

ANNEX 11: Revised Workplan – Clean Drinking Water

Appendix 1 REVISED WORKPLAN FOR RAS/8/084 As of July-2000

Activities	1998	1999	2000	2001	2002
National					
1. Project mobilization	x				
2. Collection of secondary data	x				
3. Design of sampling program		x			
4. Field investigation & analysis		x x x x	x x x x	x x x x	x x
5. Data interpretation		x	x x x x	x x x x	x x x
6. Numerical Modeling – Flow Modeling - Geochemical		x	x x x x	x x x x	x x
Regional					
6. Field training course on application of isotopes and chemical techniques to groundwater problems	x				
7. Interlab comparison					
For Isotopes	x	x			
For chemistry		x x		x x	
8. Group training on numerical modeling		x	x		
9. Group Training on Geochemical Modeling			x		
9. Project assessment meetings		x	x	x	x
10. Information dissemination National seminars Regional executive seminars			x x x	x	x x
11. Expert missions		x x	x x x	x x x x	x x x
12. Final overall data evaluations, synthesis and preparation of final reports					x x

x - Activities already completed

Appendix 2. ESTIMATE OF FUTURE REQUIRED INPUTS & FINANCIAL RESPOURCES FOR RAS/8/084 As of July-2000

	2000	2001	2002
EXPERT SERVICES			
- For finalizing site-specific dynamic simulation models (Pakistan, Sri Lanka, Philippines, Vietnam) (2 weeks each, Total 8 weeks)	x	x x	
- For Data interpretation and Geochemical Modelling (Korea, Thailand, Philippines, Indonesia, Sri Lanka) (2 weeks each, Total of 10 weeks)		x x x	
- For final overall data evaluations and final report preparation (Total of 8 weeks)			x x x
- As resource person in national seminars	x	x	x
EQUIPMENT AND SUB-CONTRACTS			
- Sub-contract to PINSTECH/BARC for isotope analysis - CFC analysis (IAEA) (Total estimated cost of US \$ 40 000.- for 2000 and US \$ 30 000.- for 2001)	x x x x x x	x x x x x x	
- Minor field equipment, sampling bottles and chemicals (Total estimated cost of US \$ 25 000.-)	x x x x	x x	

	2000	2001	2002
<ul style="list-style-type: none"> - Sub-contract to PINSTECH/BARC for isotope analysis - CFC analysis (IAEA) (Total estimated cost of US \$ 40 000.- for 2000 and US \$ 30 000.- for 2001)	x x x x x x	x x x x x x	
<u>FELLOWSHIPS</u> <u>Requirements for additional training that may be required through individual fellowships</u> <u>is estimated to be a total of 6 m/m (3 x 2 m/m) for 2000, 10 m/m (5 x 2 m/m) for 2001, 2m/m (2x1m/m)for 2002</u>	x x	x x x x	x
GROUP TRAINING ACTIVITIES			
- Assessment workshop	x	x	
- RTC on geochemical modeling (October-2000)	x		
- Regional Workshop to inform senior water managers of the achievements (combined meeting with final project assessment workshop)			x
- Project Assessment workshop		x	

ANNEX 12: RAS/8/080: MANAGEMENT OF THE MARINE COASTAL ENVIRONMENT AND ITS POLLUTION

Work Plan

A budget summary up until the completion of the project is presented below. The column "Budget to be identified" is a consolidation of the budgets for unfunded activities, support for which will be sought from the IAEA to facilitate the rounding off of the project in a way which will achieve optimum outcomes.

Table 1: Subproject Budget Summary

Project Component	Budget, \$K UNDP	Budget, \$K IAEA
1: Marine Radioactivity Database	60 (25)*	55
2: Fate & Behaviour of Pollutants	115.3	20**
3. Modelling and Validation	29	375***
4. HAB issues	162.5 (47.5)	211**
TOTAL	366.8 (72.5)	661****

* In parenthesis is the amount of the total to be spent before 31 Dec 2000.

