

METING OF THE RCA LEAD COUNTRY COORDINATORS



VIENNA

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for Industrial Projects.**

2003 – 04 Cycle

Projects under Industry

Overall Lead Country – INDIA

1. **RAS/8/085** - Non - Destructive Testing and Evaluation
(extension) : 1999 - 2004

Lead country -

Budget (2003-2004) - USD\$ 220,000 [FOOT NOTE]

Participating Countries with Government Commitments -

BGD,CPR, IND, INS, MAL, MON, MYA, PAK, PHI, ROK, SRL, THA, VIE (13)

2. **RAS/8/094** - Optimization of materials in industry by using on-line bulk analysis techniques: [Old RAS/8/089]

Lead country - AUS assisted by NZ

Budget (2003-2004) - USD\$ 260,000 [H.C. = 230,000 & FN = 30,000]

Participating Countries with Government Commitments -

AUL, CPR, IND, INS, JPN, MON, PAK, NZE, THA, VIE (10)

3. **RAS/8/096** - Modification of Natural Polymers Through Radiation Processing: [Old RAS/8/090] (E+N) : 2001 - 2004

Lead country - Japan

Budget (2003-2004) - USD\$ 200,000 [FOOT NOTE, JPN]

Participating Countries with Government Commitments -

BGD, CPR, IND, INS, JPN, MAL, MYA, PAK, PHI, ROK, THA, VIE (12)

4. **RAS/8/091** - Process Diagnostics and Optimization in Petro-chemical Industries (extension) : 2001 - 2004

Lead country - India

Budget (2003-2004) - USD\$ 325,000 [H.C. = 275,000 & FN = 50,000]

Participating Countries with Government Commitments - BGD,CPR,

IND, INS, MAL, MON, MYA, PAK, PHI, ROK, SRL, THA, VIE (13)

Report on Success Stories



SECTORAL AREA – INDUSTRY

Basis/Impacts:

- All projects were based on Radioisotope/Radiation Technology demonstration and had immense impact and benefit to the region.
- Resulted in Human Resource Development.
- Capacity/Infrastructure Building.
- Quality bulk materials and minerals.
- Development of new and environment friendly materials.
- End - user Involvement
- Sustainability
- Economic Benefits

RAS/8/085

Non - Destructive Testing and Evaluation:

Success Stories

[All participating countries benefited]

1. TRAINING COURSES AND QUALIFYING EXAMINATIONS ON NDT AS PER IAEA TECDOC-628 & ISO 9712
2. FABRICATION OF WELDED TEST PIECES WITH KNOWN DEFECTS.
3. TESTING OF CONCRETE STRUCTURES.
4. IN-SERVICE INSPECTION IN PETROLEUM INDUSTRY.

5. LEAD IN HARMONIZATION OF NDT TRAINING SCHEMES ESTABLISHED OVER OTHER REGIONS.

6. GUIDEBOOKS ON TESTING OF CONCRETE STRUCTURES AND FABRICATION OF WELDED SPECIMEN.

[IAEA Guidebooks.]

7. INITIATION OF DIGITAL RADIOLOGY TECHNIQUES.

8. PARTICIPATION IN VARIOUS IAEA INITIATED CRPS.

9. PROVIDING EXPERTS/FELLOWSHIPS TO MEMBER STATES ON REQUEST.

RAS/8/094

*Optimization of materials in industry by
using On-line bulk analysis techniques*

[Old RAS/8/089]

Success Stories

1. A regional demonstration center set up in Hanoi, Vietnam.
2. Attention on more versatile PGNAAs probes.
3. A new regional center planned in China.
4. Demonstration of bore hole logging and bulk materials NCS instrumentation planned.

RAS/8/096

*Modification of Natural Polymers
Through Radiation Processing:*

[old RAS/8/090]

Lead Country: JAPAN

Success Stories

**Radiation processing of Agro waste,
Viscose Rayon and Natural Polymers**

Success Stories

RAS/8/096 [Contd]

Agro waste

- MINT produced nearly 50, 000 tons of fermented products from oil palm cellulosic waste for animal feeding test. Plans to upgrade the technology to full-scale plants.
- Philippine Nuclear Research Institute (PNRI) started the small scale project to process fermented sugarcane bagasse.●
- Lead in technology development over other regions established.

