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REPUBLIC OF AFGHANISTAN

Technical report: Findings and Recommendations*

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

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Vienna

* This document has not been edited.

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ABSTRACT

Afghanistan is one of the developing country and a member of the RENPAP i.e. Regional Network on Pesticides for Asia and the Pacific funded by UNDP and executed by UNIDO in association with FAO, World Bank, WHO and ESCAP. This programme has been in existence since 1982 and member countries have been greatly benefited by regional co-operation in the various aspects of handling storage and use of pesticides and formulation technology. Services have been made available of experts as and when needed by member country.

Agriculture is the most important sector in the economy of Afghanistan and thus the main concern. To combat the pest menance, the country either import the pesticides formulation or are made available by USSR or funded by UN agencies for the various programmes carried by them in Afghanistan.

Afghanistan in the Regional Programme had desired for the services of an expert to assist and provide guidelines on handling/packaging and storage of pesticides.

It is in this reference that the Expert Mission was undertaken for a period of 1 month which commenced on 2nd April 1991 and concluded on 2nd May, 1991. The job description which mainly aimed at suvey of existing practice of pesticide industry, formulation and packaging is Annexed B.

Afghanistan is totally dependant on import of pesticidal formulation for both agriculture and public health. For public health programme for control of Malaria and Leichmania, the procurement is made through WHO and the department is responsible for its storage and distribution for spraying in various provinces. The supply and consumption is in bulk packing.

As regards use in agriculture including Locust and Sunpest Control, the Ministry of agriculture and Land Reform import and carry out storage distribution and sale. AFCC i.e. Afghan Fertilizer and Chemical Company a Wing of Ministry of A&LR is responsible for import of pesticide formulation as per the requirement given by Department of Plant Protection and Quarantine, their storage in depots, transportation to retail

outlet and their sale. Whereas for Locust and Sunpest Control, the Department of Locust and Sunpest Control is responsible for storage, distrubution and use, the supplies of these material in bulk obtained through FAO or USSR.

Since 1986, there has not been any import of pesticide formulation for agricultural use including seed treatment or grain storage. Large quantities of these chemicals have been carried over in storage godowns. Though based on agriculture production programme, substantial quantities of pesticide formulation are required but in practice the consumption is meagre. This has been primarily due to unsettled conditions in the country and inaccessibility of large areas. The country has received large stocks of BHC dust, sulfur dust and wettable powder from USSR and these would last for many years taking into consideration the present rate of consumption.

Due to long storage in godowns the packaging of these pesticides formulations have been affected while handling in the godowns and by weather, including transportation.

Expert had discussion with National Coordinator and various authorities in the Ministry of Agriculture and Land Reform, and visit was made to the storage godowns for pesticides and retail outlets in Kabul. Had discussion with the authorities in planning Department of Mines and Industry, Food and Light Industry to ascertain the availability of materials for packaging, pesticidal formulation and plans for manufacture, if any.

From the information gathered it may be summarised as below :

(i) For manufacture and packaging of pesticides including repacking in small packagings of imported bulk pesticide, the country has to import all inputs i.e. raw materials, packing and packaging materials.

(ii) Though country is rich in mineral resources, but these have not been exploited and industries set up. Though number of studies have been carried out earlier by experts and reports submitted, implementation has not been possible of the various projects for paucity and availability of funds and unsettled conditions.

(iii) Plans have been drawn for setting up of industries in small and medium scale sector for consumable items and some of these have been put up by private parties with assistance from abroad. However many of them are either closed for want of funds, skilled manpower and availability of inputs or high cost of production vis-a-vis the price of imported materials.

(iv) There had been no regulatory measures taken for import, storage, distribution transportation and handling of pesticides which are toxic. Experts by UNIDO and FAO had made recommendation and drawn guidelines for the same over the period. In the year 1988 Republic of Afghanistan Council of Ministers based on the proposal of Ministry of Justice has enacted the legislation on Importation, Distribution, and use of pesticides . For an interim period of 4 years, the importation can be carried out without registration. The implementation of the legislation has been assigned to the Department of Plant Protetion and Quarantine under the Ministry of Agriculture and Land Reform. Since the

importation, distribution, transportation and retail sale is totally by Government, no action has been taken as on date on the legislation. Also, guidelines have not been issued for safe handling of these pesticides during storage, distribution and use or disposal and storage of empty containers.

(v) From storage godown, the pesticides formulation in good packing is transported to the depot and retail outlets. Retailing is carried out by breaking open the seals and supply in loose quantity in containers brought by growers/farmers is made as per authorisation and recommendation for material and quantity by PPQ authorities. No efforts have been made to reclaim the material from damaged containers/packings and retail sale after testing for quality.

(vi) There is immediate need of importing some of the packing materials like ploythene bags, paper bags and cartons, glass/aluminium/ polythene bottles to repack the material from damaged containers. Specification can be

drawn by taking advantage of the standards drawn by countries like India who are member of the RENPAP.

Later on steps be taken to recycle the packing materials like aluminimum/glass/ polythene bottles which would be easier as no private sale is at present.

(vii) No techno-feasibility studies have been undertaken to put up facilities in AFCC to produce fungicides for which raw material are available in the country. It would be worthwhile to consider EC's production within the country by importing technical grade pesticides and other materials to meet the requirement instead of importing the formulation and stocks these for a long period and block the scarce foreign exchange. The technology and know-how including the EC plant could be imported by taking assistance of UNIDO or countries who could make available long terms loans/assistance.

RECOMMENDATIONS

1. Plant Protection and Quarantine Department under the Ministry of Agriculture and Land Reform should appoint a person solely to carry out the activities with regard to implementaton of legislation on import, distribution and use of pesticides. He should be made responsible for drawing the guidelines for safe handling, transportation hazard classification, labelling etc. based on te recommendations by experts earlier. See Annexure L, M, N and O. These once approved by PPQ Department should be translated into Dari/Peshto and issued for follow up by those handling pesticides. Presently importation, storage, distribution and sale is being done by Government only but at later stage the private parties may get involved once the consumption has picked up.

2. Afghan Fertilizers and Chemical Company i.e. AFCC should be made responsible for carrying out the repacking of pesticides from damaged

containers and sale before the goods packings are handled. They should appoint a person to do this activity only. He should draw specification for retail packing taking into consideration the packing specification drawn by member countries of RENPAR and in consultation with PPQ Department. Once approved should take steps to import these to take up repacking. Service of a UN volunteer could be made available for a year or so to help the person appointed to carry out the activity of import of packing materials and repacking.

3. Import, storage, distribution and sale of pesticides required for seed treatment and for grain storage, should be the responsibility of Afghan Seed Enterprise. These are specific in use and therefore should be handled by the concerned organisation. However import of these chemicals may be made only on the recommendation of PPQ.

4. Repacking of solid pesticidal formulation from damaged drums/cartons may be carried out in the godowns where they are stored instead of

transporting them into main godown in Kabul. The material from the damaged packings should however be tested for quality before repacking. The packing required could be drawn from the main godown in Kabul. Repacking be resorted into retail packing.

(a)	Solid pesticides formulation	- 250 gms, 50 gms and 100 gms. packing. Polythene bags of 200-300 guage and paper cartons.
(b)	Liquid pesticides i.e. E C	- 250 ml, 500 ml glass/ aluminium/polythene bottles.

Since the packings have to be imported these may be recylced to the extent possible. These could be collected back from consumers who may be asked to make a token deposit which can be refunded once the packing is returned.

5. Efforts should be made to consume the pesticidal formulation lying in godowns to the extent feasible and possible. Import be restricted of the formulation for which alternate material lying in godown can be used by way of additional sprays etc. This has to be decided by PPQ Department.

Import should be restricted to consumption for a maximum of 2 years. Since there is a time lag before imported material is received, it would be necessary to monitor the same vis-a-vis the consumption and stocks. Schedule of supply could be redrawn to avoid stocking and carrying of large stocks of formulation which have a life in most cases of 2 years.

6. Import should be restricted to retail packing. This is with a view to ensure safe handling and consumption. Procurement in bulk packing, need to be made for bulk consumers like state farms or cooperatives. Loose sale of formulations be forebidden.

7. Since import of pesticides in bulk packing is to be restricted, Government should consider subsidising the sale in retail packing because of higher cost of importation.

8. Government should not allow import and storage of pesticidal chemicals and formulation by private parties till they have drawn the guidelines and issued them and have the proper

infrastructure for regulating and controlling the activities by private parties. The guidelines should be drawn suiting the conditions in Afghanistan and the same could be tightened over a period and brought to International Standard.

9. A feasibility and techno-economic studies could be carried out for which UNDP could make available funds under "Industrial Consultancies" for putting up a EC manufacturing plant for commonly used formulation which has been indicated by PPQ Director General i.e. Azinophos methyl, Metasystox, Endosulfan, Dimethoate, Malathion etc. This plant could be to produce 1 kl/day capacity on a single shift basis. Also similar studies can be carried out for putting up facilities for manufacture of glass/aluminium/polythene bottles and tins, cartons, paper and plastic bags. In the studies the scope could be enlarged to consider the requirement of pharmaceutical, beverages and food industries

including jams, syrups etc. Though the unit would be dependent on import, it would generate employment.