** Including contribution from Member states

*** \$345K as contributions from RCA Member States

**** Say \$394K as contributions from Member States

A total \$72.5K is required from the UNDP Budget to fund essential tasks before the end of the UNDP funded triennium (31 Dec 2000). These are

	\$K
Completion of the ASPAMARD (Asia/Pacific Marine Database)	57
Production of a manual for sediment/cyst studies	58
Meeting of LCs/RRUs to prepare final report for the UNDP	209
Laboratory supplies and standards (HAB sustainability)	42.5 ¹⁰
TOTAL:	\$ 72.5

⁷ WORK TO BE UNDERTAKEN BY PNRI

⁸ ADVICE SOUTHT FROM TECHNICAL OFFICER

⁹ MEETING TO BE HOSTED BY ANSTO.

¹⁰ LABORATORIES IDENTIFIED IN THE HAB PLANNING MEETING, CHINA.

Component 1: Establishment Of A Regional Database On Marine Radioactivity

TABLE II: Component 1: Activities, Time Frame and Budget

ACTIVITIES	TIMEFRAME	BUDGET UNDP	BUDGET IAEA
a Compilation into a regional database of data already available in Member States in the region on the concentrations of key anthropogenic radionuclides (¹³⁷ Cs and ^{239,240} Pu) in the marine environment. The Philippines offered to serve as focal point in this undertaking.	Mar-Dec 98	US\$5,000	
b Scheduling / planning of availability of ships of participating Member States for cruises in the Straits of Malacca or South China Sea. The cruises will be used for on-board training on proper sampling techniques and analysis, where applicable. Malaysia offered to serve as coordinator of this activity	Dec 99 – Aug 00	cost-free	
c Review Meeting (RCA participants) to analyse existing regional database on marine radioactivity and identify gaps in the database. Pakistan hosted the review meeting.	April 99	30,000	
d Submission of data gaps to the Philippines NC (focal point for completion of regional database/map).	Aug – Sept 00		
e. Preparation of final ASPAMARD report by PNRI	Nov 00	\$5,000*	
f. Meeting LC's and RRUs to consolidate outcomes (UNDP Requirement)	Dec 00	\$20,000*	
g. Sustainability of data collection within the Region. Cruise in the Strait of Malacca for on-board training of sampling techniques and, as appropriate, expert advice for key regional laboratories			\$55,000**
	SUB-TOTAL	\$60,000	\$55,000

* Requested from core UNDP funding.

** IAEA with possible contribution from Malaysia towards the cost of the Straits of Malacca training.

Component 2: Determination Of The Levels, Behaviour And Fate Of Radioactive And Non-Radioactive Pollutants In The Environment Through Isotope Or Nuclear Techniques

TABLE III: Component 2: Activities Time Frame and Budget

ACTIVITIES	TIMEFRAME	BUDGET UNDP	BUDGET IAEA
a Regional Training Course on the Use of Stable Isotopes and ^{14}C Absorption Techniques in the Analysis of Organic Pollutants. Pakistan as RRU in the development and application of stable isotope techniques is hosting the above training course. Lectures in IAEA/MEL sampling protocols.	Scheduled 4-15 Oct 1999	\$60,000	
b Identification by each country of marine areas of interest (eg high fish catch, 'sink' for pollutants) in their respective countries for the study of radioactive and non-radioactive pollutants.	1999	National Program Budget	
c Regional Training Course on Application of Tracers to Study Transport Processes and Sedimentation Rates in the Marine Environment. Thailand Linkages to Component 1 and 4 (sediment/cyst studies)	21 Feb-4 March 2000	\$55,326	
d Final meeting to discuss data and publish a report/paper.	Dec 2000	Funded by UNDP under component 1	\$10,000
e. Use of $\text{Ra}^{226}/\text{Ra}^{228}$, $\text{U}^{238}/\text{Th}^{234}$ ratios in understanding the movement of water masses and transport phenomena in participating countries	2001		\$10,000
f. Use of Cs-137 to determine sedimentation rates in bodies of water proximal to areas prone to erosion in participating countries			Funded through component 1
g Final meeting			
	SUB-TOTAL	\$115,326	\$20,000

