



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

UNDP/GEF/YS/JC.2/6
Date: 14 April 2006
English only

**Second Technical Meeting for the Co-operative Study Cruises
In the Yellow Sea Marine Basin
For the UNDP/GEF Yellow Sea Project
*Qingdao, China, 26 - 27 April 2006***

Cruise Logistical Arrangements Matrix

During this agenda item, team leaders will divide into component working groups to discuss the logistical requirements of their Spring Cruise. Component team leaders from both countries should work together and co-ordinate the following items:

- Number of scientists on-board, including names, contact details, and on-board responsibilities;
- Sampling equipment needed, including those to be transported from Korea, and those to be provided by China;
- List of samples to take back to Korea for analysis; and
- Budget and contract details.

The attached draft templates and matrices contain information gathered from the First Cruise Technical Meeting and Second Regional Working Group Meetings.

In order to prepare for the Spring Cruise, team leaders should complete these tables, as much as possible. The information will contribute to preparing the workplan (Agenda 9) for the cruise.

COMPONENT	ITEM	FORM	PURPOSE	
Ecosystem	protozoa abundance	Small volume liquid (20 ml)with preservatives	Microscopic counting	
	Phytoplankton counts	Liquid (500 ml) with preservatives	Inter-comparison between Chinese and Korean methods	
	Primary production	Liquid (20 ml) with 14C	Measurement of radioactivity and data analysis	
	HPLC pigments	Filter papers in dry ice packs	Measurement of pigments and statistical analysis	
	zooplankton abundance	Liquid (200-500 ml) with preservatives	Inter-comparison between Chinese and Korean methods	
Fisheries	Ichthyoplankton(Egg & Larvae)	Liquid (1 L) with preservatives, about 90 bottles	Inter-comparison between Chinese and Korean identification results	
	Stomach	Liquid (20 L) with preservatives, about 10 Boxes	Analysis of stomach contents	
	Otoliths (fish)	Liquid (5 mml) with water, about 1000 specimen	Try to aging of major species	
Pollution	COD	250-500ml seawater	Measurement of COD (chemical oxygen demend)	Max. 156ea
	TOC	20ml seawater	Measurement of TOC (total organic carbon)	Max 156ea
	nutrients	20ml seawater	Measurement of nutrients	Max 300ea
	PAHs, PCBs, OCPs	Organic solvent(100-250ml)	Analysis of PAHs, PCBs and organochlorine pesticides (OCPs)	Max 100ea
	Heavy metals	500-1000ml seawater	Analysis of Cu, Pb, Zn, Cd, Cr	Max 52ea
	Hg	250-1000ml seawater	Analysis of Hg	Max 52ea
	As	250-1000ml seawater	Analysis of Hg	Max 52ea
	PCBs, PAHs, OCPs	250-500 ml fish tissue	Analysis of PCBs, PAHs and OCPs	Max 100

<u>CONTRACT DETAILS</u>	<u>ECOSYSTEM</u>		<u>POLLUTION</u>		<u>BIODIVERSITY</u>	
	China	Korea	China	Korea	China	Korea
Institute	FIO	KORDI	NMEMC	SSI	FIO	NFRDI
Contact Person						
Signatory	FIO President	Yoo Sinjae	NMEMC Director General	SSI Director	FIO President	NFRDI Acting Director

											Spring			
bacteria		microzooplankton	phytoplankton						zooplankton	Miscellaneous	Benthos		Sediment Core	Remarks
abundance	production		abundance/water sample	net sample	pico/size fraction/CHL	HPLC	production	net sample		grain size, organic matter	benthos			
# stations	50	10	50	50	50	50	50	10	50		50		5	
intercomparison stations				10	10				10					
who (Chinese)	Xu, Zongjun	Fang, Xisheng	Song, Hongjun	Sun, Ping	Sun, Ping	Wang, Hongping	Xu, Zongjun	Wang, Hongping	Song, Hongjun	Zhang Xuelei	need 1 more			
who (Koreans)	Hyun, Jung Ho	Hyun, Jung Ho	Yang, Eun Jin	YOO, MAN HO	YOO, MAN HO	KIM, SUN YOUNG	Roh, Seung Mok	Roh, Seung Mok	Heo, Seung		need 2 more			
equipments (China)	filtering apparatus				77um net	filtering apparatus	filtering apparatus, liquefied N storage		Chinese plankton Net (150, 505 um)	CTD	sampler and grab		Gravity sampler	
equipments (Korea)	filtering apparatus	incubator			net (60um)	filtering apparatus (vacuum pump)	filtering apparatus	incubator, filtering apparatus	NORPAC 330um net		Van Veen grab			??
expendables (China)	200 vials, 200 filters, preservatives		200 vials, glyceraldehyde	240 bottles, preservatives	60 bottles, preservatives	200 vials, 200 filters (5um) (GFF), screen (20um), preservatives	200 filters (GFF)	100 filters (GFF), C14	60 plastic bottles, formalin					
expendables (Korea)								thymidine						

