



---

**UNDP/GEF PROJECT ENTITLED “REDUCING ENVIRONMENTAL STRESS IN THE  
YELLOW SEA LARGE MARINE ECOSYSTEM”**

---

UNDP/GEF/YS/RWG-P.5/6  
Date: 3 September 2008  
English only

**Fifth Meeting of the Regional Working Group  
for the Pollution Component**  
*Xiamen, China, 8 - 10 October 2008*

**SCIENTIFIC AND TECHNICAL INPUTS FOR THE 2<sup>ND</sup> PHASE PROJECT DOCUMENT**

As the project is now in its final phase with the drafting process of the Strategic Action Programme (SAP) complete and awaiting final approval by the governments, planning for the implementation of the SAP needs to start. In order to attain GEF funding, PMO is developing the 2<sup>nd</sup> Phase Project Document and the initial PIF (Project Identification Form) document. For a successful proposal, PMO needs to identify the activities needed to implement each management action and the associated costs and sources of co-financing. To achieve this, members of the 5<sup>th</sup> RWG-Pollution meeting will:

1. Review and familiarise themselves with the SAP Ecosystem Management Actions (Regulating and Cultural Services) ([Annex I](#)).
2. Identify activities required under each management action of Regulating and Cultural Service's Targets #4-7 ([Annex II](#)).
3. Suggest inputs for 2<sup>nd</sup> Phase Project Documents.

*Members should review the SAP management actions and suggest activities that are required to implement each action both by the countries and PMO.*



## **Annex I**

### **SAP Ecosystem Management Actions**

#### **Actions Primarily Addressing Regulating Services**

##### **Target 4. Meeting international requirements on contaminants**

###### **Management Action 4-1: Conduct intensive monitoring and assessment**

Monitoring and assessment in the Yellow Sea from the coastal countries have been implemented for many years. A new mechanism for regional monitoring and assessment should be established. It is recommended that intensive and the regional routine monitoring and assessment on marine environmental pollution in the Yellow Sea should be conducted, and a regional workshop held every 5 years focused on monitoring technology and assessment methodology. It is also recommended that a diagnostic strategy for identifying sources and sinks of pollutants should be established. Regional methodologies for monitoring and assessment of status & trends of environment should be developed and the environmental status and trends report on YSLME be prepared and issued.

###### **Management Action 4-2: Control contaminants discharge with reference to Codex alimentarius and Stockholm Convention**

The coastal countries have taken measures to control the discharge of contaminants for many years. It is encouraged that a basin-wide strategy be developed to address the pollution in YSLME, and to update facilities/equipment to control or reduce discharge from industrial and municipal sources with the reference to the seafood safety and reducing health risks. Regional monitoring and assessment of contaminant sources and fates should be continued. The economic instruments to encourage reduced pollution loads should be introduced and a protocol to control dumping at sea be developed.

###### **Management Action 4-3: Implementing MARPOL 1973/78 effectively**

For control of oil pollution in Yellow Sea, effective implementation of MARPOL 1973/78 is encouraged with improvements in national and regional contingency strategies and plans for oil spills in YSLME, covering both vessels and offshore installations. The capacity for early warning and response to extreme pollution events on the sea should be strengthened. The necessary steps to fully exercise the enforcement powers should be taken. The co-operative research on measures to avoid any introductions of exotic species into the YSLME should be conducted.

---

##### **Target 5. Reduction of total loading of nutrients from 2006 levels**

###### **Management Action 5-1: Control total loading from point sources**

The total loading from point sources has been controlled in recent decades. The continuation of the strict control of pollution loading from point sources is encouraged. The routine monitoring of major input sources and loads should be enhanced with the exchange of data and information at a regional level. The total-quantity-control methodologies of pollutant discharge in combination with best available techniques should be adopted. The hot spot

control should be conducted with the calculation of loads in hot spot areas. The recommendations for waste treatment capacity, including reviewing the current waste treatment facilities and for facility's future development every 5 years should be given. Clean production techniques, recycling, improvements in waste treatment systems and capacity and policies for the construction of new treatment plants should be promoted. The continuation of strict control of total nutrient loading control programme is encouraged through reduction of point and non-point pollution sources discharge, or increasing the portion of sewerage treatment. With those actions China planned to reduce total nutrient loading from point sources 10% from 2006-2010, and the reduction policy will be continued in the future.

### **Management Action 5-2: Control total loading from non-point sources and sea-based sources**

The atmospheric deposition and inputs from the watershed were considered important sources of Yellow Sea pollution <sup>[71, 72]</sup>. Therefore the research on atmospheric deposition, especially of nitrogen and toxic substances (heavy metals and POPs, etc.) should be expanded. Improved management of fertiliser use is needed, including the monitoring and assessment on fertiliser use, and technical recommendations on better fertiliser use. The management on sea-based sources should also be encouraged, including monitoring and assessment of sea based sources, practice of sustainable mariculture, and dredging to remove contaminated sediments. The development of storm water treatment systems is also recommended.

