

# IUPAC-UNESCO-UNIDO Environmental Safety and Management (ESM) Training:

---

## The Impact on Research Institutes in Nigeria

**Bakare, Isiaka Oludare**

*Rubber Research Institute of Nigeria*

*P.M.B. 1049 Benin City, Nigeria.*

**Sponsored by IUPAC-UNESCO-UNIDO / COCI / MCI, Japan**

# IUPAC-UNESCO-UNIDO ESM training:

## Purpose of the training:

---

The Safety Training Program have been established and maintained to promote interactions between Developed Countries and the developing world to disseminate state-of-the-art knowledge on safety and environmental protection in chemical production.

## At Where?

MITSUI Chemicals, Inc., Japan



*- 13th October and 29th October, 2004.*

# Mitsui Chemicals, Inc

*Shiodome City Centre, 1-5-2 Higashi-Shimbashi,  
Minato-ku, Tokyo, 105-7117, Japan.*

**One of Japan's largest producers of petrochemicals,**

**The company produces petrochemicals use in the manufacture of;**

- **Synthetic rubber & pigments;**
- **Phenols - pharmaceuticals, ink, building blocks for plastics and adhesives;**
- **Polyethylene terephthalate (PET) and agrochemicals**
- **Fiber intermediates used in polyester, industrial chemicals used in paper,**
- **Polymers used in pipes and films, and specialty resins used in adhesives.**

**MCI continuously utilized chemistry boundless potentials in providing technologies, innovations and creations of materials to man and at the same time keeping in harmony with the global environment.**

# *The training at MCI - Outline:*

---

## **Works tour:**

**EHS check list** - Completion of checklist for Safety & Health activities audit.

**ESM in works** - Safety and environmental

## **ESM activities**

- Material Safety Data Sheet (MSDS)
- Hazard and Operability studies (HAZOP).
- Accident investigation technique
- Danger Prediction and finger pointing

**Environmental Management**- water treatment sludge

# Training method

Audio-visual aids

- Lectures & Discussions;
- Demonstrations & Exercises;
- Plant visits - *waste water treatment & other plants*

**A guide to Hazard and operability studies- ICI 1997.**

**A guide to safety and Health management –**

*Japan Inter. Train. Coop., 1993*

**Environmental Safety manual of Works visited**

## **Situation on Ground:**

---

**Are there guide or document on hazardous waste management, including laboratory chemicals and containers, labeling and packaging and waste documentation?**

**Are there lay down rules, laws or documented safety policy?**

**If available, are they properly implemented?**

**Are staff knowledgably about safety / or any conscious effort in training the old and new staff?**

**What are the role of electronic media / internet?**

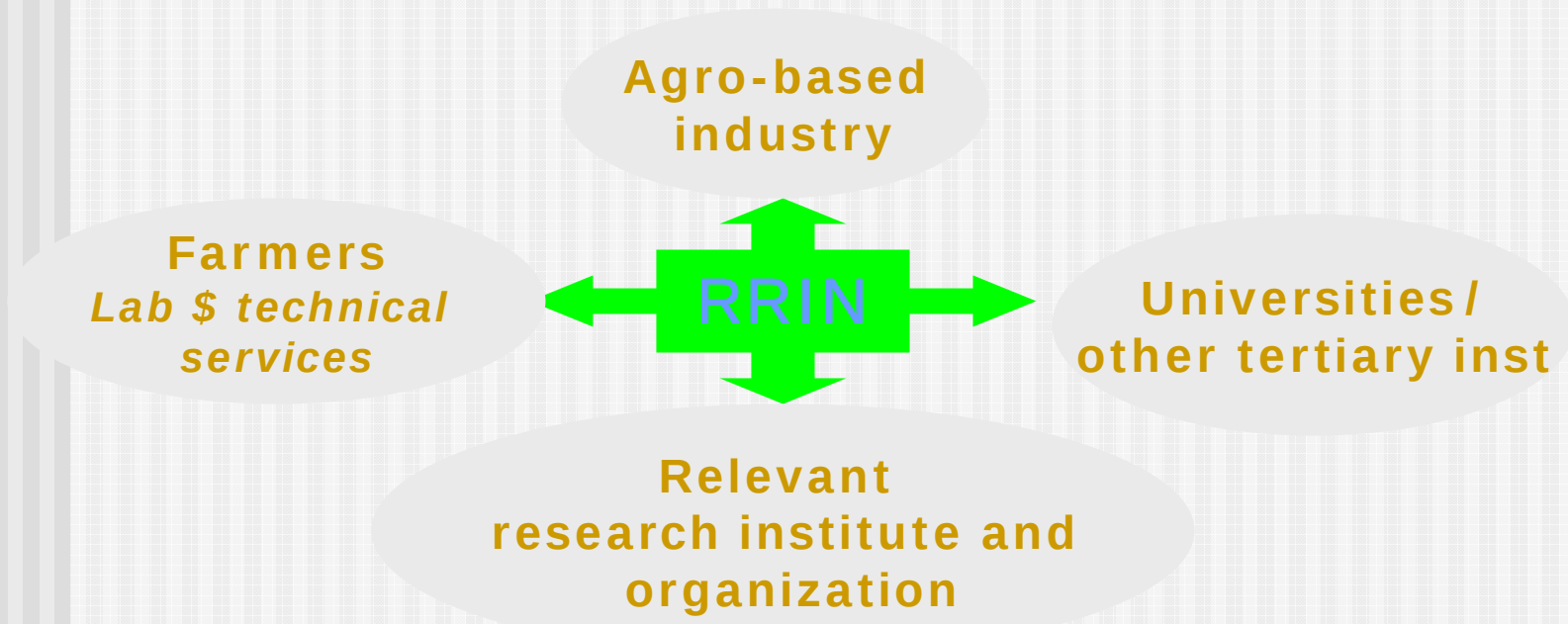
Toxic chemicals dumped on April 26th, 2005,  
Onipepeye, Ibadan Oyo State, Nigeria

