



**TOGETHER**  
*for a sustainable future*

## OCCASION

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



**TOGETHER**  
*for a sustainable future*

## DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

## FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

## CONTACT

Please contact [publications@unido.org](mailto:publications@unido.org) for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at [www.unido.org](http://www.unido.org)

17017

REGIONAL NETWORK ON PESTICIDES FOR ASIA AND THE PACIFIC

DP/RAS/82/006/A/01/37

DP/RAS/85/023/B/01/37

Report of the Evaluation Mission\*

Prepared in co-operation with the Governments of the Member States of the Regional Network (Afghanistan, Bangladesh, China, India, Indonesia, Pakistan, Philippines, Republic of Korea, Sri Lanka and Thailand), the United Nations Development Programme (UNDP) and the United Nations Industrial Development Organization (UNIDO)

Based on the work of Mr. N.B. Mandava, UNDP Consultant (Team Leader) and Mr. M.P. Donnez, UNIDO Consultant

Backstopping officer: B. Sugavanam, Chemical Industries Branch

\* This document has not been edited.

CONTENTS

	<u>Page Number</u>
I. SUMMARY OF FINDINGS AND RECOMMENDATIONS	1
II. PROJECT CONCEPT AND DESIGN	6
A. Context of the Project	6
B. Project Document	13
III. PROJECT IMPLEMENTATION	13
A. Listing of Activities for Phase I	13
B. Listing of Activities for Phase II	22
C. Conclusions on Project Implementation in Phase I and Phase II	29
IV. PROJECT RESULTS	33
A. Outputs for Phase I	33
B. Outputs for Phase II	46
C. Conclusions on Project Results	61
V. FINDINGS	65
A. General	65
B. Specific to Project Activities	71
C. TCDC Concept	76
D. Organizations and Functions	76
E. Other Issues	79
VI. RECOMMENDATIONS	96
A. RENPAP	96
B. UN Agencies	99
VII. LESSONS LEARNED	100

<b>TABLES</b>	<b><u>Page Numbers</u></b>
Table II.1. Agroeconomic situation between 1982 and 1985	10
Table II.2. Pesticide formulation situation in 1982	11
Table III.1. UNDP Budget inputs - Phase I	44
Table III.2. Government inputs (in kind) - Phase I	45
Table III.3. UNDP Budget Inputs - Phase II	59
Table III.4. Government inputs (in kind) - Phase II	60
Table III.5. Breakdown of inputs per area of activity	64
Table III.6. Breakdown of UNDP inputs per type of activity	64
Table V.1. Fellowships/study tours for visits to RENPAP countries during Phase I	86
Table V.2. Consulting services provided to RENPAP member countries in Phase I	87
Table V.3. Workshops/meetings/consultations in Phase I	88
Table V.4. Committee meetings in Phase I	89
Table V.5. Individual training/study tours during Phase II	90
Table V.6. Consulting services planned/provided to RENPAP member countries in Phase II	91
Table V.7. Workshops/meetings in Phase II	92
Table V.8. Project management committee (PMC) meetings	93
Table V.9. Equipment procured for RCU in Phase I	94
Table V.10. Support personnel for RCU secretariat	95

**FIGURES**

Figure II.1. Comparison of consumption of technical grade A.I. per capita with income per capita	12
--	----

**ANNEXES**

- Annex I. Terms of reference and background to Mission**
- Annex II. Names of mission members and itinerary**
- Annex III. Qualifications and experience of mission members**
- Annex IV. Work plan for training and consultancy in Phase I**
- Annex V. List of reports and publications during Phase I and Phase II**
- Annex VI. Flowchart VI.1. Proposed organizational structure for RENPAP**

I. SUMMARY OF FINDINGS AND RECOMMENDATIONS

A. FINDINGS

1. Significant progress has been made in the harmonization of registration requirements. As a result of the recommendations by the Regional Consultation on the Registration Requirements, Sri Lanka and Philippines have already implemented some of the recommendations, while others are now in the process of adopting them.
2. The member countries have agreed to adopt the standardization procedures for quality control, and uniform methodologies for pesticide formulations and residues, and toxicological evaluations. The standard procedures and uniform methodologies are based on FAO and WHO specifications and CIPAC methods of analysis. Some countries are already participating in collaborative studies conducted by CIPAC and others are in the process of implementing the recommendations to achieve uniformity in quality control procedures and methodologies for pesticide formulations and residues.
3. As a result of consultants' investigative reports and evaluations, the regional countries are now aware of the locally available raw materials for pesticide manufacture and formulations. One country has already begun the use of the local raw materials for formulations, another country is now in the process of utilizing its local raw materials, and the remaining countries are evaluating their needs and requirements for pesticide production.
4. As a result of several individual and group training in analytical methodologies for pesticides formulations and residues, and in other scientific disciplines such as toxicology, the network

countries' knowledge base was significantly updated. These trainings provided know-how, brought awareness, and helped in strengthening their laws and regulations concerning pesticides. Additionally, the training programs helped these countries in realizing the benefits and dangers associated with pesticides, and in seeking appropriate procedures for packaging and for safe handling of pesticides.

5. The workshops and individual training to participants of the member countries and consultants' advice in pesticide R&D Manufacture and formulations were effectively used as channels of communication for know-how and transfer of technology within the region.
6. Data collection on pesticides is a significant effort of RENPAP and this information is very useful to member countries, non-member countries, and pesticide manufacturers.
7. Information exchange between member countries has been initiated, but the progress was rather slow because of several contributing factors.
8. There are a few minor problems concerning the network and its operation, and the executing agencies. Other deficiencies include:
  - (a) Broad and unquantifiable objectives,
  - (b) Lack of effective communication between RCU, NCU's and the UN agencies,
  - (c) Lack of formal mechanism for the management of RENPAP,
  - (d) Lack of participation from industry,
  - (e) Lack of governments' commitment to successfully utilize the knowledge from the training programs.

- (f) Insufficient training in safety and health aspects and also in environmental areas,
- (g) Minimal contribution to TCDC concept by participants except few countries.

## 2. RECOMMENDATIONS

1. Regarding activities, the Evaluation Mission recommends that the Network:

- (a) Offer in-depth training courses in toxicology, environmental and residue chemistry, and quality control methodologies,
- (b) Promote the image of RENPAP by publishing newsletters,
- (c) Bring awareness on environmental concerns, health and safety issues as a result of pesticide use,
- (d) Encourage greater participation of industry/pesticide associations in RENPAP activities.

2. To strengthen the structure and functions, the Evaluation Mission recommends that RENPAP:

- (a) Provide a formal framework to the organization and its executing body (Project Management Committee),
- (b) Introduce a concept of rotation for regional coordinator after certain period,
- (c) Maintain a permanent RCU unit,
- (d) Strengthen its functions by appointing a full time person (e.g. executive secretary) with adequate equipment and budget (travel and communications) for operation of RCU.
- (e) Strengthen its structure by nominating technical coordinators to plan and coordinate the activities in specified technical areas.



3. To properly evaluate the progress (or performance) of each task (program/activity) in the immediate objectives, the Evaluation Mission recommends that the Network:

- (a) Clearly identify all the tasks for each objective and introduce a measuring device for quantification of the results achieved from the training programs/workshops/ study tours.
- (b) Set milestones and deadlines for the activities/projects undertaken by RENPAP.
- (c) Define objectives and tasks(planned activities) very clearly.

4. Because of the availability of consultants and experts in the region and also because of the cost savings to RENPAP by using the regional expertise, the Evaluation Mission recommends that RENPAP:

- (a) Maintain a roster of available consultants and experts in the network countries for each specialized subjects/areas.
- (b) Maintain a Directory of laboratories and other evaluation units (public and private) engaged in pesticides.

These source lists will be useful for selecting experts for RENPAP activities.

5. To increase effective participation of the member countries in all activities of RENPAP, the Evaluation Mission recommends that the Network:

- (a) Publish a newsletter on RENPAP activities and progress in the implemented plans, and also general information on pesticides.

- (b) Publish a RENPAP Gazette to provide information on pesticide data collection.
  - (c) Find a mechanism to speed up the communication from the executing agency to the network regional coordination unit and the national coordination units.
6. Based on findings, the progress made during the 6-year period, the immediate needs, realizing the need to continue the program for another three year period and also taking into consideration of sustainability of the project, the Evaluation Mission strongly recommends that UNDP provide funding for continuation of the RENPAP project for another three-year period (Phase III) at a level higher than the current level of funding.

The Evaluation Mission, while making the above recommendation, suggests that UNDP and UNIDO consider incorporating the following points (elements), in Phase III project document.

- (a) Gradual phase out of the funding for planned activities and programs for Phase III.
- (b) Encourage the participating country governments to make financial commitments for some activities through TCDC.
- (c) Ensure the industry participation in the planned activities for Phase III. This is considered important in view of the stated developmental objectives of the RENPAP project.

## II. PROJECT CONCEPT AND DESIGN

### A. CONCEPT OF THE PROJECT

1. Before initiating the RENPAP Project, UNDP, UNIDO and other UN agencies made a survey on the pesticide development and use patterns in Asia and Pacific regional countries and concluded that:
  - (a) There is an excellent potential of using locally available raw materials and inert ingredients for expanding formulations and other steps in the manufacture of pesticides.
  - (b) The UN agencies should help these countries to provide technical and financial assistance to encourage them for establishing pesticide manufacturing and formulation units, where appropriate.
  - (c) The UN agencies should help or encourage these countries to implement/incorporate appropriate measures/mechanisms to collect market information which include national markets for pesticides, production technologies and testing facilities for evaluation of local raw materials, because such information was not readily available.
2. The above conclusions formed the basis for initiation and implementation of the RENPAP project. Subsequent Phase I accomplishments (in particular refer to 3 Technical Advisory Committee meeting reports and the Phase I terminal report) on Regional Network on Pesticides for Asia and Pacific (RENPAP) indicate the commitment to the network by the participating countries which sincerely supported the RENPAP

project through active participation in all the programs (group and individual training) in an attempt to fulfill their needs and to solve their pest and pesticide problems. This is confirmed by the evaluation mission after having discussions with the members of national coordinating units on the context and appropriateness of, and commitment to RENPAP project. Additionally, the evaluation mission, during meetings with National Coordinators (see Annex. 1), found that there is unanimity in the responses by National Coordinators on acquiring the information (know-how, training, etc.) to update their knowledge on pesticides. Additionally, these countries have common socio-economic conditions and other common or similar situations such as geographic location, climate, crops, pest problems and the use of pesticides. These countries now believe that RENPAP has been helping them to bring them to a forum for sharing the knowledge and the experience(s) on pesticides.

3. As stated in the original document (RAS/82/006/A/01/37), the project is unique since it incorporated a novel concept in bringing together a group of countries having the same pest and pesticide problems for the purpose of solving them by identification of the individual country problems, sharing their experiences, and remedying the problems and strengthening the pesticide production and use patterns through training, study tours, technology transfers, etc. All the national coordinators sincerely believe that the RENPAP project is appropriate for all the member countries to solve their pest and pesticide problems through the production of required pesticides, harmonization and uniform methodologies to reduce the costs and increase the quality of products.

4. The Evaluation Mission independently looked at the situation that prevailed in 1982 (before RENPAP) and thereafter (see Tables II.1 and II.2). The production figures are indicative of (a snapshot of) the situation in 1982 and may vary slightly from year to year. They show, however, an order of magnitude of (what was) the situation as far as the general context is concerned.
5. Furthermore, it is interesting to note that:
  - (a) The production capacities for the formulation of pesticides already existed in 8 of the 9 countries;
  - (b) The production capacities are only utilized at an average +30%;
  - (c) Most (95%) of the regional needs in pesticides was already covered by local formulation;
  - (d) Four countries (Afghanistan, Bangladesh, Pakistan and Sri Lanka) do not formulate locally (or formulate locally less than 40% of their needs; and,
  - (e) Major discrepancies exist between countries in terms of economic status and consumption of pesticide technical grade per capita and or per hectare.
6. Based on the above analysis, the regional countries can be divided into three groups.

Group I: This group includes India, Korea, China which have:

- (a) Existing know-how in manufacture and formulation technology;
- (b) Substantial proportion of production capacities in the hands of public sector; and
- (c) Existence of small and medium scale private formulators.

Group II: This group includes Thailand, Indonesia, Philippines which have:

- (a) Similar national income; and,
- (b) Formulation capacities mainly in the hands of multi-nationals.

Group III: It includes Afghanistan, Bangladesh, Sri Lanka, Pakistan which have:

- (a) Low national income; and,
- (b) Limited use of pesticides per capita and/or ha.

7. These three groups of countries are expected to have different attitudes and motivation toward the benefits/return the RENPAP could provide and would put different emphasis on activities such as:

- (a) Technology transfer;
- (b) Harmonization of regulation and standardization of uniform methodologies; and,
- (c) Training and education.

Another visualization of these countries' differences may be noted from the graph (Figure II.1) which compares the income levels against the consumption of pesticide (technical grade) per capita. An arbitrary line (drawn in Figure II.1) identifies the difference between the countries that allot their national income for pesticides.

Table II.1

Agroeconomic Situation between 1982 and 1985 (Source: FAO, UNDP, RENPAF Gazette)

	Approximate GNP/Capita (1982)	Arable Permanent Crop (1985)	Economically active popu- lation in agric. (1985)	Technical grade supply (1982)	Consumption per capita technical grade	Consump- tion technic grade/hr
Afghanistan	n.a.	8,054	2,877	n.a.	n.a.	n.a.
Bangladesh	137	9,135	20,704	697	0.03	0.08
India	239	168,950	202,659	40,543	0.20	0.24
Indonesia	568	20,880	33,522	9,433	0.28	0.45
Korea	1,822	2,144	5,061	16,748	3.31	7.81
Pakistan	331	20,500	15,539	232	0.02	0.01
Philippines	776	7,900	9,782	5,176	0.52	0.66
Sri Lanka	302	2,205	3,109	200	0.06	0.09
Thailand	751	19,620	18,038	1,951	0.11	0.10

Table II.2

Pesticide Formulation Situation in 1982 (Source: RENPAF Gazette)

	Estimated Sales Volume Formulated Product (MT/KL)				Production Capacity* (MT/KL)	Capacity Utilization (%)	Needs covered by local formulations (%)
	Import	Local	Export	Total			
Afghanistan	235	-	-	235	-	-	-
Bangladesh	1,192	504	-	1,696	11,100	4.5	30%
India	12,038	505,238	3,380	520,656	1,665,000	31	98%
Indonesia	1,690	47,978	-	49,668	91,030	55	97
Korea	643	103,980	180	104,773	528,900	20	99
Pakistan	4,627	2,748	-	7,375	47,100	6	37
Philippines	5,803	23,998	570	30,371	45,780	59	80
Thailand	12,204	16,902	249	29,355	51,920	39	58
Sri Lanka	1,697	769	13	2,479	11,124	7	31
	40,129	702,117	4,362	746,608	2,451,954	29	95

\* Latest production capacity figures Thailand : 75,850 MT (1987)  
 Philippines : 59,042 MT (1986)  
 Korea : 394,719 MT (1985)  
 India : Unchanged since 1982



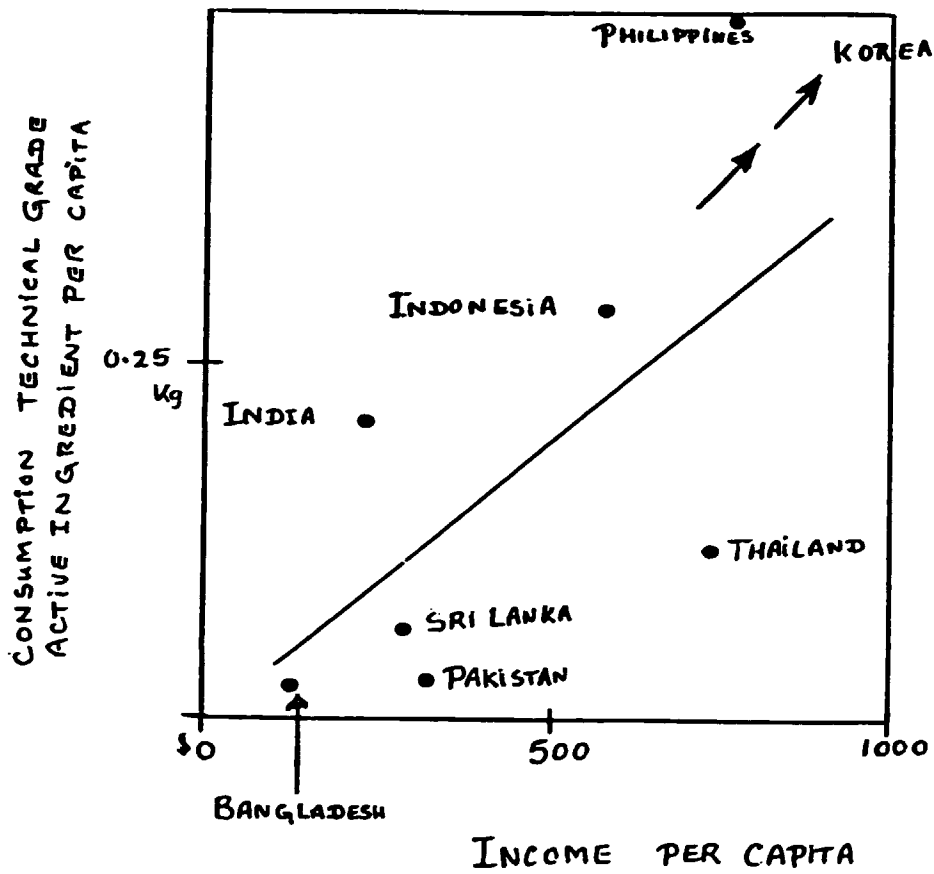


FIGURE II.1. COMPARISON OF CONSUMPTION OF TECHNICAL GRADE PER CAPITA WITH INCOME PER CAPITA IN RENPAP.