CHINA

	Sub-total \$	Items	Unit cost \$	Quantity	Sum cost \$	Description
1. Expendables	5,430					
1.1		filters(100/package)	50	17	850	for pigment samples
1.2		vials	1	2480	2480	for plankton samples
1.3		preservatives (200ml/package)	100	2	200	to fix samples
1.4		bottles	2	250	500	for zooplankton samples
1.5		¹⁴ C(3 mCi/package)	200	3	600	for phytoplankton productivity incubation
1.6		³ H(2 mCi/package)	200	2	400	for bacteria productivity incubation
1.7		cocktail reagents (200ml/package)	200	2	400	for productivity incubations
2. Equipments	3,900					
2.1		Liquified N ₂ storage	2000	1	2000	for sample storage
2.2		Filtering apparatus set (6 heads and 1 stand)	1300	1	1300	for seawater filtration
2.3		Plankton nets	300	2	600	for plankton sampling
3. Post-cruise analysis	25,700					
3.1		cytometer analysis	30	400	12000	for bacteria and pico- phytoplankton samples
3.2		microscopic taxonomy	50	250	12500	for plankton net samples
3.3		scintillation counting	30	40	1200	for ¹⁴ C counting
4. Hardship	3,780		30	126	3780	6 persons on the cruise for 21 days @ \$30 per day
5. Insurance	1,440		240	6	1440	6 persons on the cruise
6. Travel	2,290					
6.1		domestic	190	6	1140	round trip from institute to the vessel
6.2		international	1150	1 person	1150	1 round trip from Qingdao to Korea (400 \$), and stay 5 days (150 \$ per diem) for joint HPLC analysis
Total direct cost (1-6) \$	42,540					
Overhead (6%) \$	2,552					
Total budget \$	45,092					

KOREA				
items	Number of samples/units	Unit cost (USD)	Cost (US\$)	Remarks
expendables				
filters	200	2	400	
amber vials	4	200	800	
standards	1	4000	4000	
columns	1	1000	1000	
Fl lamp	1	1000	1000	
solvents (ml)	1	4,800	4800	12000 mls
Expendables Subtotal			12,000	
equipments				
Phytoplankton net	1	600	600	
Zooplankton net	1	300	300	
Equipment subtotal			900	
Post-cruise analysis				
Protozoa microscopic counting	200	10	2000	
Phytoplankton microscopic counting	200	50	10000	
scintillation counter	20	10	200	
HPLC	200	5	1000	
Zooplankton microscopic counting	50	50	2500	
Post-cruise analysis subtotal			15,700	
equipment+sample transport	2	2000	4000	Air freight (Qingdao-Ansan)
human insurance	6	200	1200	6 persons
equipment insurance			240	2% of equipment value (\$12,000)
personnel travel	7	400	2800	1 extra person for supervision and finalisation with Chinese counterparts.
pre/post cruise costs	7	600	4200	in Qingdao - pre/post cruise costs; 6 days; 7 persons
hardship all.	126	30	3780	6 persons, 21 days
personnel subtotal			16220	
subtotal			44,820	
overhead (6%)			2,689	
Total Korea			47,509	