### **Management Action 5-3: Apply new approaches for nutrient treatment**

The new approaches for treatment of pollutants have been developed rapidly and should be applied during the period of implementing SAP. The existing or constructing additional wetlands could be used to serve as nutrient sinks. Bio-technology for treatment of nutrients in wastewater and sewage could be applied. The cost-effective means of treating municipal wastewater should be investigated and the regional recommendations be produced.

### **Governance actions**

- A mechanism for agreements and the methodology to share monitoring results, ecotoxicological data and relevant information should be established.
- An operational mechanism for a regional forum for integrated review of hot spots and to improve understanding of environmental capacity should be established.
- A mechanism to promote best available techniques and best environmental practices for related land and sea-based industries should be established
- A mechanism to encourage use of organic fertilisers, eco-agriculture and organic fertiliser use and sustainable utilisation of wetlands should be implemented.
- A mandatory review of environmental quality standards every 5 years should be conducted.
- Existing regulations, with international requirements, on clean production, recycling use, etc. should be improved.
- Participating countries are recommended to establish a total nutrient loading control

programme in the context of their relevant development plans.

---

## **Actions Primarily Addressing Cultural Services**

### **Target 6. Reduced standing stock of marine litter from current level**

#### **Management Action 6-1: Control source of litters and solid wastes**

Marine litter has become a global challenge <sup>[73]</sup>. Litter and solid waste has become a major issue in coastal areas. Management of waste from coastal cities, counties and watershed should be encouraged. The technologies for waste reduction, re-use, recovery, and disposal should be implemented and the clean production and development of re-cycling economy be promoted.

#### **Management Action 6-2: Improve removal of marine litter**

Litter on beaches and in coastal waters has impacted not only the aesthetics but also the lives of animals. Development and implementation of a monitoring programme for marine litter is encouraged, in conjunction with the assessment and dissemination of information, and exchange of data and information in the region. It is also recommended that the local governments and NGOs develop and implement programmes for cleaning marine litter in YSLME coastal waters.

#### **Management Action 6-3: Increase public awareness of marine litter**

Public awareness on the environmental protection for young generations are the key points for ensuring sustainable development of YSLME. The development and implementation of environmental awareness and education programmes, especially for primary, middle and high schools is recommended. The opportunities for NGOs participation should be created and/or provided. Educational information packages should be produced for use in schools.

---

### **Target 7. Reduce contaminants, particularly in bathing beaches and other marine recreational waters, to nationally acceptable levels**

#### **Management Action 7-1: Conduct regular monitoring, assessment and information dissemination particularly in bathing beaches and other recreational waters**

Water quality in recreational waters will directly impact on the human health. To minimise health risks, agreed measurement techniques for bathing water quality should be developed with a common quality assurance support mechanism. The intensive monitoring, early-warning, assessment in the seasons and the information dissemination for bathing waters and other marine recreational waters should be conducted. The national acceptable criteria or guidelines on water quality for those areas should be developed and/or improved.

#### **Management Action 7-2: Control pollution in bathing beaches and other marine recreational waters**

Enhanced control of pollution discharge and impacts of accidents especially on bathing and other marine recreational waters is encouraged. The emergency response system for human health in these areas should be improved and/or developed.

### **Governance actions**

- More funding opportunities for recycling enterprises should be provided.
- The operational approach or system for litter removal should be developed.
- The environmental awareness and education programmes should be mainstreamed into national plans.
- Network for government-issued public announcements on beach closures should be established. The reporting network, especially the public participation and reporting system should be established.
- More regular and stricter enforcement of marine litter laws should be carried out, and compliance with waste management laws and regulations be improved.
- Clear national & regional guidelines on marine litter monitoring and assessment should be established.
- Legislation of sub-standard recreational waters should be promoted.

**Annex II**

**Sample Activities and Budget Table for Regulating and Cultural Services**

Note: This table was produced during the "First Phase 2 Working Session," 26-28 August 2008. Members and participants are requested to review the list of activities, provide their comments, if any.

