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**REGIONAL NETWORK ON PESTICIDES FOR ASIA AND THE PACIFIC**

DP/RAS/93/061

**DEVELOPMENT AND USE OF COMPUTER SOFTWARE FOR PESTICIDE MARKET DATA,  
INPUT, STORAGE, RETRIEVAL AND DISSEMINATION**

RAS/90/148

**Technical report: Workshop on Pesticide Data Collection Systems  
Bangkok, September 1994\***

Prepared for the Governments of the Member States of the Regional Network  
(Afghanistan, Bangladesh, People's Republic of China, India, Indonesia, Islamic  
Republic of Iran, Malaysia, Myanmar, Nepal, Pakistan, Philippines,  
Republic of Korea, Sri Lanka, Thailand and Viet Nam)  
by the United Nations Industrial Development Organization,  
acting as executing agency for the United Nations Development Programme

*Based on the work of Y. P. Ramdev, UNIDO national expert*

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\* This document has not been edited.

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## **WORKSHOP ON PESTICIDE DATA COLLECTION SYSTEM SEPTEMBER 9-10, 1994.**

### **INTRODUCTION**

1. The Workshop on Pesticide Data Collection Systems organized by United Nations Industrial Development Organization (UNIDO) and Regional Network on Pesticides for Asia and the Pacific (RENAP) was held at the ESCAP UN Conference Center, Bangkok on September 9-10, 1994.
2. The Workshop was attended by members from 14 countries of the Network viz. Bangladesh, PR China, India, Indonesia, Iran, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Republic of Korea, Sri Lanka, Thailand and Vietnam. Delegates from Afghanistan could not attend the Workshop. Delegates representing the member countries were all designated National Data Collection Experts appointed under the project. The list of participants is attached as Annexure I.
3. Delegates also attended ESCAP/EU Regional Workshop of the Database on Pesticides and the Environment, which preceded the UNIDO/RENAP Workshop from September 6-8, 1994 on the suggestion of CIRAD, France.
4. The Workshop was in pursuance of one of the recommendations made by the Project Management Committee at its meeting held in Delhi from October 6-8, 1993 and also of the recommendations of UNIDO International Expert Dr. F. d'Hauteville (Mission Report April, 1992) and of the recommendation of the expert team of Mr. Jourdain, Dr. Ramdev and Mrs. Chutima Ratanasatien (Report January, 1994)
5. The Workshop objectives were:
  - to train the participants on methodology of data collection.
  - to train the participants on computer software installation and usage for Index Database activity;
  - to introduce to the participants the computer software for Economic Database activity;
  - to discuss the major difficulties in data collection;
  - to review the index data collection status in member countries and to decide upon calendar activity for Economic Data Collection.

## II. OPENING OF THE MEETING

Dr. S P Dhua, Regional Coordinator (RENPAP) extended welcome to delegates from the member countries and the representatives from ESCAP, CIRAD and UNIDO. He briefly outlined the FARM programme and mentioned that RENPAP has become a sub-programme under the FARM programme umbrella of UNDP. He said that the Data Collection Programme of RENPAP started way back in the early 80s and has been an integral part of the network activities because the availability of authentic/dependable data is very important for pesticide developmental activities in the region. The need for a sound data base has gained further momentum after the Bhopal disaster in India and Basel disaster in Switzerland resulting in significant realization of protecting the environment from the hazardous, persistent and toxic pesticides. The data base is important as from this it is possible to advise the member countries to switch over from the existing persistent and toxic ones to safer varieties of pesticides which are user and environment friendly. In this context RENPAP pays high priority in the strengthening and maintenance of the data base

Realizing the importance, need and the competence of RENPAP, Govt. of France/ CIRAD offered financial and technical support to the data collection activities/programme of the RENPAP. With this the programme gained further momentum with the financial support of the Government of France. Much of the recent efforts, he said, have gone into the integration of the data base of RENPAP and ESCAP/ARSAP as envisaged under the French Government supported programme and as one of the activities, the Data Collection Experts of RENPAP have attended ESCAP/EU Regional workshop held from 6-8 September, 1994 in Bangkok.

This training workshop of RENPAP, he said, is the first of its kind to provide training to the designated Data Collection Experts of the member countries. This training, he mentioned, would give further momentum to the data collection activities of RENPAP programme. RENPAP he said, is looking forward to have a joint project ( which was drafted by RENPAP and discussed with representatives from ESCAP/ARSAP and CIRAD ) with ESCAP/ARSAP for Pesticide Database for its new phase so that the limited financial resources could be utilized for the maximum benefit of the member countries of the network.

Delivering the inaugural address Ms. Meena Patel, Officer Incharge, Rural and Urban Development Division, ESCAP emphasised the need for a dependable data base on pesticides for meeting the requirements of the member countries of the Asia and the Pacific Region. She stated that the ESCAP/ARSAP has been working to build up a data base on Pesticides and the Environment with five countries namely Brunei Darussalam, Indonesia, Philippines, Singapore and Thailand of the Asia and the Pacific Region. She also mentioned that RENPAP/UNIDO and ARSAP/ESCAP had been working together for establishing and updating the pesticide index data base and the economic data base and also to integrate these two database for the greater benefit of the member

countries of the network. She strongly supported a coordinated approach between RENPAP/UNIDO and the ESCAP/ARSAP for expanding the database covering the industrial, economic, environmental and usage aspects of pesticides in the Asia and the Pacific Region.

Mr. J P L Deuse from CIRAD, France in his opening address briefed the meeting about the activities and involvements of the Center for International Cooperation in Agricultural Research for Development (CIRAD) in the field of crop protection. He stated that top priority has been given by CIRAD to Integrated Pest Management, which reduces losses caused by pests to economically acceptable levels, hence reducing pesticide use, and the creation of parasite resistant transgenic plants. In the field of pesticides he said that the major objective of CIRAD is to promote any action with a view to improve the safe use of pesticides. He mentioned that RENPAP can play an important role in the collection of scientific data on the use of pesticides in the region in view to arrive at a consensus with the active ecologist group in Asia. This data collection activity of RENPAP is one of the important steps in the implementation of IPM programmes in the region.

The Chief, Agro Chemical Industries Unit, Chemical Industries Branch, UNIDO, Vienna on behalf of the Director-General of UNIDO, Mr. Mauricio de Maria Y Campos welcomed the representatives from ESCAP, CIRAD, RENPAP and participants from the member countries. He stated that this Workshop on Pesticide Data Collection Systems is mainly intended to give hands on training to RENPAP data collection experts on the use of index data and introducing them to the economic data software developed with the assistance of Prof. F. d'Hauteville. He thanked ESCAP for providing their excellent conference facilities for the workshop. He mentioned UNIDO has been collecting economic data from 1982 and we are introducing this new software for linking and harmonizing the data collection process by the RENPAP/ESCAP network.

On the remarks of the H.E. the French Ambassador to Thailand for better coordination between Executing Agencies, avoiding duplication and being economical in utilizing resources, Dr. Sugavanam assured to H.E. the French Ambassador that cooperation between UNIDO and ESCAP is deep-rooted and obviously like any programme execution, we do agree to disagree on some issues. Regarding duplication, he said as far as data are concerned, there is no duplication at all. We have a clear understanding, but there might be a few duplication of the hardware in one or two countries. With regard to being prudent or economical, he stressed that UNIDO's three meetings in Bangkok almost 'back to back' was specially arranged to save money. In that we are getting Dr. Dhua's valuable services free of charge to the project and expenses of the some of the participants are shared.