10. Feasibility and techno economic studies also could be undertaken to produce sulfur dust and wettable powder, a fungicide used in large quantities and for which main raw material sulfur is available in the country.

Also manufacture of cupravit another fungicide required in large quantities could be considered for manufacture. All these projects could be set up under Afghan Fertilizer and Chemical Company. However, it need not be emphasized that the know how, technology plant and machinery would need to be imported. Funds could be made available by UNDP or obtained from member countries of RENPAP under a long term agreement.

1 - INTRODUCTION

1.1. BACKGROUND

As an innovative approach UNDP/UNIDO sponsored a project in 1982 with a view to have a Regional Inter-Government Co-operative Programme to address to the various problems associated with the production and use of pesticides. The programme given name RENPAP i.e. Regional Network on Pesticides for Asia and the Pacific is funded by UNDP and executed by the UNIDO in association with the FAO, the World Bank, the WHO and ESCAP. The countries participating in the programme are Afghanistan, Bangaldesh, Peoples Republic of China, India, Indonesia, Iran, Malaysia, Republic of Philippines, Pakistan, Republic of Korea, Sri Lanka and Thailand.

During the first two phases (Phase 1 for 1982-85 and Phase II from 1986-89). The project succeeded in creating a spirit of regional cooperation and provided training, consultancy services and organised seminars, workshop, covering number of aspects related to pesticides. These

areas included :

Harmonisation, trade and tarrif regulation

Qualtiy Control

Formulation Technology

Toxicology

Regional harmonisation in registration of pesticides

Regional pesticides data collection

Residual Analysis

UNDP/UNIDO extended the project for 3 years i.e. till 1992, based on the success of Phase I and II and recommendation of Tripartite Review meeting attended by National Coordinator from member countries, representative from UNDP/UNIDO, and other UN agencies including FAO, WHO, ESCAP and World Bank. The developmental objective of the current phase are :

- Promote regional cooperation and agriculture output through safe use of pesticides
- Establish TCDC for exchange of expertise available within the region and assist countries having no facilities
- Documentation and dissemination of information on development of safe agrochemicals
- Promote active participation of member countries in safe development and use of pesticides.

While the project is busy consolidating achievement of the previous phase encompassing the area of market survey and data collection, survey of raw material, available within the region, pesticides formulation technology quality control and residual analyses, the current phase of programme has an orientation towards strengthening the pesticides industry as a whole through a harmonised approach on industrial safety, hazaard management, effluent treatment pollution control and promotion of bio/botanical pesticides useage as well as adoption of safer and more effective application technologies.

List of people who matter and are behind the Regional Programme may be referred to Annexure A.

1.2 JOB DESCRIPTION

As an Expert assignment to assist and provide guidelines and a handling/packaging and storage of pesticides, job description is outlined in Annexure B.

1.3 ITINERARY

The mission was assigned through UNIDO correspondence. PRAS/729/PR/ank dated 6th September, 1990.

Since no briefing/debriefing was required in Vienna, before proceeding on the mission, expert had discussion with Dr. S P Duba, Regional Coordinator of RENPAP.

Expert arrived on 2nd April 1991 at Kabul the duty station in Afghanistan and mission terminated on 2nd May, 1991.

Due to secruity restriction and other reasons, the expert has not been able to travel outside the Kabul Security Zone. The report is based on the information obtained from the visit to the various government departments and discussions with the officers involved in pesticides import, sale, distribution and useage, FAO and UNDP personnel.

The list of organisations and persons visited/ contacted is given in Annexure C.

2 - AGRICULTURE IN AFGHANISTAN - PESTICIDES USE

Afghanistan is a developing country with a landmass of 65.22 million hectare characterised by rugged mountain, large deserts and usable land scattered through mostly in villages along the river. The estimated population is 17.64 million in its 30 provinces. See Annexure D.

About 55% of the landmass is agricultural land out of which only 20% is cultivated. (Annexure E.) About 85% of the population is engaged in farming and agriucl[illegible] . More than 60% of the national income depends on agricultural products and thus agriculture is the most important sector in the economy of the country. The most important agricultural products are grapes and other fruits i.e. promergrante, citrus, almond; cereals i.e. wheat, barley, maize and rice; and industrial crops i.e. cotton, sugarbeet and sugercane. Part of the fresh and most of the dried fruits are exported and almost account for half of the agricultural export.

Since agricultural produce is the single largest contribution in the economy of Afghanistan,

this sector has been given the attention and Government of Afghanistan has been directing all its efforts to not only increase production by improved agricultural practices through application of fertilizers, choice of suitable crop and varieties, density of the seeding and planting, improvement of water supply and so on but also by reduction of losses due to pest infestation.

It has to be borne in mind that due to adverse biological factors such as weeds, insects, fungi, nematodes, the world harvest is even to-day reduced by one third and this reduction would be greater without the measures taken already i.e. by use of pesticides.

It is generally estimated that more than 30% of total crop production in the country is lost every year due to damage by agriculture pests and diseases. In the year of epidemic, the losses are far higher and this in turn effects the total social structure and economy of the country particularly due to lower export of fruits etc. Useful steps have been taken by Government of Afghanistan to improve the quality and quantity of

agricultural products by use of pesticides and have reduced significantly the amount of loss sustained by the country in the past years.

2.1 PESTICIDES USE IN AFGHANISTAN

Pesticides are used in Afghanistan for :

1) In agricultural crops and orchards
2) Locust control
3) Seed treatment
4) Grain storage
5) Malaria & leichmania control
6) Public health

In order to meet their requirement the country has to either import the pesticide formulation or are made available for the funded programmes by UN and other agencies. Partly the need for agriculture and locust control has been granted by USSR. Importation of pesticides, their storage and distribution for agricultural use is totally carried out by government through Department of Plant Protection and Quarantine, Ministry of Agriculture and Land Reform. Afghan Fertilizer Chemical Company a wing of Ministry of Agriculture and Land Reform responsible for running the fertilizer plant along with storage and distribution of fertilizers, is also responsible for import of pesticides as and when required by

Plant Protection and Quarantine Department. They are also responsible for storage of pesticides and its sale which is effected only to consumers on authorisation by Department of Plant Protection and Quarantine. Prior to the formation of AFCC in 1986 the work was carried out by AFASCO (Afghan Fertilizer and Agricultural Service Company) which was an authonomous body. Since 1986 no import of pesticides has been made as stocks in hand are far in excess to consumption and paucity of funds.

There is no manufacture of any of the pesticides or their formulation in Afghanistan for use in the various section of agriculture and public health. The import, storage its supply and use in totally controlled by the respective Ministry of Agiculture and Land Reform or Ministry of Health.

2.1.1 IN AGRICULTURAL CROPS AND ORCHARDS

Department of Agricultural Extension under the Ministry of Agriculture and Land Reform make an agriculture programme for the year giving the area to be cultivated under the various crops. However,

due to uncertain situation in the country and unforeseen circumstances, lot of difficulty has been faced and implementation of the plan had been a difficult task. The plan as drawn for 1991 may be seen at Annexure F.

The main pesticide storage depot is located in Kabul from where supplies are made to other depots in the provinces on the demand and requisition by respective depot. However certain of the areas in the provinces are inaccessible due to political turmoil. A visit to depot in Darulaman and the outlets in Kabul could be made. The stock of pesticides, and provincewise sale affected as well as the supplies received from USSR are given in Annexure G, H and I.

There are 4 main storage godown from where supplies are made to other outlets in the various provinces. These are in Kabul, Baghlan, Herat and Kandhar provinces.

The price of pesticides is fixed by the government and as recommended by Department of PPQ. Only on the authorisation by PPQ Departmen, the

sale is made to the farmers and growers. There has been no increase in prices of pesticides from the time these have been imported, inspite of the increases which have taken place in salaries etc. etc. and carrying cost of inventories. In turn it could be considered that pesticides are subsidised. Loose sale of pesticides is made as exact measured quantity, as recommended by PPQ is made available to farmers and growers in containers brought by them by breaking open the sealed containers.

A legislation has been enacted on Importation, Distribution and use of pesticides. The responsibility for implementation has been given to the Department of Plant Protection and Quarantine under the Ministry of Labour and Land Reform. The same is under the consideration of the Government. However, there are inherent difficulties in implementing the same and would need to be modified keeping in view the present system of importation storage and distribution which is totally by government and no private agencies are involved. Interest has been shown by some of the private parties to import pesticides and permission has been given as can be seen in

Annexure J . However no import by private parties has been made till date.

A Pesticides Analysis Laboratory has been set up with the assistance of FAO having modern equipment but due to non-availability of trained personnel for operating and maintenance of equipment and various instruments, it is not being used.