B. PROJECT DOCUMENT

The Evaluation Mission covered this subject in detail in the following sections. As a general comment, the project document did not specify any means for measuring the outputs and the Evaluation Mission found it difficult to assess the project achievements in quantitative terms. Partly, this is due to the nature of tasks (activities) undertaken in both phases. Additionally, it was noted that the linkage between inputs, activities and outputs is not found for some objectives. The assumptions made in the project design appear to be valid, sound and justifiable.

III. PROJECT IMPLEMENTATION<sup>\*</sup>

A. Listing of Activities for Phase I

The project document (Phase I) proposed the following 8 immediate objectives (the RENPAP should work towards):

- (a) To establish a regional network of national institutions, the different coordinating units and technical committees, and set up of a functioning mechanism.
- (b) To establish a documentation/reference unit at the Regional Coordination Unit (RCU) level for collection and dissemination of pesticide information relevant to the market production and control of pesticides.

---

\* Note that the activities listed in this chapter (taken from the project documents) are different from the immediate objectives (outputs for Phase I and Phase II). For details, see Chapter IV. PROJECT RESULTS.

- (c) To assist national institutions in undertaking an evaluation analysis of farming system to determine the needs and the bottle-necks in pesticides demand.
- (d) To assist national institutions in undertaking the test and evaluation, adaptive research, formulation and production of selected pesticides.
- (e) To assist in the development of new pesticide formulations and in conducting extensive field trials
- (f) To assist in the promotion at farmers' level, of pesticide development activities in general and large-scale introduction of the successfully developed products using local raw materials.
- (g) To assist in the promotion of local manufacture of selected (appropriate) pesticides.
- (h) To provide advice, information and training in matters related to the control of pesticides such as harmonization of registration requirements, standardization of quality control methods, environmental protection and trade (and tariff) arrangements.

In the opinion of the Evaluation Mission, the above objectives are intellectually sound but in practice they are unachievable in the given time frame and under activities (c), (d), (e), (f) and (g) could not be initiated before RENPAP strengthened and harmonized its scientific and technical expertise among the member countries. Therefore, RENPAP, through various TAC meetings, recognized the need to revise and prioritize the objectives in a more sensible way as follows:

#### Activity 1

A network of participating national institutions concerned with technical and/or regulatory aspects of pesticides will be established by the project. The activities will be implemented by a Regional Coordinator located in the host country and National Coordinators who will be appointed by their respective governments to act as the national focal points of the network.

#### Comment

Although the project was due to begin on June 1, 1982, it actually started in November 1982 by convening its 1st Technical Advisory Committee Meeting (Lost time for Phase I: 6 months).

A Tripartite Review Meeting and 3 Technical Advisory Committee meetings held during the project phase I (Table 4).

#### Activity 2

It may be necessary to form sub-networks for activities, such as: harmonization of pesticide registration requirements, standardization of analytical methods for pesticide residues and quality control of pesticides, pesticide manufacturing and formulation technology, etc. The need to set up sub-networks will be decided by the Project Management Committee.

#### Comment

Several experts group meetings and regional consultations were held to review the individual country's status regarding such aspects as pesticides registration and quality control procedures. These are as activities performed under separate headings. RENPAP, however, never established real sub-networks as such with a formal organization/ functioning like the overall network itself (group composed of national

experts holding senior positions in their branch forming technical committees, regular and planned meetings.

### Activity 3

To carry out the survey of demand and supply of pesticides in the region, the project will organize a meeting of experts which will be instructed in the methodologies for collection, collation, and reporting of the relevant data by a short term international consultant. The participants will subsequently undertake demand/supply surveys in their respective countries and will submit the collected information to the Regional Coordination Unit for the compilation of a regional report.

### Comment

This activity is closely related to activity No.8 and inputs are covered in that activity.

### Activity 4

To improve the pesticide formulation technology the Network will provide consultancies to member countries upon request. In addition, a week long workshop will be organised to exchange information and make recommendations on the utilization of locally available carriers, surfactants, emulsifiers and solvents. Several study tours and fellowships will be offered in this area principally for study within the region. The workshop and study tours will include technicians from industry who, in this way, will be encouraged to use local raw materials in the production of pesticides.

**Inputs**

- (a) Consultancy in R & D Pesticide Manufacture for Indonesia and Pakistan
  - 1 international consultant, 2 months
- (b) Consultancy in R&D Formulation for Indonesia, Bangladesh and Korea.
  - 2 regional consultants, 2 and 1 months duration
- (c) Consultancy on Packaging and Handling for Afghanistan
  - 1 regional consultant, 1 month
- (d) Training on R&D Formulation, India
  - 4 fellows: 4 x 1 month
- (e) Study Tour on Pesticide Manufacture in FRG, UK and USA; and one in India
  - 3 fellows for 3 x 1 month.
- (f) Regional Workshop on Formulation of Pesticides. India, February 6 - 10.
  - 49 participants.

**Activity 5**

A short-term consultant will visit the member countries to assess the current regulatory practices as they conform to international criteria. Subsequently, a meeting of experts will be held with the participation of the consultant who will present his report. On the basis of this information the meeting will then discuss the possibility of accepting international procedures and guidelines adaptable to regional conditions.

Agreement on this matter will provide necessary conditions for the harmonization throughout the region of requirements in the field of bio-efficacy tests, toxicological data, residue tolerances and environmental protection.

**Input:**

- (a) Consultancy services
  - 1 international consultant, 3½ months
- (b) Regional consultation on Harmonization of Pesticide Registration Requirements, Philippines, October 24-29, 1983.
  - 65 participants.
- (c) Regional Forum on Pesticide Toxicology, Philippines, April 22-26, 1985
  - 3 international consultants
  - 50 participants
- (d) Consultancy Services to Korea
  - 1 Regional Consultant for 2 months
- (e) Study Tours and Fellowships in Toxicology.
  - fellows trained for a total of 5 months.

Comment

Since the objective (b) is to harmonize pesticide toxicological requirements, inputs provided are considered as part of harmonization activity.

**Activity 6**

An Expert Meeting will be organised to identify laboratory facilities for quality control and residue analysis, discuss the methods used in quality control and consider the possibility of standardization. Study

tours will be organized for officials of government laboratories to observe the facilities and the methodologies used in the region. A separate workshop will be conducted in the field of residue analysis for laboratory technicians.

Comment

The inputs for this activity were combined with those of activity No. 7 (see below).

Activity 7

Technical support for both the quality control and residue analysis workshop will be provided by short-term international consultants.

Inputs

- (a) Consultancy service to Afghanistan
  - 1 regional consultant for 1 month
- (b) Experts Group Meeting on Quality Control of Pesticides, Bangladesh, May 13 - 17, 1984
  - 1 international consultant
  - 44 participants.
- (c) Study tour on quality control
  - 5 Fellows trained for a total of 2½ months
- (d) Regional Workshop on Residue Analysis, Thailand, January 21 - February 5, 1985.
  - 2 international consultants
  - 21 participants.
- (e) Residue Methodology
  - 1 fellow trained for 2 months



Comment

Also note originally planned RENFAP felt importance to run activities in the trade, tariff aspects of pesticide market with special emphasis on non-tariff barriers and remove all constraints with hampered trade.

Activity 8

Inputs provided for covering these aspects are:

- a) Study tour on trade and tariff throughout member countries
  - One fellow trained for one month
- b) Regional consultation on trade and tariff consideration.

August 13 - 17, 1984 - Sri Lanka

- One international consultant plus 20 participants

Project had to be rephased upto May 1985 to allow all the activities planned and to take place.

Evaluation has little comments on the timeliness and quality of inputs although sometimes it is hard to see the rationals behind the type of input provided and route followed. Question raised, however, on the actual follow-up of the training received and use actually made thereafter.

TABLE 111.1

UNDP INPUTS

A. Itemized Budget

Budget line	Component	Original budget
11-50	Consultants	\$187,200
15-00	Mission costs (UN Agencies)	25,000
13-00	RCU Staff	34,000
31-00	Fellowships and Study Tour	116,400
32-00	Group meetings	93,000
49-00	Equipment	40,000
59-00	Miscellaneous	4,400
<b>Total</b>		<b>\$ 500,000</b>
<u>Government Inputs in Kind</u>		

Budget line	Component	Original Budget
* 11-01	National Network Coordination	\$ 27,810
* 11-02	Counterpart to consultants	10,660
* 13-00	RCU	52,400
* 31-00	Fellowship & Study Tour	16,837
	Group training	9,659
32-00	Buildings and equipment	152,145
	Documentation/Info.	72,280
59-00	Miscellaneous	151,840
<b>Total</b>		<b>\$ 493,181</b>

\* Expenses related with project activities and supported by member countries. Total : 116,916 (equivalent to 24% of inputs in kind)

B. LISTING OF ACTIVITIES FOR PHASE II

Phase II of the project was initiated in July 1986 with the first PMC meeting\* in Manila and was due to last for 2 years. At the PMC meeting it was decided to relocate the Regional Coordination Unit of the network from Philippines to India. Relocation took about 9 months for physical and budget reasons, and actually started in March 1987. The project was rescheduled and is now due to end in December 1988. The implementation of the different planned activities was considerably delayed and RENPAP probably may not have sufficient time to complete all the planned activities.

It is suggested that provision be made for transfer of unused funds during Phase II and transferred to Phase III, if any or extend the Phase II duration to the first half of 1989.

Activity 1

Annual Collection of Data on Pesticide Supply and Production

Comment

Baseline data for 1980-82 have been collected during Phase I. All the member countries were requested to submit the data for the period 1983-86, by August 1986. The target date was not met, and it is only recently that the data have been collected by the member countries, and sent to the Regional Coordination Unit.

This long delay caused a lot of disappointment among the member countries who complained that there was no feedback from the Network. The difficulties encountered by some countries to put the data in the requested format and the very late submission of data by the other countries are the main reasons for implementation of the activity on time.

---

\* Note: In Phase I, this committee was referred as TAC Technical Activities Coordination

#### Inputs

- A budget of \$ 28,000 was approved for office equipment (photocopier, typewriter, word processor)
- Photocopier and typewriter delivered for total amount of \$ 12,000
- Waiting clearance for word processor (\$ 12,500)

Note: No relocation of equipment provided to Philippines for RCU of Phase I, has been realized yet.

The Evaluation Mission was given the understanding that the UN agencies gave away the equipment worth of \$ 40,000 to Philippines.

#### Activity 2

##### Standardization of Analytical Methods for Quality Control of Pesticides

The participating countries agreed to conduct collaborative trials using a method chosen by the designated lead country. The aim of the trials is to ensure that common methods of analysis are used in the region. These trials are expected to continue until standardization of methods of analysis is ultimately attained. Many member countries of the region have joined CIPAC to undertake collaborative studies for fixing up standards of pesticides. However, no formal organization of the planned collaborative trials has been recorded, and no lead country has been designated for this activity.

#### Activity 3

##### Establishment of National Standard Specifications of Pesticides

#### Comment

Participating countries should study the possibility of adopting national standards based on the above recommendations and should exchange

information on the matter through the Regional Coordination Unit. So far, the Evaluation Mission found no evidence for implementation of this activity because of no records for meetings, workshops or study tours.

#### Activity 4

##### Implementation of Recommendation on Harmonization of Pesticide Registration Requirements

##### Comment

Some member countries have already adopted the above requirements while others are seriously studying them with a view to adopt them or amend their existing registration requirements. Basic pesticide registration data need to be collected for publication in the PMC meeting reports.

Incidentally, the Evaluation Mission did not find in the PMC meeting reports containing such information.

#### Activity 5

##### Implementation of Recommendation of the Trade and Tariff Consultation

##### Comment

To accomplish this task, RENPAP requested to find expertise for compiling the information on trade and tariff. So far no progress has been made in this regard.

The Evaluation Mission feels that RENPAP should contact or work together with national Pesticide Associations on trade and tariff issues which are non-technical issues. The reason for this suggestion is that RENPAP's capabilities are only in the technical issues.

**Activity 6**

**Second Experts Meeting on Pesticide Data Collection**

**Input**

**Expert Group Meeting on Data Collection, Thailand,  
May 18-22, 1987.**

**- 10 participants trained for 2 weeks.**

**Comment**

**This meeting was scheduled for December 1986, but delayed due to RCU relocation.**

**Activity 7**

**Strengthening of Research and Development Facilities on  
Pesticide Formulation Technology**

**Input**

**Workshop on Pesticide Formulation Research, India,  
February, 1987**

**- 10 participants trained for 3 weeks.**

**Comment**

**This workshop was originally scheduled for December/January 1986-87 but was delayed due to RCU relocation.**

**Activity 8**

**Assessment of Availability of Local Raw Materials for  
Pesticide Formulation**

**Input**

**Study tour (2 participants) for 2 weeks.**

Comment

Originally this was scheduled for 1987, but postponed to early 1988 as a result of RCU relocation. As of May 1988, this task is not completed.

Activity 9

Harmonization of Pesticide Registration Requirements -  
The Regulatory Procedures

Input

Based on planned inputs in the project document, the following tasks are identified.

- (a) One consultant to provide assistance and training in matters related to harmonization of pesticide registration requirements.
- (b) Two consultants to prepare working papers on environmental impact assessment of pesticides.
- (c) Second Regional Consultation on Harmonization of Pesticide Registration Requirements.
- (d) Two technical meetings dealing with fish toxicity and environmental impact assessment.

Comment

- (a) One international consultant was hired for 1.5 m/m to provide assistance in the area of
- (b) The task No. (b) (see above) will be undertaken in August 1988.
- (c) Item c (Task (c)) was completed in Philippines, December 1986.
- (d) Work on Task (d) is planned for August 1988, as decided at the last PMC meeting in India.

No clearly defined tasks (activities) for harmonization and environmental toxicology were identified in the documents reviewed.

The Evaluation Mission noted the following deficiencies:

- (a) UN defined "sub-network", "Technical Committee" or "task force"
- (b) No coordination for programs and resource and budget allocations. As an example, RENPAP needs a "sub-network" for harmonization of registration requirements.

Environmental toxicology was originally planned as an activity under harmonization. The Evaluation Mission, however, considers this an important issue and suggests to identify as a separate task (activity).

#### Activity 10

##### Training on Quality Control Methods

Expected inputs include:

- (a) Training in analytical methodologies
- (b) Consultants to be provided on an ad hoc basis.

#### Comments

So far nothing has been accomplished in training in quality control methods. This activity should be related to activity 13 which (under Pest program) is the same as the activity 10.

#### Activity 11

##### Strengthening of the Exchange of Documentation and Information

##### Inputs

- (a) Biannual publication of the RENPAP Gazette (1000 copies)
- (b) Publication of technical reports.



Comments

- (a) No RENPAP Gazette (initially planned for distribution on a quarterly basis) has been issued during Phase II. Only 2 issues have been circulated since the beginning of the project.

The Evaluation Mission considers this as an important activity (RENPAP Gazette should be issued on a quarterly basis). News about RENPAP activities, progress, market studies, technical information, etc. are essential to keep the motivation of the network members and also suggest publicizing the presence of the RENPAP and the pesticide industry.

- (b) Technical reports need to be regularly circulated to the member and the UN agencies.

Activity 12

Generation of Residue Data from Supervised Trials

Inputs

Regional Meeting on Pesticide Residue to explore the possibility to organize field trials and to discuss protocols for the generation of pesticide residue data (Sri Lanka, October 1987).

- 10 participants at the meeting.

Comment

An important activity which needs greater participation of member countries.

### Activity 13

#### Pesticide Evaluation and Safety Testing (PEST) Programme among the Member Countries

#### Inputs

(a) Training in Quality Control (Oct.-Nov. 1987, India)

- 12 participants trained for 6 weeks

(b) Training in Pesticide Residue Analysis (Thailand,  
November 1987)

- 12 participants trained for 6 weeks.