He said that this training would be the first step to bring all the RENPAP countries. He acknowledged with thanks the services of Dr. Ramdev and Mrs. Chutima Ratanasatien for making the workshop a success. He thanked Mr. Jourdain for assisting

RENAP and ARSAP. He wished to thank Prof. d'Hauteville for his help in the development of data software.

His special thanks were also due to Dr. Dhua who has been the link between the RENAP and ESCAP and catalyzed the support of the French Government. He also thanked the Government of France for extending their financial support to this project.

He specially requested Mr. Deuse to convey to H.E. the French Ambassador in Thailand that the cooperation between UNIDO and ESCAP is deep-rooted and assured him that there is no duplication of data collected.

### **III. ELECTION OF OFFICERS**

The Workshop unanimously elected Mr. Byung Youl Oh of Republic of Korea as Chairman, Mrs. Chutima Ratanasatien of Thailand as Vice Chairperson and Mr. Mohammad Mushtaque of Pakistan as Rapporteur.

### **IV: ADOPTION OF THE AGENDA**

The Workshop adopted the Agenda as presented in Annexure II.

### **V. TECHNICAL SESSIONS**

Technical sessions were conducted in The PC Center of ESCAP on September 9, 1994. Hands on training was given to all the participants during the entire period of technical session.

#### **1. Data Collection Guidelines for Phase I (Index Database)**

This part was taken up by Dr. Y P Ramdev who holds the responsibility of Central Coordinating Unit, Delhi. Data Collection formats finalised by RENAP in consultation with UNIDO International Experts were presented and a complete demonstration was given on the various parameters of the Index Data formats. A total of 7 new formats were discussed in detail. Guidelines for filling up of these formats were provided to all the participants.

#### **2. Software installation.**

A demonstration was given by Mr. D. Jourdain for the installation of Phase I (Index Data) software. Hand outs were also provided to the participants for proper installation of software in their country. Diskette having Phase I Data Entry software were provided to each participants for installation in their respective countries.

### **3. Software usage**

For entry of index data on to the computer through the RENPAP developed software, hands on training was given jointly by M. Jourdain, Dr. Ramdev and Mrs. Chutima Ratanasatien. Sufficient time was provided to the participants to practice on the new RENPAP software.

### **4. Data Collection Guidelines for Phase II (Economic Database)**

This was taken up by Mr. D. Jourdain. Economic Data Collection formats, covering import, export, production, usage, crop coverage, retail prices as finalised by RENPAP in consultation with UNIDO International Expert, Dr. F. d'Hauteville of CIRAD, were presented and a complete demonstration was given about the various parameters/ information needed in the various formats. Guidelines for filling up of the 28 new formats of the economic data were provided to all the participants.

### **5. Software Installation for Phase II (Economic Data)**

Data entry Phase II (Economic Data) software alongwith hand outs for installation of software were provided to the participants. A demonstration was given for installation of the same onto the computer having complete index data in the Phase I software.

## **VI. COUNTRY REPORTS**

Country papers highlighting the status of Index Data collection activities were presented by the delegates. Summary of the papers are presented below :

### **Bangladesh**

The Pesticide market in Bangladesh is valued at about US\$ 30 million. It is basically dominated by insecticides (75%), followed by fungicide (10%), herbicide (5%) and other (5%). There are 75 pesticides under 258 trade names are used in the country. Common formulations are EC, WSC, WP, GR Dust and ULV. About 50 pesticide firms are operating in the country. The import, manufacture, formulation, repacking, storage, sale, distribution and use of pesticides are controlled through the implementation of the Pesticide Ordinance, 1971 and the Pesticides Rules, 1985 framed under the provisions of the Pesticide Ordinance.

Pesticides consumption is approx. 7100 MT of formulation products of which 50% are locally produced. Malathion, fenitrothion, diazinon, carbofuran, phosphamidon, dimethoate, mancozeb, paraquat, dichlorovos are the key pesticides used in the country. Pesticide data like list of registered pesticides with common name, crop target, pest/ disease, etc. and consumption (on annual basis) are collected at the National level. However, there is no centralised computer base databank available in the country.



RENAP data collection activity could not be started because of proper technical training on data collection system.

### **China**

Agriculture occupies a position of strategic importance in the national economy of China. Rice, wheat and xerophilous cereal crops, cotton and oil crops, vegetables are the major crops in China. Rice plant hopper, rice borer, wheat aphids, bollworm, cotton aphids are the major insect pests. Among the diseases, blast of rice, powdery mildew, scale of wheat are the major ones.

At present, China is one of the biggest pesticide producer and consumers in the world. With the policy of reform and opening up to the outside world, agrochemical industry in China has grown up very fast. Annual output presently is around 260,000 MT which keeps China in second place in the world. Methamidophos, parathion, methyl parathion, monocrotophos, phoxim, trichlorophos, carbofuran, isoprocarb, dicofol, copper sulphate, methyl thiophanate, mancozeb, chlorothalonil, butachlor, atrazine, glyphosate are some of the major pesticides in the country. Insecticides occupy 77% share in pesticide market. Around 505 formulated products produced locally by 895 plants are available in the Chinese market. In recent years, there is a sharp increase in the mixed products in domestic pesticide production.

Mrs. Huang Yunxian, participant from China, stated that effective use and good management of pesticide is important and is an arduous task in China. Establishing pesticide data collection system and the database will be of benefit for the proper use of pesticides.

### **Indonesia**

Pesticide Database in Indonesia has been initiated with the assistance of RENPAP/UNIDO. Index data collection activity has been started by the designated National Data Collection Expert appointed under the project. Sufficient data have been collected covering companies name, active ingredients, commercial products and important crops. As such, a database of this kind is very useful to the country.

### **Iran**

At present, all pesticide requirements for agriculture and public health programmes are met through import. Only a part of the formulated products are produced locally through imported technical grade material. As such, there is no data collection/compilation system available at the National level. Difficulties in data collection is due to non-availability of proper documentation, non-availability of data from the producing companies and lack of technically experienced personnel in data collection activities. The country delegate requested that an expert from RENPAP be sent to Iran for advising them in data collection and computerization of the databank.

## **Malaysia**

Index Data collection work has been completed and some of it has been entered onto the computer also. Data on active ingredients and commercial products are obtained from 'Registered Pesticide Book' published annually by Pesticides Board of Malaysia. Data on pests, diseases, weeds and crops were obtained from published books and publications from Deptt. of Agriculture of Malaysia. So far data collected is as follows :

Firms/companies, etc.	151 sheets
Active ingredients.	234 sheets
Commercial products.	1600 sheets
Pests including insects, diseases and weeds.	312 sheets

With regard to the economic data collection, major constraint is to get detailed information / data on quantity of individual pesticide manufactured and imported.

With the use of RENPAP computer database, the programme of data collection activity would be speeded up.

## **Myanmar**

Pesticide demand of Myanmar is met through the import of both technical and formulated pesticides. A formulation plant has been set up in the country with the assistance of UNDP/UNIDO and some quantities of EC formulations are being produced locally. Botanical pesticides especially neem are also given importance in IPM programme in Myanmar. With regard to the pesticide data collection work, as such no organised work is being carried out at national level. RENPAP networking could improve the data collection activity in the country. However, some index data covering registered pesticides in Myanmar and the list of major pests and diseases in Myanmar was presented.