Component 3: Application Of Nuclear And Modelling Techniques To Sustainable Development In The Coastal Zone

TABLE IV: Component III; Activities, timeframes and Budget

ACTIVITIES	TIMEFRAME	BUDGET 11 (AUL/IAEA)	BUDGET IAEA
a Regional Training Course at the Unisearch WRL of University of New South Wales and ANSTO on hydraulic modelling codes and their verification. (Each participating country will receive a code for implementation locally.) This RTC will also ensure capability for certain activities in Component 2.	1998	\$115,000	
B Dilution and dispersion of sewage (domestic /industrial) disposed off into the sea using radiotracers and fluorescent dye tracers (India).	24-29 April	\$29,000	
c Regional training/ demonstration workshop to demonstrate the role of nuclear techniques in refining hydraulic models of the dynamics of bedload movement at the Port of Songkhla Thailand.	Aug 1999 to May 2000	105,000	
	2000	20,000	
d First expert mission to supplement the regional training and training/ demonstration activities.			
e Regional training/ demonstration workshop on applications of nuclear and modelling techniques to the investigation of effluent dispersion in Manila Bay (linked to Component 4 HAB).	Sept 2000 to May 2001	105,000	
	2001	20,000	
f Second expert mission to provide advice to RCA countries which intend to implement the technologies locally.	October 2001		30,000*
g Suspended and bed-load sediment transport studies to ascertain the suitability of dumping sites for dredge spoil (Mumbai)			
	SUB-TOTAL	374,000	30,000

* Requested from the IAEA Budget

¹¹ ACTIVITIES (A), (C), (D),(E) AND (F) FUNDED BY AUSTRALIA

Table 4: Receptor Binding

ACTIVITIES	TIMEFRAME	BUDGET UNDP	BUDGET IAEA
I. Receptor binding assays			
a. Conduct workshop training on receptor binding assay (Philippines) Expert mission (4.4)	29 Nov-4 Dec 1999	\$ 20,000	
		\$ 5,000	
b. Expert Mission to advise on projects implementation on (4.1 to 4.6):			
a) Purification	Aug. 1999	\$ 6,500	
b) Tritium labelling	Mar. 2000	\$ 6,500	
c) Quality Assurance	Jun. 2000	\$ 6,500	
c. Production of tritiated (3H-STX) saxitoxin from natural and commercial saxitoxin sources (4.1) Consumables, supplies	Jul. 1999- Dec. 2002	\$ 7,500*	\$ 5,000
d. Production of PSP Standards (4.2 - 4.3) Consumables, supplies	Jan. 2000 – Dec 2000	\$ 12,500*	\$ 5,000
e. Establishment of Receptor Binding Assay (4.5 - 4.6) Consumables, supplies	Jan 2000 – Dec 2002	\$12,500*	\$27,500
f. Production of Manuals A. STX purification (4.1) B. Receptor Binding Assay (4.2)	Sept 2002		\$ 5,000 PHI in kind contribution
g. Fellowship Training 1.5 mm/country (PAK,CPR, VIE,IND)	Dec 2000 to Jun 2001		\$26,500
h. Regional interlab comparison (2 week scientific visit in expert lab)	Jan- Mar 2002		\$5000
	SUB-TOTAL	\$ 77,000	\$ 74,000