<u>SAMPLING ACTIVITY</u>	<u>EQUIPMENT REQUIRED</u>	<u>PERSONNEL</u>	<u>SOURCE</u>
Routine Parameters			
temperature	CTD sensor	RWG-P Chinese members to co-ordinate with FIO	FIO
salinity	CTD sensor		
pH	pH sensor		
transparency	Turbidity meter		
DO	DO sensor, Titrator, magnetic stirrer, sample bottles		
COD	sample bottle		
SS	SS sensor		
chlorophyll a	Chlorophyll a sensor, Fluorescence sensor	N/A	HPLC analysis by Ecosystem Component
Nutrients			
nitrate	Technicon, FIA, UV-Vis Spec	Jiang Yuewen	NMEMC
nitrite			
ammonium			
phosphate			
silicate			
Organic Pollutants	Sampler and sample bottles, acid, filtration system, shaker, separatory funnels, glass bottle	all on-board personnel	
Heavy metal	sampler, sample bottles, acids, filtration system, LDPE or teflon bottles	all on-board personnel	

CHINA

Item			Unit Cost (US \$)	Units	Sub-total	Remarks
cost of samples analysis in laboratory	water column	metals	140	25	3500	Cu, Pb, Zn, Cd, Cr, Hg and As
		TOC	20	45	900	
		TPH	20	25	500	
		PAHs	220	25	5500	
		PCBs	220	25	5500	
		OCPs	220	25	5500	
analysis of nutrients			100	65	6500	5 nutrients
Analysis of Organics	Biota	PAHs	220	20	4400	
		PCBs	220	20	4400	
		OCPs	220	20	4400	
Analysis of Metals	Biota	metals	140	20	2800	
Communication (including phone and cable) cost					150	
filtration membrame			200	3	600	Nuclear pore Filter
filtration membrame			150	3	450	Glass Fiber Filter
hardship allowance			30	63	1890	3 persons, 21 days
Before and after cruise			30	27	810	3 persons, 9 days
personnel transportation costs		China	200	3	600	3 persons 1 round trips (Dalian-Qingdao-Dalian)
equipment transportation costs		China	350	1	350	spectrometer, sensor, pH meter, sampler, samples containers, 1
samples transportation costs		China	450	1	450	deliver samples to laboratories, once per cruise
PC Software			300	2	600	
Grant Total					49,800	

		Korea			
Item		Unit Cost (US \$)	Units	Sub-total	Remarks
cost of samples analysis in laboratory	metals	100	25	2500	Cu, Pb, Zn, Cd, Cr, Hg and As
	TOC	20	50	1000	
	TPH	20	25	500	
	PAHs	150	50	7500	
	PCBs	150	50	7500	
	OCPs	150	50	7500	
analysis of nutrients		80	75	6000	5 nutrients
Analysis of Organics	PAHs	220	15	3300	
	PCBs	220	15	3300	
	OCPs	220	15	3300	
Analysis of Metals	metals	100	15	1500	
Communication (including phone and cable) cost				150	
filtration membrane (for heavy metals)		200	3	600	nuclepore membrane
hardship allowance		30	63	1890	3 persons/country, 21 days,
before and after cruise costs		30	27	810	costs incurred before and after boarding the ship
personnel transportation costs	Korea	450	3	1350	3 persons 1 round trips (Korea-Qingdao-Korea)
equipment transportation costs	Korea	500	1	500	1 round trips (Korea - Qingdao-Korea)
samples transportation costs	Korea	750	1	750	deliver samples from Qingdao to Korean laboratories, once per cruise
Grant Total				49,950	

<u>Observation Parameter</u>	<u>Personnel</u>	<u>Equipment</u>	<u>Source</u>
marine mammals	Qixiang WANG	Telescope (7X, with 800-meter rangefinder)	
		Digital Video camcorder (MiniDV, 1 CCD, 4x digital zoom, still picture and MPEG Video)	
Sea Birds	Sam Rae Cho	Fieldscope [AS65HD, Swarovski]	
		Binocular [EL10x42 WP, Swarovski]	
		Tripod [Velbon Neo Carbon 740]	

CHINA			
<u>Item</u>	<u>Unit Cost (USD)</u>	<u>Units</u>	<u>Total (USD)</u>
Allowance	30	21 days, 1 person	630
Digital video camera	1,650		1,650
Telescope	540		540
Tripod	50		50
DVD-disc(for video record)	250		250
Image & Data analysis	2,300		2,300
Report drafting	460	??	460
Total			5,880

KOREA			
<u>Item</u>	<u>Unit Cost (USD)</u>	<u>Units</u>	<u>Total (USD)</u>
		21 days, 1 person	
Allowance	30		630
Before and after cruise costs	30		
Transportation Korea-Qingdao-Korea			
??			
Total			3,860