Natural polymers

- Vietnam has commercialized the irradiated alginate as plant growth promoter.

RAS/8/091-

*Process Diagnostics and Optimization in
Petro- chemical Industries*

Lead Country: India

Success Stories

Success Stories

RAS/8/091 [Contd]

- ✓ Enhanced awareness regarding benefits of tracer technology created among potential users.
- ✓ Use of different radiotracers propagated.
- ✓ New and improved methods of column scanning have been successfully tried in actual working conditions.
- ✓ Enhanced use of Tracers in oil field investigations.

Success Stories

RAS/8/091 [Contd]

- ✓ Awareness among member states on use of CFD in process modeling created.
- ✓ Leak/ blockage location and RTD measurement methodology for pipelines and industrial systems established in most of the MSs.
- ✓ 2 Guidebooks on process optimization and use of tracers in oil field investigations published.

RCA COUNTRIES



- **DEVELOPED**
- **DEVELOPING**
- **LEAST DEVELOPED**

**PROJECT PROPOSALS MUST
MEET EVERY COUNTRY'S
REQUIREMENTS**

PROJECTS 2005 - 06

NEED TO CONTINUE

Technology demonstration/ sharing is needed for;

- **Developing MSs as the latest technology is not available due to high cost of equipment /denial by the advanced countries.**
- **Industry to meet new and stringent requirement of material quality and performance,**
- **Radiation treatment of industrial effluents like waste water, sludge and flue gases and agro waste is needed to provide clean environment, water and economic benefits to society**
- **Demonstration of new techniques for troubleshooting and process optimizing is needed for operating process industries to reduce inspection times and thus increase productivity, economic benefits and prosperity for alleviation of poverty.**
- **Demonstration of new techniques is also needed to meet the present day societal requirements including prevailing security concerns.**

PRELIMINARY INPUTS FOR RCA PROJECTS IN INDUSTRY 2005-06 CYCLE

Contributing Countries

**Australia, Bangladesh, China,
India, Indonesia, Japan, Korea,
Malaysia, Pakistan, Philippines,
Sri Lanka, Thailand & Vietnam**

LIST OF PRELIMINARY PROPOSALS SUBMITTED BY MSs FOR 2005-06 Cycle

Activity/ Fields	Project Title	Country	Remarks
Non-Destructive Testing (NDT)	Development and Application of Portable tomographic systems.	China, India, Korea, Philippines Sri Lanka, Vietnam.	New
	Technology development for Inspection of thick concrete structure using high-energy radiation sources.	China, India, Pakistan, Philippines, Sri Lanka.	New

LIST OF PRELIMINARY PROPOSALS SUBMITTED BY MSs FOR 2005-06 Cycle

[Contd]

	Regional Qualification and Certification Schemes in NDT.	Thailand	Extension
	Real time Imaging Systems for inspection of unknown packages.	China, India, Sri Lanka, , Korea, Vietnam	New
	Accreditation of NDT laboratories as per ISO standard.	Japan, Sri Lanka, Thailand	Extension

LIST OF PRELIMINARY PROPOSALS SUBMITTED BY MSs FOR 2005-06

Cycle[Contd]

	Training Courses in NDT	Indonesia Vietnam, Thailand,	Extension
	Experts in NDT	Indonesia, Philippines, Thailand, Vietnam,	Extension
Nucleonic Control Systems (NCS)	Optimization of Materials in Industry Using on-line and In-Situ Bulk Analysis Techniques- Phase II, Integration of Portable Nuclear Analysis Systems.	Australia, China, Pakistan, Thailand, Vietnam,	Extension of 2001-02 and 2003- 04 cycles.