#### Comment

These courses will be repeated (scheduled for November and December 1988) and the duration for these courses was reduced to 5 weeks.

Other tasks in Phase II include individual training and study tours. All activities (planned/implemented) and other consultancy requirements are listed in Annex. 2.

The Evaluation Mission notes that no more than half of the activities planned in Phase II are actually completed.

### C. Conclusions on Project Implementation in Phase I and Phase II

#### (1) Quality and timeliness of activities

- (a) The Evaluation Mission did not meet with Mrs. C.B. Gaston (Regional Coordinator, Phase I of the RENPAP to discuss the project activities during her term. It concludes that Phase I - the workplan was beyond the expected outputs, perhaps due to uncontrollable factors and completed all the activities as planned.

Phase II encountered many difficulties since beginning. Apparently, the UNDP's award of sub-contract to World Bank for conducting training (PEST) created the differences

between the Regional Coordinator (RC) and UNIDO's Representative concerning the authority and the management of the project. The circumstances including the highly emotional climate at the 1986 PMC meeting led the RC's resignation and jeopardized the continuation of the project. As a result, Phase II was delayed for 9 months.

The Evaluation Mission concluded that the main problem was due to very informal structure of RENPAP for the project. It recommends that RENPAP formalize its structure which clearly identifies for the network including the role, the duties, the responsibilities and the areas of authority of each participating party.

- (b) Because of the time constraints, the Phase II activities need to be completed within the next 6 months. Furthermore, new activities (proposed in Phase II project document) appeared which make difficult to find the thread and the overall objective which is targetted.

In order to retune the objectives, the outputs and the activities, the Evaluation Mission recommends that RENPAP nominate technical coordinators to carry out the project activities in their respective fields (see recommendations).

(2) Coordination of activities

Long delays have been recorded in the designation and acceptance of participants to training, due to the inherent administrative control/backstopping exercised by the Executing Agency.

The Evaluation Mission recommends that RENPAP and UNIDO work out an appropriate communication system which can speed up the decision process and facilitate the implementation of the project activities.

(3) Adequacy of training activities

Trainings constitute an important part of the project overall activity. The Evaluation Mission questions the impact of such trainings (could those trainees really undertake or handle the problems after receiving such group training, or individual training (e.g. fellowship or study tour)?).

The Evaluation Mission is unclear on the impact of the training programs. Is there a commitment by member countries (nominating trainees) to actually utilize the expertise or proficiency gained? (in the absence of "career plan" or lack of suitable equipment to make use of the training or in absence of defined work programs in the home countries of the trainees, the training programs do not serve the intended purpose and may eventually lead to improper use of resources).

The Evaluation Mission recommends that RENPAP pay more attention for long term/hands on in-depth training (e.g. minimum 6 months)/ fellowships in the host countries. Such training programs may not be too many but may prove more efficient, and should be approved only after identifying the need and a commitment by the recipient member country.

While designing such training programs, RENPAP must make efforts to promote the TCDC concept for the success of the cooperation.

(4) Budget Utilization

(a) Re. Transfer of equipment: In relocation of RCU to India no efforts for transfer of equipment were made. The Evaluation Mission considers it is a serious matter and the project funds should not go waste (photocopier and computer: about \$ 40,000) and the time and resources spent for training for Regional Data Collection.

(b) As shown in Tables III.5 and Table III.6 a major chunk or portion of the budget goes for group training activities. Although they are important for problem exposure/awareness, the Evaluation Mission thinks that the emphasis should be placed on more cooperative actions by countries through the exchange of experts, again incorporating the YCDC concept.

(c) The RENPAP should promote its presence throughout the region as well as outside of the region. The RENPAP gazette appears to be an effective channel for promoting its image (other channels need to be considered and the Evaluation Mission recommends that RENPAP allocate sufficient funds for this operation.

(d) Consulting services provided by RENPAP:

	Phase I	Phase II
International experts	5 m/m	7 m/m
Regional experts	5 m/m	8 m/m

Phase II of the project has seen a slight increase of the expertise from the Region. This should be emphasized.

- (a) For cost savings
- (b) For consolidation of the inter-regional cooperation
- (c) For the sustainability RENPAP.

The Evaluation Mission recommends promotion of as far as possible, the regional expertise.

#### IV. PROJECT RESULTS \*

##### A OUTPUTS FOR PHASE I

The outputs described in the following pages were based on the immediate objectives listed below.

- (a) Survey pesticide demand and supply in the region.
- (b) Improve the existing pesticide formulation technology in the individual countries through technical consultancy and training
- (c) Encourage promotion of local pesticide production with emphasis on utilizing available raw materials in the region.
- (d) Develop common criteria for
  - (i) Harmonization of regulations
  - (ii) Standardization of analytical methods for quality control and residue analysis.
- (e) To disseminate technical information through the publication of periodic bulletins and other materials.

The Evaluation Mission finds that the above-mentioned immediate objectives are somewhat modified versions of the same proposed in the project document (RAS/82/006/A/01/37). It should be noted that the comments by the Evaluation Mission on the Project Implementation (see previous Chapter III) were based on the activities proposed in the project document, not on the actually implemented objectives.

---

\* Note that the immediate objectives (outputs for Phase I and Phase II) are different from the activities listed in the project documents (see Chapter III PROJECT IMPLEMENTATION).

1. Harmonization of Pesticide Registration Requirements  
(Objective 4a)

Based on (a) the consultant's (Dr. Watt's) findings, conclusions and recommendations, after a study tour of the region on two occasions, and (b) the individual country reports and summary report, following conclusions were reached:

- (a) Need for improvement and revisions in line with the overall objective of harmonization of pesticide registration requirements in the region;
- (b) Because of some similarities and differences in the registration requirements, the summary report recommended adoption by the RENPAP countries of the FAO and WHO guidelines.

The Evaluation Mission notes that Dr. Watt's findings were used as the basis for discussions during the Regional Consultation on Harmonization of Pesticide Registration Requirements (October 24-29, 1983, Philippines) which reviewed the status of registration requirements. The meeting recommended that member countries adopt, as far as practicable, the recommended FAO and WHO procedures and guidelines on registration data requirements and procedures to bring harmonization in registration requirements.

Apparently, Dr. Watt's findings and the recommendations by the Regional Consultation on Harmonization of Registration Requirements have already had the following impact on the two member countries.

- (a) Sri Lanka developed a pesticide registration scheme following the proposed FAO model scheme for registration.
- (b) Philippines revised guidelines on bioefficacy trials and labeling for use.

Additionally, the member countries accepted the concept of harmonization of registration requirements and agreed in principle to adopt the recommended FAO and WHO procedures and guidelines.

## 2. Standardization of Quality Control and Pesticide Residue Methodologies (Objective 4b)

At the request of Afghanistan government, a consultant (B. Amin - Bangladesh) was sent to review the existing pesticide formulations and the current facilities and methodologies for quality control, and also to assist in training chemists and to suggest improvements on current quality control methods. A report was submitted with recommendations on the training of laboratory personnel, the use of FAO and WHO specifications for pesticides and CIPAC methods of analysis, and the suggestions for efficient utilization of laboratory for quality control purposes.

The Experts Group Meeting on Quality Control of Pesticides (May 13-17, 1984, Bangladesh) evaluated the quality control measures, practices and methodologies among member countries and identified the available facilities and equipment. This Group recommended that:

- (a) Collaborative trials for identified analytical methods be undertaken,
- (b) The Network organized workshops aimed at upgrading the knowledge and techniques of analytical laboratory personnel.



The meeting also suggested that the network explore the possibility of setting up a special fund to be utilized for urgent procurement of chemicals, reagents and spare parts. It recommended that an analytical standards bank for the region be set up for the region.

When the Evaluation Mission discussed it with the National Coordinator of Sri Lanka, it was informed that Sri Lanka experiences serious difficulties in procuring small quantities of reagent chemicals and other supplies. This country cannot afford to buy bulk quantities of the required chemicals and supplies (and also no need for such amounts). If all the regional countries experience similar difficulties, the network will play an important role for procurement of chemicals and supplies, and can maintain a data bank for member countries' use. A proper mechanism needs to be worked out for procurement, storage and distribution, before undertaking such a project. Should PMC find it viable solution, a committee may initially explore the possibilities and submit a report for PMC action.

In general, the participating countries at the meeting agreed to adopt, whenever possible, the FAO and WHO specifications for pesticides and utilize CIPAC methods of analysis. This meeting provided the following recommendations to attain standardization of analytical methodologies for quality control of pesticides.

- a) Identification of procedures for standardization of quality control methodologies and adoption of standard specifications.

- (b) Steps to be taken for: (1) conducting collaborative trials, (ii) participation in collaborative studies conducted by CIPAC, and (3) review of national specifications to conform as far as practicable with FAO and WHO specifications for pesticides would eventually lead to attainment of objectives on standardization of quality control procedures.

Study tours were provided to five fellows (Table IV.1) to observe laboratory facilities in the region and also to train them on quality control methodologies and procedures (among the countries of the network). The report by Dr. Pillai (India), which compared quality control measures, methods and equipment in the network countries, served as a useful background document for the Experts Group Meeting on Quality Control of Pesticides to make recommendations on standardization of analytical methodologies for quality control of pesticides.

Another task concerning the Regional Workshop on Residue Analysis (Jan. 21-Feb.5, 1985 - Thailand) provided intensive training on basic principles and analytical methods for residue analysis. This workshop consisted of formal lectures on principles and general techniques for analysis of pesticides followed by laboratory exercises for analysis of residues (from 6 commonly used pesticides) found in vegetables. As per the report, the evaluation mission noted that the attendees felt that the workshop was very useful to learn the general analytical techniques (GC and HPLC) and hands-on laboratory experience for analysis of commonly used pesticides such as endosulfan, diazinon, malathion, butachlor, paraquat, carabaryl and dithiocarbamates in/on raw agricultural commodities.

The Evaluation Mission, in discussion with a few attendees of the workshop (participants from Sri Lanka and Bangladesh) noted that these courses would be useful to the regional network which may consider repeating it because of the positive response. The network may also consider conducting more intensive training for longer periods up to 3 months) on residue analysis. If all the member countries' chemists were given the same training in residue analysis (preferably by the same instructors and at one location) such a training program would eventually lead to the standardization of methodologies on residue analysis for commonly used pesticides in the region.

### 3. Production and Formulation of Pesticides

The tasks (activities) included: (a) Consultancy Services; (b) Training on R&D formulation; (c) Study tour on Pesticide manufacture; and (d) Regional Workshop on Formulation of Pesticides.

(a) Consultancy Services covered R&D pesticide manufacture, R&D formulation and packaging and handling

(1) R&D Pesticide Manufacture (Objective 3)

Consultancy services (K. Szabo, USA) were provided to Indonesia and Pakistan on R&D Pesticide manufacture. The consultant provided detailed reports to each country on the status of research and development work, the directions to be taken and recommendations for strengthening the facilities.

Pakistan - The consultant noted the availability of raw materials which could be gainfully used for the production of additional chlorinated pesticides. He also noted

the locally available raw materials could be used for product diversification of phenoxy-herbicides, copper oxychlorides and dicofol.

Indonesia - The consultant advised Indonesia to concentrate on the utilization of local raw materials, for processing natural products (e.g. routine production and for production of microbial pesticides.

(ii) R & D Formulations (Objective 2)

India provided the expertise by sending two consultants. One consultant (N.K. Pillai), based on his findings and evaluation in Indonesia and Bangladesh, recommended systematic testing of raw materials for production of carriers, emulsifiers and surfactants among other things. The other consultant (S.H. Khetan) advised Korea on formulation technology and also on new R & D activities for newer formulations.

India also advised Afghanistan (M. Kayastha - consultant) on packaging and handling of pesticides. As per this consultant's report, Afghanistan has no formal guidelines for safe handling of pesticides during importation, storage, distribution and use. The Evaluation Mission noted that Afghanistan needs more support from the Network in assisting to establish formal procedures and guidelines for packaging and handling of pesticides.

(b) Training on R & D Formulation (Objective 2)

Four fellows (from Bangladesh, Indonesia, Pakistan and Korea) received training on various aspects of formulation technology. The Evaluation Mission, while in Bangladesh, inquired about the usefulness of this training because Bangladesh, at present, is not active in local formulation. The National Coordinator, Dr. A.H. Khan explained that because his country is encouraging local formulations, this training has been found very useful to his country in getting an overview and also in learning about R&D formulations.

(c) Study Tour on Pesticide Manufacture (Objective 2)

To provide an opportunity for observation and evaluation of current trends in pesticide manufacture in developed and regional countries, three fellows (Indonesia, India and Korea) were recruited. The representatives from Korea and Indonesia visited FRG, UK and USA, while the representative from India undertook the study tour of the member countries. It was reported that these fellows gained a general overview of R&D activities in pesticide manufacture which could be used in their respective research programs in their countries.

The Evaluation Mission did not find any reason and usefulness of these costly study tours to developed countries by a participant from Indonesia because the pesticides manufacture was non-existent in that country, and no evidence was shown for plans for setting up R&D manufacture in Indonesia. The report by a fellow from India, based on his observations during his tour, was found useful to the Network regarding the availability

of raw materials, should those countries decide to initiate plans for setting up plants for formulations and for manufacture of pesticides. The Evaluation Mission recommends that RENPAP not approve any tours in future, unless there were definite plans by member countries to initiate new activity under this objective.

(d) Regional Workshop on Formulation of Pesticides (Objective 3)

Apparently, this week-long workshop (Feb. 6-10, 1984, India) provided an overview on utilization of local raw materials for pesticide formulations. Should the member countries show commitment to produce formulations locally, the recommendations made at the workshop serve a useful purpose. The Evaluation Mission notes that some member countries (e.g., Bangladesh) are interested in developing formulations with locally available raw materials. It suggests that future training activities be tailor-made for interested member countries depending on their needs, especially the industrial representatives be encouraged to undergo the training in R & D formulations.

4. Pesticide Data Collection (Objective 1)

Under this objective, two activities took place in Phase I.

(a) Experts Group Meeting on Pesticide Data Collection System (March 8-11, 1983).

(b) Study tour on data collection by a representative from Philippines to Europe and USA.

These activities resulted in the following outputs:

(a) Computer print-outs of data on importation of technical materials and finished products.

(b) Production capacities vs. actual production data were also incorporated in the same print-outs.

- (c) Comparative retail prices of fifteen most commonly used pesticides in the region were also submitted.
- (d) Report of data collection published in a special issue of RENPAF Gazette

5. Toxicology (Objective 4a)

The activities under this objective included:

- (a) Regional Forum on Pesticide Toxicology
- (b) Consultancy services
- (c) Study tours and fellowships in toxicology

After examining the elements of toxicological assessments and implications for regulatory control and considering the need for appropriate safety measures for pesticide use, the Regional Forum on Pesticide Toxicology (April 22-26, 1985, Philippines) made the following recommendations for regional harmonization of pesticide toxicological requirements.

- (a) Recommendations on harmonization of toxicological data requirements, assessment procedures and labeling of pesticides.
- (b) Proceedings of the meeting (containing all lectures presented and the highlights of discussions) will be published by WHO in addition to a report.

In addition to the above important activity that resulted in the recommendation for the consideration of member countries for regional harmonization of pesticide toxicological requirements, consultancy services (Dr. Quadri, India - 3 months) were provided to Korea on toxicological assessments, the animal maintenance and methodologies for acute and sub-acute toxicology and also for fish toxicity studies.

Study tours were provided (1 fellow from Pakistan to Europe and USA and two fellows representing Pakistan and Thailand to Japan) for training in Toxicology testing and evaluation. Additionally, two people (Philippines and Korea) were given a two-week training course on Pesticide Toxicology in India.

The Evaluation Mission notes that the individual training is an important component of the RENPAP for achieving harmonization of toxicological requirements. But it suggests that RENPAP provide such training in the region (either group or individual) rather than sending individuals elsewhere for training.

#### 6. Trade and Tariff Considerations

Before organizing the first meeting on Regional Consultation on Trade and Tariff Considerations, an expert (Dr. G.S. Sandhu) reviewed the current tariff structures and trade practices on pesticides in the region and prepared a report which served as a background document for Regional Consultation on Trade and Tariff Consideration. This meeting noted that:

- (a) The disparity in tariff structure was evident and was due to policies of the individual governments.
- (b) The import tariffs were not the key constraints for pesticide trade promotion but the non-tariff barriers including registration requirements.
- (c) Other factors such as the lack of reliable information on supply and demand and financial and economic constraints affect the trade in the region.



Table III.1 Budget Inputs - Phase I.