With proper training and technical assistance, data could be compiled and stored in RENPAP databank.

## **Nepal**

The agricultural pesticide market in Nepal is relatively small. About 1000 MT of pesticides are being used annually both in agriculture and public health programmes. Pesticide demand is met through import of pesticides. There is only one formulating plant in the country which produces dust and EC. Pesticides Act 1991 and Pesticide Regulations 1994 has been enforced in the country since July 16, 1994. Data on

commercial products, important pests and diseases were presented. A strong need was felt for technical assistance in establishing a database for RENPAP data collection activities.

### **Pakistan**

There are about 202 different pesticides registered in the country. About 27 pesticide firms operating in Pakistan are dealing in about 600 different brands of pesticides registered for use/application in pest control activities in the country. Out of 22 registered formulations, 11 formulations, namely, dustable powder, emulsifiable concentrate, bait, suspension concentrate, water soluble granules, soluble concentrate, water soluble powder, ultra low volume liquid, water dispersible granules, wettable powder and water dispersible powder for slurry treatments are the most common formulations used by the farmers. Potential data sources are Pakistan Agricultural Pesticides Association, Pesticide Research Lab., Ministry of Food, Agri. & Livestock, Federation Deptt. of Plant Protection, Plant Protection Institute, Provincial Ministries of Food & Agriculture and Pesticides firm. Data is collected basically through personal visit and documentation search of official departments.

Index data collection work has been initiated and some data covering firms, active ingredients, crop and diseases have been collected. More data would be collected and entered on to the computer for the databank.

Lack of technical skill in computer and non-availability of relevant documents are some of the constraints in data collection work.

### **Philippines**

The Fertilizer and Pesticide Authority (FPA) is the nodal agency which collect, process and disseminate the pesticide data. The data collected by FPA include the followings : list of active ingredients, list of formulations, registered crop/pest/dosages, banned and restricted pesticides, toxicity categories of registered products, list of pesticide handlers i.e., operating companies (including importers, distributors, formulators, etc.), production data including plant capacities and actual output. Besides FPA, other potential sources of data availability are the pesticide industry, the academe, research institutions and other Govt. agencies. There are about 132 firms operating in the country. FPA has registered 279 a.i. (including 54 household) and 474 formulated products (incl. 95 household). Insecticides constitute 50%, herbicides 22%, fungicides 18% and others 10%. Delay in appointment of National Data Collection expert, delay in the acquisition of the hardware and legal constraints in the release of import information on a per product basis were some of the constraints in RENPAP data collection work. Familiarity with the RENPAP software programme and proper training would definitely improve the data collection work.

### **Republic of Korea**

Pesticide data collection in Korea is jointly handled by the Ministry of Forestry and Fisheries (MAFF), Agricultural Chemicals Research Institute (ACRI), Rural Development Administration (RDA) and Korea Agricultural Chemicals Industrial Association (KACIA). KACIA collects and compiles data on pesticide production, distribution, list of commercial products with target pests, crops, manufacturers, etc.

Sufficient index data has been collected. Basic data on 22 companies producing technical and formulated products has been collected. There are about 290 active ingredients registered in the country. As such, data is available and stored in a format different from RENPAP format. Data could be compiled as per RENPAP format and stored on to the RENPAP software without much difficulties.

### **Sri Lanka**

Registrar of Pesticides, Custom Department and Census and Statistics Department are the major sources for data collection in Sri Lanka. There are 10 agro-pesticide firms operating in the country. Around 605 technical and commercial products with 138 active ingredients are registered with Registrar of Pesticides in Sri Lanka. Basic data is collected from the pesticide firms by the Registrar of Pesticides which is then compiled for databank. Some of the detailed information is not being released because of trade competitions amongst the pesticide firms. Data collected at National level could be easily formatted for RENPAP software.

### **Thailand**

Department of Agriculture, Bangkok is responsible for collection, storage and dissemination of pesticide data at the National level. Index data collection activities comprising data collection, filling in the data on new formats and entry onto the computer software has been completed. National Data Collection expert, assumes the responsibility of Regional Databases Coordinator also and has been coordinating the RENPAP data collection activity. Index Data collected covers active ingredients, commercial pests, firms, import crops, important pests, weeds and diseases. Economic data collection work is in progress and the same would be completed soon and entered onto the RENPAP Economic data software.

Problem encountered:- Printing facilities for data entered.

### **Vietnam**

Vietnam's database on the status of trading and pesticide is maintained by the National Institute of Plant Protection (NIPP). The data, stored however, is of very preliminary type. Data collection is generally based on surveys. There are 127 active ingredients with 267 trade names of pesticides permitted for use in Vietnam. Emulsi-

fiable concentrate, wettable powder, suspension concentrate, granule and water soluble powder are the major formulations registered in the country.

Major constraints in data collection are :

i) Pesticide companies do not like to provide data like quantity of pesticide sold, price, etc.

ii) Since most of the pesticides are imported in the country and sold in the free market without any control of Government, reliable data is difficult to obtain.

National databank is generally used to advise the farmers on proper use of pesticides.

## **India**

Software developed for both Phase I (Index database) and Phase II (Economic Database) activity has been installed at the Regional Database Center (RDC), Delhi. Work has been started with the collection of index data. Practically, no index data for India was available on ARSAP file. Thus data collection work for India was started from a zero level involving lot of additional base work. Index data collection work was initiated with the identification of sources of information like manufacturers, formulations, governmental agencies, etc. Seven data formats for Index data, finalised in consultation with International experts, was circulated to the concerned pesticide industry/associations in India with the request to furnish the information for creation of a database. Data collection method also involves missions, library search by consulting various published literature, journals, etc., liaison with Governmental agencies and various pesticide associations in the country.

For India, large volume of data sheets have been processed and entered in the database by the Regional Database Coordinator, Delhi (National Expert, India). Summary of the work completed so far on index data collection for India is presented below:

### **I. Index data collection and processing onto the new formats**

1. Data origin, firms, etc.	480 sheets
2. Active ingredients.	210 sheets
3. Commercial products	3740 sheets
4. Insect Pest Data sheet.	2200 sheets
5. Disease Data sheet.	
6. Nematode Data sheet.	
7. Weed data sheet	
8. Crop Data sheet.	244 sheets.

## II. Index Data Entry

1. Data origin, firms, etc.	480 entries.
2. Active ingredients.	210 entries.
3. Commercial products.	3740 entries.
4. Insect pest data sheet.	2200 entries
5. Disease Data sheet.	
6. Nematode Data sheet.	
7. Weed data sheet.	
8. Crop data sheets.	244 entries.

Economic data collection work (Phase II activities) has been initiated for India and the same would be completed soon.

Problem encountered :- Printing facilities for the data entered.

National Expert(India) also assumes the responsibility of Regional Database Coordinator, Delhi and coordinated the data collection activities in the sub region member countries. Accordingly, new formats for index data alongwith print out of ARSAP file had been provided to all the member countries for undertaking Phase I activities of the project in their respective country. Malaysia, China, Pakistan (to some extent) have sent the duly filled in Index data formats to the Coordinating Center, Delhi.