* Requested from core UNDP funding

TABLE VI: Component 4 b Sediment/cysts studies

ACTIVITIES	TIME FRAME	BUDGET UNDP	BUDGET IAEA
II. Sediment/cysts studies			
a. Workshop/Training/Manual on radiometric dating and cysts (Australia)	5-10 July 1999	\$20,000	
b. Experts Mission (2) (4.7)		\$ 10,000	
c. Sediment studies Field Work (4.8)- Consumables and supplies	Jul. 1999 –Dec 2000	\$5,000*	\$ 19,500
d. Sediment studies Laboratory work (4.9) – Consumables and supplies	Jul. 2000 - Dec 2000	\$5,000*	\$ 20,000
e. Production of a Manual (4.7) Revise and ready for publication by IAEA	Dec. 2000	\$5,000*	
f. Fellowship training (7 mm total) 4 countries to establish proficiency)	2001		
<ul style="list-style-type: none"> ● 0.5 mm/country on sediment dating (VIE, INS, CPR) ● 0.5 mm/country on cyst identification (VIE, INS, PAK, CPR) 			\$7,500 \$10,000
	SUB-TOTAL	\$45,500	\$ 57,000

* Requested from core UNDP funding .

TABLE VII: Common activities

ACTIVITIES	TIME FRAME	BUDGET UNDP	BUDGET IAEA
III. Common activities (4.8 - 4.9)			
a. Workshop/coordination Meeting in China – Qindao	3-7 July 2000 (accomplished)	\$30,000	
a. Expert mission for a) above (x2)		\$10,000	
b. Final Meeting UNDP	Dec 2000	with component 1	
c. Regional Workshop (Technical) HABS (Thailand)	October 2001		\$30,000
d. Experts for d) above			\$10,000
e. Final Meeting (MAL/PAK)	Nov Dec 2002		\$30,000
f. Experts for f) above			\$10,000
	SUB-TOTAL	\$40,000.00	\$80,000

ANNEX 13: Revised Workplan – Air Pollution;

Adjusted RCA work plan for 2000 Sub-project on Air Pollution and Its Trends

	Task	Action/Responsibility	Date/Duration
1	Continuation of sampling APM using the “Gent” SFUs ¹² [All countries]	NPCs ¹³	For the remaining part of the year
2	Analysis of the collected samples [All countries]	NPCs	Same as above
3	Supplies to be purchased for individual participants (e.g. spare parts for samplers, consumables, reference materials) [All 13 countries]	IAEA	As required
4	Procurement of filters for the samplers to be purchased centrally; 2000 coarse and 2000 fine per country [All 13 countries]	IAEA	August
5	Procurement of two additional “Gent” samplers to be purchased centrally [All 13 countries]	IAEA	August
6	Procurement of 12 statistical software packages for 12 countries	IAEA	August
7	National seminars. Awaiting formal requests from member states	IAEA	Between September and December
8	Individual expert services. - Awaiting formal request from several member states.	IAEA	Between September and December
9	Individual fellowship training. - Awaiting formal requests from member states	IAEA	Between September and December
10	Conference of participants and end-users at Manila 3 participants from each member state, plus consults and IAEA Tos.	IAEA, PHI	13-15 November
11	Meeting of national project co-ordinators at Manila to discuss the modified workplan for 2001-2002.	IAEA, PHI	16-17 November