**Actions Primarily Addressing Regulating Services**

		Activities	Implementation	Budget				Total
				GEF	China	TOTAL Nat'l	Others	
<b>Target 4. Meeting international requirements on contaminants</b>	<b>MA 4-1: Conduct intensive monitoring and assessment</b>	<b>establish regional monitoring network based on any existing ones</b>	harmonise regional methodology, consultant 2pm	16,000		-		16,000
			working group develop regional monitoring programme, 2 sessions	20,000				20,000
			enhance monitoring by using regional monitoring programme and implement regional monitoring programme by country	100,000	3,000,000			
			consultant for regional QA/QC & inter-calibration exercises, 1/yr*3	288,000	200,000			288,000
			data & information exchange mechanism, including establish e-	15,000		-		15,000





		Activities	Implementation	Budget				Total
				GEF	China	TOTAL Nat'I	Others	
		from vessels						
<b>Target 5. Reduction of total loading of nutrients from 2006 levels</b>	<b>MA 5-1: Control total loading from point sources (reduce 10% total nutrient loading)</b>	<b>improve control mechanism of pollution from point sources</b>	consultant review & recommend 2pm * 8000	16,000		-		16,000
		<b>Support for pilot intensive monitoring of input sources and loads, incl. from sewage and aquaculture</b>	3 pilot sites	100,000	300,000			100,000
		<b>Support to monitor &amp; calculate nutrient loading in hot spots/ critical habitats</b>	3 pilot projects for development of total quality control methodology, with best available techniques	100,000	600,000	600,000		700,000
		<b>develop wastewater treatment plan</b>	working group review existing plans	15,000		-		15,000
			improve existing waste treatment facilities & give recommendations to improve	15,000				15,000
		<b>Implement improvement of wastewater &amp;</b>	2 sites	100,000	500,000	500,000	100,000	700,000

				Budget				
		Activities	Implementation	GEF	China	TOTAL Nat'I	Others	Total
		sewage treatment facilities						
	<b>MA 5-2: Control total loading from non-point sources and sea-based sources</b>	<b>Support for monitoring &amp; reducing atm-based</b>	1 site inst. Contract 2yrs monitoring	120,000	120,000	120,000		240,000
		<b>Support for monitoring, reducing, &amp; improving fertiliser use</b>	1 site inst. Contract 2yrs monitoring	75,000	225,000	225,000		300,000
		<b>Support for monitoring &amp; reducing sea-based</b>	1 site inst. Contract 2yrs monitoring	120,000	30,000	30,000		150,000
		<b>development of stormwater treatment system</b>	consultant to give recommendations 2pm * 8000	16,000				16,000
		<b>Establish &amp; implement programme to control total nutrient loading</b>	national commitments		1,000,000	1,000,000		1,000,000
		<b>MA 5-3: Apply new approaches for nutrient treatment</b>	<b>promote wetlands as nutrient sinks</b>	develop regional strategy for using wetlands as nutrient sink, consultant 2pm	16,000		-	
			local govt officer's study tour to 1 site in China, 2 days/site, 6 pers/site	10,000				10,000

				Budget				
		Activities	Implementation	GEF	China	TOTAL Nat'I	Others	Total
		<b>Create more wetlands as nutrient sink</b>	national commitments		1,000,000			0
		<b>transfer new technology for treating nutrients in wastewater</b>	1 pilot project	50,000	150,000	150,000		200,000
		<b>cost-effective and sustainable mechanism to treat municipal wastewater &amp; sewage</b>	1 consultant 2pm give regional recommendations	16,000		-		16,000
			1 pilot project	25,000		-		25,000
	<b>Governance Actions</b>	<b>establish mechanism for discussing regional level data exchange</b>	working group to improve understanding of environmental capacity	15,000		-		15,000
			working group promote best available techniques and new technology	15,000				15,000
			experts exchange: exchange info on management of fertiliser use and control of sea-based sources of pollutants		15,000			15,000

				<b>Budget</b>				
		<b>Activities</b>	<b>Implementation</b>	<b>GEF</b>	<b>China</b>	<b>TOTAL Nat'I</b>	<b>Others</b>	<b>Total</b>
		<b>Review environmental quality standards (3rd year)</b>	1 consultant to review and recommend; workshop to transfer findings	23,000				23,000
		<b>Stakeholder workshop to transfer new findings</b>	1 in-country / country			-		0
		<b>Evaluation of SAP and NSAP implementation</b>	3 consultants x 1mth x 8000			-		0
		<b>Co-ordinating YSLME sub-commission to ensure SAP implementation</b>	3 days, 5 yrs, 10 pers			-		0
	<b>Project Management</b>					-		
	<b>Total</b>			<b>2,226,000</b>	<b>8,125,000</b>	<b>8,125,000</b>	<b>100,000</b>	<b>5,201,000</b>

