OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

FAIR USE POLICY

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

RESTRICTED

16625

DP/ID/SER.A/930
1 December 1987
ENGLISH

PESTICIDES DEVELOPMENT PROGRAMME IN INDIA

DP/IND/80/037

INDIA

Technical report: Findings and recommendations*

Prepared for the Government of India
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of S.Deri, consultant
in electronic engineering/instrumentation

Backstopping officer: B. Sugavanam, Chemical Industries Branch

United Nations Industrial Development organization
Vienna

* This document has been reproduced without formal editing.

V.87-92143

CONTENTS

SUMMARY

This technical report deals with the third mission of the Consultant in Electronic Engineering/Instrumentation at the DP/IND/80/037 Pesticides Development Programme in India project from 1987/9/20 to 1987/11/19.

The second mission of the Consultant had been terminated on 1987/4/14 and during so short period an important advance was achieved at the project, namely a new analytical laboratory was established, and the instrumentation sponsored by UNIDO has been increased by ten items of equipment.

The project has implemented proposals suggested by the Consultant on his second mission.

During the reported period a REMPAF training course was held. In accordance with the Job Description the Consultant has given lectures, demonstrations, and took part in a session as Chairman.

The new proposals can be found at the end of this Report.

INTRODUCTION

The DP/IND/80/037 project of Pesticides Development Programme in India (PDPI) is a UNDP/UNIDO assisted ongoing project being executed by the Government of India through Hindustan Insecticies Limited (HIL).

Regarding to the instrumentation an important progress occured. Dr. S.Y.Pandey became group Leader at the analytical laboratory and at the instrument Laboratory. His personality is guarantee for the continuous advancement. Likewise is important that the new analytical laboratory has begun functioning in the building which serves for the chemical laboratories.

During his third mission the Consultant had to assist the analytical chemists on the PDPI in proper maintenance and basic repair of various analytical equipment available at the project. He was expected to assess the implementation of the recommendations made by various experts in this field and to suggest improvements. The Consultant had to take part in the Regional Network for the Production, Marketing and Control of Pesticides in Asia and Pacific (RENPAF) training course giving Lectures, demonstrations connected with the maintenance of equipment used in the Analytical Laboratory.

IMPLEMENTED PROPOSALS

The room for the HP Gas Chromatograph and Mass Selective Detector and the necessary infrastructure for them were ready in proper time so the installation of the equipment was finished also in time.

In the Pilot Plant the emergency shower, the first aid box, the eye - wash facility and the suitable exhaust system now are functioning.

Some hand - tools for maintenance purpose were purchased.

For the repair of deep freezers the relays were purchased.

For the Thermal Analyser the recommended thermocouples were ordered.

FINDINGS AND ACTIONS

The project received new equipment

1.	OLYMPUS	Mod. SZH-Z zoom Stereo Microscope
2.	OLYMBUS	BHT System Microscope
3.	OLYMPUS	PM 10 - M Photomicrographic System Camera
4.	OLYMPUS	EMM - 7 Exposure Meter
5.	BUECHI	Mini Spray Dryer
6.	HAUC	"Kompressor"
7.	HP 5890 A	Gas Chromatograph
8.	HP 5970 B	Mass Selective Detector
9.	GE	Hydrogen Generator
10.	PE	Air Generator

Repaired equipment:

1. REMI centrifuge R-24 3/86 No. BgNOE-81
   failure: the toroid transformer had a short

2. P115 balance
   failure: the special bulb was wrong and a button was broken

3. Brookfield viscometer(rotational)
   failure; the tension-spring was torn and the pivot was out of its place

4. Sartorius balance 2434
   failure; the internal weight mechanism was totally out of order

5. Heraeus deep freezers
   failure: the relays and their connectors were completely wrong

6. Stablizer
   failure: the moving contact of toroid transformer was out of its place

On the local market a suitable soldering iron with changeable tips was purchased. It was necessary for the repair of deep freezers as all soldering points were melted out at the relays' connectors.

In one of deep freezers the temperature thermostat was wrong, it was impossible to repair it. But by hand-regulation it can be operated until the recommended purchase and installation of a new thermostat.

On the RENPAF training course two lectures were given by the Consultant:

1. Maintenance in Quality Control Laboratories /Annex I./
2. Gas Chromatography Problems Solved by Operators /Annex II./

There was a very good and close contact between the Lecturers and the participants of the training course. The Consultant's opinion is: the training course was a success. Altogether 9 persons took part from abroad in the course.

RECOMMENDATIONS

1. For the recently installed HP - GC it was recommended to buy a so called "unbreakable power supply". The new GC is controlled by a microcomputer and in the case of a sudden shortage of electrical mains supply all the data will be lost. This unbreakable power supply contains a car-battery and by means of it the PC will be operational after the electrical shortage for about half an hour enough to save the collected data.
   This unbreakable power supply as a national product is achievable on the local market.

2. For the deep freezer it was recommended to purchase a temperature thermostat from the factory.
   Temperature Thermostat for the VL type Storage Cabinet /Order No.22921/
   address of the factory: Heraeus Votsch GmbH, Beethovenstrasse 34, Postfach 40, 7460 BALINGEN 14 /Frommern/, West Germany.
   The thermostat should be replaced into the equipment.

3. During the training course it became obvious that sometimes the project badly needed a portable small generator. It is recommended to purchase:
   Portable DG Generator for 220 V, 50 Hz, min. 1 kW.
   It can be purchased in the local market.

4. Some of the former recommendations are repeated:

-it is recommendable to purchase another emergency generator of the present type /see:terminal report of second mission/;

-it is recommendable to install three magnetic switches , one for each phase, to avoid the damages because of overload;

-it is recommendable to purchase a sinchron-motorfor the Perkin-Elmer Spectrophotometer with the data:

Servomoteur type D7 21 BQ

excit. 36 V, debit 2W, contr. 18 V

a ride 2800 T/m

Magnetic SA Liestal

from the Perkin Elmer firm;

-the laboratories should have:

proper filtering for the air-conditioners,

lattice blinds for wall-ventillators,

fume hoods,

main power switches at the emergency Exits,

- the maintenance group should have :

magnifier lens,

dental mirror,

forceps,

drill machine,

special screw-driver.

ACKNOWLEDGEMENT

The Consultant is very grateful for the help of Dr. S.P.Dhua, Chairman and Managing Director of HIL; Regional Coordinator of RENPAF, and Dr. S.K.Khetan, Deputy General Manager(R&D) and Head of PDPI.