2.1.2. LOCUST CONTROL

The locust problem is every year in Northern part of Afghanistan in provinces of Balkh, Baghlan, Takhan, Joesjan, Faryab, Baghdis, Herat and Samarangan. There is a separate department under the Ministry of Labour and Land Reform which attend to the problem with the assistance of FAO. For Locust and Sunpest Control FAO project has been operating for last 2 years. 700 tonnes of 12% BHC dust was used in year 1990 and 700 tonnes this year. FAO has spent $780,000 in 1990 and $440,000 in 1991.

The stocks of BHC dust are given in Annexure K which is around 6400 tonnes in the godowns and based on yearly consumption of 700 tonnes it may

last for a decade. Due to long storage the packing in most of the godown has deteriorated and large quantity of BHC dust will have to be repacked before it can be transported for spray.

Efforts were made to repack in HDPE and in paper bags and supplies made to fight the locust menance, 200 tonnes of BHC 12% dust was repacked in Herat and was distributed. In Mazare-Sherrif only good bags of BHC were consumed.

For Sunpest Control 200 tonnes of B1-58 and 30 tonnes of Dimethoate have been imported in 1990. FAO has additionally funded the cost of $ 1 million for the project. 30 tonnes of Fenitrothion (Semicon B Alfa) from Japan and France is being imported for locust control.

FAO has initiated an Integrated Pest Management Programme and the Project proposal has been formulated. This will bring in a shift to use of biological means as against chemicals to combat the pest menace.

In areas which are under the Government control, spraying operation for locust and Sunpest Control are being carried out and supervised

departmentally. However in non-government areas, the spraying operations are carried out by working through the Non-government Committees i.e. Swedish, Norwegian, Danish and Afghan Aid based in Peshawar.

FAO has drawn a 4 year plan for Integrated Pest Management incurring an expenditure of $ 4.2 million to be spent as below:

1st year	0.7	million
2nd "	1.40	"
3rd "	1.40	"
4th "	0.70	"

using Dimthoate for Sunpest Control and fenitrothion for locust control and also use of biological control. With this approach, large stocks of BHC dust will become redundant. Due to long storage and weathering effect the quality may have dteriorated also. Disposal of such huge quantity will create a problem of its own.

2.1.3. SEED TREATMENT

Afghan Seed Company was established in August, 1976 with an outlay of $17.6 million to be financed by Asian Development Bank to the tune of $ 14

million and $ 3.6 million by Government of Afghanistan; The Company was to produce 6000 tonnes of Cotton Seed and 20,000 tonnes of certified wheat seed.

Under this programme 4 farms were established for growing of wheat and cotton seed.

Place and Province	Area
1. Marja - Helmand Valley	1500 Ha
2. Tarnak - Kandhar	960 "
3. Sarde - Gazni	2000 "
4. Larkhin - Baglan	2000 "

The production of wheat seed from these farms was to be 7000 tonnes in addition to the production of 6000 tonnes of cotton seed. 13000 tonnes of certified seed was to be produced by contract growers i.e cooperatives, state farms and individual farmers.

The company was to carry out the processing of the seeds and pack in bag and label them before selling it to farmers.

2 Processing plant for cotton and 4 processing plants for wheat were to be purchased from USA. 2 plants each for processing of cotton and wheat had been purchased. Around $ 8 million had been spent. These plants are not installed and the farms are not operating.

The 2000 Ha farm at Gazni is not cultivated. Farm at Kandhar is in operation but only 50 Ha as against 960 is cultivated for wheat. The two farms in Helmand and Baglan were for production of cotton seed. 10,000 tonnes of wheat seed is being made available by USSR every year but the seed is not suited to Afghan weather. In Herat Area 300 tonnes of special variety of cotton seed resistant to wind has been produced.

In 1990, 800 tonnes of Foundation Seed was produced and in 1991 there is plan for production of 7500 tonnes of certified wheat seed and 2000 kg. of vegetable foundation seed.

In 1986, Government decided to merge the state farms with Afghan Seed Company and named it Improved Seed Enterprise with a view to pursue the plan of producing certified wheat and cotton seed.

Out of 32 farms in the country, 16 farms are operating producing 1500 tonnes of foundation wheat seed and 20-25 tonnes of cotton seed. Through contract growers and their own farms the production of wheat seed is 8000 tonnes.

Government decided to put up the vegetable seed plant in operation which had been procured and requested FAO for assistance. Erection of the same is being carried out and plant is expected to be commissioned by July, 1991. There are 3 vegetable seed farm in Kabul having an area of 6 Ha for production of 1400 kg. of Breeder Seed and Foundation Seed. 2 green house have been established to produce 4 million seedingls of various vegetables. These are being produced at site using plastic sheet sheds. In Kabul 2 farms are put up for cereal seed production specially wheat. The production expected is 10,000 kg. of vegetable seed and 100 tonnes of wheat seed. Water being a problem, deep wells are being dug and reservoirs being provided. There is further plan to produce in Kabul 100 tonnes each of vegetable and wheat seed.

0.5 tonnes of Vitavax has been procured from Pakistan for seed treatment.

Seed treatment is not carried out at present. Earlier wehat seeds were treated with Phenyl Mercury Acetate before these were made available to farmers. However, these wheat seeds were consumed by farmers and deaths occurred. Thereafter the practise of treatment was discontinued. Stocks of Phenul Mercury Acetate are being held from year to year.

2.1.4. GRAIN STORAGE

Storage of cereals and grains is carried out by Government as well as private parties. Aluminium Phosphide tables are used as fumigant. To avoid use in household, the supply is affected from stores only on authorisation by PPQ Department. However large stocks are being held and with present rate of consumption these will last for many years.

2.1.5 MALARIA AND LEICHMANIA

For control of Malaria and Leichmania 75% DDT and 50% Malathin WDP are used. The supplies are

made available by WHO since it is a funded programme. The storage, distribution and its transportation for spraying is carried out by the Department of Malaria and Leichmania Control in the Ministry of Health.

2.1.6 PUBLIC HEALTH

There is not much of activities by the Government or other government agencies and corporations. Household insecticides are purchased by individuals from retail outlets of the Government as and when needed.

3 - IMPORTATION, STORAGE AND DISTRIBUTION/SALE

3.1 Import of Pesticides

Pesticides are made available for the funded programmes of Malaria and Leichmania Control by WHO. For Locust Control supplies are arranged by FAO. Supplies have also been made available by USSR as gift.

As regards requirements of peticides for agriculture and public health, these are to be met by import. However due to large stocks of pesticides and consumption being erratic, there has not been any import since 1986. In 1987, USSR made available pesticides. Thereafter in 1988 add 1990 only suplfur powder was supplied which is primarily used as fungicide in grape. All these supplies are made under a protocol signed between Government of Afghanistan and USSR. Even the stocks of sulfur powder would last for few years. Supplies are possible in government controlled areas. Inspite of the plan for agriculture, it has not been possible for the government to carryout the same as many of the areas in provices due to political reasons is not accessible. Country need is mostly

of fungicides. Afghan Fertilizers Chemical Company has the responsibility of importing of pesticides based on the requirement assessed by Plant Protection and Quarantine Department from the agriculture plan. Fund constraint is another factor for non-import of pesticides and their usage.

3.2 STORAGE AND DISTRIBUTION

Stocking of pesticides, their transportation to depot in provinces from main godowns (which are 4 in no.) and then making them available to farmers and orchard growers is the responsibility of AFCC. Loose sale is made by them in containers brought by individual growers/farmers only on authorisation of PPQ who in turn assess the need based on infestation and area to be covered.

The major problem encountered in the godowns is the deterioration of packings due to long storage and weather. During the visit to Darulaman godown in Kabul which is the main storage, it is observd that roof is damaged due to rocket attack

which had resulted in fire. The roofs had been replaced earlier.

Liquid and sold pesticides are stored together and packing of some of the pesticidal formulation have been affected badly. Chlorofon drums (Insecticide) had been moved from Mazare - Sherrif godown and some of them were damaged badly. The material was to be tested for its quality and then repacked. The drums are cut open for sampling and no distribution or sale is possible unless repacking is done. Instead of moving the drums to Kabul from Mazare-Sherrif godowns, it would have been advisable to draw samples and test the same. Based on the analysis the repacking could have been then carried out in Mazare-Sherrif in polythene bags in 1 Kg and 5 Kg packing and supplied to growers/farmers from there itself.

Cupravit bags are stored in godown for years. Some of the paper bags have given way. The material need to be tested and repacked. It could be done in polythene bags in smaller lots since sale is in quantities different than the bulk packing.

Azinophos Methyl is in 1 litre Aluminium bottle. Some of the bottles have partly leaked. No efforts have been made to collect all the material in good alumnimium bottles from the leaky/ damaged bottles. If the material is recovered, exact loss can also be estimated.

Propanil drums are being stored in Kabul godown only. These drums could have been stored in Mazare-sherrif godown from where supplies could have been made. There is not much demand of this material in Kabul area.

The total retailing of pesticides is through Govt. outlets and no private parties are involved.