UNDP INPUTS

A. Itemized Budget

Budget line	Component	Original budget
11-50	Consultants	\$187,200
15-00	Mission costs (UN Agencies)	25,000
13-00	RCU Staff	34,000
31-00	Fellowships and Study Tour	116,400
32-00	Group meetings	93,000
49-00	Equipment	40,000
59-00	Miscellaneous	4,400
	Total	<u>\$ 500,000</u>

B. Breakdown figures \$ 103,400  
 Operational Expenses (21%)

Mission Costs	\$ 25,000
RCU Staff	34,000
Equipment	40,000
Miscellaneous	4,400
Cost for project activities	<span style="float: right;">\$ 396,600</span> <span style="float: right;">(79%)</span>
Consultants	\$187,200
Fellowships and Study Tours	116,400
Group Meetings	93,000

Table III.2

Government Inputs in Kind

Budget line	Component	Original Budget
* 11-01	National Network Coordination	\$ 27,810
* 11-02	Counterpart to consultants	10,660
* 13-00	RCU	52,400
* 31-00	Fellowship & Study Tour	16,837
	Group training	9,659
32-00	Buildings and equipment	152,145
	Documentation/Info.	72,280
59-00	Miscellaneous	151,840
	<b>Total</b>	<b>\$ 493,181</b>

\* Expenses related with project activities and supported by member countries. Total : 116,916 (equivalent to 24% of inputs in kind)

The meeting made a recommendation as noted below:

"Recommendations on how to overcome impediments to intra-regional trade on Pesticides, particularly the non-tariff barriers which were identified."

7. Documentation on Information Exchange (Objective 5)

The tasks for this objective include fellowships on information exchange and consultancy on data processing. Two fellows (Philippines) were trained in data collection and information exchange scheme set up by the ARSAP Program of ESCAP for the purpose of setting up a similar one for the Network. This training activity resulted in the publication of RENPAP Gazette.

Note: Only 1 special issue was published.

A consultant (J. Snellgrove, Australia), after assessing the situation on data collection, retrieval and storage and processing, presented a report with his recommendation.

The Evaluation Mission notes that the resources spent for training of two people were not fully utilized because the data collection functions were transferred to India.

B. OUTPUTS FOR PHASE II

The project proposal document for Phase II (RAS/85/023/A/01/37) identified the following immediate objectives in accordance with the Development Objectives as stated in Phase I and Phase II project proposal documents (RAS/82/006/A/01/37 and RAS/85/023/A/01/37).

The immediate objectives of the project are:

- (a) To establish a regional information system for data on:

- (i) Supply, production, marketing, distribution and use of pesticides;
  - (ii) Trials on pesticide residues in food crops and soils.
- (b) To provide guidance on research and development activities conducted in the member countries, concerning pesticide production and utilization;
  - (c) To encourage the utilization of local raw materials for formulation of pesticides whenever suitable;
  - (d) To harmonize pesticide registration requirements and control procedures to be observed among member countries of the network;
  - (e) To promote an understanding of toxic properties and effects of pesticides, and to provide guidance on human safety precautions and environmental protection measures;
  - (f) To advise on pesticide residue trials to be conducted in accordance with the international standards and methods;
  - (g) To formulate effective and uniform quality control standards for the region, based on collaboratively testing analytical methods;
  - (h) To continue the current exchange of information through publication of periodic bulletins by the Regional Network Unit, and mutual exchange or distribution of technical papers.

The Evaluation Mission notes that the immediate objectives for Phase II are somewhat different from those identified for Phase I. It

also notes that the order in which the objectives are listed for both phases differ to some extent (see Phase I objectives on p. 30). The Mission is happy to see that the immediate objectives listed (shown below) in the 1987 RENPAP Progress Report exactly correspond to those mentioned in Project Proposal Report (RAS/85/023/A/01/37). This type of consistency throughout the Phase II Reports should be encouraged.

Objectives listed in 1987 RENPAP PROGRESS REPORT (DP/RAS/85/023)

1. Establishment of Regional Pesticides Data Collection System.
2. Research & Developmental Activities concerning Pesticides Production and Utilization.
3. Utilization of Local Raw Materials in Pesticides Formulations.
4. Harmonization of Pesticide Registration Requirements.
5. Human safety and Environmental Protection measures regarding the use of Pesticides.
6. Pesticide Residue Trials
7. Formulation of Effective and Uniform Quality Control Standards for the Region
8. Exchange of Information

The Evaluation Mission could not completely comprehend the reasons for changes/modifications to Phase I objectives without proper explanation/justification. Wherever practical, the Evaluation Mission attempted to identify in the following pages whether a particular objective is new or continuation of the Phase I objective.

1. Establishment of Regional Pesticides Data Collection System  
(Objective 1)

The Evaluation Mission identified this objective as a continuing effort of Phase I (see Objective 5, Phase I - Documentation on Information Exchange). In Phase I it was noted that the required computer systems were procured, the personnel were trained and a consultant was hired to advise on data collection of pesticides. As a result of those efforts, the first publication of RENPAP Gazette containing pesticide data was published.

Comment

In Phase II, an Expert Group Meeting on Data Collection (May 18-27, 1987) emphasized the need to strengthen the Phase I efforts (as mentioned above). However, the relocation of RCU created problems and caused delays in the implementation of the data collection efforts. In any case, with the cooperation of member countries, the requested information on Pesticide data concerning production, consumption, import and export for 1983-86 in the prescribed format was now received at RCU, (although the deadline of August 1986 was not met). To avoid future delays in data collection efforts, the PMC meeting (Nov.-Dec. 1987) appointed three group leaders to undertake this (data collection effort). The PMC meeting recommended that the group leaders collect the required data in 3 groups to save mandays.

As for the information (for 1983-86) that has already been received, the RCU has assembled and is ready for distribution. The Evaluation Mission recommends that the compiled pesticide data for

1983-86 be made available to member countries and also prepare summary reports (tables and charts) for publication in RENPAP Gazette which was long due for publication.

2. Research and Development Activities concerning Pesticide Production and Utilization

The Evaluation Mission identifies this effort as a continuation of Phase I (see Objective 2 - Improve the Existing Pesticide Formulation Technology in the Individual countries through Technical Consultancy and Training. This activity was covered under item # 3, Production and Formulation of Pesticides). The Evaluation Mission also notes that in Phase I, this objective was covered under the activities, (a) Consultancy Services, (b) Training on R & D formulation and (c) Study tour on pesticide manufacture.

Comment

In Phase II, a Workshop on Pesticide Formulation Research was conducted (March 1987, India) to provide technology transfer to member countries. (Note: Bangladesh and Philippines were not represented at this Workshop). In addition to providing formal lectures and presentation of research papers, laboratory demonstrations and a tour of the pilot plant facilities were some of the features of this workshop. The proceedings of the workshop were made available to member countries and the UN agencies.

The following recommendations were made at this workshop.

- (a) Designation of PDPI as a regional center for technology transfer to Asia and Pacific.

- (b) Setting up of National Programs in each member country on the model of PDPI.
- (c) Availability of services of PDPI to member countries in the area of trouble shooting, formulation improvements, quality control and training aspects of pesticide formulation on mutually agreeable basis.

The result of these recommendations, especially the implementation of Recommendation No. 1 was shown by providing a month-long training at PDPI, to a representative from Afghanistan, on pesticide formulations.

The Evaluation Mission discussed the subject matter with Mr.H.K. Khan(Secretary) and Mr. Shyam Suri (Joint Secretary), Ministry of Chemicals and Petrochemicals, Government of India.

- (a) Concerning the status, these officials expressed their Govt's self intent to keep PDPI as an autonomous institute(which will be jointly managed by the Govt. and industry).
- (b) Regarding the designation of PDPI as a regional center for technology transfer to RENPAP countries, it is the understanding of the Evaluation Mission that the Government of India will accept appropriate protocols and/or any kind of memorandum of understanding in order to have an access of PDPI for mutual benefit of the member countries.



- (c) Concerning the recommendation for setting up of national programs in the member countries on the model of PDPI, the Evaluation Mission was unable to find any implication of this recommendation, after reviewing a draft proposal on this recommendation. Questions such as funding for such institutions and the nature and the extent of countries' needs for such institutions are not clearly stated.

The Evaluation Mission also wishes to comment on the training provided to Afghanistan. It is the Mission's understanding that this member country has other priorities (e.g., packaging and handling) before getting intensive training to its personnel so that this country could gainfully use such training for immediate needs. The Mission's intention is not to discourage the member countries for not taking the training in specialized areas. Because of the limited resources for RENPAP, it encourages the member countries and also RCU to properly allocate the Resources to derive maximum benefits from the programs. To achieve these results, the Evaluation Mission suggests that RCU in consultation with NCUS

- (a) Make proper planning after identifying the needs;
- (b) Prioritize the needs; and
- (c) Accomplish them through individual (and also intensive) training programs.

### 3. Utilization of Local Raw Materials in Pesticide Formulations

This is a continuation of Phase I Objective (see Objective 3, Phase I - Encourage Promotion of Local Pesticide Production with Emphasis on utilizing available Raw Materials in the Region).

In Phase I, the outputs included: (Training on R & D formulations, (2) Regional workshop on formulation of pesticides, and (3) Reports of two consultants (N.K. Pillai and S.H. Khetan) on raw materials and R & D formulations.

Comment

In March 1987 Workshop on Pesticide Formulation Research, the member countries were requested to make use of the services of PDPI and Agricultural Chemicals Research Institute (Korea) for evaluation of their local raw materials.

A study tour by two experts for 15 day each is still in the planning stage (although the RENPAP 1987 progress report indicated that this activity will be completed in early 1988) to assess and evaluate the pesticide manufacturing and formulations utilizing the locally available raw materials within the region. The Evaluation Mission urges RENPAP to complete this activity in Phase II (this year) and prepare a feasibility report which may be useful for RENPAP planning activities for the next phase.

4. Harmonization of Pesticide Registration Requirements

This is also the continuing objective of Phase I (see Objective 4a, Phase I - Harmonization of Regulations).

Phase I outputs for this objective included: (1) Report by a consultant (Dr. Watts) and (2) Recommendations by the Regional Consultation on Harmonization of Pesticide Registration Requirements concerning the adoption of FAO and WHO guidelines and procedures for registration data requirements.

In an effort to bring harmonization of registration requirements, the Second Meeting of the Regional Consultation on Harmonization of Pesticide Registration Requirements (December 1-5, 1986 - Philippines) focused its attention to: (a) strengthen enforcement of regulation, (b) improving the monitoring systems for quality control, (c) pesticide residues and (d) applicator's health and safety. The meeting recommended that the member countries take follow up action on the above-mentioned areas of concern.

Comment

The Evaluation Mission notes that the above recommendations are very useful for achieving the objective. But its main concern is how to measure the progress in member countries or whether the participating countries have taken (or considered) any measures to implement these recommendations. The Evaluation Mission suggests that RENPAP institute a mechanism in RENPAP to determine (or measure) the progress on the implementation by the member countries of the recommendations before the next meeting scheduled for 1989 (An interim progress report this year would be useful for planning of the activities under this objective in Phase III).

5. Human Safety and Environmental Protection  
Measures Regarding the Use of Pesticides

This objective is very broad and includes several such activities as exposure of humans and animals to pesticides, pesticide hazards and pollution, environmental contamination, wildlife protection, safety of pesticide to applicators and farm workers, exposure assessments, toxicological considerations including risk assessment and risk management practices. The Evaluation Mission notes that this objective may mislead

the readers because of the title. The only task (activity) listed under this objective is toxicology which is a continuing activity. In Phase I, toxicology was covered under objective "Harmonization of Registration Requirements' (Objective 4a).

Not much progress has been made on toxicology training. Since there was considerable interest, PMC meeting decided to hold a group training in Environmental Toxicology. This meeting is scheduled to be held in August 1988.

#### 6. Pesticide Residue Trials

This objective is an extension of the Phase I objective 4b (Develop common criteria for Standardization of Analytical Methods for Quality Control and Residue Analysis). In Phase I, the Residue Analysis activity included: (a) the recommendations by Experts Group Meeting on Quality Control of Pesticides concerning adoption of FAO and WHO specifications for pesticides and utilization of CIPAC methods of analysis, and (b) Regional workshop on residue analysis which provided an exposure to and understanding of the methods for residue analysis of commonly used pesticides in the region. It was also felt that adoption of residue analytical methods by the region would pave the way for uniform standardization of methodologies for residue analysis in the region.

#### Comment

For Phase II, two training programs, under World Bank's PEST program, were planned. At the time of Project Evaluation, only one training course on Pesticide Residue Analysis (Nov. 9 - Dec. 12, 1987 - Thailand) was given to the participants of the member countries. (Bangladesh and Pakistan did not participate in this activity). It is the understanding

of the Evaluation Mission that the training (5 weeks) offered by the World Bank on residue analysis was rather intensive since it provided the information on sampling and preparatory procedures, methods of analysis, set-up and management of pesticide residues, and maintenance and trouble shooting of analytical instruments. This course also covered the regulatory aspects, metabolites and other toxic residues, and the concept of MRL (a joint FAO/WHO Food Standard Program). The report on this PEST program also enumerated the following evaluation results:

- (a) Of 13 participants signed up for the course, 8 trainees reached the performance rating of "very good". Others attained a proficiency rating of "good". (Incidentally, these participants have some knowledge of the residue methods prior to signing up for the course).
- (b) Majority of the participants indicated that the course content was just right.
- (c) Regarding the length of the course, some participants wanted a shorter course (3 weeks) while others preferred a longer period (6-10 weeks).
- (d) All participants wanted more laboratory work and greater exposure to new analytical methods (GC-MS, radio-immunoassay and residue analysis for newly introduced pesticides).

The report contained 10 recommendations. Some of them (e.g. recommendations 5,6,8 and 9), in the opinion of Evaluation Mission, need to be considered seriously before offering the next course (PEST Program) in December 1988.

A second task under this objective was the consulting activity. A consultant (N.C. Atreya), in addition to providing training, surveyed the needs for instrumentation, equipment, services and personnel to provide adequate facilities to conduct residue analysis in Bangladesh. The Evaluation Mission asked the National Coordinator (A.R. Khan) whether his country benefited from this consultant's visit. The response was positive (especially on training aspects). However, the Mission found that Bangladesh has no immediate plans for updating the facilities except giving a serious consideration of the consultant's recommendations.

7. Formulation of Effective and Uniform Quality Control Standards for the Region

Although it is rephrased and identified as a separate activity, this was initiated in the Phase I (See Objective 4b, Standardization of Analytical Methods for Quality Control and Residue Analysis). Previous tasks (activities) included: (a) Experts Group meeting on quality control of pesticides and its recommendation concerning standardization of analytical methodologies for quality control of pesticides, (ii) Study tours to 5 fellows, and (c) Two reports by consultants (R. Amin and Pillai) on quality control aspects in Bangladesh and the region.

Comment

As a continuation of this objective in Phase II, an international training program on quality control of pesticide formulation was held (Oct. 12 - Nov. 13, 1987 - India) covering quality control procedures for pesticide formulation. For this course, conducted under World Bank's

PEST Program, the regional and international experts were chosen. The course also covered human safety and environmental protection measures (see Objective 5, Phase II and the Evaluation Mission's comments) as an integral component of the quality control.

As a consequence of the activities on quality control of pesticides, the Evaluation Mission noted with appreciation that many member countries of the region have recently joined CIPAC to undertake collaborative studies for establishing uniform standards and other characteristics for pesticides.

During Phase II, another 8-week course on quality control (PEST Program) is scheduled for November 1988.

#### 8. Exchange of Information

In Phase I objectives, this was covered under Objective 5 (Dissemination of Technical Information through the Publication of Periodic Bulletins and Other Materials). An important activity in Phase I under this objective was the first publication of RENPAF Gazette which provided the background information on the status of pesticides in the Region (Part of the Objective was also shown under the Survey of Pesticide demand and supply in the region).