LIST OF PRELIMINARY PROPOSALS SUBMITTED BY MSs FOR 2005-06 Cycle[Contd]

<p>Process Optimization using Tracers and Sealed Sources.</p>	<p>Up gradation of leak locator systems for underground Pipelines.</p>	<p>India, Srilanka, Korea, China Indonesia, Philippines</p>	<p>Modification of existing Techniques.</p>
	<p>Process diagnostics and optimization using radiotracer and sealed sources, including TLA, Blockage location, RTD measurements etc.</p>	<p>China, Indonesia, India, Pakistan, Philippines, Sri Lanka, Thailand</p>	<p>Extension</p>

LIST OF PRELIMINARY PROPOSALS SUBMITTED BY MSs FOR 2005-06

Cycle[Contd]

	Automation of gamma column Scanning	China, India, Indonesia, Philippines, Srilanka, Korea.	New
	Development of solid and liquid tracers for application at more than 450 centigrade and 100 bar pressure.	China, India, Sri Lanka.	New
	Applications of tracers in oil field	China, India, Indonesia, Vietnam.	Extension

LIST OF PRELIMINARY PROPOSALS SUBMITTED BY MSs FOR 2005-06

Cycle[Contd]

	Validation of CFD models with RTD.	China, India, Indonesia, Pakistan, Philippines, Sri Lanka, Korea.	New
	New style gas/oil/water three phase flow rate gauge used in the oilfield	China	New
Radiation Processing using electron beam and Gamma Radiation	Up gradation of Natural polymers and their derivatives for Industrial and agricultural Applications	Bangladesh, India, Indonesia, Pakistan, Philippines, Thailand, Vietnam	Extension

LIST OF PRELIMINARY PROPOSALS SUBMITTED BY MSs FOR 2005-06 Cycle

[Contd]

	Removal of toxic materials from industrial wastewaters and gases using gamma and electron beam processing.	China, India, Indonesia, Japan, Korea, Vietnam.	New
	Radiation Vulcanization of Natural Rubber Latex (RVNRL)	Bangladesh	Extension

LIST OF PRELIMINARY PROPOSALS SUBMITTED BY MSs FOR 2005-06

Cycle[Contd]



	Wood Plastic Composites	Bangladesh	New
	Pilot Scale Production of Biomaterial for Medical Treatments	Bangladesh, India, Vietnam	New
	Jute-Plastic and Jute-Rubber Composites	Bangladesh	New

LIST OF PRELIMINARY PROPOSALS SUBMITTED BY MSs FOR 2005-06

Cycle[Contd]



	Production of Plant Growth Promoter from Brown Seaweed by using Radiation	Bangladesh	New
	EB/Gamma radiation for decontamination of naturally originated raw materials to make cosmetic, medicine and seasonings.	Vietnam	New

PROJECT SELECTION BASIS FOR 2005-06 CYCLE

- **Based on technology demonstration using Radioisotope/ Radiation Technology Applications in Industry.**
- **Mitigating pollution from industrial waste, alleviating poverty by increasing industrial production/ prosperity in the region by safe and reduced shut down of operating industrial plants.**
- **International Scenario, Social, Environmental and Economic Impacts.**
- **Capacity/ Infrastructure Building.**
- **End-user Involvement.**
- **Sustainability.**

PROJECT SELECTION BASIS [Contd]

- Grouping of similar activities and merging of projects.
- Selection after discussions with relevant experts and TO of IAEA.
- Adding research component [CRP]
- Minimization of budget.
- Projects with maximum impact on end-users and similar activities in MSs.

Budget Assumption

1.	TOTAL TC/Yr.	13 Millions USD
2.	RCA = 40% of S. No 1	5.2 Millions
3.	Industry = 9% of S. No 2	468,000
4.	For 2 Years [2005-06]	936, 000
5.	Committed [CII]	200, 000
6.	Available	736, 000

SUGGESTED CHANGE IN TITLE



OLD

Industry

NEW

**TECHNOLOGIES FOR SUSTAINABLE
INDUSTRIAL DEVELOPMENT**

TECHNOLOGIES FOR SUSTAINABLE INDUSTRIAL DEVELOPMENT

- Projects designed to achieve goals of poverty alleviation, clean environment, safety and security of society.
- **Projects:**
 1. CLEAN AND SAFE INDUSTRIES
 2. QUALITY SYSTEM ENHANCEMENT

CLEAN AND SAFE INDUSTRIES

PROBLEMS

- Emission of acidic and organic pollutants is harmful for environment and human health.
- Shortage of safe drinking and irrigation water due to industrial and municipal effluent discharge.
- Oil spoils, hazardous chemicals released due to unsafe operation of pipelines and installations.

