and visits between sites. Stakeholder capacity will be strengthened through regional and national workshops on sustainable use of MPAs. A MPA network was established in 2009 covering an area of about 70,000 ha.

A 5-year (2013-2017) work plan for the YSLME MPA network will be prepared to cover wider MPAs in the region, and provide effective tools for biological diversity conservation. The major activities of the project will include:

- Analysis of the linkages (both biological, migratory species, environmental and human) between current MPAs;
- Gap analysis between current MPA system and conservation targets, and identification of new MPAs involving government consultation;
- Strengthening the network of MPA managers, NGO's and International organisations through Yellow Sea Partnership (YSP) and YSESP exchange forum;
- Carrying out regional training programmes for the MPA managers and local government officials.

During the first project of YSLME, close cooperation has been established with the WWF Yellow Sea Ecoregion Planning Project (YSEPP) and the Yellow Sea Ecoregion Supporting Project (YSESP), which ensured the effective implementation of the biodiversity conservation projects in the Yellow Sea. It also generated joint financial support (about \$ 1.8 millions) from Panasonic. WWF-Japan has officially expressed its intention to continue good cooperation with the second project of YSLME as a cosponsor.

OUTCOME 4.3 ADAPTIVE MANAGEMENT MAINSTREAMED TO ENHANCE THE RESILIENCE OF THE YSLME AND REDUCE THE VULNERABILITY OF COASTAL COMMUNITIES TO CLIMATE CHANGE IMPACTS ON ECOSYSTEM PROCESSES AND OTHER THREATS IDENTIFIED IN THE TDA AND SAP

Climate change has resulted in increasing sea surface temperatures, changing the characteristics of the Yellow Sea Cold Water Mass (YSCWM) as a fish habitat and changing the structure of plankton communities. Further monitoring and studies are necessary for better understanding of these changes and identifying appropriate adaptive management.

Output 4.3.1 *Regional strategies adopted and goals agreed; site-based Integrated Coastal Management (ICM) plans enhancing climate resilience, in place for selected sites in YSLME; conservation areas and habitats for migratory species identified*

Impacts of climate change in the Yellow Sea ecosystem, in particular the impacts on the plankton community, had been studied in the demonstration sites of the first project. There is a need for further efforts to determine the impacts of climate change. With scientific and environmental information available, an appropriate regional strategy will be developed as a long-term goal. Fig. 8 shows an example of impacts of climate change on the Yellow Sea Cold Water Mass (YSCWM).

The major efforts on adaptive management in response to climate change will include preparation of regional strategies on adaptive management; site-based ICM plans established by PEMSEA to, enhance climate resilience for selected sites in YSLME; conservation areas and habitats for migratory species identified

The regional strategy will be based on the scientific understanding of the impacts of climate change on site-specific management.

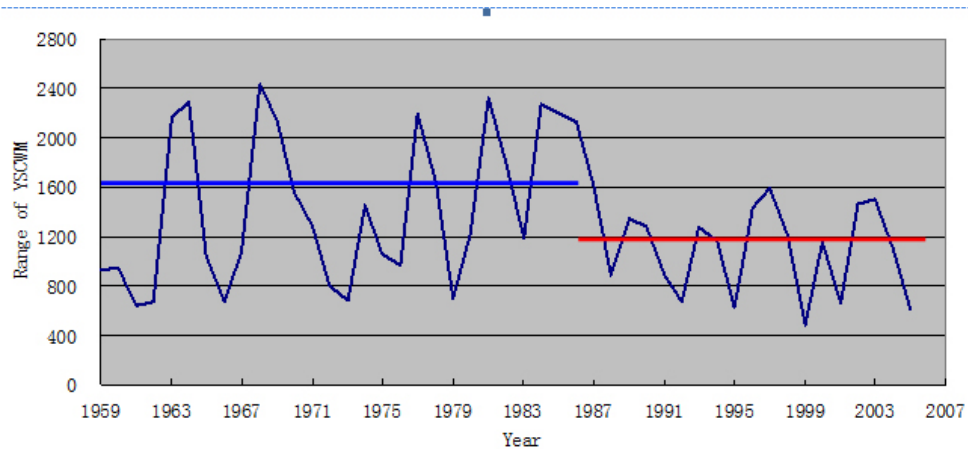


Figure 8 Ranges of YSCWM at 25 m layer during 1959 to 2005 (Source: UNDP/GEF YSLME 2011))

OUTCOME 4.4 APPLICATION OF ECOSYSTEM-BASED COMMUNITY MANAGEMENT (EBCM) IN PREPARING RISK MANAGEMENT PLANS TO ADDRESS CLIMATE VARIABILITY AND COASTAL DISASTERS

The level and nature of ecosystem services derived vary with the physico-chemical and biological processes within the ecosystem. Likewise different ecosystems have different structures and processes which define the scale of ecosystem services these can provide. Also, as an ecosystem changes, the services will change accordingly. For example, if the environmental conditions deteriorate, marine living resources decline reducing provisioning and other services. The factors that change the structure and productivity of ecosystems are called drivers of the ecosystem changes. Most physico-chemical factors are called direct drivers as they immediately influence ecosystems. But it is the indirect drivers that would define the magnitude of these direct drivers. Urbanisation and population growth are examples. These indirect drivers will increase the nutrient loads (a direct driver) which will lead to eutrophication. Figure 10 describes the relationship of ecosystem, ecosystem services, direct and indirect drivers, human societies, and climate system. These form a cycle which is driven by human societies and climate system. (UNDP/GEF 2009, The Strategic Action Programme for the YSLME).

As described above, the capacity of an ecosystem to provide its services or the sum of all the ecosystem services it can provide (ECC) will be determined by various interdependent ecological processes, which in turn are determined by ecosystem configuration and state. The future management of the Yellow Sea ecosystem therefore should be designed and executed as an adaptive, learning-based process that applies the principles of scientific management methods. The ultimate target of ecosystem-based management should be to sustain ECC of the Yellow Sea ecosystem. This requires management actions based on long-term scientific research and adaptive strategies. (UNDP/GEF 2009, The Strategic Action Programme for the YSLME)

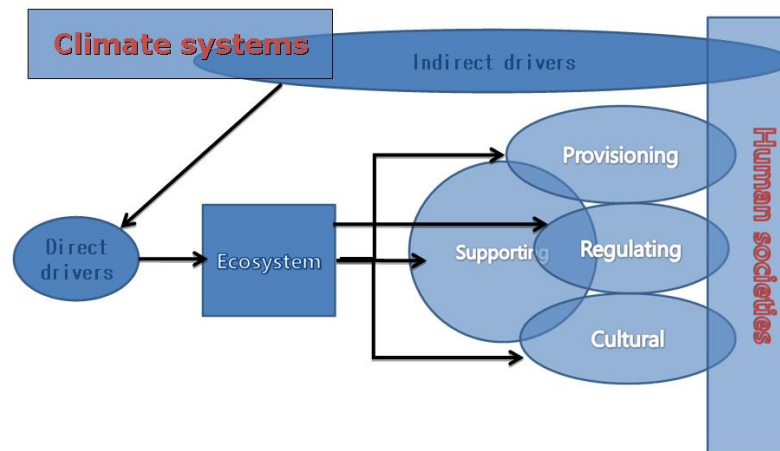


Figure 10: Relationship of ecosystem, ecosystem services, direct and indirect drivers, human societies, and climate system (Source: YSLME SAP)

Thus, in the face of a changing world, the goal of ecosystem management will be to maximise and sustain ecosystem services. However, managing ecosystem services is a complicated issue as there are complementarities and trade-offs. For instance, if provisioning service (aquaculture production) is unsustainably maximised, other services, such as regulating, cultural, and supporting, will be diminished in addition to reduction of wild fish catch. Because of these linkages, the YSLME should be managed as an integrated ecosystem. This is why sectorial approaches have not been very successful. The ultimate goal is to benefit the people dependent on these services to improve their well-being.

Output 4.4.1 *Public awareness of Yellow Sea environmental problems enhanced; strong local support for and awareness of demonstration activities*

The project will sponsor a network of NGOs, based on the Yellow Sea Partnership established during the first project, to work together in implementation of YSLME SAP, and building public awareness of environmental issues and problems in the Yellow Sea. The Yellow Sea Partnership will be used as major mechanism to coordinate and cooperate with the all members.

The Yellow Sea Partnership was established in 2006 during the first project of YSLME with the following agreed common goals:

- Reduction of the adverse environmental threats and impacts of development activities on the marine environment in the Yellow Sea;
- Promotion of environmentally-sustainable management and use of the marine and coastal resources in the Yellow Sea; and
- Fostering mutual knowledge and understanding between our people and of our environment.

The membership in 2011 is listed below. The project will reach out to other NGOs for inclusiveness and participation.