Steps could have been taken to get back the aluminium and plastic bottles from the growers/farmers for repacking the costly pesticide from leaking bottles. The growers/farmers could have been asked to return the bottles in the godown for which a token deposit could have been retained and later refunded. Cooperatives or state farms also draw their requirement of pesticides from AFCC godowns in bulk packing. Prices of pesticidal

formulation had been fixed long back and no revision has since then been made inspite of increased carrying cost of the stocks and increase in salary etc. etc.

Since supplies to growers/farmers is being made from the outlets on the strength of authorisation by PPQ of the pesticidal formulation and its quantity. Loose sale is resorted to by breaking open the packing. In practice supply is made in containers brought by the consumers.

4 - INDIGENOUS MANUFACTURE OF PESTICIDES AND PACKING MATERIALS

There is no production of technical pesticides and their formulation in the country. Even if these are undertaken, all the inputs will have to be imported including packing/materials.

The following fungicides and insecticides are required to combact the pest-menance as assessed by PPQ.

Fundicides

1. Sulfur dust
2. Sulfur WP
3. Zenab WP
4. Dipheyl (Tricholofor)
5. Cupravit blue

Insecticides

1. Azinophos Methyl	EC
2. Metasystox	EC
3. Methyl Parathion	EC
4. Endosulfan	EC
5. Dimethoate	EC
6. Malathion	EC
7. Melathion	WP

The packing required for the EC formulation is :

1. Tin
2. Polythene bottle
3. Aluminium bottles
4. Glass bottles

The above containers will need to be packed in card board before transportation and stocking.

W.P.

1. Polythene bags or papers bags
2. Drums

There are no manufacturing facilities at present for aluminium, polythene or glass bottle. Hoechst Afghanistan has put up manufacturing facility for polythene bottle to partly meet their requirement otherwise they also import the bottles whether glass or polythene and paper cartons to meet their requirement.

There are few carton manufacturers who cater to the requirement of Raisin exporters. The cartons are made by importing paper and only one type of carrugated fibre board cartons are manufactured.

Projects have been approved year after year to be set up for production of consumer items but most of them have existed on paper only.

These projects have not been implemented either due to paucity of funds or availability of know how and technology. Some of the projects which had taken off are not being run for want of skilled manpower or non-availability of inputs which have either to be imported or indigenously not available due to inaccessibility to areas where these could be obtained.

However the list do not have any projects to meet the packing materials requirement. The country has to depend totally on import. Even though some of the raw materials are available but to convert thse into useable products which are the basic raw materials for packaging industries, projects need to be set up.

In their efforts, some of the projects have been identified by the Planning Department of Mines and Industry. The projects identified are :

1. Window glass
2. High Density Polythene Bags
3. Caustic Soda Plant
4. Mini steel plant for manufacture of steel rods for construction
5. Ceramic tiles
6. Rolling mill
7. Cement Plant

For these projects the discussion are being held through Embassy of India for feasibility studies under Indian Technical & Economic Co-operation Programme.

It may be pointed out that Afghanistan is rich in mineral resources. They have excellent Bauxite and iron ore deposits. Bentonite in Logar Kabul, Talc in Nangarhar, Kaolin Clay in Bomian, Silica in Mazare-Sherrif and Quartz in Kabul.

Light and Food Industry Planning Department has also identified projects connected with food. A Backery factory in Baglan Pulle Khumri is aprpoved by USSR and is tc be executed during 1991. In Mazare-Sherrif a manufacturing unit has been planned for making juices of fruits with a capacity of 500 tonnes in next three year with an investment of $ 5 million and Afs. 400 m. Foreign investment is expected from countries like Turkey.

In Baglan area a 5000 tonnes per year capacity palnt for animal and poultry feed is envisaged. Projects have been proposed to Government of India -

1. Juice factory with a capacity of 300 tonnes each in Kabul and Mazare Sharrif.

2. Match factory in Kabul 500,000 kgs. per year

3. Shoe laces and rope in Kabul

4. Viscose 2000 tonnes per annum

5. Paper factory using wheat and barley husk

6. Polythene bags

Discussion are being held with Bulgaria and Hungry but at present there are no concrete proposals.

5 - DISCUSSIONS

With reference to duties as enunciated in the job description, expert had a meeting Dr. Emauddin Ghiasi Deputy Minister of Agriculture and Land Reforms who is also the National Coordinator. His keen interest was to see if a small unit could be set up in the country to manufacture a few of the pesticidal formulation even if the inputs are to be imported as it will generate employment and the scope can be enlarged gradually as and when the facilities are put up and mineral resources are exploited. In addition to his interest was to see if repacking of pesticides formulation could be taken up and to what extent it would be possible without incurring a major expenditure. It may be mentioned that there is neither pesticide manufacturing unit in Afghanistan nor packaging material available in the country for liquid and solid pesticides. One has to resort to import all packing materials in case one has to consider repacking within the country by importing in bulk. Packaging material for solid pesticides are normally polythene bags, paper cartons, kraft paper bags or hessian bags. No maufacturing facilities

exist. A few plants for manufacture of corrugated boxs have been set up to meet the requirement of Raisin Exporters, shoes manufactures etc. In addition import is also made as these units cannot meet the present requirement.

In agriculture pesticide formulation used are :

i) Insecticides as Emulsifiable Concentrate

ii) Fungicides and Herbicides as dust W.P.

The consumption has been widely varying due to unsettled conditions in provinces and transportation problem and this cannot be taken as guidelines. Nor the agriculture plan can be the basis for computing, the requirement of pesticides formulation. However there is awareness among the growers of grapes and other fruits who always seek technical advice to combat the pest menace.

The major consumption is of fungicide which is sulfur as dust and wettable powder for control of pest infestation during spring and winter. In winter Wettable Sulfur is used in large quantities to safeguard against powdery mildew infestation.

Though there are large deposits of sulfur in Afghanistan, these deposits have not been exploited. Both sulfur dust and WP have been made available by USSR.

For manufacture of pesticidal formulations and its packing, availability of materials as given below is necessary :

1) Technical material
2) Solvents, diluents and carriers
3) Emulesifying and dispersing agents
4) Packing and labelling materials

There is hardly any profile of activities in the manufacture of the above and the country has to import these. Putting up facilities even by importing has a distinct advantage that one create the infrastructure and generate employment. Value added items are produced and gradually indigenous resources can be explcited to replace imported items over a period.

Availability of packing material is a pre-requisite for taking up repacking in small packings of the imported pesticidal formulation in bulk. Therefore, it is essential that techno-economic feasibility studies are carried out taking into

consideration the requirement of packing material for the various industries including pesticides. The setting up of facilities can be done on a small/medium scale with provision for expansion of capacities. The equipments and know how will have to be imported and funded by foreign parties or through UN agencies.

Till such time repacking facilities are not provided in the country, import of pesticides in bulk can not be carried out except for meeting the requirement of state farms and other large consumers. Import of liquid and solid pesticidal formulations be made in small packings which are normally recommended for spraying by formers and grapes and other fruit growers. This will also ensure safe handling and avoid retail sale by breaking open the packings. The retail packings keeping in view the dosage of application and holdings is recommended for import

1. Liquid formulation	-	250 ml, 500 mil and 1 litre
2. Solid formulation	-	500 gms and 1 kg.

Although the Act to regulate import, storage and distribution has been legislated in 1988 based on expert recommendation, Government has still to issue executive orders for its implementation and follow up. The Act is very stringent and exhaustive. The pesticidal use itself is very limited and therefore the Act would need to be simplified for implementation and the measures thereafter could be gradually made stringent.

Earlier experts for UNIDO and FAO have submitted their mission reports in which guidelines for safe handling, hazards classification labelling and disposal of empty containers etc. has been recommended. These are compiled and given in Annexure L, M, N and O.

ANNEXURE A

PEOPLE BEHIND REGIONAL NETWORK ON PESTICIDES FOR ASIA AND THE PACIFIC (RENPAP)

REGIONAL COORDINATOR

Dr. S. P. Dhua
RENPAP Representative
Core 6, 2nd Floor
Scope Complex
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New Delhi - 110003

NATIONAL COORDINATORS

AFGHANISTAN

Dr. Emauddin Ghiasi,
Dy. Minister of Agricultural and Lands Refoms,
Kabul.

BANGLADESH

Mohd. Mazharul Haq,
Director,
Department of Agriculture
Extension, Plant Protection Wing,
Khamarbari, Farmgage,
Dhaka-1215.

PEOPLES' REPUBLIC OF CHINA

Ms. Zhang Chun Juan,
Dy. Director,
Institute for the Control of Agrochemicals,
Minisry of Agriculture,
Liangmagiao, Chaoyang Beijing,
Peoples' Republic of China

INDONESIA

Ms. Sri Ambar Suryosunarko,
Director,
Agro-Chemical Industries,
Ministry of Industry,
Republic of Indonesia
11, Calot Subroto 52-53,
Jakarta.

IRAN

Mr. Bijan Zokai,
Director,
Department of Planning,
National Petrochemical Company,
Karimkhan Zand Building,
Tehran.