**Actions Primarily Addressing Cultural Services**

				Budget				Total	Remarks
				GEF	China	TOTAL Nat'l	Others		
<b>Target 6. Reduced standing stock of marine litter from current level</b>	<b>MA 6-1: Control source of litters and solid wastes</b>	<b>Waste management</b>	regional review of current policies & regulations, consultant 2pm * 8000	16,000		-		16,000	
			national review of polices & regulations		30,000			-	
			improve municipal waste collection regulation & collection system (natl)		50,000			-	
		<b>technologies for waste reduction, reuse, recovery</b>	regional review of current technologies for waste reduction, reuse, recovery, consultant 2pm* 8000	16,000		-		16,000	
			recommend clean production technologies, consultant above			-		-	
			technology transfer from developed countries, 2 sites	60,000	200,000			60,000	
		<b>recycling economy</b>	recommendations & pilot projects for regional recycling economy, 3 sites	40,000	500,000	500,000		540,000	
	<b>MA 6-2: Improve removal of marine litter</b>	<b>implement regional baseline survey and pilot monitoring programme on marine litter</b>	working group for survey design	15,000				15,000	
			baseline survey, 1 cruise / cty	200,000	1,000,000			200,000	
			develop coastal monitoring activities, consultant 1pm	8,000				8,000	

		Activities	Implementation	Budget				Total	Remarks
				GEF	China	TOTAL Nat'l	Others		
			pilot coastal waters monitoring, 3 sites	100,000	500,000			100,000	
			pilot beach monitoring, sites as above	20,000	50,000	50,000		70,000	
			assessment and dissemination of information to relevant agencies, organisations, e.g. NOWPAP	10,000				10,000	
		<b>implementing programmes for cleaning marine litter</b>	enhance public-private partnerships on reducing waste production and disposal, 3 sites	30,000	50,000			30,000	
			implement regular community-based approach for removing marine litter, 3 sites	30,000	50,000	50,000		80,000	
	<b>MA 6-3: Increase public awareness of marine litter</b>	<b>marine litter included in school curriculum</b>	develop and implement pilot programme for inclusion in school curriculum, natl		40,000	40,000		40,000	
		<b>improve publicity of marine litter issues</b>	support & continue efforts through YSP and other existing programmes	25,000		-		25,000	
		<b>production of information packages</b>	contract groups to design and distribute	30,000		-		30,000	
<b>Target 7. Reduce contaminants, particularly in bathing</b>	<b>MA7-1: Conduct regular monitoring, assessment and</b>	<b>Regional assessment of existing measures, including Harmonise measurement techniques</b>	(1 consultant x 2 pers mths x 8000) + (1 reg'l mtg X 15,000)	31,000				31,000	

		Activities	Implementation	Budget				Total	Remarks
				GEF	China	TOTAL Nat'l	Others		
beaches and other marine recreational waters, to nationally acceptable levels	information dissemination particularly in bathing beaches and other recreational waters	Support for regular monitoring, info dissemination, and beach signage	1 site / cty	20,000	50,000	50,000	5,000	75,000	NOWPAP
		Review, develop, improve nationally accepted criteria/standards	1 consultant x 2mth x 8000	16,000		-	5,000	21,000	NOWPAP
		Implement monitoring and assessment programme using improved criteria/standards	1 site / cty	10,000	50,000	50,000		60,000	
	MA 7-2: Control pollution in bathing beaches and other marine recreational waters	Develop & test early warning system, reporting to relevant agencies	1 consultant 2pm per 1 site / cty	16,000			-	16,000	
		Improve and implement early warning system in rec. area	1 site / cty	20,000	50,000	50,000		70,000	
		Enforcement of pollution discharge in test areas	1 site / cty national sources		50,000	50,000		50,000	
Governance Actions	Allocate funds for recycling enterprises	consultant recommend to include in govt policy for investment plans, natl incentives for industry participating in recycling enterprises, 3 sites		30,000	30,000			30,000	
				30,000	30,000			30,000	

			Budget						
	Activities	Implementation	GEF	China	TOTAL Nat'l	Others	Total	Remarks	
	<b>Start-up for local recycling enterprises</b>	2 pilot projects @ 5,000each	10,000	30,000	30,000		40,000		
	<b>Inclusion of envt. Awareness into nat'l plans</b>	1 consultant per cty x 2mths, natl		30,000	30,000	5,000	35,000	NOWPAP	
	<b>Improve legislation governing sub-standard waters</b>	1 consultant x 3mths natl		30,000	30,000		30,000		
	<b>Harmonise international and regional guidelines on marine litter monitoring and assessment</b>	1 consultant x 1mth x 8000	8,000				8,000		
	<b>Co-ordinating YSLME sub-commission to ensure SAP implementation</b>	3 days, 5 yrs, 10 pers			-		-		
	<b>Stakeholder workshop to transfer new findings</b>	1 in-country / country			-		-		
	<b>Total</b>		<b>731,000</b>	<b>2,820,000</b>	<b>2,820,000</b>	<b>15,000</b>	<b>1,736,000</b>		