- Cooperative Young Marine and Coastal Scholar Society (CYMCSS), Dalian
- DMZ Eco Research Centre

- Global Village of Beijing (GVB)
- Kanghwa People's Network
- Korea Federation for Environmental Movement (KFEM)
- Korea Marine Rescue Center (KMRC)
- Korea Ocean Research and Development Institute (KORDI)
- Marine Stewardship Council (MSC)
- Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)
- Shihwa Life Saver
- The Nature Conservancy (TNC), Beijing
- UNEP Regional Seas Programme Northwest Pacific Action Plan (NOWPAP)
- UNDP/GEF Yellow Sea Large Marine Ecosystem (YSLME) Project
- United Nations Development Programme (UNDP), China
- Wetlands International (WI)
- Worldwide Fund for Nature (WWF) – China, Hong Kong, and Japan
- WWF/KORDI/KEI Yellow Sea Eco-Region Planning Programme (YSEPP)
- Citizens' Institute for Environmental Studies (CIES)
- Birds Korea

Output 4.4.2 *Established monitoring network; regular basin-wide assessments; enhanced information exchange; periodic scenarios of ecosystem change; allocation of 1% of project budget for IWLEARN activities*

A comprehensive regional monitoring system will be established to provide data and information on short and long term trends and changes in environmental conditions in the Yellow Sea LME.

Assessments of the scale and magnitude of observed and future changes will involve modelling and the development of scenarios that can be used in management decision making. The initial foci will centre on nutrients and changes in nutrient ratios, frequency and magnitude of algal and jellyfish blooms; changes in sea surface temperature and basin circulation, extent and condition of coastal habitats. The RWGs will play an important role in establishing the monitoring system, developing and applying models and scenario development.

During the YSLME SAP implementation project, efforts will be continued to maintain and further improve the YSLME website as a major platform for exchanging knowledge and experiences. The project will continue to contribute to and use the IWLEARN network, and will actively participate in the International Water Conference (IWC) activities. The project will allocate 1% of project budget for IWLEARN activities.

2.5 Key indicators, risks and assumptions

Description of Risk	Impact (I)& Probability (P)	Mitigating Measures / Management Responses
Impact (I): has 4 levels with 1 means low impact, and 4 as high impact Probability (P): has 4 levels with 1 means low impact, and 4 as high impact		
External risks stem from the geopolitical situation and may result in one or more countries either not participating or	Potential impacts on inter-governmental regional co-operation P = 2 I = 3	Potential countermeasures are beyond the competency of project management

participating only partially		
Potential partners unwilling to make formal commitments	Potential impacts on SAP implementation P = 2 I = 2	Careful negotiation by PMO
Stakeholders unwilling to participate	Potential impacts on NSAP implementation P = 1 I = 3	PMO to encourage stakeholders to participate
Governments unwilling to actively engage the NGO community	Potential limitation of stakeholder engagement P = 3 I = 2	PMO to encourage governments to engage NGOs in SAP implementation
Government Ministries/departments unwilling to share development and management plans	Weak national co-ordination: unlikely given the history of prior collaboration P = 1 I = 2	PMO to discuss and encourage sharing of data and information at all levels
Government policy changes, making boat buyback a low priority.	This is unlikely to arise in China and ROK P = 1 I = 4	Potential countermeasures are beyond the competency of project management
Difficulties in negotiating the joint fisheries stock assessment, causes delay or cancellation	low probability due to past success. P = 2 I = 2	PMO to allow sufficient lead time for negotiations
Mariculture enterprises unwilling to adopt integrated multi-trophic aquaculture (IMTA) in place of monoculture	this is considered of low probability due to current efforts in introducing IMTA P = 2 I = 4	PMO and NCs to publicise the outcomes of prior demonstrations and assist with technical support where necessary
Possible risk of non-compliance by polluting enterprises	considered a moderate risk in China P = 3 I = 3	National Co-ordinators to track situation continuously and seek assistance from PMO if situation beyond their competence to address
New techniques for pollution reduction not widely adopted	Pollution reduction targets not met P = 2 I = 3	PMO and NCs to publicise the outcomes of the demonstration
National, Provincial and Local Governments continue to encourage land reclamation.	This is considered a moderately high risk without strong project intervention P = 4 I = 3	PMO and NCs to continue publicising the environmentally damaging effects of land reclamation
Provincial and local governments may not agree to the establishment of new MPAs	Impacts on effectiveness of the MPA network P = 2 I = 3	PMO and NCs to provide evidence of cost effectiveness of MPA network establishment

2.6 Financial modality

69. This is a GEF grant co-financed project for which UNDP is the Implementing Agency and UNOPS the Executing Agency. Financial management of the GEF grant is the responsibility of UNOPS. It will

manage the funds in accordance with UNOPS financial rules and regulations, monitor expenditures and maintain fiscal oversight of all expenditures. Activities in ROK will be financed through the national budget and funds will be managed in accordance with the ROK financial rules and regulations.

2.7 Cost-effectiveness

70. The project is highly cost-effective since the project management represents less than 10% of total project costs and substantial co- and parallel financial contribution from the countries augments this management overhead. Costs associated with the management and dispersal of country co-financing are assumed by the countries and institutions concerned. The project will produce outcomes that have high economic and environment values. Recovering the fishery stock and sustainable mariculture will recover the fishery resources for human use. With about US \$ 10.8 billion co-financing and parallel-financing support provided by the governments of the participating countries, the project will provide more economic and environmental benefits to the people living in the coastal areas of the Yellow Sea.

The objectives of the project would not be achieved without support from GEF as all the activities are based on joint efforts of participating countries. For instance, reduction of fishing efforts and fishing boats need collaborative actions by the coastal countries. Unilateral action could result into inequitable access to fishery resources such that no country would be willing to collaborate without agreement on the kind of actions to be undertaken by all countries. GEF involvement will ensure the effective implementation from all the coastal countries.

The cooperative efforts and actions will ensure the cost effectiveness of the joint activities. Recovery of fish resources in the Yellow Sea needs the joint surveys and assessment of fish stock. Collaborative regional fish stock assessment will certainly save costs if similar activities are carried individually by countries.

2.8 Sustainability

71. The approval of the Yellow Sea SAP demonstrates the participating countries' commitment to long term environmental objectives and their willingness to begin the process of SAP implementation. Linkages between the SAP and each country's NSAP will form a crucial element of the Project's sustainability strategy. Furthermore, the implementation of the NSAPs can be seen as an indicator of real commitment by the participating countries.

72. A more lasting indicator of sustainability will be Yellow Sea countries commitment to financing a long-term YSLME Commission. This seems to be achievable. China and ROK have expressed willingness to provide bridge financing for the operation of the PMO following completion of the first project and commencement of the SAP Implementation Project.

73. *Institutional Sustainability:* The preliminary investments in developing the SAP and TDA were not designed as planning processes that would be sustained beyond the life of the project. Nevertheless the Inter-Ministry Coordination Committees established under the first project in China and ROK will be maintained and strengthened by this project in order for these Committees to play a seminal role in the functioning of the YSLME Commission once established. The proposed regional and national bodies that will form part of the Interim Commission represent a continuation of bodies and functions tried and tested during the first project. It is anticipated that once the YSLME Commission is legally established these bodies will continue to exist.

74. *Financial Sustainability:* The main indicator of financial sustainability will be the extent to which the countries themselves undertake the financing of the YSLME Commission. This project will engage the

countries in a dialogue to reach an agreement on the future financing of SAP implementation once the project is completed. China and ROK have expressed their willingness to make substantial financial inputs to address the environmental problems of the Yellow Sea as evidenced by the extent of co-financing approved by each of these countries to this project.

75 *Social Sustainability*: Active involvement of stakeholders in as many aspects of the Project as possible is an important factor of overall project success. The Project will especially promote broad stakeholders involvement in the preparation of legislative changes as this sector will have the most widespread and long lasting impact on residents of the Yellow Sea.

2.9 Replication

76. The proposed project has a strong potential to provide experiences and lessons that can be adapted to other regions of the world, particularly those aiming to adopt ecosystem-based management approaches to bio-resources conservation and management of Large Marine Ecosystems. For example, the first project provided training for Guinea Current LME on sustainable mariculture techniques. The project will document the lessons from this training in a form that facilitates their replication, and will actively participate in GEF and other activities that seek to promote replication and sharing of experiences, such as IW:LEARN and the Biennial GEF IW Conferences.

3. PROJECT RESULTS FRAMEWORK:

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD: China: Enhance the national capacity at all levels in managing, adapting, and mitigating climate change, and promote environmental sustainability and cleaner and renewable energy.

Country Programme Outcome Indicators: Strengthened co-ordination mechanism set up among national and international partners for effective management of biodiversity for mainstreaming biodiversity into planning and investment processes; biodiversity conservation in protected areas; biodiversity conservation in production landscapes.

Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): 1. Mainstreaming environment and energy OR

2. Catalyzing environmental finance OR 3. Promote climate change adaptation OR 4. Expanding access to environmental and energy services for the poor.