#### Comment

In Phase II, nothing was accomplished except transmitting the reports to member countries for their information. The Evaluation Mission received several comments from the member countries concerning information exchange that did not appear to be functioning smoothly since the start of the RENPAF project. The member countries said that they furnish the information to RCU and the UN agencies in order to meet their time schedules (in some cases, neither proper explanation nor sufficient time was given to collect the information). After furnishing the requested

Table III.3

Budget Inputs - Phase II

A. Itemized budget (as amended in 1987)

UNDP INPUTS

<u>Budget line</u>	<u>Component</u>	<u>Original budget</u>
11	Consultants	\$ 97,000
15	RC travel	12,000
16	Missions costs (UN agencies)	40,000
20	RCU staff	20,000
31	Fellowships	28,000
32	Group meetings + Study tours	180,000
32	PEST Programme	200,000
40	Equipment	38,000
53	Miscellaneous	<u>23,000</u>
	<b>Total</b>	<b>\$ <u>628,000</u></b>



Table III.4

Inputs in Kind

A. Itemised Budget

<u>Component</u>	<u>Budget</u>	<u>Percentage allocation for each component</u>
Personnel	\$ 164,140	18
Facilities	249,500	28
Equipment	209,000	23
Project activities	156,600	18
Miscellaneous	115,500	13
	\$ <u>894,740</u>	<u>100</u>

B. On Country Basis

	<u>Percentage of the total budget (in kind)</u>
Bangladesh	12
India	12
Indonesia	8
Pakistan	10
Korea	11
Sri Lanka	9
Thailand	12
Philippines*	26
Total	<u>100</u>

\* Philippines proposed a reduction of its contribution to the project to 17% at the 1987 PMC meeting

information, the member countries don't hear from the requested party until the next request for information. Many member countries are of the opinion that they are simply feeding the information but no feedback to them. This appears to be a serious problem for the sustenance of the network. The RCU and UN Agencies are urged to find proper communication channels between the member countries and the administrative units through periodic news bulletins, newsletters, etc. Although originally planned to publish RENPAF Gazette, this publication did not continue after the first issue. Another suggestion for serious consideration to RCU and the UN Agencies is to send a response (or acknowledgement) letter (e.g. a form letter) furnishing such details as the receipt of the requested information and the planned course of action on the information received, just to keep the members informed of the progress, plans and activities.

#### C. CONCLUSIONS ON PROJECT RESULTS

##### Project Evaluation

Since the project was evolved out of the needs and necessities for pesticides and also to make all the nations in the region self sufficient, the project's concept of sufficiency in pesticide production and judicious choice of pesticide use and handling was introduced in the developmental objective.

##### Project Concept

The UN agencies conceived that the regional countries could achieve self sufficiency by providing support for production and for proper use of pesticides to individual countries (country

projects, wherever applicable) and by harmonization of pesticide registration requirements and uniform methodologies for pesticide formulations and residues, and by sharing the information on commonly used pesticides applied to generally grown crops in the region. This is a novel concept which has significant merits such as the harmonization of pesticide registration, exchange of pesticide data (information) and uniform methodologies and pesticide residues, formulations and toxicological evaluations.

#### Developmental Objectives

The developmental objectives are the long term goals for achieving self sufficiency in pesticide production and maintaining the quality of pesticides while protecting public health and the environment. The regional countries lack knowledge on the production and utilization of pesticides for agricultural productivity. To attain the anticipated developmental objective, certain stepwise procedures need to be implemented and these are incorporated into the project as immediate objectives.

The immediate objectives as stated in the project document (RAS/82/006/A/01/37) appear very sound and they seem logical to build the required strengths in the needed areas of pesticide science and methodologies used for the registration and regulation of pesticides, while (1) pursuing evaluations and assessments for utilization of local raw materials for pesticide production and formulation, (2) developing appropriate technologies for R&D activities through technology transfer and know-how, (3) harmonization and uniform methodologies, and

(4) sharing the information on pesticide data. These immediate objectives have been implemented through appropriate tasks (activities), as described in the project inputs and outputs for Phase I and Phase II.

#### Project Sustainability

This is very important for achieving the developmental objective. The support of UNDP and UNIDO and the inputs by the associated agencies has made it possible to successfully carry out the RENPAP Project and the member countries now begin to realize the benefits of the project.

Other elements introduced for sustaining the project were

- (a) TCDC
- (b) Exchange of pesticide data information
- (c) Technology transfer
- (d) Harmonization of pesticide data requirements
- (e) Uniform methodologies

The member countries need to provide the required resources and personnel. They should consider bearing the costs for the project by gradually adopting them in their country's budgets for developmental projects and plans. With the commitment of the member countries, the project will sustain.

**Table III.5**  
Breakdown of UNDP Inputs per Area of Activity

	Phase I		Phase II*	
	Study Tours & Individual Trainings	Group Trainings/Workshops	Study Tours & Individual Training	Group Trainings/Workshops
Manufacture and Formulation technology	6 m/m	1 week	3 m/m	3 weeks
Quality Control and Instrumentation	2.5 m/m	1 week	2.5 m/m	11 weeks
Pesticide Residue Analysis	2 m/m	2½ week	2 m/m	12 weeks
Registration	-	1 week	-	1 week
Toxicology/Environment	4.5 m/m	1 week	11 m/m	1 week
Documentation and Data Collection	2 m/m	1 week	-	1 week
Trade & Tariff	1 m/m	1 week	-	-
	18 m/m	8.5 weeks	18.5 m/m	29 weeks

\* As per the present plans.

V. FINDINGS

A. General

1. Based on the review of the reports meetings with the officials at UNDP-UNIDO field offices at 5 locations (See Annex.I), the National Coordinators, the government officials, several trainees and other people intimately connected with RENPAP Project during both phases in five countries (India, Bangladesh, Sri Lanka, Thailand, and Philippines) and the Regional Coordinator as well as the pesticide associations (Philippines and India) and ESCAP (Thailand) the Evaluation Mission found that:

The RENPAP project made a significant progress in the participating countries from the start to the present stage (about 6 years, 2 phase) mainly in

- (a) bring an awareness of the problems regarding the pesticides use including safety;
- (b) increasing the knowledge base concerning the analytical capabilities for pesticide formulations;
- (c) strengthening the capabilities in residue analysis of pesticides;
- (d) realizing the need and advantages for harmonization of pesticide registration requirements;
- (e) attempting to bring uniformity in residue methodologies and toxicological evaluations;
- (f) understanding the problems associated with pesticides regarding the health effects (animal and wildlife) and environmental concerns

- (g) identifying the locally available raw materials for pesticide manufacture and formulations;
  - (h) intensifying the efforts for promotion and transfer of technology for pesticide formulations and newer (and safe) pesticide products.
2. Although the immediate objectives of Phase I and Phase II documents emphasized more on pesticide production and formulations, the Evaluation Mission found that, since of implementation of RENPAP project in 1982, the project concentrated on:
- (a) Training programs in acquiring know-how on pesticides including analysis of formulations and residues, quality control of products, toxicological considerations, product efficacy and other safety aspects including packaging and labelling.
  - (b) Harmonization of pesticide registration requirements and uniform methodologies for pesticides;
  - (c) Assessment of locally available raw materials for use in pesticide manufacture and formulations;
  - (d) Attempts for technology transfer of R&D pesticide formulations;
  - (e) Pesticide data collection and market survey.

3. In the opinion of the Evaluation Mission, the project's concentrated efforts in the above areas are justified because:

(a) Many member countries were in a desperate need for know-how on pesticides to protect the public health and the environment. Additionally, the member countries need this know-how on either imported products or formulations made in their countries for controlling pests and public health, and for enforcement purpose.

(b) Although many countries have enacted laws concerning pesticide registration, they vary considerably and pesticides are not properly regulated or enforced.

Harmonization of pesticide registration requirements is a viable and reasonable approach in this regard, and developing uniform methodologies for pesticide analysis and residues, and for toxicological evaluations will help to maintain the quality of commonly used pesticide products while conserving the limited resources of the member countries (as opposed to independently develop their own methodologies).

(c) Since the member countries have large reserves of raw materials used for pesticide manufacture and formulations, identification of these sources and evaluation of their uses will be useful for developing plans for setting up plans and facilities for manufacture and formulations using the indigenous materials which will result in substantial savings to farmers.



(d) Although many countries are interested in newer and safer pesticide formulations, they don't have the needed technology. Transfer of technology for R&D manufacture and formulations will help them for developing newer and more efficacious and safer products for pest control.

(e) Pesticide data collection is useful to all countries in several ways to know the supply and demand, trends in pesticides use, marketing of products, etc. This pesticide data collection and exchange of information will be useful not only to member countries but also to pesticides producers and to other non-member governments in the region.

4. The Evaluation Mission, however, found it difficult to correlate the immediate objectives of the project document (RAS/82/006/A/01/37) and the project reports (e.g., TAC meetings and terminal report in Phase I.) This is because of the changes made by TAC in implementation of the objectives through various tasks or activities (consultations/workshops/fellowships/study tours). Furthermore, its findings showed that the titles of the objectives were altered (modified) from Phase I and Phase II, even though the activities in those objectives are ongoing and continuous. These changes led to inconsistencies and discontinuity in the preparation of this report. (Parts II and III).

5. The evaluation Mission found that the needs and requirements for each country are different (see part II - Project Concept and Design for details) because some countries do not appear to have any facilities for pesticide production and formula-

tions, they lack know-how in pesticides, and also they are very weak in regulating pesticides; while other countries have moderate to good facilities for pesticide formulations and are equipped with better tools for regulation and enforcement of pesticides. There is also considerable expertise in the region, especially in R&D formulations. Because of these variations within the region, RENPAP implemented general training (group) programs to all countries and some tailor-made programs specific to individual country's needs. Additionally, RENPAP provided some consultations to explore the regional countries' resources and facilities, and also to bring harmonization and uniformity throughout the region in pesticide registration requirement and methodologies for formulations, residues and toxicological evaluations, respectively.

6. Based on the evaluation of training component of Phase I and Phase II, the Evaluation Mission found all the participating countries got a fair share of individual training depending on their specific needs as shown in Tables V.1, V.2, V.5 and V.6, in addition to group training offered to all countries in the topics of their common interest (Tables V.3 and V.7). In a few isolated instances, the Evaluation Mission was not clear and did not find proper justification for some extensive training (or study tours) to participants from some countries which did not have immediate needs for such training (e.g. study tour by a fellow from Indonesia to USA and Europe re. Pesticide Manufacture).

7. The group training provided an opportunity to all countries for acquiring knowledge, awareness and know-how on pesticides in addition to an understanding of the problems associated with pesticides. These training sessions also helped in upgrading the participants' skills and knowledge and in mastering the commonly used methodologies and generally used scientific principles (from initial level training to more intensive training to acquire proficiency). The Evaluation Mission also found that, in several instances, the level of skills/competence/knowledge of the trainees was increased from poor to (very) good as a result of these training programs and workshops (e.g. residue analysis workshop by experts under World Bank's PEST programs).
8. The Evaluation Mission was not sure that the training and knowledge gained through individual and group training is being properly used by member countries for immediate needs and also for problem solving. It interviewed a few trainees (in Sri Lanka, Philippines and Bangladesh) to find out the use of the training (in other words, what the trainees have been doing since receiving their training). It was given the understanding that the training was not properly utilized or applied to their countries' needs or for problem solving. These limited interviews with the trainees also showed that the member countries are not using because they don't have the required equipment (e.g. analytical instruments). As per

the course content and the extent of the training, some participants felt that the courses are too short (analytical methodologies for formulations and residues) and they need more intensive courses with hands on practical experience. In countries where there are no formulation industries, the participants of those countries felt that the training on R&D formulation was too extensive.

9. In summary, the Evaluation Mission found that, in general, the training programs were very useful to all member countries to acquire new information and update their knowledge base, and these training programs brought general awareness in pesticide use, handling and safety. The Evaluation Mission, however, could not assess whether the knowledge gained through the training program is properly imparted/disseminated to others in their countries. The Mission also found that almost all the trainees were either from the government agencies or from academic(research) institutions. There was no participation from industry(private sector) which could gainfully use such training for quality control, production and other aspects of pesticides.

#### B. Specific to Project Activities

The Evaluation Mission noticed that the member countries have sincere desire to harmonize registration requirements as well as the product labeling requirements for handling, use and disposal of pesticide products. As noted in the outputs (see comments in part IV), some improvements were made and/or steps were taken to harmonize registration requirements by Sri Lanka and Philippines.

Other countries (see country reports in TAC and PMC meeting reports) have expressed desire and, in cases, shown commitment (willingness) to implement the recommendations made by the Regional Consultation on Harmonization of Pesticide Registration Requirements (two meetings). The Evaluation Mission felt that the extent to which the member countries are committed is a measurable success of the RENPAP's immediate objective dealing with the harmonization of pesticide registration requirements.

2. As for the trade and tariff issues, the Evaluation Mission reviewed the available reports and noted that the recommendations of the Regional Consultation on Trade and Tariff Consideration have not found a way (or a mechanism) for acceptance by member countries. It questions the conclusions of the Regional Consultation on Trade and Tariff Considerations stating that the tariffs are not the barriers for local pesticide production. It also noted that no meetings were held or studies conducted in Phase II (apparently, this subject was not pursued further). In discussing this subject with a few representatives of the member countries, (met with the officials of the trade and export authority in Philippines and Dr. Nallini de Alwas in Sri Lanka) the Evaluation Mission found that, since it is not a technical issue it cannot be handled by RENPAP alone. To achieve any measurable progress, RENPAP should be encouraged to work very closely with the member countries' governments and the national pesticide associations.

3. It is evident that the RENPAP made a significant progress in bringing uniformity in analytical methods for pesticide formulations and residues. However, the Evaluation Mission found that several countries are not equipped with the required analytical instrumentation used for analysis and quantification of pesticide formulations and residues (see comments in Part IV). Unless they set up the laboratories equipped with the necessary instrumentation, some countries cannot fully participate in RENPAP's efforts to bring uniformity on methodologies for commonly used pesticides in the region.

4. The Evaluation Mission found only very little progress was made for bringing uniformity in toxicological evaluations for pesticides. It found that study tours were provided to some participants. The toxicology forum was found to be very successful and attracted many participants from member and non-member countries. RENPAP should plan additional activities in toxicology

5. Based on the evaluation of reports from workshops on pesticide formulations, there was significant progress on transfer of technology and know-how of pesticide formulations mainly from India (and perhaps Korea) to other countries of the region. The Evaluation Mission noted that India, being a leader in this field, focused its attention on the transfer of formulation technology to other desiring countries. It also noted that Korea, being the lead country for manufacture of technical grade pesticides, has shown keen interest in formulation technology, while other countries apparently sought this for information know-how and also for future plans, should (and when) the countries implement their national plans for production of pesticide formulations. In this context, the survey results on the utilization of local raw materials will be very useful for developing technologies for pesticide formulations.

The Evaluation Mission also wishes to point out that the survey information on the local raw materials (e.g. in Pakistan and Indonesia) may not be used immediately. However, that information will be useful for developing plans for future activities in pesticide manufacture with the local raw materials.

6. Data collection on pesticides is a useful component of RENPAP's activities which is for the benefit of the member countries. Although some countries (e.g. Thailand) questioned the purpose and usefulness of this objective, the Evaluation Mission recognizes the importance of this objective not only to participating governments but also to pesticide industry and other interested groups or parties throughout the world. This ongoing activity should be maintained (and strengthened) because it is an important objective of the RENPAP to help member countries in several ways. (See Comments in Part-IV). The only comment the Mission wishes to make is that the member countries felt that the request for data collection was difficult to comply with because the requested information was not readily available and the member countries had to seek that information from different sources. The other difficulty was to put the collected information in a required format (UNIDO Forms). There was no feedback to member countries either from RCU or UNIDO after the requested information was furnished. Despite all the problems or concerns mentioned above, the Evaluation Mission found that the member countries readily cooperated in data collection efforts and that the future collection activities will be easy because these countries now know the procedures for generating, collecting and putting the data in a required format.

7. China is a new member of the network. The only information that was made available on China was the country report at the second PMC meeting in India (1987). Therefore, the comments or findings (general and specific) by the Evaluation Mission are not applicable to China. China's membership in the network is a good sign of increasing participation of countries in the regional network.

The Evaluation Mission, however, was unable to find the reason why Malaysia, initially joined the network, withdrew its membership. The Evaluation Mission was informed that North Vietnam has shown interest in joining the network in the near future. The Evaluation Mission noted with interest that several non-member countries participated in some meetings/workshops (e.g. toxicology forum), apparently such meetings were found to be useful to members and non-member countries alike.

8. The Evaluation Mission wishes to make the following comments, on the project.

- (1) The immediate objectives as stated in the proposed project documents and/or TMC/PMC Meeting reports are very broad and the planned activities under those objectives are sometimes overstated.
- (2) In a few isolated cases, UNDP-UNIDO and RCU did not properly assess the training needs in relation to the country's immediate plans when approving fellowships to individual training/study tours.
- (3) In general, all participating countries, irrespective of the size or geographical location, got the benefits from individual and group training.
- (4) Almost all the trainees come from either the Government or public (educational research) institutions. The Evaluation Mission found no representation from industry which could also benefit from the training programs.



There are a few findings regarding the RENPAP objectives and activities (and minor concerns of the individual countries). Because of their trivial nature, they are not recorded in this report.

C. TCDC Concept

The Evaluation Mission examined how the concept of technical cooperation among developing countries (TCDC) is working or whether it is promoted in the member countries of RENPAP. It found that:

- (a) All the participating countries are aware of the TCDC concept and agree in principle to implement it in the network.
- (b) Only India and China have not only endorsed (and appear to be strong advocates of TCDC) but also allocated reasonable budgets, from the total UNDP country funds, for achieving the objectives of TCDC.
- (c) Other RENPAP countries (perhaps Thailand is an exception) do not have budget allocations for promoting TCDC.