CLEAN AND SAFE INDUSTRIES

SOLUTION

- EB and gamma ray treatment of the effluents can convert them to user friendly products.
- Safety of pipelines and industrial installations can be assured by applications of radioisotope diagnostic methods. These also lead to increased productivity and prevent environmental pollution.

CLEAN AND SAFE INDUSTRIES

- ACTIVITIES -

Electron beam/Gamma treatment of industrial effluents and waste including

- ✓ Waste waters
- ✓ Sewage sludge
- ✓ Flue gases
- ✓ Agro waste

CLEAN AND SAFE INDUSTRIES

- ACTIVITIES -

Industrial safety and enhanced productivity through use of radioisotopes.

- **Column scanning, leak / blockage location and Validation of CFD models by RTD measurements in industrial systems.**

QUALITY SYSTEM ENHANCEMENT



PROBLEMS

- Harmonization of standards between the MSs not fully implemented.
- Non availability of standards and resources for compliance to quality practices resulting in inefficient and unreliable outputs.
- Economic losses due to rejection of un reliable/ sub- standard traded materials.
- Prevailing safety and security concerns of the society.

QUALITY SYSTEM ENHANCEMENT



SOLUTION

- Increased awareness among the MSs about the quality issues and international practices will enhance harmonisation of standards.
- Training in QA systems.
- Demonstration of new techniques for bulk analysis and unknown packages.

QUALITY SYSTEM ENHANCEMENT

-Activities-

- **Applications of PGNA for enhancing Quality, safety and security of Bulk materials and unknown packages.**
- **Process control in radiation technology.**
- **QA system implementation in NDT Laboratories.**
- **Harmonisation of regional certification schemes**
- **NDT Training for select MSs.**

CLEAN AND SAFE INDUSTRIES –2005 –06 CYCLE

Project – 1

Year/month	Activities	Budget
2005		USD
March	Project formulation meeting - 1 W	35, 000
June	RW on advances in Radiation treatment of industrial effluents and agro waste - 1 W	35, 000
November	RW on advances in process diagnostics - 1w	35, 000
2006 March	RW on Validation of CFD models using Radiotracers - 1W	35,000
July	Regional Group Training Course on Radiation treatment of industrial effluents and agro waste - 2 W	60, 000
December	Project review meeting - 1W	35, 000

TENTATIVE WORKPLAN FOR 2005-2006 CYCLE

Project – 1

Year/month	Activities	Budget
2005 - 06		USD
	<ul style="list-style-type: none">• Expert missions – 4 man/month• Equipment and materials.	120, 000 50, 000
TOTAL		405,000

QUALITY SYSTEM ENHANCEMENT –2005 –06 CYCLE**Project – 2**

Year/month	Activities	Budget
2005		USD
March	Project formulation meeting - 1 W	35, 000
June	RW on quality systems in radiation technology applications. - 1 W	35, 000
November	RW on advances in PGNA techniques - 1w	35, 000
2006 March	RW on harmonisation of regional certification schemes.- 1W	35,000
July	Regional Group Training Course on applications of PGNA techniques - 1 W	35, 000
December	Project review meeting - 1W	35, 000

QUALITY SYSTEM ENHANCEMENT –2005 –06 CYCLE

Project – 2

Year/month	Activities	Budget
2005 - 06		USD
	<ul style="list-style-type: none">• Expert missions – 3 man/month• Equipment and materials• RCA CRP on technology demonstration of portable tomography systems [2005-08]	90, 000 50, 000 200,000
TOTAL		550,000

PRIORITISATION & TOTAL BUDGET

- **PROJECTS PRIORITISED AS PER THEIR PRESENTED ORDER**
- **TOTAL BUDGET [2005 –06]**
405, 000 + 450, 000
= USD 855, 000
- **[2007-08] = USD 100, 000**

SUMMARY OF INDUSTRY PROPOSALS

ONGOING PROJECTS FOR 2003 - 04 = 4

- BUDGET - USD 985, 000

IPUTS FOR 2005 -06

- REQUESTS - 22
- COUNTRIES - 13
- NEW - 13
- EXTENSION -9

OUTPUT

- NEW PROJECTS - 2
- COUNTRIES - 13

BUDGET - USD 955, 000 [Including CRP 2005-08]

- USD855,000 for 2005-06 and 100,000 for 2007-08



THANK YOU