Applicable GEF Strategic Objective and Program: International Waters Strategic Priority 1; and Strategic Priority 2

Applicable GEF Expected Outcomes:

COMPONENT 1. Ensuring sustainable regional and national cooperation for ecosystem based management, based on strengthened institutional structures and improved knowledge for decision making

OUTCOMES:

- 1.1 Regional governance structure, the YSLME Commission established and functional, based on strengthened partnerships & regional co-ordination; wider stakeholder participation and enhanced public awareness.
- 1.2 Improved inter-sector coordination and collaboration at the national level, based on more effective IMCCs;
- 1.3 Wider participation in SAP implementation fostered through capacity building and public awareness, based on strengthened Yellow Sea partnership and wider stakeholder participation; improved environmental awareness; enhanced capacity to implement ecosystem-based management.
- 1.4 Improved compliance with regional and international treaties, agreements and guidelines
- 1.5 Sustainable financing for regional collaboration on ecosystem-based management secured, based on cost-efficient and ecologically-effective actions

COMPONENT 2. Improving Ecosystem Carrying Capacity with respect to provisioning services

OUTCOMES:

- 2.1 Recovery of depleted fish stocks as shown by increasing mean trophic level
- 2.2 Enhanced fish stocks through restocking and habitat improvement
- 2.3 Enhanced and sustainable mariculture production by increasing productivity per unit area as a means to ease pressure on capture fisheries

COMPONENT 3. Improving Ecosystem Carrying Capacity with respect to regulating and cultural services

OUTCOMES:

3.1 Ecosystem health improved through reductions in pollutant discharge (e.g. nutrients) from land-based sources

3.2 Wider application of pollution-reduction techniques piloted at demonstration sites

3.3 Strengthened legal and regulatory process to control pollution

3.4 Marine litter controlled at selected locations

COMPONENT 4. Improving Ecosystem Carrying Capacity with respect to supporting services

OUTCOMES:

4.1 Maintenance of current habitats and the monitoring and mitigation of the impacts of reclamation.

4.2 MPA network strengthened in the Yellow Sea

4.3 Adaptive management mainstreamed to enhance the resilience of the YSLME and reduce vulnerability of communities to climate change impacts on ecosystem processes and other threats identified in the TDA and SAP

4.4 Application of Ecosystem-based Community Management (EBCM) in preparing risk management plans to address climate variability and coastal disasters

Applicable GEF Outcome Indicators:						
Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
1. Ensuring Sustainable Regional and National Cooperation for Ecosystem-Based Management	1.1 Regional governance structure, the YSLME Commission established, operational and sustained	Status of YSLME Commission and subsidiary bodies at regional level	<i>Ad hoc</i> regional co-ordination through the YSLME Regional Project Board and weak cross sector management at the national level	All the Terms of Reference for the YSLME Commission and Subsidiary Bodies) approved by all participating country Governments Functioning YSLME Commission	Meeting reports; Government approvals issued by the competent national authorities	External risks stem from the geopolitical situation and may result in one or more countries either not participating or participating only partially
	1.2. Improved inter-sector coordination and collaboration at national level based on more effective IMCCs;	Status of Inter-Ministerial Coordinating Committee (IMCC)	Sector management has been the normal arrangements with limited inter-sector or inter-ministerial interactions; where coordination was done, it was on a case by case such as fishery management activities	Participation of Ministries in the IMCC will include but not limited to the following: Ministry of Foreign Affairs, Ministry of Finance, relevant department or ministry of ocean & fishery. Two meetings of IMCC every year and functioning coordination	meeting reports; Joint management decisions	Reorganization on the governmental agencies; it would be relatively stable during the 2 nd phase.

Applicable GEF Outcome Indicators:						
Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
	1.3 Wider participation in SAP implementation fostered through capacity building and public awareness	Number of the YS Partnerships; Number of activities on capacity building and public awareness; Number of participants in capacity building activities	20 members of the Yellow Sea Partnership	Number of partnerships: 40 Number of capacity building activities: 25 Number of public awareness initiatives: 15 Number of participants in capacity building activities: about 200	Signed Partnership agreements; Active stakeholder participation in regional and national implementation of the SAP and NSAPs	The partnership become YSLME's responsibility; All partners should be encourage to take more responsibilities
	1.4 Improved compliance with regional and international treaties, agreements and guidelines	Status of recognition and compliance to regional and international treaties and agreements	Regional and international treaties and agreements are recognized by China, but not fully compliant.	Better compliance of the relevant regional and international treaties and agreement e.g. UNCLOS, The 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, CBD, Ramsar, The FAO Code of Conduct for Responsible Fisheries, and the bilateral agreements between China & ROK on environment protection and fisheries	Regional Guidelines for implementing the FAO Code of Conduct; Domestic legislation amended to meet international standards	Government Ministries/departments unwilling to share development and management plans, unlikely given the history of collaboration established during the phase 1 project

Applicable GEF Outcome Indicators:						
Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
	1.5 Sustainable financing for regional collaboration on ecosystem-based management secured based on cost-efficient & ecologically effective actions	Agreement on the financial arrangement for the YSLME Commission	YSLME Commission does not exist at start of project	Financing agreement between and among countries agreed to fully support YSLME for at least 5 years.	Letters of commitment: Agreement of YSLME Commission	Internal & external financial situation do not allow sufficient investment into the marine environment
2. Improving Ecosystem Carrying Capacity with Respect to Provisioning Services	2.1 Recovery of depleted fish stocks as shown by increasing mean trophic level	Number of fishing boats decommissioned from the fleet in YSLME waters	About 1.2 million fishing boats	Fishing boat numbers substantially reduced by 10%, in line with the 2020 target of 30% reduction	Government reports of boats decommissioned	Government policy changes, making boat buyback a low priority. This is unlikely to happen
	2.2 Enhanced stocks through restocking and habitat improvement	Status of major commercially important fish stock from restocking and habitat improvement	Effectiveness of restocking and habitat protection not evaluated	Measurable improvement (5%) in standing stock and catch per unit effort; Future management decisions on restocking based on effectiveness	Published reports of evaluations by the RWG-F	Difficulties in negotiating the cruises, causes delay or cancellation low probability due to past success in their organisation
	2.3 Enhanced and sustainable mariculture production by increasing productivity per unit area as a means to ease pressure on capture fisheries	Type of mariculture production technology Level of pollutant discharge from mariculture operations	Declining quality of mariculture products Declining quantity of production per unit area from mariculture Environmental impacts of mariculture not evaluated	Declining quality of mariculture products Declining quantity of production per unit area from mariculture Environmental impacts of mariculture not evaluated	Reduction of contaminants caused by mariculture production (5% reduction in the demo sites) Measurable increase (5% increase in the demo sites) in mariculture production per unit area	Reviews of production data published by the RWG-M; Reviews of discharge data published by the RWG-M

Applicable GEF Outcome Indicators:						
Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
				Discharge of nutrient and other discharges from mariculture installations reduce 5%		
3. Improving Ecosystem Carrying Capacity with respect to Regulating and Cultural Services	3.1 Ecosystem health improved through reductions in pollutant (e.g., Nutrient) discharge from land-based sources	Level of pollutant discharges particularly Nitrogen in YSLME tributaries	Discharge reductions do not meet the regional target	10% reductions in N discharges every 5 years	Monitoring reports and data published on the project website	Possible risk of non-compliance by polluting enterprises, considered a moderate risk
	3.2 Application of artificial wetlands to reduce the pollution discharge at the demonstration sites	Types of technologies applied for pollution reduction	Some innovations such as man-made wetlands are being undertaken nationally but without regional coordination or dissemination of results	Successful demonstration of use of artificial wetlands in pollution control in 1 sites and replicated in about 2 coastal municipalities and local government units	Published reports on effectiveness of artificial wetlands in reducing nutrients	New techniques not widely adopted considered a moderate risk if publicising the outcomes of the demonstration sites is inadequate
	3.3. Strengthened legal and regulatory process to control pollution	Status of legal and regulatory process to control pollution	Weak legal and regulatory framework to control pollution in provinces bordering in the YSLME	Develop evaluation tools, in the first year, to assist in harmonizing national and provincial legislation to improve coastal water quality in Shandong, Jiangsu and Liaoning provinces	National and provincial statutes	Harmonization of legislation may take longer time than the project period

Applicable GEF Outcome Indicators:						
Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
	3.4 Marine litter controlled at selected locations	Status of the control of marine litter at selected locations	Due to a lack of appreciation of the problem little action is currently being undertaken	Regional Guidelines on control of marine litter based on those initiated by NOWPAP produced and adopted for use in the Yellow Sea; Established regional data base in the first year, and significant reduction in the quantities of marine litter at selected beach locations	Published guidelines; Data and information contained in RWG-P reports available via the project website	There would be unwillingness to publically identify the sources of marine litter
4. Improving Ecosystem Capacity with respect to Supporting Services	4.1 Maintenance of current habitats and the monitoring and mitigation of the impacts of reclamation	Areas of critical habitats; Status of mitigation of reclamation impacts	Coastal habitats critical to maintaining ecosystem services continue to be converted or reclaimed unchecked	Areas of critical habitats maintained at current level. Increase 3% total areas as MPAs Impacts of reclamation prepared in 2 demo sites	Reports of the meetings of the RWG-H. Biennial state of the environment reviews	Provincial and Local Governments continue to encourage land reclamation. This is considered a moderately high risk.
	4.2 Stronger regional MPA network established and functioning	level of ecological connectivity in expansion of the Yellow Sea MPA system.	the planned expansion of the MPA system currently does not take into account ecological connectivity	the planned expansion of the MPA system currently does take into account ecological connectivity (measured by use of developed connectivity tool kit or other means)	Published GAP analysis for MPA network; Numbers of stakeholder groups represented in meetings or engaged as sub-contractors/partners in execution of SAP related activities	Provincial and local governments may not agree to the establishment of new MPAs