¹²SFU

STACKED FILTER UNIT

¹³NPC

NATIONAL PROJECT CO-ORDINATOR

Modified RCA work plan for 2001
Sub-project on Air Pollution and Its Trends

Task		Action/Responsibility	Date/Duration
1	Continuation of sampling APM using the "Gent" SFUs ¹⁴ [All countries]	NPCs ¹⁵	All year
2	Analysis of the collected samples [All countries]	NPCs	All year
3	Monitoring changes in long-term trends; identification, characterisation and source apportionment by using appropriate statistical tools [All countries]	NPCs	All year
4	Establishment of databases	NPCs, LC ¹⁶	All year
5	Procurement of static eliminators for filters to be purchased centrally [All 13 countries]	IAEA	June
6	Subcontract for processing regional data for characterising trends in air pollution. Proposed consultant: P. K. Hopke, Potsdam, USA. Job description: (1) To act as the data co-ordinator for the sub-project, reviewing the quality of the analytical data being collected, and identifying outliers or possible analytical problems by finding points or correlations that appear to be anomalous; (2) To examine the frequency distributions of values, and to compare the exposure to various particulate species among the various areas being studied; (3) To perform exploratory receptor modelling using Principal Component Analysis and to identify potential major sources contributing to the observed concentrations; (4) To identify, characterise and apportion transboundary episodes in the region; (5) To prepare summary reports for the meetings with the results of these statistical evaluations. Duration of the subcontract: 2 years.	Consultant (USA)	January
7	Supplies to be purchased for individual participants (e.g. spare parts for samplers, consumables, reference materials) [All 13 countries]	IAEA	As required
8	National seminars. Already identified: (1) Topic to be decided; duration: 3 days; 2 external lecturers (2) National executive management seminar on air quality management; duration: 2 days; 2 external lecturers (3) National executive seminar on Clean environment; duration: 2 days; 2 external lecturers (4) National workshop on XRF ¹⁷ analysis of airborne particulate matter (APM) and related environmental samples; 2 weeks; 1 external lecturer on XRF analysis including sample preparation for APM, soil and biological samples;	CPR BGD PAK PHI	To be decided To be decided February November
9	Submission of progress report to LC and data to the	NPCs	June

¹⁴SFU STACKED FILTER UNIT
¹⁵NPC NATIONAL PROJECT CO-ORDINATOR
¹⁶LC LEAD COUNTRY
¹⁷XRF X-RAY FLUORESCENCE SPECTROMETRY

Task		Action/Responsibility	Date/Duration
	data co-ordinator [All countries]		
10	Individual expert services. Already identified: (1) Chemometrics and QA/QC ¹⁸ ; duration: 2 weeks; expert from AUL, USA (2) Chemometrics and air quality management; duration: 2 weeks; expert from AUL, USA (3) Dispersion modelling concepts and the use of software; duration: 2 weeks; expert from USA (4) To be specified (5) Improving XRF analytical procedures for air filters; 1 week (6) k ₀ -based NAA ¹⁹ for air pollution monitoring; 2 weeks	CPR BGD PAK MAL SRL KOR	As requested As requested As requested As requested May As requested
11	Individual fellowship training. Already identified: (1) Receptor modelling, atmospheric processes; duration; 2 p/m ²⁰ , 1 person; place: USA (2) Long-range transport of atmospheric pollutants; SV ²¹ 0.5 p/m, 1 person; place: USA (3) Dispersion modelling; 2 p/m, 1 person; place: USA (4) Health impact evaluation; 2 p/m, 1 person; place: USA (5) Nuclear-related analytical techniques for the analysis of air filters; June-July; 2 p/m, 1 person; place: Belgium (6) k ₀ -based NAA for air pollution monitoring; 3 p/m, 1 person	CPR VIE PAK PAK MAL KOR	As requested As requested As requested As requested As requested As requested
12	Workshop on Atmospheric Chemistry and Transport [All countries]. Up to 24 participants; proposed lecturers: 2 external: P.K. Hopke (Potsdam, USA), D. Cohen (ANSTO, AUL); IAEA TOs ²²	CPR or PAK	May or November
13	Progress Assessment Meeting to (1) review the progress, (2) rectify the work plan, if needed, (3) plan the future activities, including submission of information to the RCA Web Page, (4) discuss data evaluation and interpretation. Participants: 15 NPCs, 2 IAEA TOs, 2 consultants.	(THA)	November
14	Submission of (1) analytical data to the data co-ordinator and (2) progress report to LC [All countries]	NPCs	(1) October, (2) December