### Finalisation of new formats for Economic Data Collection

National Expert, India in consultation with UNIDO International Expert in Economics (Dr.F.d'Hauteville) made refinements in the existing 5 formats and finalised 28 new formats for collection of economic data on import, export and local production of technical grade and formulated pesticides, usage of pesticide in public health and non-agricultural sectors, retail prices and crop coverage analysis. During the last Project Management Committee meeting of the RENPAP held in Delhi during 6-8 October, 1993, member country delegates were provided with these new formats and the importance for the collection of various information asked for in different formats was explained.

## VII. PRESENTATION OF PESTICIDE INDEX DATA : DEMONSTRATION OF THE COMPUTERIZED PESTICIDE INDEX DATABASE OF RENPAP

The structure and use of the pesticide index base, storing data on active ingredients, commercial products, firms, list of data origin, important crops, major insect pests, diseases, weeds, etc. for India was explained and demonstrated by Dr. Y P Ramdev, National Expert, India.

Database included information on 210 active ingredients, 3740 commercial products, 2200 pests, 224 crops and 480 firms and data origin sources. This database would become a strong reference base for storing and using economic data.

User friendliness of the software was highlighted during demonstration for easy operation and maintenance of RENPAP database.

### **VIII. PARTICIPATION OF RENPAP IN ESCAP MEETING**

Member country delegates alongwith Dr. Dhua, Regional Coordinator, RENPAP and the Chief, Agro Industries Unit, UNIDO attended ESCAP/EU Regional Workshop of the Database on Pesticides and the Environment as advised by Mr. J P L Deuse of CIRAD, France.

The representative from UNIDO in his opening statement expressed the wish that the fruitful cooperation between ESCAP and UNIDO through its Regional Network on Pesticides in Asia and the Pacific (RENPAP) would continue and would be enlarged.

Dr. Dhua briefly explained the FARM concept of UNDP of bringing more than one UN agencies into a single umbrella for better coordination of the activities for the development at Regional level. He mentioned that economic database existed in RENPAP since the inception of RENPAP i.e. from 1982 and at present it has a network in 15 member countries of Asia and the Pacific. With the assistance of Govt. of France and CIRAD, RENPAP is upgrading its database.

Dr. Ramdev gave an overview of the organization of data collection activities of RENPAP and briefly explained about the various formats and software developed for Index Database as well as for Economic database.

Dr. F. d'Hauteville who served as UNIDO International Expert for RENPAP reported on the guidelines on the collection of Economic Data for the pesticides databank. He explained the basic criteria for the collection of the authentic data. He also strongly emphasized that unlike the other types of data on pesticides, economic data require regular updating and thus need more dedication to collect on a continuous basis. Thus, he said, maintaining an economic databank is a continuous process for keeping it more meaningful to the member Governments, planners, policy makers, industries, etc. Presentation of Dr.d'Hauteville is attached as Annexure III.

### **IX. DIFFICULTIES IN DATA COLLECTION - RESUME AND CONCLUSIONS**

Dr. d'Hauteville made an exhaustive presentation on RENPAP Economic database and explained the various components of data collection and data users. He

emphasized that collectors should provide extensive, consistent, accurate, timely and relevant information to the databank so that economic data could be processed, stored and disseminated in a more comprehensive manner. He also stressed on the methodology of data collection to be followed especially for retail price of pesticides. Sources and methods used to obtain retail prices would have to be indicated in the formats.

Mr. Jourdain emphasized that experts be available in the region to solve specific problem of National experts of member countries and a calendar of activities be formulated to meet the deadline.

To meet the deadline, various member countries requested technical assistance from RENPAP Secretariat for the completion of data collection work.

## X. CONCLUSION AND RECOMMENDATIONS

1. Having taken into consideration the importance of ESCAP/EU and UNIDO/RENPAP databases, having noted the deliberations and recommendations of the ESCAP/EU meeting of the data collection and further taking into consideration the large number of countries in RENPAP and different levels of their competence and facilities, the workshop recommended:

to divide the RENPAP member countries to meet the deadline of December 15, 1994

Group 1 (Index and Economic Data)	Group 2 (Index Data)	Group 3
INDIA	(MALAYSIA)	VIETNAM
THAILAND	BANGLADESH	NEPAL
S.KOREA	MYANMAR	(IRAN)
PHILIPPINES	CHINA	AFGHANISTAN
INDONESIA	SRI LANKA	
PAKISTAN		

2. Having recognised the complexities, difficulties and problems associated with economic data collection and noted additional hardware, human and financial resources that are needed, the meeting recommended:

that both UNIDO and the respective governments to provide:

- additional computer facilities,
- travel facilities,



- direct assistance from RENPAP/RDC in Delhi and Thailand to the participating countries according to priority needs.

3. Having recognised the availability of information in the member countries for the years 1991, 1992 and 1993 and having realised the value of publicising the data without any further loss of time the meeting recommended that:

the existing data be utilised for filling into the RENPAP formats of economic data.

4. The meeting recommended

that National expert to collect the data as required by UNIDO/RENPAP and do not release those sensitive data to UNIDO/RENPAP until such time the clearance is obtained from the respective governments.

## **XI. EVALUATION OF THE WORKSHOP**

The participants were asked to complete their evaluation on the UNIDO formatted questionnaire. The participants evaluated the training workshop as quite adequate. Workshop has given training to a sufficient large extent to the participants. They have been benefitted professionally to a great extent. However, there was a common feeling that duration of the workshop was too short.

**WORKSHOP ON PESTICIDE DATA COLLECTION SYSTEM**

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**WORKSHOP ON PESTICIDE DATA COLLECTION SYSTEMS**

**organised by**

**UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANISATION  
(UNIDO)**

**and**

**REGIONAL NETWORK ON PESTICIDES FOR ASIA AND THE PACIFIC  
(RENAP)**

**Venue : United Nations Conference Centre, Bangkok  
9-10 September 1994**

**Programme**

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**Friday, 9 September, 1994**

0745 - 0800	Registration
0800 - 0845	Opening of the Workshop - Inaugural address RENAP ; ESCAP ; CIRAD ; UNIDO
0845 - 0900	Election of Chairperson, Vice- Chairperson and Rapporteur
	Adoption of Agenda
0900 - 1015	Technical Session
	- Data Collection Guidelines (Phase I)
1015 - 1030	Coffee break
1030 - 1230	Technical Session
	- Software Installation
	- Software usage :
	Firms / Data origin
	Active ingredients

- Computer exercises
- 1230 - 1330 Lunch break
- 1330 - 1630 Technical Session
  - Software usage :
  - Crops
  - Pests/Disease/Weeds
  - Computer exercises
  - Data Collection Guidelines (Phase II)

**Saturday, 10 September, 1994**

- 0830 - 1000 Country Paper presentation
  - Bangladesh
  - China
  - Indonesia
  - Republic of Iran
  - Malaysia
  - Myanmar
  - Nepal
- 1000 - 1015 Coffee break
- 1015 - 1300 Country Paper presentation
  - Pakistan
  - Philippines
  - Republic of Korea
  - Srilanka
  - Thailand
  - Vietnam
  - India
- 1300 - 1400 Lunch break
- 1400 - 1530 Difficulties in data collection -
  - Resume and conclusions
- 1530 - 1600 Recommendations and discussion of draft report
- 1600 - 1630 Closing remarks

**Pesticides data bank**

**Guidelines and Data collection forms for economic data**

Presented by:

**Dr. F. d'Hauteville**

Senior Lecturer

Dept. of Agro-Economics and Business Management

ENSA Montpellier

France

During the ESCAP/EU Workshop of the Database on Pesticides and the Environment, Bangkok, 6-8 September 1994



- 22 -  
**Pesticides data bank:  
Guidelines and data collection forms for economic data**

**General structure and content of database**

The database will contain 3 sets of economic data:

- macro economic data;
- micro economic data; and
- crop coverage data.