MALAYSIA

Mr. Azmi Mat Akhir,
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MYANMAR

Mr. U. Win Kyi,
National Project Director,
Pilot Plant for Pesticides
Formulation, Pharmacutical Industries
Ministry of No (1) Industry,
Yangon,
Myanmar.

PAKISTAN

Mr. Umar Khan Baloch,
Director of Research
(Crop Protection)
Pakistan Agricultural Research Council
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PHILIPPINES

Mr. Luis-T-Villa Real,
Dy. Executive Director III,
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Raha Sylayman Building,
Benavidez Street,
Legaspi Village, Makati,
Metro Manila,
Philippines.

SOUTH KOREA

Mr. Young Ho Jeong,
Head Pesticide Biology Division
Agriculture Chemicals Research
Institute, Rural Development
Administration,
249, Seodundong, Kweonsunku,
Suweon 441-100,
Republic of Korea.

SRI LANKA

Dr. M.H.J.P. Fernando,
Dy. Director Research
Central Agricultural Research Institute
Gannoruwa,
Peradeniya,
Sri Lanka

THAILAND

Mr. Monti Rumakom,
Dy. Director General,
Department of Agriculture,
Bangkhen,
Bangkok-10900,
Thailand.

ANNEXURE B

JOB DESCRIPTION

DP/RAS/88/031/11-62

Post title Duration	Consultant in packaging technololgy (Pesticides) 1 m/m
Duty station	Kabul, Including travel within Afghanistan
Purpose of project	To assist and provide guidelines and on handling/packaging and storage of pesticides
Duties	Consultant in collaboration with the National Coordinator of the project is required to provide :

a) advice on the use of the locally available raw materials for packaging of pesticides.

b) survey and assess the existing practice of the pesticides industry and how they adhere to quality packaging, labelling and also in disposal of containers.

c) packaging materials of pesticides (internationally and locally used) and their sepcification and methods of testing of packaging maeriale being used in Afghanistan.

d) preparation of guidelines for pesticides handling procedures and the influence of environment on pesticides storage.

e) visit different types of pesticides formulation repacking plantsand warehouses and advise on te proper packaging and storage procedure.

f) to give lectures and participate in the discussions on pesticides packaging, internal code of packaging, storage and distributions.

g) At the end of the assignment, submit a report based on findings and recommendations.

ANNEXURE C

LIST OF PERSONS CONTACTED

UNDP - KABUL	
Ms. Savitri Butchey	Dy. Resident Representiative
Mr. John R. Stewart	Senior Adviser
Mr. Fancois D' Artagnan	Asstt. Resident Representative
FAO - KABUL	
Mr. Hari C. Dewan	Officer-in-charge
Mr. Dharamvir S. Rana	Chief Technical Adviser
Mr. V. P. Singh	Consultant Seed Processing and Packaging
UNIDATA - KABUL	
Mr. B. P. Upreti	Chief Technical Adviser
Mr. Rajen P. Mathew	System Analyst
MINISTRY OF AGRICULTURE AND LAND REFORMS - AGHANISTAN	
Dr. Emauddin Ghiasi	Dy. Minister of Agriculture and Land Reform
Mr. A. R. Sabourry	General President - PPQ
Mr. Ahadi	Head Neurology Department - PPQ
Mr. Haider Ali Nazri	Head Pesticides Analysis Laboratory
Mr. Sardar Mohd	Head - PPQ Lab.
Mr. Asadullah Molakhail	President - AFCC
Mr. Juma Khan	General Director - AFCC
Mr. Naseer Ahmad Hedayat	President - Extension Services Department
Mr. Mohd Shafi Hafizi	Deputy President, Extension Services Department
Mr. Saeed Muzafar Uddin Hashim	President - Planning Department

MINISTRY OF PUBLIC HEALTH

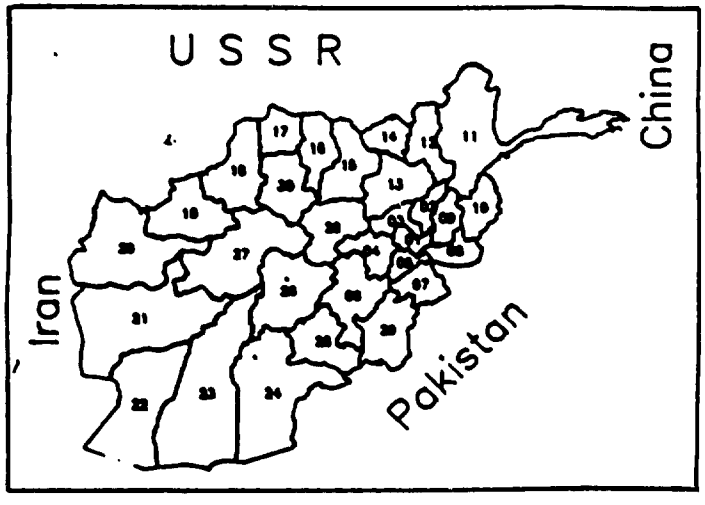
Mr. Mohd Azmi Karimzad	President - Institute of Malaria & Parasitology
Mr. Mohd Karim Majboor	Chief of Spraying Operation Deptt. of Malaria and Leichmania

MINISTRY OF MINES AND INDUSTRIES

Mr. Jumegul Naikiar	President - Planning
Mr. Sher Mohd	Vice President
Mr. Abdul Hafiz Nuri	President - Planning Light and Food Inudstry
Mr. Abdul Rahim Raufi	Vice-President - Planning Light and Food Inudstry

OTHERS

Mr. K. N. Vasudeva	Commercial Attachee - Indian Embassy
Mr. Mario Colaco	Hoechst Afghanistan
Mr. Robert Cruikshank	Central Office for Development and Promotion of Private Investment (CODAPI) - Kabul
Mr. Azizulla Azzizi	President of Procurement & Technical Servicee Deptt. - CODAPI
Mr. Eng A.Q. Majeed	Chief Consultant - Private Investors Association.



CODE	PROVINCE	1979 GOA CENSUS	1990 POP UNIDATA ESTIMATE	AREA KM2	DENSITY/ KM2	REMARKS
		ESTIMATED POPULATION OF 1990				
01	KABUL	1373572	2074301	4585	452	+375625 IN-MIGRANTS
02	KAPISA	345775	427614	5382	79	
03	PARWAN	409510	506434	5888	86	
04	WARDAK	293819	363362	9023	40	+JAGHATU PART
05	LOGAR	216303	267496	4652	58	+AZARO
06	GHAZNI	640409	791984	23378	34	
07	PAKTIA	484023	597818	9581	62	
08	NANGHARHAR	745986	922550	7616	121	
09	LAGHMAN	310751	384301	7210	53	
10	KONAR	250132	309333	9881	31	
11	BADAKHSHAN	498288	615158	47403	13	
12	TAKHAR	519752	645237	12376	52	
13	BAGHLAN	493882	610755	17109	36	-KAHMARD
14	KUNDUZ	555437	686902	7827	88	
15	SAMANGAN	272584	337101	11215	30	-KHOLM AND KALDAR
16	BALKH	569255	703990	16840	46	+KHOLM AND KALDAR
17	JOWZJAN	264081	326583	10326	32	-SARIPUL PRO. &DARZAB
18	FARYAB	582705	721625	21146	34	
19	BADGHIS	233613	288906	20065	14	
20	HERAT	676422	836620	63103	13	+SHENDAND AND FRSI
21	FARAH	327309	404776	47786	8	-SHENDAND AND FRSI
22	NIMROZ	103634	128163	41356	3	
23	HELMAND	517645	640165	61920	10	
24	KANDAHAR	574954	711037	47676	15	-NAISH
25	ZABUL	179362	221814	17253	13	
26	ORUZGAN	436418	539711	29295	19	+NAISH
27	GHOR	337992	418003	38666	11	
28	BAMYAN	268517	332070	17414	19	+KAHMARD
29	PAKTEKA	244727	302651	19336	16	
30	SARI PUL	324528	401339	16360	25	
	UNSPECIFIED			602		
TOTAL		13051385	16517734	652225	25	
LESS IN-MIGRANTS IN KABUL			375625			
TOTAL SETTLED POPULATION		13051358	16142109			
+NOMADS			1500000			
TOTAL POPULATION			17642109			

ANNEXURE E

DISTRIBUTION OF LAND IN AFGHANISTAN

		In Hectare
A. Agriculture Land		37,910,000
(i) Cultivable Land -		
a) Land under Annaul Crop	- 3,681,000	
b) Land under permanent crops (orchard, grapewine, etc)	- 1,43,500	
c) Land presently not under cultivation	- 4,084,000	
	7,910.000	
(ii) Pastures, Ranges and grassland	30,000,000	
B. Forests		1,900,000
C. Other land area including mountains		25,412,500
		65,222,500
D. Land Mass		
Cultivable land	-	7,910,000
Cultivated	-	3,240,000
Rainfed area	-	1,090,000
Wheat Sowing	-	1,968,000
Cotton Sowing	-	40,000
Others	-	142,000