¹⁸QA/QC QUALITY ASSURANCE/QUALITY CONTROL

¹⁹NAA NEUTRON ACTIVATION ANALYSIS

²⁰P/M — PERSON MONTH

²¹SV — SCIENTIFIC VISIT

²²TO — IAEA TECHNICAL OFFICER

Modified RCA work plan for 2002
Sub-project on Air Pollution and its Trends

Task		Action/Responsibility	Date/Duration
15	Continuation of sampling APM using the "Gent" SFUs [All countries]	NPCs	All year
16	Analysis of the collected samples [All countries]	NPCs	All year
17	Update of databases	NPCs, LC	All year
18	Monitoring changes in long-term trends; identification, characterisation and source apportionment by using appropriate statistical tools [All countries]	NPCs	All year
19	Supplies to be purchased for individual participants (e.g. spare parts for samplers, consumables, reference materials) [All 13 countries]	IAEA	As required
20	National seminars - 2		As requested
21	Individual expert services - 1 man-month		As requested
22	Individual fellowship training. Already identified:		
	(1) Long-range transport of atmospheric pollutants; 1 p/m; place: USA	VIE	As requested
	(2) Statistical analysis and interpretation of elemental contents in aerosols; July-August; 1 p/m; 1 person; place: USA	MAL	As requested
	(3) Data analysis; March-April; 1 p/m; 1 person; place: AUL or USA	PHI	As requested
	(4) Statistical evaluation of the collected data; 1 p/m; 1 person; place: USA	SRL	As requested
23	Workshop on Statistical Processes to Understand Long-Term Air Pollution Trends [All countries]. Up to 24 participants; proposed lecturers: 2 external: P.K. Hopke (Potsdam, USA), D. Cohen (ANSTO, AUL); IAEA Tos	VIE or PHI	March March or April
24	Submission of progress report to LC and data to the data co-ordinator [All countries]	NPCs	June
25	Conference of project participants and end users. Report in a book form; 50 participants: 2-3 participants from each country including NPCs (15), consultants (2), and IAEA staff (TOs, others).	LC	November

The Project Framework Matrix

Project Number: Project Officer: Main Counterpart: Other National Counterparts:	/ /	Project Title: Technical Officer : Organisation:		
	Project Design Elements	Verifiable Indicators	Means of Verification	Important Assumptions
Development/Overall Objective	<p>To use the demonstrated capability in applying isotope techniques for characterizing trends in air pollution as well as transboundary pollution in the region.</p> <p>To collect and analyze a sufficient body of data to make source apportionment useful to the end users for air quality management and policy making.</p>			<p>Study of trend requires long-term data.</p> <p>Transboundary episodes produce identifiable events that can be characterized and apportioned.</p> <p>Commitment to long-term sampling by participating countries.</p> <p>Adequate Governmental commitment and support.</p>

	Project Design Elements	Verifiable Indicators	Means of Verification	Important Assumptions
Specific Objective	<p>To determine what general trends are in urban areas in the region that provides verification of end users action.</p> <p>To monitor changes in long-term trends as a results of anthropogenic activities, regulatory activities, pollution guideline changes in air quality management.</p> <p>To identify, characterize and apportion transboundary episodes in the region.</p> <p>To provide enhanced capability for the generation of multielemental data by nuclear methods.</p> <p>To convert the airborne particle data to information on the nature and importance of sources.</p>	<p>Existence of long-term data.</p> <p>Ability to determine trends in the data.</p> <p>Ability to characterize transboundary episodes in the data.</p> <p>Ability to apportion the sources using the data.</p>	<p>Reports and publications</p>	<p>Commitment to long-term sampling by participating countries.</p> <p>Adequate Governmental commitment and support.</p>
Project Outputs	<p>Long-term, high quality multielement concentration data.</p> <p>Identified trends in the data.</p> <p>Characterised transboundary episodes where seen in the data.</p> <p>Identified and apportioned pollution sources.</p>	<p>Database and reports.</p>	<p>Database generally available to participating countries.</p> <p>Availability of reports to participating countries and end-users.</p>	<p>Commitment by government and other end-users</p>