**Macro economic data**

Will provide an estimate of apparent consumption for 4 categories of pesticides:

- insecticides;
- fungicides;
- herbicides; and
- others.

Each category will regroup products designated in the code index attached to the input table sheets. Apparent consumption will be a calculated figure from the following formula:

$$\text{SUPPLY} - \text{EXPORT} = \text{APPARENT CONSUMPTION}$$

with:

$$\text{SUPPLY} = \text{IMPORTS} + \text{LOCAL PRODUCTION}$$

Apparent consumption can be obtained for formulated products as well as technical grade.

**Micro economic data**

Consists mainly in price information (price range and average) obtained at retail (price paid by end user or "farmers gate price").

**Crop coverage**

Provides information on total country coverage dedicated to agriculture and forestry as well as most important crops acreage.

**Data collection guidelines**

Data collection is designed so that it can be included in the PENPAP/CIRAD database, according to procedures previously agreed on by the participants during phase 1.

Therefore, it is necessary to design new collection data sheets for those countries who do not process the data into the computer, and an users guide for computer users.

The total number of input table sheet is 28. Collection data sheets are very comparable to those which have been in use in the past. The changes that have been made are essentially to introduce code numbers for computer data processing purposes.

The collection data sheet also includes a complementary questionnaire for analytical data information, such as, for instance, a description of pesticide use on different crops or pests, marketing margins, subsidy system, price sampling method, etc. This additional information will complement the information provided by the processing of data from the database.

#### List of data to be collected

##### \* *Imports of formulated pesticides* (tables 1A to 1D)

For each category (insecticides, fungicides, herbicides, others):

1. Common name
2. Index code of product
3. Concentration
4. Type (GIFAP code)
5. Total quantity of formulated products in MT/KL
6. C.i.f. value in local currency

##### \* *Exports of formulated pesticides* (tables 2A to 2D)

Same information as above, with f.o.b. value for exports.

##### \* *Imports of technical grade* (tables 3A to 3D)

For each product category:

1. Common name
2. Index code
3. Type
4. Minimum purity
5. Quantity imported (MT/KL)
6. C.i.f. value in local currency

##### \* *Exports of technical grade* (tables 4A to 4D)

Same information as above, with f.o.b. value for exports.

\* *Local manufacture of formulated pesticides (tables 5A to 5D)*

1. Common name
2. Index code
3. Concentration
4. Type (GIFAP code)
5. Quantity (MT/KL)
6. Total annual capacity (MT/KL)

\* *Formulation type for pesticides - capacity and actual output (table 6)*

For each category of product:

1. Insecticides
2. Fungicides
3. Herbicides
4. Others

and,

for each of the following categories of formulation types: Granules (GR), Dust (DP), Wettable Powder (WP), Suspension Concentrate (EC), Ultra Low Volume (UL), others:

1. Annual capacity (MT/KL)
2. Actual production (MT/KL)

\* *Local manufacture of technical grade material (tables 7A to 7D)*

For each category of product:

1. Common name
2. Index code
3. Concentration
4. Type
5. Minimum purity
6. Actual production (MT/KL)
7. Production capacity (MT/KL)

\* *Quantities of pesticide formulation used in non-agricultural sectors (table 8)*

For some of the most used pesticides:

1. Common name
2. Index code
3. Concentration
4. Type
5. Quantities used in public health (MT/KL)
6. Quantities used in other non-agricultural sectors (MT/KL)

\* *Retail price* (table 9)

For a range of selected products agreed on by the participants (about 18 products):

1. Common name
2. Concentration
3. Type (GIFAP code)
4. Lower retail unit price (in local currency)
5. Higher retail unit price (in local currency)
6. Average retail unit price (in local currency)
7. Is price subsidized (yes/no answer)

\* *Crop acreage* (table 10)

1. Geographical area of the country
2. Total land area devoted to agriculture
3. Total land area devoted to forestry
4. Major crop area (from BAYER code index)

Note: All local currency value will be converted by the central data collectors in USD with the conversion estimates to be found in the World Bank's "International Financial Statistical Year Book". This procedure will ensure better consistency and comparisons between local situations.

**Instructions for input data**

1. Note carefully date of data sheet completion, country, annual period referred to, authors name.
2. For each sheet, give indications on original source of data as required at the bottom of the sheet. For detail price sheet (table 9), information on price collection method is required.
3. Make sure that all codes are entered. This is essential for further data processing (see point 4) and to ensure consistency of data among all countries.
4. Common name = enter data in alphabetical order.
5. Volume = indicate volume in MT or KL according to product. In doing so, you will add up MT and KL at the bottom of the column, but this will be only a rough estimate of volume. Just remember that the database processing system will convert KL into MT, by using product code and concentration data.

6. \* Value export figures should be expressed "c.i.f." (cost insurance freight). Import figures should be recorded as "f.o.b." (free on board) according to standard international practices.

\* All values should be expressed in local currencies in the same way they are normally recorded by official authorities. Just remember that the database processing system will take care of conversion in USD. If it is normal local practice for a country to issue only USD input/export price, then you will consider that USD can be considered as "local currency".

7. Table 6 = formulation types of pesticides.

Make sure that sum figures of columns 3 to 10 in table 6 are equal to total figure of column 5 and 6 for each corresponding pesticide tables 5a, 5b, 5c and 5d.

8. Table 9 = retail price ("farmers gate price").

\* Whenever possible, indicate price range estimate from lowest to highest price. If not applicable, indicate only average price.

\* Specify retail price sources and collection methods at the bottom of the sheet, and on complementary analytical questionnaire.

9. Table 10 = refer to bayer code index to specify major crops in each group. Note that BAYER code index is also used for the entry of pesticides database.

Date: \_\_\_\_\_  
Country: \_\_\_\_\_  
Year: \_\_\_\_\_  
Prepared by: \_\_\_\_\_

Table 1(A) IMPORTS OF FORMULATED PRODUCTS : *INSECTICIDES*

COMMON NAME 1	CODE <sup>*</sup> 2	CONCENTRATION 3	TYPE <sup>**</sup> 4	IMPORTED VOLUMES (MT or KL) 5	IMPORTED CIF VALUE (Local Currency) 6
<b>ESTIMATED TOTAL<sup>***</sup></b>					

(\*) Chemical class Code See Appendix 1  
(\*\*) Type Codes See Appendix 2  
(\*\*\*) For first estimation purpose: 1lt = 1kg







Date: \_\_\_\_\_  
Country: \_\_\_\_\_  
Year: \_\_\_\_\_  
Prepared by: \_\_\_\_\_

Table 1(D) IMPORTS OF FORMULATED PRODUCTS : OTHERS

COMMON NAME 1	CODE <sup>*</sup> 2	CONCENTRATION 3	TYPE <sup>**</sup> 4	IMPORTED VOLUMES (MT or KL) 5	IMPORTED CIF VALUE (Local Currency) 6
ESTIMATED TOTAL <sup>***</sup>					

(\*) Chemical class Code See Appendix 1  
(\*\*) Type Codes See Appendix 2  
(\*\*\*) For first estimation purpose: 1L = 1kg

DATA SOURCES (Ex. Customs ...)