The Evaluation Mission views that the full implementation of TCDC in RENPAP is one of the very important objectives for sustainability of the network after ceasing the UNDP funding for the project.

D. Organization, and Functions

1. In the opinion of the Evaluation Mission, the role of UN agencies including UNDP and UNIDO and the associated agencies (FAO, WHO and ESCAP) and the World Bank is very important for RENPAP funding project execution and provide technical advise to member countries

who appreciate very much for the help they receive, especially for promoting the network concept for the benefit of the participants. However, the Evaluation Mission found that considerable delays in carrying out the project's several tasks (activities) were partly attributed to administrative operations and procedures and policies, especially in granting approvals for training and in selecting consultants and experts. The Evaluation Mission also received complaints from National Coordinators concerning the lack of effective communication between the executing UN agencies and the member countries. Other problems causing delays are the member countries' bureaucratic systems which do not immediately process the participants' requests for travel among other things. The Evaluation Mission fully understands these difficulties in the execution of program activities in a given time frame. The Evaluation Mission found that the planned activities (see Table V.6 and V.7) for phase II will not be completed in the next 6 months unless the UN executing agency and the governments of the member countries fully cooperate with the Regional Coordinator in speeding up the approvals etc for the scheduled activities.

2. It was the understanding of the Evaluation Mission that, although there was a six month delay in project execution (implementing the RENPAP's Phase I activities), all the subsequent programs and activities went smoothly. Apparently, RENPAP faced with some serious problems when the UN agencies brought the World Bank without consulting RCU to conduct some training activities under PEST Program. This arrangement came as a surprise to RENPAP. The Project

Management Committee (1986, Philippines) expressed its deep concern that it was not informed about the introduction of World Bank's PEST program and the PMC insisted that the PEST training program be run by FAO under a sub-contract agreement. This recommendation was evidently not acceptable to UNIDO-UNDP. Ms. Cecelia Gaston, the Regional Coordinator (1982-86), to everyone surprise at the PMC meeting resigned before the meeting adjournment. Dr. S.P. Dhua was then elected Regional Coordinator and the RCU was thereafter shifted to India. As a result of change in Regional Coordinator and transfer of RCU, there was a considerable delay in implementing and executing several programs and activities, especially individual training/ study tours. (See Tables V.6 & V.7). The Evaluation Mission noted this situation and identified backlogs and delays in implementing the activities of RENPAP due to shifting of RCU to India. Although additional funding was given (see the revised budget for Phase II RENPAP activities including additional budget for RCU set up and PEST programs, there is insufficient time to complete all the activities before December 31, 1988 which is the termination date for Phase II of RENPAP project.

3. Concerning the reasons for the resignation of Ms. Gaston, the Evaluation Mission did not get much information from Attorney N.R. Deen, Ms. Arias Ordiz and other members at the Fertilizer and Pesticide Authority (FPA), in Manila, Philippines during its visit. However, it found that all the equipment (worth over \$36,000)\* purchased for the operation of RCU in Philippines was not returned to the present RCU location Table V.9 for details of the equipment). Apparently, this matter was directly handled by UNIDO-UNDP and it is the

\* The Evaluation Mission was informed that the equipment was not transferred to India from the Philippines.

Mission's understanding that the current Regional Coordinator lacks details on the decisions reached between UNIDO and Philippines regarding equipment transfer. Additionally, two persons from Philippines were trained for setting up the facility for data collection, and a consultant was hired to set up the operations in Philippines. The Evaluation Mission notes that the costs for training and consultant are gone waste because of the transfer of RCU from Philippines and such a training may be needed to personnel at RCU in India. Accordingly, the UNDP approved for RCU (Phase I) operations a total budget of \$34,000 (Budget line item 13-00). The Evaluation Mission was unable to find the reasons for recruiting a large staff (table V.10) to operate the RCU Secretariat.

E. Other Issues

(See Annex I: Terms of Reference and Background to Mission)

In addition to the findings by the Evaluation Mission described above (VA-V0) the following observations are made based on its evaluation.

1. Re.the viability of increased pesticide production based on demand in the concerned country and the region, and its cost benefit ratio with regard to composition from local performance compared to international competitors.

The assessment of the Evaluation Mission is that, India and (perhaps) China made considerable progress in the development of pesticide formulations using the local raw materials to meet the needs of the countries and demands of the formulators. Korea (and perhaps China) produce(s) technical grade pesticide active ingredients. Other countries now import their required pesticides

either as technical grade materials or finished products (formulations) from the international competitors. Pesticide for production capacities and other pesticide requirements in the region please refer to part II A (Tables II.1 and II.2 and Figure II.1). Although the concept of producing pesticides locally is attractive and encouraging (because of the demand, cost benefit ratio considerations and the full utilization of local raw materials) many countries of the region will take a long time to achieve self sufficiency in pesticide production. The network, as a first initiative or task, made a beginning in exploring the possibility for the utilization of local raw materials for pesticide manufacture and formulations. The evaluation reports on local raw materials will undoubtedly be useful to these countries for implementing (immediate and long term) plans for pesticide manufacture and formulations. As for markets, the Evaluation Mission observed that some pesticide producing countries have potential to find markets in the network countries provided they can produce quality products and can compete with the established producers both in price and quality of the products.

Re. the appropriateness and effectiveness of training programs on formulation, testing, evaluation and control of pesticides including adherence to international control standards, environmental safeguards and residue monitoring.

The appropriateness and effectiveness of training programs are highly regarded by the member countries and are helping them greatly in adopting the methodologies and procedures for formulations' testing and evaluation. As stated above, the member countries are now in the process of adopting methodologies provided by FAO and WHO to

bring uniformity in the region. Some countries have already begun utilizing the CIPAC methods of analysis and participated in CIPAC collaborative studies for establishing uniform standards for pesticides.

Courses such as the environmental toxicology will bring an awareness on environmental safeguards.

3. Re.contribution of the network to the transfer of technology and know-how on pesticides, in disseminating applied research and development results, and in the exchange of information and documentation on pesticide supply, production, marketing, distribution and use.

(a) Transfer of Technology - India has been an advocate for technology transfer to the member countries on R&D pesticide formulations. PDPI's information on R&D formulations has been continuously transferred to the network countries through the workshops (see outputs). In addition, other RENPAP's activities included: sending consultants to member countries and plans for building satellite institutions in the member countries to promote R&D on formulations. No recorded evidence was found on the promotion of technology transfer on R&D manufacture, although there were plans to utilize China's manufacturing information for this purpose.

(b) Pesticide data collection and exchange of the formation - In Phase 1, RENPAF Gazette (Special Issue) provided the information on pesticides (for 1982 and 1983) and no

follow-up activity was found thereafter. Now, the pesticide data from all countries have been received by RCU which is in the process of compiling the information for publication. This important data collection activity should be continued every year and be made available to all countries.

4. Re.the effect of the project and network on influencing policies of governments on human sa fety and environmental protection measures with regard to the effects of pesticides and their toxic properties.

During the country visits, the Evaluation Mission has carefully checked the positions (titles) and the decision power of the national coordinators representing the member countries. Since they hold senior Management positions in their countries, all of them have great influence in their respective governments. They can easily convince their governments (law and policy makers) on human safety precautions and environmental protection issues. Full participation in numerous workshops, group and individual training and consulting services provided in toxicology, pesticide residue analysis and environmental toxicology undoubtedly will attest the concern of the member countries on these issues. The same applies issues such as harmonization of pesticide regulation requirements uniform methodologies and quality control aspects.

The Evaluation Mission found that the awareness and the "concern" for pesticide use and handling by the governments of member countries did not, however, result in the establishment (creation) of new public service departments/facilities for public good.

This is perhaps due to limited funds available to majority of the countries and resources appear to be a major constraint. Although external aid could very well overcome this constraint, the Evaluation Mission was not provided any further information during its visits to member countries.

The Evaluation Mission further noticed that only two national coordinating units (NCU) are represented by publicly-owned industry sector (India and Afghanistan). Other NCUs represent either the Ministry of Agriculture or Pesticide Regulatory Authorities.

The Evaluation Mission is of the opinion that the above NCU representation hampers somehow the industry to take full advantage of the network outputs or to influence the network in its activities.

5. Re. the sustainability and the effectiveness of the network to guide and develop the pesticide sector in the region without recourse to outside assistance.

The Evaluation Mission identified at least 4 parameters which may affect, to some degree, the long term sustainability. They include:

- (a) Organization of the network and share of the responsibilities within the network
- (b) Funding of the network
- (c) Benefits perceived by the member countries
- (d) Relationship and presence of UN agencies.



(a) Network organization

The Evaluation Mission found that the organization is very informal, too loose in operation, and understaffed to carry out the functions properly and in given time frames. Furthermore, the network's role, duties and level of responsibilities of RCU and NCU are not clearly defined, so that conflicts may arise in the decision, management and execution processes.

(b) Network funding

RENAPAP functioned until now with UNDP funding. The Evaluation Mission considers that the RENAPAP's major issue is on future funding when the UN contribution to the network ceases. This issue has to be tackled by the PMC during the 3rd phase of the project (if any).

(c) Benefits perceived

The network helps to install a fruitful collaboration between the member countries, with the poorest of the developing countries benefitting the most from the more technologically advanced countries of the network. The key issue is how to keep in the network, those countries that may perceive a lower return from their participation.

(d) Relationship and presence of UN agencies

The communication problem between the RENPAP and the UN Executing Agency, and the long delays required for some approvals, have been raised previously.

The presence of UN and the UN agencies is recognized not only for providing the needed funds but also for providing technical assistance. They serve as useful umbrella for the network which needs time to establish itself and function it properly.

Table V.1. Fellowships/Study Tours for visits to RENPAP countries during Phase I

Activity	Number of people from RENPAP countries undertook the activities									
	Afgani- stan	Bangla desh	India	Indo nesia	Pakistan	Philip pines	Korea	Sri Lanka	Thailand	Total
1. R&D Formulation	-	1	1	1	1	-	1	-	-	5
2. Quality Control	-	2	1	1	-	-	-	-	1	5
3. Documentation Information	-	-	-	-	-	2	-	-	-	2
4. Data Processing <sup>a</sup>	-	-	-	-	-	1	-	-	-	1
5. Residue Methodology	-	-	-	-	-	-	-	1	1	1
6. Toxicology <sup>b</sup>	-	-	-	-	-	1	1	2	-	-
7. Toxicology Quality Control & formula- tion	-	-	-	-	1	-	-	-	1	2
8. R&D Manufacture <sup>d</sup>	-	-	-	1	-	-	-	-	-	1
9. Trade and Tariff	-	-	1	-	-	-	-	-	-	1
<b>Total Participants</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>23</b>

a. For this activity, USA, FRG, Switzerland, France and Italy were chosen.

b. For this activity, Korea sent one person to Yugoslavia and Pakistan sent one person to USA, FRG UK and Switzerland.

c. For this activity, Japan was chosen

d. For this activity, FRG, UK and USA were chosen.

Table V.2

Consulting Services Provided to RENPAP Member Countries in Phase I

Regional Country	Approved Areas for Consulting Services
1. Afganistan	(1) Formulation, packaging and handling; (2) Quality Control
2. Bangladesh	(1) R&D formulation; (2) Quality Control
3. India	None - But provided Consulting Services to Regional Countries
4. Indonesia	(1) R&D formulation; (2) R&D Manufacture
5. Pakistan	(1) R&D Manufacture; (2) Instrumentation
6. Philipptnes	(1) Regulation; (2) Data Processing
7. Korea	Toxicology
8. Sri Lanka	(1) Instrumentation; (2) Regulation; (3) Trade and Tariffs
9. Thailand	(1) Data Processing; (2) Residue Analysis; (3) Data Collection

Table V.3

Workshops/Meetings/Consultations in Phase I\*

<u>Nature of Activity</u>	<u>Number of Parti- cipants</u>
1. Expert Group Meeting on Pesticide Data Collection	17
2. Regional Consultation on Harmonization of Pesticide Registration Requirements	65
3. International Workshop on Formulation of Pesticides	49
4. Experts Group Meeting on Quality Control of Pesticides	44
5. Regional Consultation on Trade and Tariff considerations	20
6. Regional Forum on Toxicology	50
7. Residue Workshop on Residue Analysis	21
Total participants	<u>266</u> =====

\* Non-technical meetings including  
3 Technical Advisory Committee Meetings  
and 1 Tripartite Review Meeting are  
not included.

TABLE V.4 COMMITTEE MEETINGS IN PHASE I\*

Nature of the Meeting	Meeting dates	Number of Participants
1. First TAC Meeting	Nov. 1982	17
2. Second TAC Meeting	June 1983	14
3. Third TAC Meeting	Sept. 1984	15
4. Tripartite Review Meeting	Oct. 1983	15

\* These non-technical meetings were held to make policies, to review the implementation of the policies and to review progress of the various RENPAP activities, and also to allocate budgets for RENPAP activities. The attendees of the meetings included the representatives from RCU, NCU, UNDP and UNIDO.

Table V.5

Individual Training/Study Tours during Phase II \*

Regional Country	Requested Area	Type	Duration	Country
1. Afghanistan	Formulation technology	Training	1 m/m	India
2. Bangladesh	Biological screening	Training	1 m/m	England
3. India	Pesticide manufacturing and formulation based on local raw materials	Study tour	2/2 weeks	Region
4. Indonesia	Effluent treatment	Study tour	1 m/m	USA/Europe
5. Pakistan	Analytical methods	Training	2 weeks	Austria +
6. Philippines	Environmental impact assessments	Training for two people	1 m/m	U S A
7. Korea	R&D Formulation	Study tour	1 m/m	USA/Europe
8. Sri Lanka	Analytical methods	Training	2 weeks	Austria +
9. Thailand	Instrumental analysis	Training	1 m/m	U.K.
10. China	Biological screening	Training	1 m/m	U.K.

\* Note that many member countries requested training in Environmental Toxicology in different countries. It was decided to give a group training and PMC is planning to make the necessary arrangements.

+ Except analytical methods (funds used for CIPAC), the activities are yet to be completed.

Table V.6

Consulting Services Planned/Provided to RENPAP Member Countries

Regional Country	Approved Area for Consulting Services*	Status
1. Afganistan	Handling/packaging and storage Instrumentation Analysis Instrumentation analysis.	To be completed To be completed
2. Bangadesh	Residue analysis Packaging Instrumentation	Completed To be completed To be completed
3. India	Pesticide planning including product diversification	To be completed
4. Indonesia	Residue analysis Packaging	To be completed To be completed
5. Pakistan	Environmental toxicology	To be completed
6. Philippines	Occupational health assessment	To be completed
7. Korea	Herbicide efficacy	To be completed
8. Sri Lanka	Residue analysis	To be completed
9. Thailand	Quality control/specifications	Completed
10. China	Instrumentation	To be completed

\* Except the consulting services (2 weeks) to Bangladesh on packaging and instrumentation, the consulting services (for each area) are 1 m/m.

+ Only two (residue analysis for Bangladesh and quality control for Thailand) were completed and others are yet to be completed.



Table V.7  
Workshop/Meetings\* in Phase II

Nature of Activity	No.of participants	Status
1. R&D Formulations (training)	10	Completed
2. Data Collection (Experts Group)	10	Completed
3. Harmonization of Registration (Experts Group)	15	Completed
4. Pesticide Residue(Experts Group)	10	To be completed
5. Environmental aspects of production and use of pesticide(training)	10	To be completed
6. Quality control (training)	12	Completed
7. Residue methodologies(training)	12	Completed
8. Quality control (training)	12	To be completed
9. Residue methodologies (training)	12	To be completed

\* Non-technical meetings that include 3 PMC meetings are not listed.

Table V.8

Project Management Committee (PMC) Meetings

Nature of the Meeting	Meeting Dates	Number of Participants
1. First PMC Meeting	July 1986	18
2. Second PMC Meeting*	Dec. 1987	11
3. Third PMC Meeting	Oct. 1988	-

\* National Coordinators from Bangladesh, Pakistan, and Korea did not attend this meeting.

+ The 3rd PMC meeting is scheduled for October 1988 in China.

Table V.9

EQUIPMENT PROCURED FOR RCU IN PHASE I\*

1.	Office Computer - 45260A HP 250 CPU and Printer, Plotter and other Peripherals	\$ 27,050
2.	U -SIX Plain Copier Model 300 MR	\$ 9,602
	Total for Equipment	<u>\$ 36,562</u>

\*This equipment has retained by Philippines  
when the RCU was shifted to India after RENPAP  
Phase I Operations.

Table V.10

Support Personnel for RCU Secretariat

1. Mrs. Lug V. Isobal
2. Ms. Josephine Maligalig
3. Ms. Eleonor Dimaunahan
4. Ms. Elilinda Bulseco
5. Ms. Erlinda Ong
6. Ms. Blair Flores
7. Mr. Alberto Bacugan
8. Mr. Rodolfo Guerra
9. Mr. Loreto Ibe
10. Mr. Gabriel Evangelista
11. Ms. Bella Fe Dimaculangan

\* First TAC Meeting report listed that 11 people were assisting the operation of RCU in Philippines.