	Project Design Elements	Verifiable Indicators	Means of Verification	Important Assumptions	
Activities	Long-term sampling and analysis.	Progress reports.	Availability of progress reports.	Appropriate experts are available.	
	Quality assurance of sampling, analysis, and data validation.	Progress reports.	Availability of progress reports.		
	Data analysis and source apportionment.	Progress reports.	Availability of progress reports.		
	Establishment of a database suitable for transboundary and long-term regional studies.	Progress reports.	Availability of progress reports. Availability of database		
	Workshop on atmospheric processes including transboundary transport and the nature of source emissions.	Additionally trained persons.	Number of people trained.		Appropriate experts are available.
	Workshop on Statistical processes to understand long-term air pollution trends.	Additionally trained persons.	Number of people trained.		Appropriate experts are available.
	National seminars.	Improved awareness of the public.	Number of people trained.		Appropriate experts are available.
	Fellowships/training.	Improved awareness of the public.	Number of people trained.		Appropriate experts are available.
	Expert services.	Additionally trained persons.	Reports on the relevant activities.		Appropriate experts are available.
	Sub-contracts to compile a comprehensive database of data from participant countries.	Technical difficulty resolved.	Number of people trained. Report.		Appropriate experts are available.
	Provision of equipment/supplies.	Report.	Availability of the report.		Appropriate experts are available.
	Progress meeting.	Equipment/supplies purchased	Equipment/supplies delivered.		Appropriate experts are available.
	Project summary meeting.	Meeting report.	Availability of the meeting report.		Appropriate experts are available.
		Meeting report.	Availability of the meeting report.		Appropriate experts are available.

**IAEA + CP
Inputs**

Project Design Elements	Verifiable Indicators	Means of Verification	Important Assumptions
<p>IAEA For 2001:</p> <p>Static eliminators (1 per country): \$1500</p> <p>Equipment / supplies. \$10,000/year</p> <p>Lecturers. 1 pm/year</p> <p>Experts. 2 pm/year</p> <p>Sub-contractors to compile and assess data: \$20,000/year</p> <p>Meetings: \$75,000/year</p> <p>Fellowships: 9 pm/year</p> <p>Total: \$160,000</p> <p>For 2002</p> <p>Equipment / supplies. \$10,000/year</p> <p>Lecturers. 1 pm/year</p> <p>Experts. 1 pm/year</p> <p>Meetings: \$95,000 year</p> <p>Fellowships: 4 pm/year</p> <p>Total: \$140,000</p>			

ANNEX 14: Revised Workplan – Clean and Energy Efficient Production;

This project was not affected by the UNDP Funding Decision, and hence the Work Plan was the same as that tabled at the Meeting.

Component 1 Workplan Summary: Process diagnostics and optimisation in petroleum/chemical industries

Year	Date	Activity	Budget USD
2001	May	RW on corrosion monitoring in petroleum/chemical industries, 2 weeks, MINT, Malaysia or OAEP, Thailand	\$35,000
2001	Dec	RW on process diagnostics using radioisotopic techniques in petroleum/chemical industries, 2 weeks, BARC, India	\$35,000
2001	Oct	RTC on NDT ISI in petroleum and petrochemical industries, 1 week, Pinstech, Pakistan.	\$25,000
2002	Jun	RW on process optimisation using tracers in petroleum/chemical industries, 2 weeks, KAERI, Korea	\$35,000
2002	Mar	REMS on benefits and safety of radiation/radioisotopic techniques, 1 week, BATAN, Indonesia	\$25,000
2002	Sep	EGM on tracers in oil field investigations, 1 week, China	\$25,000
2002	Nov	EGM on NDT, sealed sources, radiotracers in petroleum/chemical industries, 1 week, OAEP, Thailand	\$25,000
		expert assignments, 3 man-months/year	\$90,000
		fellowships, 9 man-months/year	\$60,000
		equipment, \$40,000 per year	\$80,000
		TOTAL	\$435,000