Date: \_\_\_\_\_  
Country: \_\_\_\_\_  
Year: \_\_\_\_\_  
Prepared by: \_\_\_\_\_

Table 2(A) EXPORTS OF FORMULATED PRODUCTS : *INSECTICIDES*

COMMON NAME 1	CODE <sup>*</sup> 2	CONCENTRATION 3	TYPE <sup>**</sup> 4	EXPORTED VOLUMES (MT or KL) 5	EXPORTED FOB VALUE (Local Currency) 6
ESTIMATED TOTAL <sup>**</sup>					

(\*) Chemical class Code See Appendix 1  
(\*\*) Type Codes See Appendix 2  
(\*\*\*) For first estimation purpose: 1R = 1kg

Date: \_\_\_\_\_  
Country: \_\_\_\_\_  
Year: \_\_\_\_\_  
Prepared by: \_\_\_\_\_

Table 2(B) EXPORTS OF FORMULATED PRODUCTS : *FUNGICIDES*

COMMON NAME 1	CODE <sup>(*)</sup> 2	CONCENTRATION 3	TYPE <sup>(**)</sup> 4	EXPORTED VOLUMES (MT or KL) 5	EXPORTED FOB VALUE (Local Currency) 6
ESTIMATED TOTAL <sup>(***)</sup>					

(\*) Chemical class Code See Appendix 1  
(\*\*) Type Codes See Appendix 2  
(\*\*\*) For first estimation purpose: 1lt = 1kg

DATA SOURCES (Ex. Customs ...)

Date: \_\_\_\_\_  
Country: \_\_\_\_\_  
Year: \_\_\_\_\_  
Prepared by: \_\_\_\_\_

Table 2(C) EXPORTS OF FORMULATED PRODUCTS : *HERBICIDES*

COMMON NAME 1	CODE <sup>*</sup> 2	CONCENTRATION 3	TYPE <sup>**</sup> 4	EXPORTED VOLUMES (MT or KL) 5	EXPORTED FOB VALUE (Local Currency) 6
				<b>ESTIMATED TOTAL<sup>***</sup></b>	

(\*) Chemical class Code See Appendix 1  
(\*\*) Type Codes See Appendix 2  
(\*\*\*) For first estimation purpose: 1kl = 1kg

DATA SOURCES (Ex. Customs ...)

Date: \_\_\_\_\_

Country: \_\_\_\_\_

Year: \_\_\_\_\_

Prepared by: \_\_\_\_\_

Table 2(D) EXPORTS OF FORMULATED PRODUCTS : *OTHERS*

COMMON NAME  1	CODE <sup>*</sup>  2	CONCENTRATION  3	TYPE <sup>**</sup>  4	EXPORTED VOLUMES (MT or KL) 5	EXPORTED FOB VALUE (Local Currency) 6
<b>ESTIMATED TOTAL<sup>***</sup></b>					

(\*) Chemical class Code See Appendix 1

(\*\*) Type Codes See Appendix 2

(\*\*\*) For first estimation purpose: 1kl = 1kg

DATA SOURCES (Ex. Customs ...)

Date: \_\_\_\_\_  
Country: \_\_\_\_\_  
Year: \_\_\_\_\_  
Prepared by: \_\_\_\_\_

Table 3(A) IMPORTS OF TECHNICAL GRADE MATERIAL : *INSECTICIDES*

COMMON NAME 1	CODE 2	TYPE 3	MINIMUM PURITY 4	IMPORTED VOLUMES (MT or KL) 5	IMPORTED CIF VALUE (Local Currency) 6
ESTIMATED TOTAL <sup>(**)</sup>					

(\*) Chemical class Code See Appendix 1  
(\*\*) Solid = S, Liquid = L  
(\*\*\*) For first estimation purpose: 1lit = 1kg

Date: \_\_\_\_\_  
 Country: \_\_\_\_\_  
 Year: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_

Table 3(B) IMPORTS OF TECHNICAL GRADE MATERIAL : FUNGICIDES

COMMON NAME 1	CODE 2	TYPE 3	MINIMUM PURITY 4	IMPORTED VOLUMES (MT or KL) 5	IMPORTED CIF VALUE (Local Currency) 6
ESTIMATED TOTAL					

(\*) Chemical class Code See Appendix 1  
 (\*\*) Solid = S, Liquid = L  
 (\*\*\*) For first estimation purpose: 1lit = 1kg

DATA SOURCES (Ex. Customs ...)

Date: \_\_\_\_\_  
 Country: \_\_\_\_\_  
 Year: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_

Table 3(C) IMPORTS OF TECHNICAL GRADE MATERIAL : HERBICIDES

COMMON NAME 1	CODE 2	TYPE 3	MINIMUM PURITY 4	IMPORTED VOLUMES (MT or KL) 5	IMPORTED CIF VALUE (Local Currency) 6

ESTIMATED TOTAL

(\*) Chemical class Code See Appendix 1  
 (\*\*) Solid = S, Liquid = L  
 (\*\*\*) For first estimation purpose: 1lt = 1kg



Date: \_\_\_\_\_  
Country: \_\_\_\_\_  
Year: \_\_\_\_\_  
Prepared by: \_\_\_\_\_

Table 3(D) IMPORTS OF TECHNICAL GRADE MATERIAL : OTHERS

COMMON NAME 1	CODE 2	TYPE 3	MINIMUM PURITY 4	IMPORTED VOLUMES (MT or KL) 5	IMPORTED CIF VALUE (Local Currency) 6
ESTIMATED TOTAL					

(\*) Chemical class Code See Appendix 1  
(\*\*) Solid = S, Liquid = L  
(\*\*\*) For first estimation purpose: 1lit = 1kg

DATA SOURCES (Ex. Customs ...)

Date: \_\_\_\_\_  
 Country: \_\_\_\_\_  
 Year: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_

Table 4(A) EXPORTS OF TECHNICAL GRADE MATERIAL : *INSECTICIDES*

COMMON NAME 1	CODE 2	TYPE 3	MINIMUM PURITY 4	EXPORTED VOLUMES (MT or KL) 5	EXPORTED FOB VALUE (Local Currency) 6

ESTIMATED TOTAL

(\*) Chemical class Code See Appendix 1  
 (\*\*) Solid = S, Liquid = L  
 (\*\*\*) For first estimation purpose: 1lit = 1kg

DATA SOURCES (Ex. Customs ...)

Date: \_\_\_\_\_  
 Country: \_\_\_\_\_  
 Year: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_

Table 4(B) EXPORTS OF TECHNICAL GRADE MATERIAL : FUNGICIDES

COMMON NAME 1	CODE 2	TYPE 3	MINIMUM PURITY 4	EXPORTED VOLUMES (MT or KL) 5	EXPORTED FOB VALUE (Local Currency) 6
ESTIMATED TOTAL					

(\*) - Chemical class Code See Appendix 1  
 (\*\*) Solid = S, Liquid = L  
 (\*\*\*) For first estimation purpose: 1lit = 1kg

DATA SOURCES (Ex. Customs ...)