ANNEXURE I

MINISTRY OF AGRICULTURE AND LAND REFORMS
DEPUTY MINISTRY OF AGRICULTURAL SERVICES
DEPARTMENT OF AGRICULTURAL EXTENSION

Area In 1000 Ha — Table at Agricultural Planning Programme for 1369

Sl. No.	Plants/ Provinces	Cotton	Sugarbeet	Sugarcane	Oil Crops			Wheat				Rice	Maize
					High land	Low land	Total	High land	Local land	low High yield variety	Total		
1.	ORUZGAN	-	-	-	-	0.8	0.8	4.2	7.8	15.0	27.0	20.0	7.4
2.	BADGHIS	-	-	-	1	0.7	1.7	31.0	22.0	4.0	57.0	8.0	2.4
3.	BAMYAN	-	-	-	-	0.1	0.1	30.0	6.0	15.0	51.0	0.4	0.8
4.	BADAKHSHAN	-	-	-	2	0.9	2.9	64.0	4.0	19.0	87.0	14.2	1.0
5.	BAGHLAN	1.2	0.5	-	2	2	4.0	39.0	7.0	40.0	86.0	12.2	32.0
6.	BALKH	10.3	-	-	2	1.5	3.5	45.0	34.0	36.0	115.0	16.2	9.0
7.	PARWAN	-	-	-	-	0.3	0.3	13.0	9.0	11.0	33.0	16.2	1.0
8.	PAKTIA	-	-	-	-	-	-	-	9.0	5.0	14.0	14.2	4.8
9.	PAKTIKA	-	-	-	-	-	-	-	10.0	1.0	11.0	12.2	-
10.	TAKHAR	0.5	-	-	4	2.7	6.7	167.0	4.0	25.0	196.0	22.4	23.0
11.	JOWZJAN	0.5	-	-	2	2	4.0	18.5	33.5	11.0	63.0	13.2	-
12.	ZABOL	-	-	-	-	-	-	10.0	33.0,	5.0	48.0	5.1	3.0
13.	SAMANGAN	0.3	-	-	1	1.2	2.2	2.0	6.0	11.0	236.0	7.5	-
14.	SARIPOL	0.5	-	-	2	0.5	2.5	30.5	4.5	9.0	52.0	6.1	-
15.	GAZNI	-	-	-	-	0.1	0.1	1.0	23.0	13.0	37.0	23.4	9.1
16.	GHORAT	-	-	-	-	-	-	96.2	6.0	2.0	105.0	2.0	0.1
17.	PARYAB	0.5	-	-	23	2.4	25.4	22.8	6.0	18.0	252.0	11.1	-
18.	FARAH	0.4	-	-	-	0.1	0.1	-	2.0	11.0	13.0	6.1	1.3
19.	KABOL	-	-	-	-	0.1	0.1	5.1	16.9	13.0	35.0	2.0	0.3
20.	KAPISA	-	-	-	-	-	-	0.9	4.1	6.0	11.0	8.1	3.0
21.	KUNDOZ	10.0	-	-	0.3	2	2.3	12.3	15.7	72.0	100.0	15.2	36.0
22.	KANDAHAR	0.5	-	-		0.1	0.1	-	24.0	36.0	63.0	20.4	-
23.	KONARHA	-	-	0.5	-	-	-	-	4.0	5.0	9.0	4.1	4.2
24.	LAGHMAN	-	-	0.7	-	-	-	1.1	3.0	8.0	11.0	3.0	20.0
25.	LOGAR	-	-	-	-	-	-	-	4.9		14.0	16.2	2.0
26.	NANGARHAR	-	-	2.6	-	-	-	-	5.0	18.0	23.0	22.5	18.5
27.	NIMROZ	-	-	-	-	-	-	-	30.0	6.0	36.0	19.2	-
28.	WARDAK	-	-	-	-	-	-	1.0	9.0	6.0	16.0	13.2	4.0
29.	HERAT	2.5	-	-	0.7	2.1	2.8	18.2	97.0	16.0	132.0	18.4	8.5
30.	HELMAND	12.0	-	-	-	1.4	1.4	-	13.0	39.0	52.0	30.6	0.6
	TOTAL	40.0	0.5	3.8	40.0	40.0	80.0	154.0	457.0	474.0	1085.0	385.0	183.0

Contd...

Sl. No.	Plants/ Provinces	Barley High land	Barley Low land	Barley Total	Other crops	Other grains	Fruits Other Fruits	Fruits Pome-granate	Grapes	Total	Vegetables Other Veg.	Melon	Water melon	Potato	Total
1.	[illegible]	-	21.9	21.9	5.3	1.2	4.4	-	0.2	4.6	0.2	0.12	0.24	0.19	0.75
2.	[illegible]	-	5.0	5.0	2.6	0.5	0.3	-	-	0.3	0.6	1.0	0.02	0.1	2.52
3.	[illegible]	-	5.0	5.0	1.2	1.5	0.5	-	-	0.5	0.1	0.3	0.02	2.50	2.65
4.	[illegible]	1.2	33.7	34.9	1.2	3.0	1.3	-	0.1	1.4	0.03	0.21	0.62	0.3	1.16
5.	[illegible]	-	17.9	17.9	10.75	2.5	2.4	-	0.4	2.89	0.45	2.11	1.64	0.4	4.6
6.	[illegible]	-	12.0	12.0	0.7	0.8	1.4	-	0.7	2.1	2.6	1.5	0.4	0.3	4.8
7.	[illegible]	-	5.0	5.0	1.8	1.9	3.2	-	9.5	12.7	3.2	0.2	0.46	0.6	4.46
8.	[illegible]	-	-	-	1.7	0.1	1.4	-	-	1.4	-	-	-	-	-
9.	[illegible]	-	25.4	1.0	1.8	0.2	0.02	-	-	0.02	0.08	0.04	0.1	0.1	0.32
10.	[illegible]	1.5	22.1	25.9	0.1	3.5	0.8	-	0.3	1.1	1.8	2.95	1.4	1.2	7.35
11.	[illegible]	0.8	-	22.9	2.8	0.3	0.5	-	0.7	1.2	0.3	0.7	1.24	0.1	2.34
12.	[illegible]	-	30.7	-	1.9	0.1	6.7	-	0.3	7.0	0.04	1.0	2.82	0.3	4.16
13.	[illegible]	1.2	6.6	31.9	2.0	0.1	2.1	-	1.5	3.6	0.35	0.5	0.22	0.57	1.64
14.	[illegible]	0.4	11.0	7.0	1.8	0.7	0.3	-	1.5	1.8	0.3	0.3	0.4	0.1	1.1
15.	[illegible]	-	20.9	11.0	5.6	0.5	0.5	-	3.3	3.8	0.48	0.23	0.45	1.68	2.84
16.	[illegible]	-	3.0	20.9	2.2	0.4	0.4	-	-	0.4	0.18	0.08	0.01	1.0	1.27
17.	[illegible]	0.9	2.0	20.9	1.51	0.2	1.0	-	1.0	2.0	0.63	12.0	2.25	0.29	15.17
18.	[illegible]	-	1.0	3.0	1.4	-	0.4	-	1.0	1.4	0.4	0.25	0.5	0.2	1.35
19.	[illegible]	-	7.0	2.0	3.9	1.0	4.78	-	0.1	13.08	3.2	-	0.21	3.0	6.41
20.	[illegible]	-	-	1.0	1.7	1.1	1.8	-	0.3	2.1	0.3	0.06	0.1	0.2	0.66
21.	[illegible]	-	-	7.0	12.4	13.0	0.3	-	-	0.3	0.8	3.5	1.38	0.4	6.08
22.	[illegible]	-	-	-	2.1	3.0	3.6	-	11.0	14.6	2.0	0.02	0.6	0.1	2.72
23.	[illegible]	-	-	-	0.6	0.1	0.1	-	-	0.1	0.35	-	-	-	0.35
24.	[illegible]	-	-	-	0.09	0.3	0.2	-	0.1	0.3	1.21	-	0.01	0.57	1.79
25.	[illegible]	-	2.0	2.0	0.9	0.1	0.3	-	2.3	2.6	0.2	-	0.03	0.06	1.09
26.	[illegible]	-	-	-	2.3	0.3	5.1	-	0.2	5.3	5.8	-	0.11	1.14	7.05
27.	[illegible]	-	-	-	4.1	0.2	0.4	-	-	0.4	0.1	0.7	1.08	-	1.88
28.	[illegible]	-	5.0	5.0	1.0	0.5	0.5	-	0.1	0.6	0.1	-	0.01	3.9	4.01
29.	[illegible]	-	28.8	28.8	5.2	4.4	1.1	-	7.6	8.7	0.7	2.5	1.08	0.8	5.08
30.	[illegible]	-	-	-	10.7	2.5	2.2	-	-	2.2	0.5	-	5.0	0.1	5.6
	TOTAL	6.0	296.0	302.0	107.95	44.0	48.0	-	52.0	100.0	27.1	30.0	24.0	21.0	102.06

Contd.....