- *“...the substance was not toxic but chlorine gas dumped by unknown persons.... ”* - Official
- *“...we ignored the smoke, after a few seconds we discovered we couldn't breathe, our chest became heavy, we soon slumped to the ground, and every one else complained about the same thing”,*  
Community Leader:
- *“...but if it was reported on time we don't have gas masks so we can't face something we know is dangerous. We also don't want to die,”* - State Environment Ministry

# Rubber Research Institute of Nigeria ( RRIN )

Disseminates proven research results and techniques to farmers, relevant agencies on rubber and gum arabic;

Co-ordinates extension services in Nigeria on their mandate crop;



Organize technical and vocational courses in areas relevant to the above;

Provide laboratory and other technical services to farmers, agro-based industries & others who are interested in these services etc

*What are the problems/ challenges.*

---

- Some of the scientist believe this is not practicable within our environment
- Funding
- Too cumbersome
- It is only applicable to production industry

## *Approach :*

---

- **Create awareness within and outside the institute on relevance of environmental safety**
- **Trained research staff within and outside our institute**
- **Rescheduled the officers to specific instrument**
- **Inclusion of safety training in our yearly industrial attachment to University graduate attached to RRIN**

## Achievement:

- **Renovation of the laboratory;** provision for fume hood, eye wash, bath etc;
- **Provision of fire extinguisher;**
- **Laboratory safety manual developed;**
- **Environmental safety and fire tracer committee;**
- **Provision of first aid kits to each Laboratory;**
- **The use of appropriate protective gear;**
- **Record note attached to each equipment;**
- **Trained our laboratory staff and some students from University and Polytechnics around.**

**Plan to extend the training to rubber producing /  
processing companies around us;**

**Regular emergency drill.**

# Others

---

## EXPERIMENTAL SAFETY FORM

Name :

Date :

Division :

Supervisor :

Temperature of Reaction :

Atmosphere :

Reagents Used:

Duration of reaction:

*Start time of Reaction :*

Procedure to be adopted in case of emergency

Emergency contact no:

Signed

## *Acknowledgment to :*

---

- MITSUI Chemicals, Inc., Japan;
- IUPAC-UNESCO-UNIDO and COCI
- Dr Mark C. Cesa for all his assistance during and after training.
- Dr Akira Shimada, Dr Yukihiro Suematsu, Mr Osamu Usui, Itsuo Tadasu & Hideki Fujimori, all the trainers and Yuppadee Suntiawut.
- Director, Mrs. M. U. Mokwunye & Management staff of Rubber Research Institute of Nigeria.
- Drs Aigbodion A.I., Ken Omokhame & Dr K. A. Akinlabi.
- Dr C.K.S. Pillai & all the Staff of Polymer Division, CSIR, Trivandrum, India;
- And Anthonia and Olawale Bakare.

---

**Thank you**