Date: \_\_\_\_\_  
Country: \_\_\_\_\_  
Year: \_\_\_\_\_  
Prepared by: \_\_\_\_\_

Table 4(C) EXPORTS OF TECHNICAL GRADE MATERIAL : *HERBICIDES*

COMMON NAME 1	CODE 2	TYPE 3	MINIMUM PURITY 4	EXPORTED VOLUMES (MT or KL) 5	EXPORTED FOB VALUE (Local Currency) 6
ESTIMATED TOTAL					

(\*) Chemical class Code See Appendix 1  
(\*\*) Solid = S, Liquid = L  
(\*\*\*) For first estimation purpose: 1lit = 1kg

Date: \_\_\_\_\_  
 Country: \_\_\_\_\_  
 Year: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_

**Table 5(A) LOCAL MANUFACTURE OF FORMULATED PESTICIDES: INSECTICIDES**

COMMON NAME 1	CODE 2	CONCENTRATION 3	TYPE 4	VOLUMES (MT or KL) 5	ANNUAL CAPACITY 6

ESTIMATED TOTAL

(\*) Chemical class Code See Appendix 1  
 (\*\*) Type codes, See Appendix 2  
 (\*\*\*) For first estimation purpose: 1lit = 1kg

DATA SOURCES (Ex. Customs ...)

Date: \_\_\_\_\_  
 Country: \_\_\_\_\_  
 Year: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_

Table 5(B) LOCAL MANUFACTURE OF FORMULATED PESTICIDES: *FUNGICIDES*

COMMON NAME 1	CODE 2	CONCENTRATION 3	TYPE 4	VOLUMES (MT or KL) 5	ANNUAL CAPACITY 6
ESTIMATED TOTAL					

(\*) Chemical class Code See Appendix 1  
 (\*\*) Type codes. See Appendix 2  
 (\*\*\*) For first estimation purpose: 1lit = 1kg

DATA SOURCES (Ex. Customs ...)

Date: \_\_\_\_\_  
 Country: \_\_\_\_\_  
 Year: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_

Table 5(C) LOCAL MANUFACTURE OF FORMULATED PESTICIDES: *HERBICIDES*

COMMON NAME  1	CODE  2	CONCENTRATION  3	TYPE  4	VOLUMES (MT or KL) 5	ANNUAL CAPACITY  6

ESTIMATED TOTAL™

(\*) Chemical class Code See Appendix 1  
 (\*\*) Type codes. See Appendix 2  
 (\*\*\*) For first estimation purpose: 1lit = 1kg

DATA SOURCES (Ex. Customs ...)

Date: \_\_\_\_\_  
Country: \_\_\_\_\_  
Year: \_\_\_\_\_  
Prepared by: \_\_\_\_\_

Table 5(D) LOCAL MANUFACTURE OF FORMULATED PESTICIDES: OTHERS

COMMON NAME 1	CODE 2	CONCENTRATION 3	TYPE 4	VOLUMES (MT or KL) 5	ANNUAL CAPACITY 6

ESTIMATED TOTAL

(\*) Chemical class Code See Appendix 1  
(\*\*) Type codes, See Appendix 2  
(\*\*\*) For first estimation purpose: 1lit = 1kg

DATA SOURCES (Ex. Customs ...)



Date: \_\_\_\_\_  
 Country: \_\_\_\_\_  
 Year: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_

Table 6 FORMULATION TYPES FOR PESTICIDES: CAPACITY AND ACTUAL OUTPUT

FORMULATION TYPE	CODE	INSECTICIDES		FUNGICIDES		HERBICIDES		OTHERS	
		ANNUAL CAPACITY (MTKL)	ACTUAL CAPACITY (MTKL)	ANNUAL CAPACITY (MTKL)	ACTUAL CAPACITY (MTKL)	ANNUAL CAPACITY (MTKL)	ACTUAL CAPACITY (MTKL)	ANNUAL CAPACITY (MTKL)	ACTUAL CAPACITY (MTKL)
GRANULES	GR								
DUST	DP								
WETTABLE POWDER	WP								
SUSPENSION CONCENTRATE	SC								
EMULSIFIABLE CONCENTRATE	EC								
ULTRA LOW VOLUME	UL								
OTHERS	XX								
ESTIMATED TOTAL									

(\*) Type codes. See Appendix 2

(\*\*) For first estimation purpose: 1lit = 1kg

Date: \_\_\_\_\_  
 Country: \_\_\_\_\_  
 Year: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_

Table 7(A) LOCAL MANUFACTURE OF TECHNICAL GRADE MATERIAL: *INSECTICIDES*

COMMON NAME  1	CODE  2	TYPE  3	MINIMUM PURITY  4	VOLUMES (MT or KL)  5	ANNUAL CAPACITY (MT or KL)  6
<b>ESTIMATED TOTAL</b>					

(?) Chemical class Code See Appendix 1  
 (\*\*) Solid = S, Liquid = l  
 (\*\*\*) For first estimation purpose: 1lit = 1kg

DATA SOURCES (Ex. Customs ...)

Date: \_\_\_\_\_  
 Country: \_\_\_\_\_  
 Year: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_

Table 7(B) LOCAL MANUFACTURE OF TECHNICAL GRADE MATERIAL: FUNGICIDES

COMMON NAME  1	CODE  2	TYPE  3	MINIMUM PURITY  4	VOLUMES (MT or KL)  5	ANNUAL CAPACITY (MT or KL) 6
ESTIMATED TOTAL					

(?) Chemical class Code See Appendix 1  
 (\*\*) Solid = S, Liquid = L  
 (\*\*\*) For first estimation purpose: 1lit = 1kg

DATA SOURCES (Ex. Customs ...)

Date: \_\_\_\_\_  
 Country: \_\_\_\_\_  
 Year: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_

Table 7(C) LOCAL MANUFACTURE OF TECHNICAL GRADE MATERIAL: *HERBICIDES*

COMMON NAME  1	CODE  2	TYPE  3	MINIMUM PURITY  4	VOLUMES (MT or KL)  5	ANNUAL CAPACITY (MT or KL)  6

ESTIMATED TOTAL

- (\*) Chemical class Code See Appendix 1
- (\*\*) Solid = S, Liquid = L
- (\*\*\*) For first estimation purpose: 1lit = 1kg

DATA SOURCES (Ex. Customs ...)

Date: \_\_\_\_\_  
Country: \_\_\_\_\_  
Year: \_\_\_\_\_  
Prepared by: \_\_\_\_\_

Table 7(D) LOCAL MANUFACTURE OF TECHNICAL GRADE MATERIAL: OTHERS

COMMON NAME  1	CODE  2	TYPE  3	MINIMUM PURITY  4	VOLUMES (MT or KL)  5	ANNUAL CAPACITY (MT or KL) 6
ESTIMATED TOTAL™					

(\*) Chemical class Code See Appendix 1  
(\*\*) Solid = S, Liquid = L  
(\*\*\*) For first estimation purpose: 1lit = 1kg

DATA SOURCES (Ex. Customs ...)