Sl. No.	Plants/ Provinces	Below and Under Below		Total of except potato		Total	Total of
		High land	Low land		High land	Low land	High land and low land
1.	[illegible]	-	0.36	0.56	4.2	84.75	88.95
2.	[illegible]	0.1	1.72	2.42	32.1	47.92	80.02
3.	[illegible]	-	0.05	0.15	3.8	25.13	63.15
4.	[illegible]	0.1	0.73	0.86	67.3	79.46	146.76
5.	[illegible]	0.4	3.35	4.2	41.4	133.05	174.45
6.	[illegible]	0.2	1.7	4.5	47.2	135.2	182.4
7.	[illegible]	-	0.66	3.86	12.8	63.36	76.36
8.	[illegible]	-	-	-	-	36.2	36.2
9.	[illegible]	-	0.14	0.22	-	26.54	26.54
10.	[illegible]	0.4	3.35	6.15	172.9	122.65	295.553
11.	[illegible]	0.2	1.74	2.24	21.5	88.74	110.24
12.	[illegible]	0.3	3.52	3.86	10.3	58.96	69.26
13.	[illegible]	0.1	0.62	1.07	221.3	63.54	214.84
14.	[illegible]	0.1	0.6	1.8	41.8	32.5	73.5
15.	[illegible]	-	0.68	1.16	1.8	83.34	84.34
16.	[illegible]	-	0.88	0.27	86.2	36.07	132.27
17.	[illegible]	2.8	12.25	14.88	253.9	84.68	338.58
18.	[illegible]	-	0.75	1.15	-	28.85	28.85
19.	[illegible]	-	0.21	3.41	5.1	58.88	64.88
20.	[illegible]	-	0.16	0.46	0.9	27.76	28.66
21.	[illegible]	0.4	4.68	5.68	13.8	188.88	283.88
22.	[illegible]	-	0.62	2.62	3.8	183.4	186.42
23.	[illegible]	-	-	0.36	-	18.85	18.85
24.	[illegible]	-	0.1	1.22	-	37.78	37.78
25.	[illegible]	-	0.68	0.23	1.1	37.78	38.48
26.	[illegible]	-	0.11	5.91	-	83.55	83.55
27.	[illegible]	-	1.78	1.88	-	61.78	61.78
28.	[illegible]	-	0.01	0.11	1.8	43.31	44.31
29.	[illegible]	0.7	3.68	5.88	18.6	197.58	216.18
30.	[illegible]	-	5.8	5.5	-	117.6	117.6
	TOTAL	5.8	48.8		1185.8	2288.25	3314.25

ANNEXURE G

STOCKS OF PESTICIDES IN CENTRALWARE HOUSE, DARULLAMAN, KABUL

Sl. No.	Name of Pesticides	Packing	Quantity
A.	FUNDGICIDES		
	1. Cupravit blue	25 kg. Bag	939 x 25 = 2325 kg
	2. Wettable Sulphur	20 Kg. Bag	49 x 20 = 980 kg
	3. Cuprous Oxide	50 Kg. Bag	= 185 Tonnes
	4. Phenyl mecury Accetate		
	i. Ceresan	25 kg. drum	665 x 25 = 16625 kg
	ii. Granosan	25 kg.	32,500 Tonnes
	5. Zinc 75% WP (Lonacol)	25 kg. Bag	22000 Kg
	6. Gaarma Seed Powder (Linlane)	25 Kg. drum	5 x 25 = 125 Kg
B.	HARBICIDE		
	Propanil		24000 Kg
C.	INSECTICIDES		
1.	Trichlorphon Dipterex	1 Kg. pkt.	3036 x 1 = 3036 Kg.
	Chlorophos	drums	20546 " (Sub-standard)
2.	Thiodane 35% a)	1 litre bottle	3275 x 1 = 3275 Litre
	Endosulfur b)	200 kg. drum	150 x 200 = 29990 litre
3.	BHC powder 12%	25 kg. bag	8345 litre
4.	Metasystox R (Oxydemcton Methyl)		24409 litre
5.	Malathion powder 50%	25 Kg. carton	103 x 25 = 2575 Kg
	" " 25%	-do-	= 7008 Kg
6.	Triazophos 20% (Hostathion)	1 litre bottle	195 litre
7.	Azubiphos Methylo 20EC	1 litre bottle	8831 x 1 = 8831 Litre
8.	Dimethoate 50%	25 litre drum	68 x 25 = 1700 Litre
9.	Carbaryl (Sevion)	25 litre drum	4375 Litre
10.	Phosalone (Azofene)	12 kg. Bag	6984 Litre
11.	Aluminium Phosphide (Phostoxin)	160 Table/Tin	37 x 160 = 5920 Tables
D.	HOUSEHOLD PESTICIDES		
	Propoxur (Baygonflybait)	25 g. pkt	147182 pkts
	Baygon W.P.	25 Kg. drum	431 x 25 = 10775 Kg
E.	RODENTICIDE		
	Brodelon Bait	1 Kg. Tin	85 Kg.

PESTICIDES SALE PROVINCEWISE 1990

PROVINCES/ PESTICIDES	KABUL	HELMAND	PACKING UNIT	PAKTIA	GHAZNI	FARAH	BAGHLAN	KUNDUZ	NAZARISHARIF	FARYAB	JOWJAN	KANDAHAR	KANDAHAR	LAGHMAN	PAPWAN	HERAT	BADGHIS	HERROZ	GHOR
CUPRAVIT BLUE	35900 Kg	200 Kg	25 kg. Bag	125 KG	470 Kg	275 Kg	-	-	1200 Kg	675 Kg	-	875 Kg	170 Kg	-	2200 Kg	120 Kg	-	-	20 Kg
SULFUR W.P.	1260 Kg	-	20 Kg Bag	-	-	-	-	-	1260 Kg	-	-	-	-	-	-	-	-	-	-
GRANOZAN	2100 Kg	-	Beral	25 Kg	125 Kg	120 KG	450 Kg	12000 Kg	250 Kg	125 Kg	350 Kg	300 Kg	200 Kg	50 Kg	250 Kg	200 Kg	200 Kg	-	40 kKg
CERESAN	1250 Kg	3200 Kg	25 Kg Beral	-	-	-	550 Kg	975 Kg	600 Kg	-	-	175 Kg	75 Kg	-	451 Kg	200 Kg	50 Kg	-	-
LORACOL	1450 Kg	-	1 Kg can	-	-	-	450 Kg	-	500 Kg	-	-	250 Kg	-	-	200 Kg	-	-	-	-
TRICHLOROPHON	1900 Kg	120 K	1 Li Bottle	-	-	-	-	-	1200 Kg	820 Kg	980 Kg	220	120 Kg	-	-	640 Kg	1000 Tin	-	-
THIDAN	1300 Bot	120 Bot	25 Kg. Beral	33 Bot	-	-	-	220 Li	22 Kg	-	190 Kg	80 Bot	60 Bot	-	-	-		-	-
METAPHOS	2750 Kg	-	25 Kg drum	-	-	45 Bot	-	-	-	-	-	-	75 Kg	150 Kg	-	600 Kg	50 Kg	-	-
BAYGON POWDER	2975 Kg	500 Kg	25 Kg Beral	51 Kg	-	-	-	-	600 Kg	-	-	-	320 Kg	-	950 Kg	140 Kg	80 Kg	20 Kg	-
METASYSTOX R	920 Li	180 Li	1 Li Bottle	40 Bot	120 Li	66 Bot	100 Li	300 Li	440 Bot	210 Bot	Li 220 Li	146 Li	320 Kg	490 Bot	-	250 Li	10 Bot	40 Bot	10 Bot
NOSTATHION	760 Pot	-	1 Li Bottle	22 Bot	-	-	-	-	200 Bot	-	-	-	250 Li	50 Bot	12 Bot	10 Bot	4 Bot	-	-
AZINOPHOS METHYLE	620 Bot	200 Bot	1 Li Bottle	60 Bot	145 Bot	140 Bot	-	300 Bot	500 Bot	100 Bot	320 Bot	400 Bot	28 Bot	100 Bot	15560 Bot	120 Bot	20 Bot	50 Bot	30 Bot
DIMETHOATE	850 Li	25 Kg	25 LiBeral	-	-	-	-	-	-	-	-	-	100 Bot	-	-	-	-	-	-
SULFUR POWDER	13000 Kg	4000 Kg	40 Kg Bag	-	1240 Kg.	-	-	-	1000 Pot	-	-	1240 Kg	-	-	-	3000 Kg	-	-	-
CHLORIPHOS	45000 Kg	-	Barrel	-	-	-	-	-	35560 Kg	-	-	-	-	-	-	-	-	-	-
METHYL PARATHION	950 Kg	-	25 Kg Bag	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80 Bot-	-
MALATHION	450 Kg	250 Kg	25 Kg Box	-	-	-	875 kg	-	-	-	150 Kg	-	120 Kg	25 Kg	1550 Kg	424 Kg	-	-	-
BHC	-	-	25 Kg Box	-	-	-	-	-	-	-	-	-	600 Kg	1870 Kg	39000 Kg	-	-	-	-
MALATHION 25%	-	-	25 Kg Box	-	-	-	-	-	-	-	-	-	50 Kg	-	-	-	-	-	-
HEDONAL (2,4-D)	-	-	25 Kg Box	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-
							-	-	-	-	-	-	-			500 Kg	-	-	-