## VI. RECOMMENDATIONS

### A. RENAP

#### 1. Activities

Considering the need for more activities to serve immediate needs and more visibility for the network, and for participation of non-member countries in general subject of interest, the Evaluation Mission recommends that the network:

- (a) Promote the image and visibility of RENPAP in Asia and Pacific regional countries by publishing newsletters and the Gazette, and by holding symposia and conferences on the topics of general interest.
- (b) Plan in-depth training courses in such subjects as toxicology, and environmental and residue chemistry on a need/commitment basis.
- (c) Offer training courses in health and safety and protection of the environment
- (d) Offer training courses to industry personnel, in addition to participants from government and research (academic) institutions.
- (e) Encourage greater participation of industry/pesticide associations in RENPAP activities.

#### 2. Structure and function

Based on the findings, the Evaluation Mission recommends that RENPAP:

- (a) Provide a formal framework to the organization and its executing body (Project Management Committee) by

defining the role, duties, functions, responsibilities and authority as well as the role and functions of the National Coordinators.

- (b) Introduce a concept of rotation for regional coordinator after certain period.
- (c) Maintain a permanent RCU unit.
- (d) Strengthen its functions by appointing a full time person (e.g. executive secretary) with adequate equipment and budget (for travel and communications) for operations of RCU.
- (e) Strengthen its structure by nominating technical coordinators to plan and coordinate the activities in specific technical areas such as data collection, pesticide science (e.g. toxicology) and technology and regulation.

A flow chart is provided for illustrating the organization's structures and functions (Flow Chart VI.1). Consistent with the above recommendations.

### 3. Objectives

Because of the need for assessing the progress or success of each program/activity in the immediate objectives, the Evaluation Mission recommends that the network:

- (a) Identify all tasks for each objective and introduce a measuring device for quantifying results achieved from training programs/workshops/study tours.
- (b) Set milestones and deadlines for the activities/projects undertaken by RENFAP.

(c) Define objectives and planned activities very clearly.

4. Consultancy and Expertise

Because of the availability of consultants and experts in the region and also because of the cost savings to RENPAP by using the regional expertise, the Evaluation Mission recommends that RENPAP:

- (1) Maintain a roster of available consultants and experts in the network countries for each specialized subjects/areas.
- (2) Maintain a Directory of laboratories and other evaluation units (public and private) engaged in pesticides.

These lists will serve as a source material for planning and implementing RENPAP activities.

5. Communication

To increase effective participation of the member countries in all the activities of RENPAP, the Evaluation Mission recommends that the network:

- (1) Publish newsletter on RENPAP activities and progress in the implemented plans, and also some general information on pesticides.
- (2) Publish RENPAP Gazette providing the information on pesticide data collection.

- (3) Find ways and procedures to speed up the communication from the executing agency to the network regional coordination unit and to the national coordination units.

B. To UN Agencies

1. Based on the findings, the progress made during the 6-year period, the immediate needs including the need to continue the program for another three year period and also taking into the consideration for sustainability of the project, the Evaluation Mission strongly recommends that UNDP provide funding for the RENPAP project for Phase III at a level higher than the current level of funding-

The Evaluation Mission while making the above recommendation suggests that UNDP and UNIDO consider incorporating the following points (elements) in Phase III project document.

- (a) Gradual phase out of the funding for planned activities and programs for Phase III.
- (b) Encourage the participating country governments to make financial commitments for some activities through TCDC.
- (c) Ensure the industry's participation in the planned activities for Phase III. This is considered important in view of the stated developmental objectives of the RENPAP project.



## VII. LESSONS LEARNED

1. The RENPAP project's success depends on strengthening the framework for full cooperation of the regional countries for the development of the objectives, namely:
  - (a) Self sufficiency in the production and the use of pesticides through harmonization
  - (b) The uniformity in pesticides registration
  - (c) Methodologies, and also the technology transfer and know-how on pesticides.
  
2. The advantages of the network concept are:
  - (a) Identification of areas of mutual benefits and concerns;
  - (b) Strengthening the regional industry to compete with the international markets;
  - (c) Adopting common policies and regulations concerning pesticides and bringing uniformity in pesticide methodologies;
  - (d) Achieving considerable savings to the region through integrated efforts in training, technology transfer and know-how.
  
3. The same concept can be extended in 4 ways:-
  - (a) Concept intensification: Identify and establish centres for excellence in such areas as: formulation technology, production process technology, toxicology, data collection, analytical methodologies, health and safety. Such centres can be located in different member countries and the knowledge gained by these centres can be shared by the participating countries. It may be necessary to work under a legal framework for establishing these centres.

(b) Concept expansion: The other countries in the region

can be encouraged to join the network by clearly showing the advantages and benefits derived from the network. Factors such as cost savings, technology transfer and harmonization can be used for expansion purpose.

(c) Concept diversification

The same concept can be extended to other products or fields (e.g. pharmaceuticals) in the same region

(d) Concept translocation

The RENPAP experience could be advantageously used in applying the same concept on pesticides to other parts of the world (e.g. Africa)

Annex I

Terms of reference and background to Mission

J O I N T E V A L U A T I O N

UNDP/UNIDO Projects RAS/82/006 and RAS/85/023 - Regional Network on Pesticides for Asia and the Pacific

Background

UNDP technical assistance in the field of pesticides at the regional level in the Asia and the Pacific Region began in 1981 under preparatory assistance (RAS/81/064) for the purpose of surveying pesticide demand and supply in the region, and resulted in the formulation of the project document for RAS/82/006 - Regional Network for the Production, Marketing and Control of Pesticides in Asia and the Pacific. The objectives of the project were to promote local and regional manufacture of pesticides, and to provide guidance to upgrade the technical expertise of national institutions in the formulation, testing, evaluation and control of pesticides. The assistance in effect was to promote pesticide industry development in the various countries by strengthening and facilitating the cooperation of a network of national institutions which is now concluding its second phase under RAS/85/023.

Implementation of RAS/82/006 began in November 1982 under the guidance of UNIDO and the Regional Network Coordinator from the Philippines, with the work programme carried out jointly by the National Network Coordinators of the 9 participating countries, namely: Afghanistan, Bangladesh, India, Indonesia, Republic of Korea, Pakistan,

Philippines, Sri Lanka and Thailand. The Technical Advisory Committee met on a yearly basis in 1982, 1983 and 1984 to evaluate progress made and to establish the work programme for the following year. The Committee recommended a second phase of the project of 2 years in order to consolidate results achieved and to take up new issues.

The development objective of RAS/82/006 was to strengthen and support expansion and improvement of the pesticide industry, including formulation, production and control of pesticides, and to facilitate the adaptation of appropriate and most economic technologies for production in the region. Establishment of the programme would make possible use of local raw materials and other resources on a much larger scale in the pesticides sector.

Immediate objectives of RAS/82/006 were to:

- (1) Survey pesticide demand and supply in the region and identify bottlenecks in the production, formulation and distribution to minimize shortages and/or need for emergency acquisitions;
- (2) Promote local and regional formulation and manufacture of pesticides by identifying and testing local raw materials, and new formulations especially suitable for the region's needs, assessing the feasibility of such industries, providing information on availability of appropriate technology and identifying and testing new formulations based on local raw materials;

- (3) Provide guidance and training to experts of national institutions in the formulation, testing, evaluation and control of new pesticides, including standardization of quality control methods, labelling, packaging, harmonization of registration requirements and environmental safeguards by residue monitoring;
- (4) Set up a clearing house of information and documentation services covering pertinent technical, market and trade (tariff) matters in the region.

Results of phase 1 were:

- (1) Establishment of a Regional Network on Production, Marketing and Control of Pesticides in Asia and the Pacific;
- (2) Workshops, consultations, and expert group meetings on:
  - Pesticide data collection systems;
  - Formulation of pesticides;
  - Quality control of pesticides;
  - Harmonization of pesticide registration requirements;
  - Trade and tariff considerations;
  - Toxicology forum;
  - Pesticide residue analysis.

In November 1985, RAS/85/023 was approved for a period of two years with UNIDO executing the project, and with associated inputs of FAO, ESCAP and WHO. Subsequently, the project was amended to incorporate

the World Bank Pesticide Evaluation and Safety (PEST) testing proposal. In 1987, due to new responsibilities placing an additional burden on the Philippines Fertilizer Pesticides Authority, regional coordination of the project was entrusted to Hindustan Insecticides Limited at Gurgaon in India. Inclusion of China in the pesticides network, and postponement of some technical meetings and training activities resulted in the rephrasing of the UNDP assistance into 1988. The project is now scheduled to end in December 1988. A further (third) phase of the project was recommended by the Project Management Committee of RAS/85/023 at its second meeting held in New Delhi in November/December 1987.

Under the current project RAS/85/023, the development objective was to expedite development of the pesticide sector through strengthening technical cooperation among the network member countries of the region, specifically on issues relating to pesticide formulation and production, assurance of product quality, issuance and coordination of regulations, and control requirements relating to their safe handling and application.

Immediate objectives of RAS/85/023 were to:

- (1) Establish a regional information system for data on:
  - (a) supply, production, marketing, distribution and use of pesticides; and
  - (b) trials on pesticide residues in food crops and soils;

- (2) Provide guidance on research and development activities conducted in member countries concerning pesticide production and utilization;
- (3) Encourage the utilization of local raw materials for the formulation of pesticides whenever suitable;
- (4) Harmonize pesticide registration requirements and control procedures to be observed among member countries of the network;
- (5) Promote the understanding of toxic properties and the effects of pesticides, and provide guidance on human safety precautions and environmental protection measures;
- (6) Advise on pesticide residue trials to be conducted in accordance with international standards and methods;
- (7) Formulate effective and uniform quality control standards for the region based on collaboratively tested analytical methods; and,
- (8) Continue the current exchange of information through publication of periodic bulletins by the Regional Network Unit, and the mutual exchange and distribution of technical papers.

The project has been based on the innovative concept of UNDP support to a regional, inter-governmental cooperative programme/network without promoting establishment of an institution, and has been the first experience of this type of the Executing Agency, UNIDO, and the

cooperating government organizations involved. FAO has cooperated as an Associated Agency, and WHO has contributed to some technical aspects of the project.

Results of phase 2 were:

- Project Management Committee (PMC) meeting, Manila, 16-18 July 1986
- Regional Harmonization of Registration, Manila, December 1986
- Individual Training of Three experts from Pakistan, India and Sri Lanka in CIPAC Meeting, Vienna, June 1986
- Two World Bank consultants engaged to determine sites to hold Pesticide Evaluation Safety Testing Programme which sub-contracted to Bank (May 1986)
- Project headquarters shifted to New Delhi, India, March 1987
- Research and Development Workshop, March 1987, Delhi
- Second Expert Group meeting on Pesticide Data Collection System, Thailand, May 1987
- Quality Control, Pest Programme of World Bank sub-contract, Delhi, October/November 1987
- Pesticide Residue Analysis Training Programme (PEST-World Bank sub-contract), Thailand, November 1987
- Project Management Committee Meeting (PMC), New Delhi, November/December 1987



Purpose and methods of the review

The Regional Bureau for Asia and the Pacific scheduled a joint UNDP/UNIDO evaluation early in 1988 as:

- (a) The project is innovative in that it supports a regional, inter-governmental cooperative programme/network without promoting establishment of an institution, and in that there is collaboration in its execution by UNIDO with FAO, WHO and The World Bank;
- (b) Total UNDP inputs of the 3 projects RAS/81/064, RAS/82/006 and RAS/85/023 over a 9-year period will exceed US\$1.2 million; and,
- (c) UNDP assistance to the regional pesticides sector is due to cease in December 1988 when RAS/85/023 ends.

Based on the findings and recommendations of the evaluation mission a further phase may be considered in light of the unanimous view of the national coordinators that the project must be reinforced and continued beyond 1988, initially for a period of 3 years. The national coordinators feel that, since the region has already shown perceptible development in many areas of pesticide formulation, residue analysis and environmental toxicology, it would be possible to make use of the expertise developed within the region for the benefit of those countries in need of assistance. Therefore, the requirement of support

from outside the region would be limited and would result in considerable savings in the proposed extension to the project.

The overall purpose of the mission is to evaluate the project's achievements in light of its objectives, the methodology used, and to assess the need for, and the thrust of further assistance provided by UNDP, if justified.

The evaluation mission is to review all key documentation on the project, its links with country projects such as IND/80/037 - Pesticides Development, and meet with government and private sector agencies in the field of pesticides development, as well as UNDP, ESCAP, SIDFAs, FAO, WHO and The World Bank personnel as appropriate in the countries that the mission will visit. Field trips will be organized to selected fertilizer plants, laboratories and food crop and soil testing areas.

Issues to be covered

... In addition to the mandatory issues listed in the attached outline and format for the report of a project evaluation mission, the mission should specifically assess the project's achievements in:

- (a) the viability of increased pesticide production based on demand in the concerned country and the region, and its cost benefit ratio with regard to composition from local raw

materials, production, and marketing, as well as performance compared to international competitors;

- (b) the appropriateness and effectiveness of training programmes on formulation, testing, evaluation and control of pesticides, including adherence to international quality control standards, environmental safeguards and residue monitoring;
- (c) the contribution of the network to the transfer of technology and know-how on pesticides, in disseminating applied research and development results, and in the exchange of information and documentation on pesticide supply, production, marketing, distribution and use;
- (d) the effect of the project and network on influencing policies of governments on human safety precautions and environmental protection measures with regard to the effects of pesticides and their toxic properties; and,
- (e) the sustainability and the effectiveness of the network to guide and develop the pesticides sector in the region without recourse to outside assistance.

Composition of the evaluation mission

Mr. N. Bhushan Mandava	-	UNDP Consultant/Team Leader/
Mr. Marc P. Donnez	-	UNIDO Consultant

The National Coordinators of the 10 participating countries will take part in discussions and visits at the country level.

Timetable and itinerary of the mission

(See attached)

Consultations in the field

The mission will maintain close liaison with the UNDP resident representatives in the countries visited, the concerned agencies of the Government, any members of international personnel on related country projects, and the counterpart staff assigned to the project as well as the SIDFAs.

Although the mission should feel free to discuss with the authorities concerned anything relevant to its assignment, it is not authorized to make any commitments on behalf of the UNDP or UNIDO.

The evaluation mission shall familiarize itself with the following key documents with respect to the project before travelling to Asia:

RAS/82/006 - Phase 1 project document

RAS/85/023 - Phase 2 project document

Technical reports of RAS/82/006 and RAS/85/023

Project Management Committee Meeting Reports

Training Programmes and Reports

Progress and Tripartite Review Reports

Country Reports

Debriefings will be arranged at UNIDO Headquarters in Vienna,  
and UNDP Headquarters in New York.

Report of the Evaluation

The evaluation team should prepare the report in draft with the outline attached as a guide, and a summary of in-depth project evaluation according to the attached, prior to departure from New Delhi. The draft report will be completed prior to the mission's departure from New Delhi. A copy of the draft report will be provided to the UNDP Resident Representative in New Delhi. The UNDP mission representative/team leader will be required to bring a copy of the draft report to UNDP New York for the debriefing.

Mission Members and Itinerary

MISSION MEMBERS

DR. N.B. MANDAVA, UNDP Consultant/Team Leader

DR. H.P. DONNEZ, UNIDO Consultant

ITINERARY

April 12 - April 17 : New Delhi, India (Mandava)  
April 14 - April 17 : New Delhi, India (Donnez)  
April 18 - April 20 : Colombo/Kandy, Sri Lanka (Mandava & Donnez)  
April 21 - April 25 : Bangkok, Thailand (Donnez)  
April 21 - April 26 : Tokyo, Japan (Mandava)  
April 25 - April 29 : Manila, Philippines (Donnez)  
April 26 - April 29 : Manila, Philippines (Mandava)  
April 30 - May 3 : Dhaka, Bangladesh (Mandava and Donnez)  
May 3 - May 13 : Delhi, India (Mandava and Donnez)  
May 16 - May 21 : Delhi, India (Mandava)

PERSONS VISITED

INDIA

MR. G.M. HANDY : Resident Representative, UNDP  
MR. A.S. GEAIR : Deputy Resident Representative, UNDP  
MR. M. ISLAM : UNIDO Senior Industrial Development Field Adviser (SIDFA)  
MR. S. RAMAMURTHY ; Programme Officer, UNDP  
DR. S.P. DHUA : Regional Coordinator, RENPAP; Managing Director, Hindustan Insecticides Ltd. (HIL)  
MR. D.R. SHARMA : Deputy General Manager, (HIL)  
MR. L.K. MALHOTRA : Director, Ministry of Industry, Department of Chemicals and Petrochemicals.