Country: \_\_\_\_\_  
 Year: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_

Table 9 RETAIL PRICES RANGE FOR SELECTED FORMULATED PESTICIDE

COMMON NAME  1	CONCENTRATION  2	TYPE  3	RETAIL UNIT PRICE (IN LOCAL CURRENCY)			IS PRICE SUBSIDISED  6
			LOWEST  4	HIGHEST  5	AVERAGE	
1. CARBOFURAN	3%	GR				
2. MONOCROTOPHOS	40%	S				
3. CARBARYL	85%	WP				
4. ENDOSULFAN	35%	EC				
5. FENITROTHION	50%	EC				
6. PARAQUAT	28%	WP				
7. MANCOZEB	80%	WP				
8. DIAZINON	60%	EC				
9. FENTHOATE	50%	EC				
10. DIMETHOATE	30%	EC				
11. 2,4-D ESTER						
12. CAPTAN	50%	WP				
13. MALATHION	57%	EC				
14. DIAZINON	10%	GR				
15. METHYL PARATHION	50%	EC				
16. ZINC PHOSPHIDE						
17. CYPERMETHRIN						
18. FENTHION						

(\*) See Appendix 2  
 (\*\*) "Yes" or "No" answer

Please indicate source and collecting methods (if necessary use the form included in complementary analytical questionnaire)

- Retail prices are the prices which are paid at users level expressed in per litre or per kilo
- Source (i.e. Ministry of Agriculture, Commerce, Census agency ...)
- Method - Annually - Monthly - statistical sample survey
- Annually - Monthly non-statistical sample survey
- Date of survey
- Users survey, retail survey, formulation survey

DATA SOURCES (Ex. Customs ...)

Date: \_\_\_\_\_  
Country: \_\_\_\_\_  
Year: \_\_\_\_\_  
Prepared by: \_\_\_\_\_

Table 10 CROP COVERAGE

1. Total Geographical Area (in Ha) =

2. Total Land Devoted to Agriculture (in Ha) =

3. Total Land Devoted to Forestry (in Ha) =

4. Major crop area

1.1. Cereals for Grains (in Ha)  
of which

1.2. Tuber Root and Bulk Crops (in Ha)  
of which

1.3 Leguminous (in Ha)  
of which

1.4. Industrial crops (in Ha)  
of which

1.5. Vegetables (in Ha)  
of which

1.6. Horticulture (in Ha)  
of which

1.7. Fodder (in Ha)  
of which

1.8. Seed production crops (in Ha)  
of which

1.9 Fruit trees (in Ha)  
of which

1.10 Permanent Crops (Plantation crops) (in Ha)  
of which

1.11 Others (in Ha)  
of which

Note: List of crops from FAO nomenclature  
\* For specific crops, please use exclusively BAYER CODE INDEX

DATA SOURCES (Ex. Customs ...)



Date: \_\_\_\_\_  
Country: \_\_\_\_\_  
Year: \_\_\_\_\_  
Prepared by: \_\_\_\_\_

## RENAP ECONOMIC ANALYTICAL QUESTIONNAIRE

This questionnaire may be detailed after discussion by RENPAP members

We suggest the following headlines

- Breakdown of most used pesticides for selected crops
- Breakdown of most used pesticides for selected pests
- Description of marketing flow of products from manufacture or import to farmer gate, with margins estimates
- Pricing practices
- List of most used pesticides (in volume) if not on the list of products selected in the Database
- Description of retail price collection methods (source and sampling surveys)
- Several government economic policies on pesticides control.

Some guidelines may be found in the existing FADINAP questionnaire used for fertilizers marketing information.

(IPCS-WHO Reference: WHO/PCS/91.4)

AC	Acaricide, Miteicide
AL	Algicide
AN	Anthelmintic
BA	Bactericide
FM	Fumigant
FU	Fungicide
HB	Herbicide
IG	Insect Growth Regulator
IN	Insecticide
MO	Molluscicide
NE	Nematicide
OT	Other
PG	Plant Growth Regulator
RE	Repellent
RO	Rodenticide
SY	Synergist
TE	Termiticide

**Note: If a product possesses several activities, the principal activity will be noted first, followed by one or several secondary activities**

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 GFAF CATALOGUE OF PESTICIDE FORMULATION TYPES  
 AND INTERNATIONAL CODING SYSTEM  
 (FEBRUARY 1989, BRUSSELS)

AB	Granul bait
* AE	Aerosol dispenser
AI	Active ingredient
* AL	Other liquids to be applied undiluted
BB	Block bait
* BR	Briquette
* CB	Bait concentrate
CG	Encapsulated granule
CS	Capsule suspension
* DC	Dispersible concentrate
* DP	Dispersible powder
* DS	Powder for dry seed treatment
* EC	Emulsifiable concentrate
* ED	Electrochargeable liquid
* EO	Emulsion, water in oil
* ES	Emulsion for seed treatment
* EW	Emulsion, oil in water
FD	Smoke tin
FG	Fine granule
FK	Smoke candle
FP	Smoke cartridge
FR	Smoke rodlet
* FS	Flowable concentrate for seed treatment
FT	Smoke tablet
* FU	Smoke generator
FW	Smoke pellet
* GA	Gas
GB	Granular bait
* GE	Gas generating product
GG	Macrogranule
GP	Flo-just
* GR	Granule
* GS	Grease
* HN	Hot fogging concentrate
KK	Combi-pack solid / liquid
KL	Combi-pack liquid / liquid
* KN	Cold fogging concentrate
KP	Combi-pack solid / solid
* LA	Lacquer
* LS	Solution for seed treatment
MG	Microgranule
* OF	Oil miscible flowable concentrate (oil miscible suspension)
* OL	Oil miscible liquid
* OP	Oil dispersible powder
* PA	Paste
PB	Plate bait
* PC	Gel or paste concentrate
* PO	Pour-on
* PR	Plant rodlet
* PS	Seed coated with a pesticide
RB	Bait (ready for use)
* SA	Spot-on
SB	Scrap bait
* SC	Suspension concentrate (= flowable concentrate)
* SE	Suspo-emulsion
* SG	Water soluble granules
* SL	Soluble concentrate
* SO	Spreading oil
* SP	Water soluble powder
* SS	Water soluble powder for seed treatment
* SU	Ultra-low volume (ULV) suspension
* TB	Tablet
TC	Technical material
TK	Technical concentrate
* TP	Tracking powder
* UL	Ultra-low volume (ULV) liquid
* VP	Vapour releasing product
* WG	Water dispersible granules
* WP	Wettable powder
* WS	Water dispersible powder for slurry treatment
* XX	Others

\* Indicates basic formulations in each category

UNIDO COMMENTS

The report is based on the work carried out in the Data Collection project in collaboration with ESCAP and CIRAD. This is the first time the project organized a "hands on training" on the use of software developed in the project for collection of index data and economic data. It is well recognized that despite problems associated with collection of economic data it is necessary the countries should be convinced of the importance of the availability of such data to make the industry more transparent and safer for the benefit of the community at large and also to take policy decisions. The workshop has taken into account the confidentiality of the information wherever necessary so that the industries could give data without any hesitation.

The workshop was attended by all the national data collection experts and having organized the meeting "back to back" with the meeting of ESCAP provided the necessary atmosphere of inter-agency cooperation and was also considered to be a most economic way of conducting the workshop. The workshop also clearly emphasized the keen interest shown by the participants and also in dividing the role of responsibility for collection of data for phases one and two.

Due to importance of data collection, it has been recently agreed by the International Programme on Chemical Safety (IPCS) to extend the data collection to cover the National Pollutants Release and Transfer Data (NPRTR) (?) for pesticide industry in the region and this could be a major step forward towards implementing overall safety in pesticide production in the Asia region.