Applicable GEF Outcome Indicators:						
Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
	4.3 Adaptive management mainstreamed to enhance the resilience of the YSLME and reduce the vulnerability of coastal communities to climate change impacts on ecosystem processes & other threats identified in the TDA and SAP	Status of incorporation of adaptive management of climate change regional strategies and in ICM plans for selected coastal communities	Inadequate considerations are being given to the impacts of climate change	CC adaptation strategies incorporated in regional strategies such as YSCWM and plankton communities ICM plans in (specify number) coastal communities incorporate CC adaptation to improve climate resilience	Demonstration project reports on the impacts of climate change; Provision of management measures facing to the challenges	Lacking of scientific understanding of the impacts of climate change on marine ecosystem
	4.4. Application of Ecosystem-based Community Management (EBCM) in preparing risk management plans to address climate variability and coastal disasters	Status of Regional Monitoring Network for application of ECBM	National Monitoring will continue without regional linkages and harmonisation making regional analyses difficult or impossible	Agreed number of cruises & parameters for the regional monitoring network established and data shared regionally via the project web site. Regular LME-wide assessments; enhanced information exchange; periodic scenarios of ecosystem change	Monitoring data reported to RWGs and lodged on project website; Models developed and published; regional forecasts and scenarios of future conditions published.	Data & information on the relevant monitoring and research will not be fully opened & shared.

4. TOTAL BUDGET AND WORK PLAN

Award ID:	00074724	Project ID(s):	00087001
Award Title:	Implement Strategic Action Programme for the Yellow Sea		
Business Unit:	CHN10		
Project Title:	Implement Strategic Action Programme for the Yellow Sea		
PIMS no.	4552		
Implementing Partner (Executing Agency)	UNOPS		

GEF Outcome/Atlas Activity	Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Total (USD)	Notes
1. Sustainable Regional and National Cooperation for Ecosystem-Based Management	UNOPS	62000	GEF	71200	International ICA	237,562	356,132	210,202	248,944	1,052,840	1
				71300	Local ICA	34,397	36,117	37,922	39,818	148,254	2
				71600	Travel	104,748	139,366	117,558	110,748	472,420	3
				72100	Contractual Services	10,700	11,770	0	53,500	75,970	4
				72400	Communication and Audio Visual Equipment	5,350	5,350	5,350	5,350	21,400	5
				73100	Rental Maintenance – Premises	5,350	5,350	5,350	5,350	21,400	6
				75700	Conference organizing service	39,483	52,173	45,015	41,088	177,759	7
Total Costs of Component 1						437,590	606,258	421,397	504,798	1,970,043	
2. Improved Ecosystem Carrying Capacity with respect to provisioning services	UNOPS	62000	GEF	71200	International ICA (including intl training for IMTA in cooperating with IWLearn 30,000)	148,140	183,871	202,097	139,077	673,185	8
				71300	Local ICA	17,558	18,436	19,358	20,326	75,678	9
				71600	Travel	36,664	140,186	113,704	55,389	345,943	10
				72100	Contractual Services	19,260	83,460	92,555	41,195	236,470	11

				75700	Conference organizing service	9,587	44,300	35,224	17,219	106,330	12
Total Costs of Component 2						231,209	470,253	462,938	273,206	1,437,606	
3. Improved Ecosystem Carrying Capacity with respect to regulating and cultural services	UNOPS	62000	GEF	71200	International ICA (including experiences sharing on ecosystem assessments via IW Learn partially, 30,000)	160,602	163,273	126,236	115,479	565,590	13
				71300	Local ICA	16,195	17,005	17,855	18,748	69,803	14
				71600	Travel	18,507	55,957	18,507	22,252	115,223	15
				72100	Contractual Services	15,106	176,752	162,750	19,692	374,300	16
				75700	Conference organizing service	3,210	19,260	3,210	4,815	30,495	17
Total Costs of Component 3						213,620	432,247	328,558	180,986	1,155,411	
4. Improved Ecosystem Carrying Capacity with respect to supporting services	UNOPS	62000	GEF	71200	International ICA (including sharing experiences on application of the regional algorithm on chlorophyll-a, via IWLearn, 20,000)	245,039	208,341	172,827	163,494	789,701	18
				71300	Local ICA	16,508	17,334	18,200	19,110	71,152	19
				71600	Travel	85,117	79,927	128,612	63,770	357,426	20
				72100	Contractual Services	373,647	362,422	314,395	286,767	1,337,231	21
				74200	Printing and Publications	535	1,070	1,070	1,070	3,745	22
				75700	Conference organizing service	15,570	9,630	30,495	6,420	62,115	23
Total Costs of Component 4						736,416	678,724	665,599	540,631	2,621,370	
5. Project Management Cost	UNOPS	62000	GEF	71200	International ICA (including updating & maintaining project's homepage, in consultation with IWLearn, 15,000)	15,180	16,315	17,551	18,850	67,896	24
				71300	Local ICA	37,164	39,944	42,969	46,149	166,226	25
				72200	Equipment and Furniture (Automobile) ¹	32,100	0	0	0	32,100	26

¹ For the implementation of SAP of YSLME, there will be a lot of activities in the coastal areas to work with local governments and coastal communities in

			72300	Fuel of vehicles	890	890	890	890	3,560	27
			72400	Printers, Communication, Postage/freight	3,656	6,174	2,951	3,745	16,526	28
			72500	Office supplies	3,745	3,745	3,745	2,913	14,148	29
			72800	Information Technology Equipment	14,442	0	322	0	14,764	30
			73100	Premises costs, Operation cost	9,095	9,095	9,095	9,095	36,380	31
			73400	Vehicle maintenance. & repair	321	321	321	321	1,284	32
			74200	Printing and Publications	5,350	5,350	5,350	5,350	21,400	33
			74500	Vehicle insurances & Bank charges	687	687	687	687	2,748	34
			74700	Vehicles parking	242	242	242	242	968	35
Total Costs of Component 5 (Project Management)					122,872	82,763	84,123	88,242	378,000	
Grand Total					1,741,707	2,270,245	1,962,615	1,587,863	7,562,430	

Summary of Funds

Source	Year 1	Year 2	Year 3	Year 4	Total
GEF	1,741,707	2,270,245	1,962,615	1,587,863	7,562,430
UNDP	150,000	550,000	650,000	342,000	1,692,000
WWF	450,000	1,100,000	250,000	0	1,800,000
China (in cash)	2,302,660	2,848,580	2,625,080	2,036,160	9,812,480
China (in kind)	20,574,310	20,864,290	20,671,590	20,732,390	82,842,580
R. Korea (in cash)	4,243,333	4,243,333	4,243,333	4,243,333	16,973,332
R. Korea (in kind)	28,090,342	28,090,342	28,090,345	28,090,345	112,361,374
TOTAL	57,552,352	59,966,790	58,492,963	57,032,091	233,044,196

fishery management & sustainable mariculture. Conservation and protection of marine and coastal wetlands also require a lot field work. As the public transportation will not be suitable for the field work as said above, purchasing an automobile is essential for implementing project activities in the coastal areas. This has been discussed with and agreed by the implementing partners of the project in several occasions, including the Project Board meetings. The automobile will be located in the PMO office in RO Korea.

Budget Notes

Component 1	
Note No.	Contents
1	<p>(Output 1.1.1) Evaluation of SAP and NSAP planning for implementation: 2 consultants * 1mth * \$12,000 (Output 1.2.1) Development of Regional and National Guidelines regarding the involvement of Stakeholder groups in the implementation of the Yellow Sea SAP management actions as appropriate: 2 consultants * 1mth * \$8,000 (Output 1.3.1) Strengthening partnerships with existing regional mechanisms: Guideline development: consultant 2 person months * \$8,000. (Output 1.4.1) - Develop regional guidelines for incorporating Code of Conduct for Responsible Fisheries in YSLME context: Consultant 2 person months * \$12,000 - Develop guidelines for matters not covered by UNCLOS, CBD, & Ramsar: Consultant 2 person months * \$8,000 * 3 conventions - Harmonize domestic legislation. Address the gaps between the domestic and regional standards: Consultant 2 person months * \$4,000 * 2 countries.</p> <p>(Output 1.5.1) - Biennial estimations of SAP Implementation costs and cost-benefit analysis: 1 Consultant 1.5 mths: \$12,000 - Annual review of costs and expenditures for mid-term evaluation and Audit: \$60,000</p> <p>IICA (Technical Assistance): \$664,184 IICA (Project Negotiation and coordination): \$103,779</p>
2	<p>LICA (Technical Assistance): \$130,965 LICA (Project Negotiation and coordination): \$7,590</p>
3	<p>(Output 1.1.1) Strengthening partnerships and develop joint programme(s) to share available resources with existing regional institutions such as NOWPAP, PEMSEA, WESTPAC, and etc.; 2 joint activities: \$14,000</p> <p>(Output 1.1.2) - Organise annual meetings of the Interim Commission Council: \$37,800 for 4 meetings - Organise annual meetings of the MSTP: \$38,132 for 4 meetings - Organise meetings of the ICTF: 2 mtgs yrs 1 & 2, 1 meetings yrs 3 and 4: \$33,600 - Organise annual regional working group meetings: \$194,400 for 4 meetings of 6 RWGs(Fisheries, Mariculture, Habitat, Pollution, Assessment, Sustainability): \$194,400</p> <p>(Output 1.3.1) - Strengthening partnerships with existing bilateral mechanisms: \$17,500 for Joint activity, \$15,000 & Regional workshop - Strengthening partnerships with existing regional mechanisms: Guideline development: \$18,200 for Regular meetings (2 years). Joint programmes with partners to be implemented under the "Commission" activity.</p> <p>(Output 1.3.3) Exchange experts to gain updated knowledge on marine environment : exchange 6 scientists *30days: \$5,400 (Output 1.5.2) Integrate econ analysis into national workplan: Organise training workshops on economic analysis for better conservation activities \$10,500* 2</p>