Component 2 Workplan Summary: Optimisation of mineral resource recovery

Year	Date	Activity	Budget USD
2001	Sep	RW on optimisation of mineral resources recovery by using low radioactivity and portable nucleonic gauges, 2 weeks, Hanoi, Viet Nam	\$35,000
2002	May	RW on optimisation of mineral resources recovery by using low radioactivity and portable nucleonic gauges, 1 week, Hanoi, Viet Nam	\$25,000
2002	May	REMS on mineral resources recovery by using low radioactivity and portable nucleonic gauges, 3 days, Hanoi, Viet Nam	\$20,000
2002	Dec	PCM on review of optimisation of mineral resources recovery, 1 week, Hanoi, Viet Nam	\$25,000
		expert assignments, 1.5 man-months/year	\$40,000
		fellowships, 4.5 man-months/year	\$32,000
		equipment, \$65,000 per year	\$130,000
		TOTAL	\$307,000

Component 3 Workplan Summary: Natural Polymers

Year	Activity	Budget
2000	Regional Group Training Course on Modification of Natural Polymers by Radiation Processing Vietnam/India/Indonesia/Thailand/China/Korea/Malaysia/Philippines/Srilanka 3-7 July 2001, Vietnam Duration: 1 week (10 participants)	US\$ 14,000
2000	Regional Workshop on Radiation Processing of natural polysaccharides for healthcare products Vietnam/India/Indonesia/Thailand/China/Korea/Malaysia/Philippines/Bangladesh/Srilanka/Myanmar/Japan November 2001, China Duration: 1 week	US\$ 50,000
2001	Regional Workshop on status and potential of Radiation Processing of natural polysaccharides for healthcare products Vietnam/India/Indonesia/Thailand/China/Korea/Malaysia/Philippines/Bangladesh/Srilanka/Myanmar/Japan June 2001, Japan Duration: 1 week	US\$ 50,000
2001	IAEA Fellowship Training Vietnam/Indonesia/Thailand/China/Korea/Malaysia/Philippines/Bangladesh/Srilanka/Myanmar (2 man-month/ for 5 countries)	US\$ 33,000
2002	PCM for conclusion of the project Vietnam/India/Indonesia/Thailand/China/Korea/Malaysia/Philippines/Bangladesh/Srilanka/Myanmar/Japan November 2002, Thailand Duration: 1 week	US\$ 50,000
	TOTAL 2001/2	\$133,000

Output 1.4.2: Work programme for the next cycle (2001-02) and networking activity

By the Mumbai PFM, and subsequent approval, now as 3 components:

1. Process diagnostics and optimisation in petroleum/chemical industries using NDT, radiotracers and sealed sources (lead: India)
2. Optimisation of mineral resources recovery by using low radioactivity and portable nucleonic gauges (lead: Australia)
3. Upgrading of natural polymers and environmental conservation by radiation processing (lead: Japan)

Workplans are detailed in the original PFM documents. The following changes are recommended:

1. No changes.
2. Proposed PFM cancelled; 1 REMS cancelled.
3. RWS on chitin/chitosan modified to processing of polysaccharides to health care products; EGM to conclude project changed to focus on natural polysaccharides.

Prospectuses for regional events have been revised to match the three components, and the changes to them.

Application	countries	schedule
Fertiliser manufacture, pipes	Indonesia, (NZ)	Confirm end. Oct 2000, proceed Mar. 2001
Ti chemical vessels	China, Korea	Check cross sections, Dec. 2000 Trial May 2001
Addition of V, Cr, Zr alpha cross sections to software	India, New Zealand	End 2000
Selection off-gas pipe material	Thailand	mid-2001
Solid catalyst pipe erosion	Korea	mid-2001
Sediment erosion of hydroelectric plant	Malaysia	Feb. 2001
Jet engines turbine erosion	China	Oct. 2000
Switch erosion	China	Mar. 2001
Heat exchanger pipe corrosion	Korea, Thailand	Feasibility, end 2000 Trial mid-2001
NEMS	Viet Nam, Malaysia	mid-2001
EGM on TLA	All active MS	End 2002