- MR. M. RAMACHANDRAN : Senior Programme Officer, UNDP
- MR. M. LAL : General Manager (Project), HIL, R&D Centre (PDPI)
- DR. S.K. KHETAN : Deputy General Manager, HIL, R&D Centre (PDPI)
- MR. MANN : Executive Secretary, Pesticides Association of India
- MR. S. SURI : Joint Secretary, Department of Chemicals and Petrochemicals, Ministry of Industry
- MR. R.D. MAKKAR : Senior Programme Officer, UNDP
- MR. H.K. KHAN : Secretary, Department of Chemicals and Petrochemicals, Ministry of Industry
- MR. MUKHERJEE : Joint Secretary, Ministry of Finance,

Several other officials at PDPI

SRI LANKA :

- MR. M. KAHANE : Deputy Resident Representative, UNDP  
MR. J.B. GORSKI : UNIDO, SIDFA  
DR. M.H. FERNANDO : National Coordinator, RENPAP; Deputy Director  
of Agriculture, Central Agricultural Institute  
DR. N. DE ALWIS : Registrar of Pesticides, Department of Agriculture

THAILAND

- MR. V.C. LAUVIDES : UNIDO, SIDFA  
DR. RIKESH SYAMANANDA : National Coordinator, RENPAP; Director-General,  
Department of Agriculture  
DR. R. MONTRI : Director, Entomology and Zoology Division,  
Department of Agriculture  
DR. Y. YUBON : Director, Agricultural Toxic Substance Division,  
Department of Agriculture  
MR. B. BOON CHOB : Director, Agricultural Regulatory Division,  
Department of Agriculture  
MR. S. PATANAN : Chief of Pesticides, Regulatory Sub-Division,  
Department of Agriculture  
MR. P. HEGENBARTH : ESCAP  
MR. G. ERDMANN : Plant Manager, Bayer Laboratories

PHILIPPINES

- MR. M. FARASHUDDIN : Deputy Resident Representative, UNDP  
MR. C.A. NEWMAN : UNIDO, SIDFA  
MR. N.R. DEEN : Administrative and legal Services Chief, F.P.A.  
MR. A.V. ORDAS : Chief Chemist, F.P.A.  
MR. K.T. DEANG : Pesticide Technical Services Chief, F.P.A.



express sincere thanks to the officials of the UNDP field office in New Delhi for their ready cooperation and support and especially to Mr. S. Ramamurthy for his sincere efforts for attending to our needs and arranging all the facilities including accommodation and local transportation during their stay in New Delhi and secretarial services for report preparation.

Annex III

III.1

Qualifications and Experience of Mission Members

MISSION MEMBERS

**Mission Leader** : Dr. N.B. MANDAVA, Consultant,  
TODHUNTER, MANDAVA and ASSOCIATES, Washington D.C., US.

**Academic  
Background** : Ph.D, Bio-Organic Chemistry, Indian Institute  
of Science (IISC)  
Certified Professional Chemist (CPC)  
Fellow of American Institute of Chemists

**Professional  
Experience** : - U.S.D.A.: Director of research programs,  
Plant growth regulators and  
herbicides.  
  
- E.P.A. : Senior Science Adviser, Office of  
Pesticides and Toxic Substances,  
(responsible for intra-agency  
coordination of pesticide research  
programs).  
  
- Teaching and research appointments at Oklahoma  
State University and State University of New York

**Mission Member** : DR. M.P. DONNEZ, Management Consultant,  
GROWING Sprl., Brussels, Belgium.

**Academic  
Background** : Ph.D. Organic Chemistry, University Libre de  
Bruxelles (U.L.B.)

Business School CEPAC (U.L.B.)

Post graduate in International Commerce (U.L.B.)

**Professional  
Experience** : BASF Chime Belgium, Sales and Technical Officer  
for Industrial Products.

**MONSANTO Europe-Africa:**

- Technical Officer, Applied Sciences,  
Research and Development Centre
- Marketing Supervisor for Resins Products
- Area Manager, West and Central Africa for  
Pesticide Products.

Annexure IV

Work Plan for Training and Consultancy in Phase I

WORK PLAN  
PLANNING TABLE  
CONSULTANCY

Appendix 11

<u>COUNTRY GROUP</u>	<u>NEED SUBJECT</u>	<u>DURATION</u>	<u>PROPOSED DATE</u>	<u>PRIORITY</u>	<u>POSSIBLE REGIONAL COUNTRIES THAT CAN PROVIDE</u>	<u>REMARKS</u>
	Pesticide Data Collection	2 weeks	May 87	1	Thailand	Completed
	Harmonization of Registration	1.5 m/m	Dec. 88	1	Philippines	Completed
	Quality Control (PEST)	1 m/m	June 86	1	USA (WB)	Completed
	Residues (PEST)	1 m/m	June 86	1	USA (WB)	Completed
	*Pesticide Data Collection in 3 Groups	1 m/m		1	Thailand, Philippines, India	1 m/m saved from Group
	Environmental aspects of production and use of pesticides	1 m/m	Aug. 88	1	Indonesia	To support group training activity
<b>INDIVIDUAL</b>						
1. Afganistan	Handling/ Packaging and storage	1 m/m	Mid 88	1	India	Await job description
	Instrumentation analysis	1 m/m	May 88	1	India	
2. Bangladesh	Residue	1 m/m	Oct. 86	1	Korea	Completed in UK
	Packaging Instrumentation	2 weeks 2 weeks	Dec. 86 March 87	2 2	India UK	Not completed

\* Group : (1) China, Korea, Thailand; (2) Indonesia, Sri Lanka, Philippines, (3) Bangladesh, Pakistan, Afganistan, India. \_\_\_\_\_  
Leader countries to be selected with concurrence from respective Governments.

3. Indonesia	Residue Packaging	1 m/m 1 m/m	June 87 Jan. 88	2 1	Korea India	Cancelled Job descrip- tion handed over.
4. India	Pesticide planning including product diversification	1 m/m	Mid. 88	1	UK	
5. Korea	Herbicide efficacy	1 m/m	1988	1	Pakistan	Difficult to find a person with the given job descrip- tion. Japan to be tried.
6. Philippines	Occupational Health Assessment	1 m/m	May 88	1	USA or UK	Outside/within region
7. Pakistan	Environmental Tox.	1 m/m	1st Qr. 88	1	Japan or UK	UK consultant declined. Looking for another from region.
8. Sri Lanka	Residue Analysis	1 m/m	June 88	1	Indonesia or Thailand	
	Insecticide efficacy	1 m/m	May 88	1	Within region	
9. Thailand	Quality control/ specifications	1 m/m	Jan. 87	1	Portugal	Completed with UK
10. China	Instrumentation	1 m/m	June 88	1	UK	Job description to be worked out.

**INDIVIDUAL**

1. Indonesia	*Toxicology Environmental)	Training	1st/2nd Qr. 88	1 m/m	Japan	UK added
	Effluent Treatment	Study Tour	April 88	1 m/m	Germany/USA	UK/Belgium added
2. India	Pesticide manufacturing and formulation based on local raw material	Study tour	Early 88	2/15 days	Within the region	
	Instrumentation analysis	Training	June 86	2 weeks	Austria	Funds used for CIPAC.
3. Bangladesh	Biological Screening	Training	Mid. 88	1 m/m	England	Project Management office to find a place.
	*Environmental Tox.	Training	1st/2nd qr. 88	1 m/m	Japan	UK added
4. Korea	R&D Formulation	Study Tour	Mid. 88	1 m/m	USA/Europe	
	*Environmental Tox.	Training	Nov. 87	1 m/m	Japan	In progress
5. Sri Lanka	Analytical Methods	Training	June 86	2 weeks	Austria	Funds used for CIPAC
	*Environmental Tox.	Training	1st./2nd Qr. 88	1 m/m	Japan	UK added
6. Thailand	*Environmental Tox.	Study Tour	1st/2nd Qr. 88	1 m/m	Japan, Austria New Zealand	Request for indepth training.
	Instrumental Analysis (Formulations)	Training	Mid. 88	1 m/m	UK	

7. Pakistan	Analytical Method (Formulations)	Training	June 86	2 weeks	Austria	Funds used for CIPAC
	*Environmental Toxicology	Study tour	1st/2nd Qr. 88	1 m/m	Japan	UK added
8. Philippines	Environmental Impact Assessment	Training(2)	May 88	2 m/m	USA	2 Training with 1 m/m each.
9. Afganistan	Formulation Technology	Training	June 88	1 m/m	India	
	*Environmental Toxicology	Training	1st/2nd Qr. 88	1 m/m	Japan	UK Added
10. China	Biological Screening	Training	Mid. 88	1 m/m	UK	Project management office to find a place
	*Environmental Toxicology	Training	1st/2nd Qr. 88	1 m/m	Japan/UK	

\* Environmental \*Toxicology Training programmes of different countries should be grouped together. Time and Venue to be determined depending on the availability of a place and the Project Management Office to look into this aspect.

## GROUP ACTIVITIES

## TRAINING

Sl.No	No. of Participants	Subject	Type T. Assistance	Proposed Date	Period and Duration	Proposed Venue	Priority	Remarks
1.	10	R&D Formulation	Training	Feb. 87	3 weeks	India	1	Completed
2.	10	Data Collection	Expert Trg.	May 87	1 week	Thailand	1	Completed
3.	15	Harmonization of Registration	Expert consultation	Dec. 86	1 week	Philippines	1	Completed
4.	10	P M C	-do-	July 86	3 days	Philippines	1	Completed
5.	10	Pesticide Residue	Expert Meeting	Oct. 87	1 week	Sri Lanka	1.	Not budgeted.
6.	10	Environmental aspects of production and use of pesticides	Seminar	Aug. 88	1 week	Indonesia	1	
7.	10	P. M. C.	Seminar	Feb. 87	3 days	Indonesia	1	Held in India
8.	12	Quality control (PEST)	Training	Oct./Nov. 87	6 weeks	India	1	Completed
9.	12	Residue (PEST)	Training	Nov. 87	6 weeks	Thailand	1	Completed
10.	12	Quality Control (PEST)	Training	Nov. 88	5 weeks	India	1	
11.	12	Residue (PEST)	Training	Dec. 88	5 weeks	Thailand	1	Reduced to 5 weeks
12.		P.M.C		Oct. 88	3 days	China	1	



Annex V. List of Publications and Reports in Phase I and Phase II

LIST OF REPORTS AND PUBLICATIONS DURING PHASE I

1. Reports on Technical Meetings:
  - A. Experts Group Meeting on Pesticide Data Collection System (March 8-11, 1983; Thailand)
  - B. Regional Consultation on Harmonization of Pesticide Registration Requirements (October 24-29, 1983; Philippines)
  - C. Regional Workshop on Formulation of Pesticides (February 6-10, 1984, India)
  - D. Experts Group Meeting on Quality Control of Pesticides (May 13-17, 1984; Bangladesh)
  - E. Regional Consultation on Trade and Tariff Considerations (August 13-17, 1984; Srilanka)
  - F. Regional Forum on Pesticide Toxicology (April 22-26, 1985; Philippines)
2. Reports on Non-Technical Meetings:
  - A. First Technical Advisory Committee Meeting (November 8-12, 1983; Philippines)
  - B. Second Technical Advisory Committee Meeting (June 27 - July 1, 1984; Indonesia)
  - D. Tripartite Review Committee Meeting (October 29, 1983; Philippines)
3. Reports of Consultants:
  - A. B.B. Watts - Consultant on Registration (One report for each country and Report on Harmonization of Pesticide Registration Requirements in the Region used as background document for meeting)
  - B. R. Amin - Quality Control in Afghanistan
  - C. K. Szabo - R&D Manufacture in Indonesia and Pakistan
  - D. N.K. Pillai - R&D Formulation in Indonesia and Bangladesh
  - E. S.K. Khetan - R&D Formulation in Korea
  - F. M. Khayastha - Packing and Handling in Afghanistan

- G. Dr. Qadri - Toxicology in Korea
- H. J. Snellgrove - Data Processing in Thailand
- 4. Reports of People upon completion of fellowships study tours
- A. N.K. Pillai - Study Tour on Quality Control (regional countries).
- B. Djumarman - Study Tour on Manufacture (Europe and USA)
- C. A.R. Panicker - Study Tour on Manufacture (regional countries)
- D. U.K. Baloch - Study Tour on Toxicology (Europe and USA)
- E. G.S. Sandhu - Study Tour on Trade and Tariff (regional countries)
- 5. Publications Distributed:
  - Rempaf Gazette

LIST OF REPORTS AND PUBLICATIONS DURING PHASE II

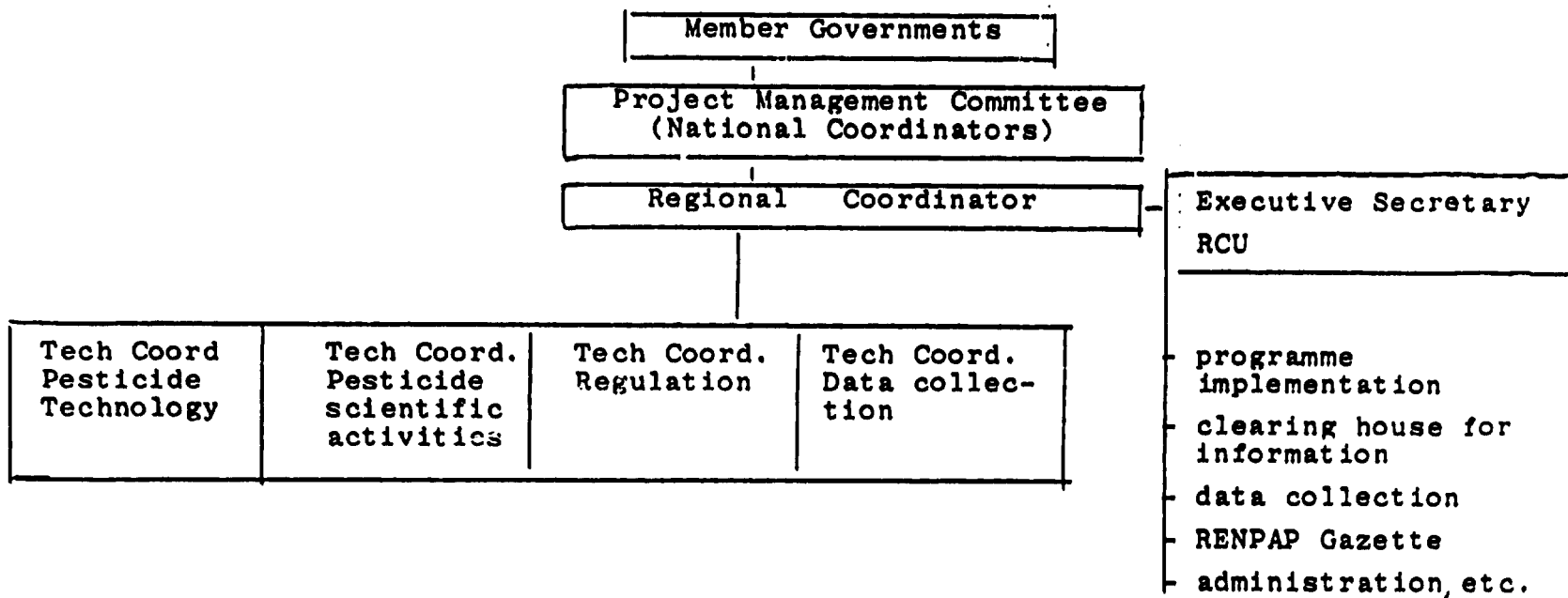
1. Reports of Technical Meetings:

- A. Training Course in Pesticide Residue Analysis  
(November 9 - Dec.11, 1987, Thailand)
- B. Pesticide Formulation Technology  
(March 9/27, 1987, India)
- C. Experts Group Meeting on Data Collection
- D. Regional Consultation on Harmonization of  
Registration Requirements.
- E. Quality Control of Pesticide Formulations  
(October 12 - Nov.13, 1987, India)

2. Reports of Non-technical Meetings

- A. First Project Management Committee Meeting  
(July 1986, Philippines)
- B. Second Project Management Committee  
(December 1987, India)

FLOWCHART VI.1 Proposed Organizational Structure for RENPAP



Explanation to the organizational chart

The Project Management Committee (PMC) is composed of National Coordinators representing the governments of participating countries and is responsible for all the activities of the network. The Regional Coordinator, chosen by the PMC, is responsible for managing the RENPAP program and for implementation of policies and procedures and workplans approved by PMC. The Executive Secretary, Regional Coordination Unit will assist the Regional Coordinator in executing and managing all the programme activities including collection of the pesticide data, publication of RENPAP Gazette and circulation of technical reports, and serve as liaison between the RCU and NCU. The technical coordinators will be responsible for the activities in their respective fields, ...