	Staff Travel Cost: \$61,482
4	(Output 1.3.2) - Assemble data and information: obtain necessary data & info for preparing national management plan: institutional contracts to collect data & info.: \$17,000 - Finalise National SAP: Preparing the national management plan (Nat'l SAP): Two nat'l experts consultation: \$4,000 (Output 1.5.1) Annual review of costs and expenditures. Mid-term evaluation and Audit: Costed in PMO time. Audit at the last year \$50,000
5	(Output 1.2.1) Establish an interactive project website to enable stakeholder groups from each country to access and up-load information in their own languages. Website to include training materials and legal clearing house: Staff Costs included in PMO costs: \$20,000
6	Develop a YSLME Clearing House as part of 1.1.7: Operation cost \$5,000* 4 years. (Output 1.4.1)
7	(Output 1.1.1) Cost & effective operation of the Commission: strengthening partnerships and develop joint programme(s) to share available resources with existing regional institutions such as NOWPAP, PEMSEA, WESTPAC, and etc.; 2 joint activities: \$6,000 (Output 1.1.2) - Organise annual meetings of the Interim Project Board: \$16,200 for 4 meetings - Organise annual meetings of the MSTP: \$16,270 for 4 meetings - Organise mtgs of the ICTF: 2 mtgs yrs 1 & 2, 1 mtg yrs 3 and 4: \$14,400 - Organise annual regional working group meetings: \$88,960 for 4 meetings of 6 RWGs(Fisheries, Mariculture, Habitat, Pollution, Assessment, Sustainability) (Output 1.3.1) - Strengthening partnerships with existing bilateral mechanisms: \$7,500 for Joint activity \$15,000 & Regional workshop - Guideline development for Strengthening partnerships with existing regional mechanisms: \$7,800 for Regular meetings (2 years). Joint programmes with partners to be implemented under the "Commission" activity. (Output 1.5.2) Integrate econ analysis into national workplan: Organise training workshops on economic analysis for better conservation activities \$4,500 * 2.
Component 2	
8	(Output 2.1.1) - Review current national criteria and develop guidelines for vessel selection: 2 consultants *0.5 pm* \$8,000 - Cost-Benefit Analysis of boat buy-back: Consultant 2 sites*2 months*\$8000 Improving licensing system: 2 consultants* \$6,000 (Output 2.1.2) Assessment of possible Alternative livelihoods: Consultant 1 person months* \$8,000 for China; 1consultant month and wkshp - ROK natl co-financing; 1 wkshp - China natl co-financing (Output 2.2.1) - Evaluation of the effectiveness of closure (the effects and effectiveness): 2 consultant* 2 month(\$8,000) (ROK natl) - Regional training in stock assessment: 1 scientist *2 countries* 2 years* I month*\$6,600 (Output 2.3.1) - Develop regional guidelines for sustainable mariculture: 1 consultant*\$8,000 - Develop national management plan for sustainable mariculture: 2 consultant*\$8,000 (Output 2.3.2)

	<ul style="list-style-type: none"> - Prepare guideline for reducing nutrient discharge: 1 regional consultant*\$8,000 - Establish regional network for disease prevention and warning: 1 Consultant* 2 months*\$8,000 <p>IICA (Technical Assistance): \$421,433 IICA (Project Negotiation and coordination): \$57,312</p>
9	<ul style="list-style-type: none"> LICA (Technical Assistance): \$66,852 LICA (Project Negotiation and coordination): \$3,874
10	<p>(Output 2.1.1)</p> <ul style="list-style-type: none"> - Review current national criteria and develop guidelines for vessel selection: collect current national criteria & develop guidelines (1 workshop*\$10,500) - Cost-Benefit Analysis of boat buy-back: 1 reg. workshop*\$10,500 - Improving licensing system: 1reg workshop *\$9,450 <p>(Output 2.1.2)</p> <ul style="list-style-type: none"> - "small loan" &"tax free "system for alternative livelihoods: Forum for exchange of ideas \$10,500 - Increase Tourism opportunities: 1 international workshop + 2 natl workshop: \$24,500: ROK co-finance ntl wksp <p>(Output 2.2.1)</p> <ul style="list-style-type: none"> - Public Awareness of benefits: 2 national workshops: \$14,000 - Regional network for harmonization of methodology and discussion of stock assessment: Expert group *4years: \$ 28,000: costed under 1.1.3 - Joint study of fish behaviour/gear selectivity: Exchange of Scientists: 2 scientists* 2countries*10 days; Exchange of ideas to improve selectivity of gears*\$15,000 - Improve techniques of artificial reefs construction and placement: Exchanges of scientists*4*\$3,000 - Improve techniques and replanting of sea grass/macroalgae: 2 regional Workshop: \$21,000 - Introduction of more scientific based management: 1 regional symposium \$35,000 (combine with fisheries conferences like APFIC or PICES?) 2 national wkshps co-financing <p>(Output 2.3.1) Develop regional guidelines for sustainable mariculture: 1 regional meetings: \$10,500</p> <p>(Output 2.3.2)</p> <ul style="list-style-type: none"> - Enhance and exchange information: \$21,000 for 2 regional (ROK - pays own participants) - Establish regional network for disease prevention and warning: 1 regional meeting*\$10,500 - Improve capacity in disease diagnoses: expert exchange 3 * 2 countries*\$1,000 - Enhance information sharing and exchange: \$28,000 for 2 conferences <p>Staff Travel Cost: \$53,060</p>
11	<p>(Output 2.1.1) Implementation of license system (enforcement & monitoring): Demonstration at 2 sites; Additional co-financing: \$36,000</p> <p>(Output 2.2.1) Monitoring success: Demo. 2 sites*\$40,000: only \$68,000 from GEF</p> <p>(Output 2.3.1)</p> <ul style="list-style-type: none"> - Develop BMP for sustainable mariculture: \$30,000 + additional co-financing - Implementation of Sustainable mariculture practice: \$60,000 (sea ranching and IMTA) (ROK - natl) <p>(Output 2.3.2) Implementation of reducing nutrient discharge activities: \$27,000 (additional co-financing ROK & China)</p>
12	<p>(Output 2.1.1)</p>

	<ul style="list-style-type: none"> - Review current national criteria and develop guidelines for vessel selection: collect current national criteria & develop guidelines (1 workshop*\$4,500) - Cost-Benefit Analysis of boat buy-back: 1 reg. workshop*\$4,500 - Improving licensing system: 1 workshop*\$4,050 <p>(Output 2.1.2)</p> <ul style="list-style-type: none"> - "Small loan" & "tax free "system for alternative livelihoods: Forum for exchange of ideas \$4,500 - Increase Tourism opportunities: 1 international workshop + 2 natl workshop: \$10,500: ROK co-finance ntl wksp <p>(Output 2.2.1)</p> <ul style="list-style-type: none"> - Public Awareness of benefits: 2 national workshops: \$6,000 - Regional network for harmonization of methodology and discussion of stock assessment: Expert group *4years: \$11,325 costed under 1.1.3 - Improve techniques and replanting of sea grass/macroalgae: 2 regional Workshop: \$9,000 - Introduction of more scientific based management: 1 regional symposium \$15,000 (combine with fisheries conferences like APFIC or PICES?) 2 national wkshps co-financing <p>(Output 2.3.1) Develop regional guidelines for sustainable mariculture: 1 regional meetings: \$4,500</p> <p>(Output 2.3.2)</p> <ul style="list-style-type: none"> - Enhance and exchange information: \$9,000 for 2 regional (ROK - pays own participants) - Establish regional network for disease prevention and warning: 1 regional meeting*\$4,500 - Enhance information sharing and exchange: \$12,000 for 2 conferences
Component 3	
13	<p>(Output 3.1.1)</p> <ul style="list-style-type: none"> - Establish regional pollution monitoring guideline and network based on any existing ones: harmonize regional methodology and update regional monitoring guideline. consultant 2 pm * \$8,000 - Review environmental quality standards (3rd year): consultant to review and recommend 1pm * \$8,000 - Evaluation of facilities and equipment to control/reduce discharge from industrial and municipal sources: consultant * \$8,000 - Diagnostic strategy for ID sources & sinks of pollutants: review available data & info, consultant 1pm * \$8,000 - Reporting environmental status & trends of Yellow Sea: consultant to update regional synthesis, 1pm * \$8,000 - Improve control mechanism of pollution from point sources: consultant review 1pm * \$8,000 - Economic analysis consultant 2.5PM: \$18,000 <p>(Output 3.2.1)</p> <ul style="list-style-type: none"> - Promote wetlands as nutrient sinks: develop regional strategy for using wetlands as nutrient sink, consultant 1pm * \$8,000 - Cost-effective and sustainable mechanism to treat municipal wastewater & sewage: 1 consultant * \$8,000 <p>(Output 3.3.1)</p> <ul style="list-style-type: none"> - Harmonise international and regional guidelines on marine litter monitoring and assessment: 1 consultant * 1mth * \$8,000 - Waste management: regional review of current policies & regulations, consultant 1pm *\$8,000 - Review technologies for waste reduction, reuse, recovery: regional review of current technologies for waste reduction, reuse, recovery, consultant 1pm* \$8,000 <p>(Output 3.4.1)</p> <ul style="list-style-type: none"> - Regional assessment of existing status of marine litter, including harmonize measurement techniques: 1 consultant * \$8,000

	<p>- Develop & test early warning system, reporting to relevant agencies: 1 consultant 1pm per 1 site / cty: \$8,000</p> <p>IICA (Technical Assistance): \$347,877 IICA (Project Negotiation and coordination): \$50,713</p>
14	<p>LICA (Technical Assistance): \$61,663 LICA (Project Negotiation and coordination): \$3,574</p>
15	<p>(Output 3.1.1) - Establish regional pollution monitoring guideline and network based on any existing ones: implement regional monitoring programme by country (seed money): \$21,000 - Joint exercises on implementing contingency plans: 1 demonstration; Sharing D & I with NOWPAP, IMO for oil transportation: oil type, quantity, source, traffic route: \$21,000</p> <p>(Output 3.4.1) - Improve publicity of marine litter issues: support & continue efforts through YSP and other existing programmes: \$14,000 - Regional assessment of existing status of marine litter, including harmonize measurement techniques: 1 reg'l mtg: \$10,500</p> <p>Staff Travel Cost: \$41,184</p>
16	<p>(Output 3.1.1) - Support to monitor & calculate nutrient loading in hot spots/ critical habitats: 2 pilot projects for development of total quality control methodology, with best available techniques: \$24,000 - Develop economic instruments to reduce pollution: consultant to review existing instruments and give recommendations 1pm; \$8,000; \$20,000 for implement pilot projects to apply economic instruments, 2 sites (ROK co-finance) - Improve management of ballast water to avoid introducing exotic species: site: demonstrate monitoring & assessment to improve management procedures: \$20,000</p> <p>(Output 3.1.2) - Support for monitoring & reducing atm-based sources: 1 site inst. Contract 2yrs monitoring: \$30,000 - Support for monitoring, reducing, & improving fertilizer use: 1 site inst. Contract 2yrs monitoring: \$30,000 - Support for monitoring & reducing sea-based sources: 1 site inst. Contract 2yrs monitoring: \$30,000</p> <p>(Output 3.2.1) Transfer new technology for treating nutrients in wastewater: 1 pilot project: \$15,000</p> <p>(Output 3.3.1) - Recycling economy: recommendations & 2 pilot projects regional recycling economies: \$10,000 - Implement regional baseline survey and pilot monitoring programme on marine litter: \$15,000 for Meeting cost for working group for survey design; \$50,000 for Cruise for monitoring</p> <p>(Output 3.4.1) - Implementing programmes for cleaning marine litter: \$14,117 for enhance public-private partnerships on reducing waste production and disposal Demo Activity; \$57,696 for implement regular community-based approach for removing marine litter. - Production of information packages: contract groups to design and distribute: \$20,000 - Start-up for local recycling enterprises: 2 pilot projects @ \$3,000 each (see microfinance)</p>
17	<p>(Output 3.1.1) - Establish regional pollution monitoring guideline and network based on any existing ones: harmonize regional methodology and update regional monitoring</p>

	<p>guideline; working group develop regional monitoring programme (2 sessions); \$9,000 for Conference organizing service</p> <ul style="list-style-type: none"> - Joint exercises on implementing contingency plans: 1 demonstration; Sharing D & I with NOWPAP, IMO for oil transportation: oil type, quantity, source, traffic route: \$9,000 <p>(Output 3.4.1)</p> <ul style="list-style-type: none"> - Improve publicity of marine litter issues: support & continue efforts through YSP and other existing programmes: \$6,000 - Regional assessment of existing status of marine litter, including harmonize measurement techniques: 1 reg'l mtg * \$15,000 (natl): Only \$4,500 from GEF fund
Component 4	
18	<p>(Output 4.1.1)</p> <ul style="list-style-type: none"> - Develop explicit goals in the form of regional habitats and species targets and a biodiversity conservation plan in implementation of CBD, Ramsar and other conventions: 2 person months* \$8,000 - Develop management plan and targets for demonstration sites: 2 Consultant*1month *\$8,400 - Evaluation of the progress of the Regional Conservation Plan: 2 person months* \$8,000 <p>(Output 4.2.1)</p> <ul style="list-style-type: none"> - Analysis of the linkages (both biological, migratory species, environmental and human) between current MPAs: Consultant*2 pm* \$12,000 - Gap analysis between current MPA system and conservation targets and identification of new MPAs involving govt consultation: 2consultants * 3 months* \$8,000 <p>(Output 4.3.1)</p> <ul style="list-style-type: none"> - Analysis of country coastal management guidelines, identification of conservation areas according to planning zones: 2 Consultants* 1 month*\$9,000 - Establish a coordination group of experts, managers, and govt officials to develop regional guidelines: Expert Group discussion costed under 1.1.3 1 consultant*1 pm * \$8,000 - Identification of approved reclamation up to 2007 in each country, and any further reclamation approved since 2008: 2 Consultant*1 pm*\$8,000 (ROK Natl) <p>(Output 4.4.2)</p> <ul style="list-style-type: none"> - Make regional assessment: consultant 1pm*\$32,000 - Make assessment: consultant 1pm (see governance action): \$24,000 - Make regional strategies for long-term ecosystem forecasts: consultant 1pm * \$8,000 - Develop regional models: consultant 1pm *\$8,000 <p>IICA (Technical Assistance): \$446,698 IICA (Project Negotiation and coordination): \$56,541</p>
19	<p>LICA (Technical Assistance): \$62,855 LICA (Project Negotiation and coordination): \$3,643</p>
20	<p>(Output 4.1.1)</p> <ul style="list-style-type: none"> - Regional evaluation of implementation of CBD and RAMSAR convention and country reports within the YSLME: Regional evaluation of implementation of CBD and RAMSAR convention and country reports within the YSLME: \$2,100 - Develop strategies and governance mechanisms to achieve regional habitat and species targets through expert group mtgs: travel cost \$7,000 <p>(Output 4.2.1)</p> <p>Regional training programmes (MPA managers and Govt officials): 6 conservation managers * (travel (\$600) + subsistence (\$750)) * 2 years</p>

	<p>(Output 4.4.1) - Regional training of MPA managers in public awareness activities: 2 years (2nd year Natl): \$10,500 - Sponsoring YSP programme: \$700 *4 yrs</p> <p>(Output 4.4.2) - Make regional assessment: Hold annual forums to conduct joint assessment (part of RWG responsibilities); make policy-relevant recommendation; publish reports; 1 workshop/yr, \$6,000x4 - Make assessment: Hold annual regional forums to conduct joint assessment; make policy-relevant recommendation; publish reports; 1 workshop/yr, \$6,650*3, ROK to meet costs of Ntl participants - Make regional strategies for long-term ecosystem forecasts: establish expert group Compare existing models; Devise strategies for integration of circulation-ecosystem model; workshop \$7,000 - Develop regional models: Develop regional circulation-ecosystem models, consultant 2pm (combine with above+ PMO) Produce mid- & long-term forecasts; verify the results; workshop \$7,000 - Make forecasts: Develop regional scenarios; workshop \$10,500 - Hold a conference to review and link existing monitoring network; workshop with participation of 50 regional and international experts; \$42,000 - Annual forums to conduct joint assessment, \$15,000*3yrs</p> <p>Staff Travel Cost: \$124,993</p>
21	<p>(Output 4.1.1) Regional evaluation of implementation of CBD and RAMSAR convention and country reports within the YSLME: Regional evaluation of implementation of CBD and RAMSAR convention and country reports within the YSLME: \$16,000</p> <p>(Output 4.2.1) Evaluation of management effectiveness: Consultant* 2 countries* 1 pm (ROK Natl): \$11,000</p> <p>(Output 4.4.1) - Sponsoring of network of NGOs to work together to promote Public Awareness: \$6,000 * 4 yrs - Small grants for Biodiversity promotion: \$30,000 (only first year) - Public awareness programmes at the Demonstration sites: \$20,000 - Analyze gaps between national legislation and international guidelines, provide recommendations: Compare national regulations; Write guidelines for monitoring and quarantine procedures; consultant*1 month*\$8,000 - Make assessment on the trend of the introduced species in the region: Hold 2 forums to conduct joint assessment; publish reports; consultant 1pm*\$8,000</p> <p>(Output 4.4.2) - Create regional jellyfish monitoring program: Create regional committee to coordinate monitoring and assessment. develop national and regional monitoring methodologies of jellyfish blooms; see Governance action Link and coordinate existing national jellyfish monitoring programs; see Governance action \$30,000 - Create regional HAB (including macro-algae) monitoring program: Create regional committee to coordinate monitoring and assessment. Combine with jellyfish committee develop national and regional monitoring methodologies of HAB; see Governance action Link and coordinate existing national HAB monitoring programs; see Go: \$10,000 - Establish a comprehensive regional monitoring system: Develop regional monitoring strategies for N/P/Si changes, climate change, jellyfish blooms, and HAB; consultants 2pm* \$8,000 - Apply Ecosystem-based Community management (EBCM) (ICM): \$1,046,749</p>

22	(Output 4.4.2) - Make regional assessment: Hold annual forums to conduct joint assessment (part of RWG responsibilities); make policy-relevant recommendation; publish reports; 1 workshop/yr, \$500*4, - Make assessment: Hold annual regional forums to conduct joint assessment; make policy-relevant recommendation; publish reports; 1 workshop/yr, \$500*3
23	(Output 4.1.1) - Regional evaluation of implementation of CBD and RAMSAR convention and country reports within the YSLME; \$900 for Meeting Service - Develop strategies and governance mechanisms to achieve regional habitat and species targets through expert group mtgs: \$3,000 (Output 4.4.1) - Regional training of MPA managers in public awareness activities: \$4,500 - Sponsoring YSP programme: \$300 * 4 yrs (Output 4.4.2) - Make regional assessment: Hold annual forums to conduct joint assessment (part of RWG responsibilities); \$11,400 - Make assessment: Hold annual regional forums to conduct joint assessment; make policy-relevant recommendation; publish reports; 1 workshop/yr: \$2,850*3yrs - Make regional strategies for long-term ecosystem forecasts: establish expert group Compare existing models; Devise strategies for integration of circulation-ecosystem model; workshop \$3,000 - Develop regional models: workshop \$3,000 - Make forecasts: Develop regional scenarios; workshop \$4,500 - Hold a conference to review and link existing monitoring network; workshop with participation of 50 regional and international experts; USD18,000
Component 5	
24	IICA (Project manager): For all outputs and for the activities of the project operations & management; GEF fund for \$67,896. Balance is from co-financing.
25	LICA (Administrative & Finance officer, Administrative Assistant, Secretary and IT staff): For all outputs and for the activities of the project operation & management; GEF fund for \$166,226.
26	Equipment and Furniture (Automobile): For all outputs: Purchase of office vehicle U\$32,100 (As major project activities for implementing the YSLME SAP will be in the coastal areas where public transportation are not available. Therefore the project vehicle is essential and necessary)
27	Fuel of vehicles: For all outputs: U\$890/year
28	Printers, Communication, Postage/freight: For producing the outcomes of the project, Postage of reports, leaflets, and newsletters, average cost U\$4,131/year
29	Office supplies: For the operation of the project management office: Stationery and equipment. U\$3,537/year
30	Information Technology Equipment: PC, server, printer and computer software. For effective management of operation of the project management office: U\$14,442 in the first year and additional purchase U\$321 in the 3 rd year
31	Premises costs, Operation cost: For operation and management of the project management office:

	The office spaces are expected to be provided by the governments of the host countries, including Korea and China. Library acquisition: U\$500/year + Office maintenance fee such as cleaning, water, electricity etc: U\$7,500/year + Telephone U\$1,095/year.
32	Vehicle maintenance. & repair: For better operation and implementation of the project activities Office vehicle maintenance fee such as routine engine oil changing. U\$321/year
33	Printing and Publications: Printing of reports, leaflets, and newsletters. U\$5,350/year
34	Vehicle insurances & Bank charges: Vehicle insurance, U\$600/year and bank charge, U\$87/year
35	Vehicles parking: Parking fee of office vehicle, U\$242/year

5. MANAGEMENT ARRANGEMENTS

77. The Yellow Sea Large Marine Ecosystem Interim Commission shall be established as an institutional vehicle to continue and expand current efforts in regional ecosystem-based management initiated through the first project of the UNDP/GEF YSLME Project. The Interim Commission shall be established as a non-legally binding, co-operative and consensus-based mechanism to co-ordinate, and enhance, regional and national efforts to implement the Yellow Sea SAP. The Interim Commission shall include an Interim Commission Council; a Management, Science and Technical Panel and Regional Working groups as detailed in Annex 3 of this document.

78. The Yellow Sea Large Marine Ecosystem Interim Commission Council shall serve as the Project Board (with the participating countries, UNDP and UNOPS as members) responsible for making management decisions for a project in particular when guidance is required by the Project Manager. The Project Board plays a critical role in project monitoring and evaluation by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the Project Manager and any delegation of its Project Assurance responsibilities.

79. In order to ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance with standards that shall ensure management for development results, best value for money, fairness, integrity, transparency and effective international competition. Project decisions will be reached by consensus. The membership of the Interim Commission, which shall serve as the UNDP Project Board includes:

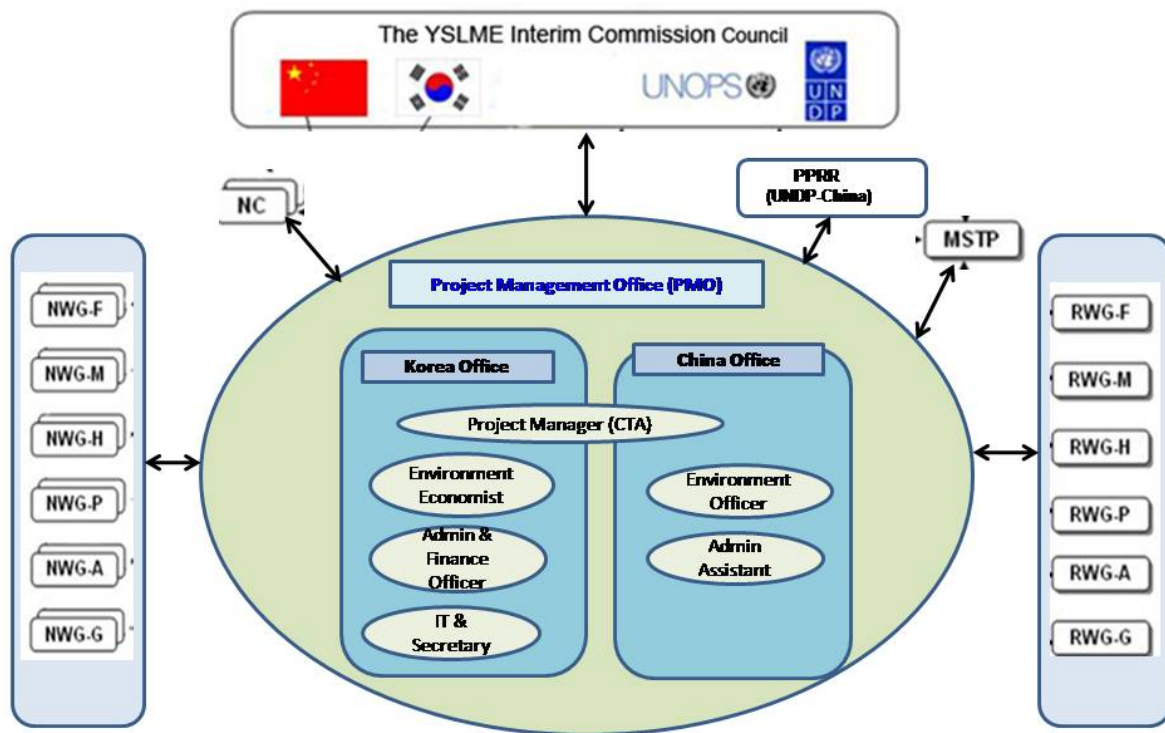
Executive members, namely the designated members from each participating country, UNDP/GEF and UNOPS

80. The **Project Assurance** role is the responsibility of the UNDP/GEF representative who supports the Project Board by carrying out objective and independent project oversight and monitoring functions.

81. **Project Manager:** The Project Manager shall have the authority to run the project on a day-to-day basis on behalf of the Implementing Partner (UNOPS) within the constraints laid down by the Project Board. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost.

82. **Project Support:** Based on the successful executing of the 1st phase of the YSLME project UNOPS will serve as the executing partner for the project. In addition to budget management and expenditures control, UNOPS responsibilities include hiring and administration of international and local personnel, procurement of goods and services, travel arrangements and other miscellaneous support as required by the project or Project Manager. **When the project terminated, the Project supporting functions will be taken over by the YSLME Commission for effective regional co-operation and co-ordination.**

83. The Project Management Office (PMO) for the 2nd YSLME project shall be located in the Republic of Korea. A branch PMO shall be established in China. The project organigram is shown in the figure below.



84. **National Implementation Arrangements with China State Oceanic Administration (SOA)**
 SOA is the government agency that has the mandate over ocean-related matters and is responsible for protection of marine environment and sustainable uses of coastal and marine resources. Technically, SOA is the strongest, in many cases the only one, institution to carry out marine environment monitoring, assessment and evaluation. SOA is the only institution to issue the report of status and changing trends of marine environment, with strong scientific back-up. Institutionally, SOA has presence in all the coastal provinces of China including the Yellow Sea. Moreover, SOA has successfully implemented national UNDP-GEF projects in China. In recognition of SOA's mandate and its satisfactory record in implementing UNDP projects as a national implementing partner, SOA will be engaged in the implementation of activities in this project. The scope of activities and the corresponding budget will be determined and approved by the Project Board within the first year of project start.

6. MONITORING FRAMEWORK AND EVALUATION

85. The project will be monitored through the following M&E activities. The M&E budget is provided in the table below.

86. **Project start:** A Project Inception Workshop will be held within the first 3 months of project starting with those with assigned roles in the project organisation structure, primarily the participating countries, UNDP China and UNDP/GEF at the Asia-Pacific Regional Centre (and UNDP HQ as appropriate) and key partners. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan. An Inception Workshop report is a key reference document and must be prepared and shared with participants at least two weeks before the Inception Workshop to formalize various agreements and plans to be decided during the meeting.

87. The Inception Workshop should address a number of key issues including:

- a) Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP/GEF RTA, UNDP CO/PPRR, UNOPS and PMO staff vis à vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
- b) Based on the project results framework and the relevant GEF Tracking Tool, if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks. Establish mid-term targets against which the project can be evaluated during the mid-term review process.
- c) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed to and scheduled.
- d) Discuss financial reporting procedures and obligations, and arrangements for annual audit.

The first Project Board meeting will be held back-to-back with the Inception Workshop. Among the important actions of the RSC is to discuss and approve the roles and responsibilities of all project organisation structures and the first Annual Work Plan and Budget.

88. **Quarterly:**

- Quarterly Progress Report (QPR) should be provided by PMO to report the quarterly progress.
- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).
- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc... The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

89. **Annually:** Annual Progress Reports /Project Implementation Review (APR/PIR): PIR is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July), APR is calendar year based report. The APR/PIR combines both UNDP and GEF reporting requirements. The APR/PIR includes, but is not limited to, reporting on the following:

- Progress made toward project objectives and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
- Project outputs delivered per project outcome (annual)
- Lesson learned/good practice
- AWP and other expenditure reports
- Risk and adaptive management
- ATLAS Quarterly Project Report (QPR)
- Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

90. **Periodic Monitoring through site visits:** UNDP China, UNDP/GEF RTA and the Project PMO may conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the RTA and/or CO and the Project PMO to be circulated no less than one month after the visit to the project team and Project Board members.

91. **Mid-term of project cycle:** The project will undergo an independent Mid-Term Review at the mid-point of project implementation. The Mid-Term Review will determine progress being made toward the achievement of outcomes. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organisation, terms of reference and timing of the mid-term review will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term review will be prepared by the UNDP CO based on consultation with the Project Management Office, UNDP-GEF and UNOPS. The management response will be prepared by PMO and the review will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC). The relevant GEF Focal Area Tracking Tools will also be completed during the mid-term review cycle.

92. **End of Project:** An independent Final Evaluation will take place six months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Project Management Office and UNDP-GEF. The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response prepared by PMO, which should be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Center (ERC). The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

93. During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replication of the project's results.

94. **Learning and knowledge sharing:** Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and

implementation of similar future projects. Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

Communications and visibility requirements:

95. Full compliance is required with UNDP’s Branding Guidelines. These can be accessed at <http://intra.undp.org/coa/branding.shtml>, and specific guidelines on UNDP logo use can be accessed at: <http://intra.undp.org/branding/useOfLogo.html>. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at <http://intra.undp.org/coa/branding.shtml>.

96. Full compliance is also required with the GEF’s Communication and Visibility Guidelines (the “GEF Guidelines”). The GEF Guidelines can be accessed at: http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.p df. Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items. Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

M& E work plan and budget

<i>Type of M&E activity</i>	<i>Responsible Parties</i>	<i>Budget US\$ Excluding project team staff time</i>	<i>Time frame</i>
<i>Inception Workshop and Report</i>	<ul style="list-style-type: none"> ▪ Project Manager ▪ UNDP CO, UNDP GEF 	<i>Indicative cost: 20,000</i>	<i>Within first three months of project start up</i>
<i>Measurement of Means of Verification of project results.</i>	<ul style="list-style-type: none"> ▪ UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members. 	<i>To be finalized in Inception Phase and Workshop. Indicative cost 45,000</i>	<i>Start, mid and end of project (during evaluation cycle) and annually when required.</i>
<i>Measurement of Means of Verification for Project Progress on output and implementation</i>	<ul style="list-style-type: none"> ▪ Oversight by Project Manager ▪ Project team 	<i>To be determined as part of the Annual Work Plan's preparation. Indicative cost 3,000 (annually, total 12,000</i>	<i>Annually prior to ARR/PIR and to the definition of annual work plans</i>
<i>APR/PIR</i>	<ul style="list-style-type: none"> ▪ Project manager and team ▪ UNDP CO ▪ UNDP RTA ▪ UNOPS (financial) 	<i>None</i>	<i>Annually</i>
<i>Periodic status/ progress reports</i>	<ul style="list-style-type: none"> ▪ Project manager and team 	<i>None</i>	<i>Quarterly</i>
<i>Mid-term Evaluation</i>	<ul style="list-style-type: none"> ▪ Project manager and team ▪ UNOPS ▪ UNDP CO ▪ UNDP RTA ▪ External Consultants (i.e. evaluation team) 	<i>Indicative cost: 45,000</i>	<i>At the mid-point of project implementation.</i>

<i>Type of M&E activity</i>	<i>Responsible Parties</i>	<i>Budget US\$ Excluding project team staff time</i>	<i>Time frame</i>
<i>Final Evaluation</i>	<ul style="list-style-type: none"> ▪ <i>Project manager and team,</i> ▪ <i>UNOPS</i> ▪ <i>UNDP CO</i> ▪ <i>UNDP RTA</i> ▪ <i>External Consultants (i.e. evaluation team)</i> 	<i>Indicative cost : 45,000</i>	<i>At least three months before the end of project implementation</i>
<i>Project Terminal Report</i>	<ul style="list-style-type: none"> ▪ <i>Project manager and team</i> ▪ <i>UNDP CO</i> ▪ <i>local consultant</i> 	<i>0</i>	<i>At least three months before the end of the project</i>
<i>Lessons Learned</i>	<ul style="list-style-type: none"> ▪ <i>Project manager and team</i> ▪ <i>UNDP RTA (suggested formats for documenting best practices, etc)</i> 	<i>Cost : 10,000 (average 2,500 per year)</i>	<i>Annually</i>
<i>Audit</i>	<ul style="list-style-type: none"> ▪ <i>UNOPS</i> ▪ <i>UNDP CO</i> ▪ <i>Project manager and team</i> 	<i>\$5,000 x 4 yrs = 20,000</i>	<i>Yearly</i>
<i>Visits to field sites</i>	<ul style="list-style-type: none"> ▪ <i>UNDP CO</i> ▪ <i>UNDP RTA (as appropriate)</i> ▪ <i>Government representatives</i> 	<i>For GEF supported projects, paid from IA fees and operational budget</i>	<i>Yearly</i>
<i>TOTAL indicative COST</i> <i>Excluding project team staff time and UNDP staff and travel expenses</i>		<i>US\$ 197,000</i>	

7. LEGAL CONTEXT

97. This project forms a part of an overall programmatic framework under which several separate associated country level activities will be implemented. When assistance and support services are provided from this Project to the associated country level activities, this document shall be the “Project Document” instrument referred to in: (i) the respective signed SBAs for the specific countries; or (ii) in the Supplemental Provisions to be included in the Project Document in cases where the recipient country has not signed an SBAA with UNDP, and forming an integral part hereof.

98. This project will be implemented by UNOPS in accordance with its financial regulations, rules, practices and procedures only to the extent that they do not contravene the principles of the Financial Regulations and Rules of UNDP. Where the financial governance of an Implementing Partner does not provide the required guidance to ensure best value for money, fairness, integrity, transparency, and effective international competition, the financial governance of UNDP shall apply.

99. The responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP’s property in the Implementing Partner’s custody, rests with the Implementing Partner. The Implementing Partner shall: (a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried; (b) assume all risks and liabilities related to the Implementing Partner’s security, and the full implementation of the security plan. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

100. The Implementing Partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to

resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

LIST OF ANNEXES

Annex 1: UNDP Risk Log

Annex 2: Agreements

Annex 3: Terms of Reference for YSLME Commission and Subsidiary Bodies

Annex 4: Terms of Reference for Key Project Staff

Annex 5: UNDP Environmental and Social Screening

Annex 6: Summary of Stakeholder Consultations during Project Preparation

Annex 7: IW Tracking Tool