ANNEXURE I

PESTICIDES SUPPLIED BY USSR (PROTOCOL SIGNED BETWEEN AECC AND USSR)

Sl.No.	Name	1987	1988	1989	1990
		TONNES			
1.	Sulphur W.P.	-	68.0	-	-
2.	Sulphur Powder	-	-	-	1000
3.	Granasan (Carbendazion + Mancozeb)	150	-	-	-
4.	Chlorophos (Trichlorophin, Dipte)	250	-	-	-
5.	TMTD (THIRAM) (Tetramythylthuram Disulfide)	250	-	-	-
6.	Propanil (Stam F-34 Rogue)	157	-	-	-
7.	Sodium Trichlrio Accetate 60%	50	-	-	-
8.	BHC Dust 12%	330	-	-	-
9.	Metaphos (Methyl Parathion	10	-	-	-
10.	Thiodan (Endosulfac EC)	80	-	-	-
11.	Cuprous oxide	185	-	-	-

ANNEXURE J

IMPORT OF PESTICIDES - PERMISSION TO PRIVATE TRADE

	UNIT	1988 (1367)		1989 (1368)	1990 (1369)	1991 (1370)
A. FUNGICIDES						
Sulphur Powder	Tonnes	2000	Tonnes	Nil	218	Nil
Loattable Sulphur	"	5	"	Nil	Nil	Nil
Thiram		3-5	"			
Captafol (Difolatan)		3-5	"			
Benomyl (Benlate)		3-5	"			
B. INSECTICIDES						
50% Somithion (Fernlrothion)	Litre	30000	Litre	-	-	-
50% Methyl Parathion	Litre	40000	Litre	-	-	-
50% Malathion Powder		20000	Kgs	-	-	-
C. HARBICIDE						
2-4 D (Hedenal Powder	Tonnes	100		100	17.5	50.0
2-4 D Aminie Salt EC	Tonnes	20		-	-	-
D. RODENTICIDE						
Coumatetralyl (Racumin Powder)	Tonnes	2.0		-	-	-

ANNEXURE 4

STOCKS OF BHC IN PROVINCES - TONNES

PROVINCE	QTY.	CONSUMPTION 1990	CONSUMPTION 1991	BALANCE QUANTITY
Balkh	2,819	-	200	2,619
Samagan	203	-	-	203
Baghlan	3,033	200	200	2,633
Kunduz	700	-	20	680
Jozjan	250	-	-	250
Sarepul	-	-	-	-
Faryab	10	-	-	-
Herat	616	436	180	-
Badhis	-	-	-	-
Takhar	10	-	-	10
	7,641	646	600	6,395

ANNEXURE L

GUIDELINES FOR THE SAFE HANDLING OF PESTICIDES

1. General Guidelines :

The handling of many pesticides can be potentially hazardous; especially if equipoment is poorly designed or poorly maintained, or if operating practices are not upto standard. The principal hazards are:

(A) Intoxication : Intoxication can be caused by pesticides absorption through the skin, by inhalation of pesticides fumes or dust, or less commonly, by actual ingestion of pesticides. Skin contact is the most common cause of poisioning. It is more common that it need be, partly because people are often not aware that they have been in contact with pesticide (perhaps through damaged or internally soiled clothing) and so do not take remedial action, and partly because, even people are aware of contact, they think are only at risk if their skin is broken. In fact, many pesticides, in either liquid or powder form, will pass readily through healthy, unbroken skin into the bloodstream (the eyes and the area around the genitals are particularly vulnerable). Inhalation is one of the fastest ways of being poisoned. This is because the fumes, vapours and dust pass quickly into the bloodstream from the lungs. Ingestion is the least common cause of accidental poisoning. When it does happen, it is usually because people have taken food and drink into working area or have been smoking when their hands are contaminated.

(B) Fire : Like many chemicals, some pesticides and pesticide ingredients are a fire risk. Others can become so, if they decompose. Since most warerehouses carry large quantities of product, the consequences of fire can be severe.

(C) Environmental contamination : The most likely risk to the environmet will come from the accidental discharge of products. There is a particular danger following a fire, when contaminated fire-fighting water may flood into drains and waterways with damaging consequences.

(D) Responsibility : The senior manager of a formulation packing and storage operation must consider that he is personnally responsible for each of the following :

- the occupational health of his permanent and contracted staff.

- the industrial hygiene and safety of his site, plants and operations

- the protection of the environment.

Responsibility for separate parts of the operation may be delegated to qualified subordinates, but each of them must clearly understand what he is reponsible for.

(E) Product Data Sheets : Since each formulated pesticides and each of its ingredients have their own specific properties, the supplier must provide a Product Data Sheet (PDS) for each product and ingredient. The PDS should contain, where appropriate; physical and chemical data; safety data and instruations; product handling instructions; storage conditions; protective clothing advice; cleaning; decontemination and disposal instructons; first-aid mesures; information to doctors; fire-fighting instructions; sources of advice. When formulating, packing, storing and transporting a specific product or its ingredients, the requirements given in the Product Data Sheets must be followed.

(F) Buildings : Where walls are used, they should be of non-flammable or at least slow-burning construction; walls specifically designed as fire-breaks must be of solid brick or concrete construciton and should ideally continue above the roof to a height of one metre. Doors located in fire-break walls must of course be fire-resistant and preferably self closing where piping ducting and electric cables penetrate fire resistant walls, these points must be sealed. Roofing must be able to keep out rain water and design should allow for fumes and heat to be vented if there is fire. Buildings should provide both good general ventilation and protection against direct sunlight. Floors should be impermeable to liquids. They should be smooth and free from cracks to allow for easy cleaning and be designed to contain leakage and contaminated fire-fighting water for instance by means of a surrounding 15 cm. sill. Ideally, there should be no drains at all in plants and warehouses. If drains are absolutely necessary; they must not be connected directly with waterways or public sewers. All buildings containing flammable materials must have lightning protection. Personal protective clothing and equipment and emergency equipment should always be readily available. Emergency showers should be accessable and easy to use and plenty of squeeze operated eye wash bottle should be kept ready without forgetting to change the water frequently.

2. Safety Guidelines on Formulation and Packing :

(a) The buildings should be well ventilated, principally to provide agreeable working conditions.

(b) Local exhaust ventilation is the only effective way of stopping harmful dusts and fumes from being released into the workplace.

(c) Room ventilation should be used where equipment cannot be ventilated locally because of its size, shape or function.

(d) There must be proper facility for emission control.

(e) There must be sufficient natural or artificial lighting to permit safe operation of the plant.

(f) All electrical equipment (including electrically driven fork-lift trucks) used in plants handling flammable materials must be approved from a fire-safety view point and must be maintained to a safe standard. Permanent electrical leads; where used, should be kept short.

(g) All electrical equipment in the vicinity of the formulation and filling units must not produce sparks and must be approved from fire- and explosion-safety view point.

(h) Exhaust ventilation with a minimum air velocity of 0.5 m/sec. must be provided at the charging and discharge points. Empty packaging material should be carefully collected in a container to keep dust in the working areas to a minimum.

(i) Packing equipment for filling liquids and solids must be equipped with local exhaust (source) ventilation with a minimum air velocity of 0.5 m/sec.

(j) The following written instructions and working procedures should be readily available to the supervisors;

- instructions for the safe and correct operation of the equipment.

- blending and packing procedures.

- product Data Sheets for the ingredients and finished products.

- hygiene and safety instructions and procedures.

- emergency instructions and procedures.

- equipment cleaning procedures.

(k) Before formulating any pesticides or packing it, the supervisor must check that all necessary plant hygiene and safety equipment, such as exhaust ventilation equipment is operational. He must also enure that operators are wearing the necessary personal protective equipment. If such equipment is being re-used, it must first be properly cleaned and inspected. The supervisor must also ensure that the working area is in a condition that permits safe working. For example, it should not be crowded with containers and unnecessary equipment. Workers must avoid all contact with the products, but in the event of accidental contact must remove contaminated clothing immediately and wash the skin and treat according to any specific instructions given in the PDS and also see doctor.

(l) Strict precautions must be taken to prevent cross-contamination. For example, a fungicide contaminated with an insecticide could present a hazard to the user, and an insecticide contaminated with a herbicide could cause crop damage. An effective system must be adopted for identifying the correct ingredients required by the recipe. Strict procedures must be laid down for the dosing of ingredients into formulating equipment in order to avoid mistakes. Accurate records should be kept of the batch or lot number and weights of all ingredients used in each identifiable batch of formulated product. Product must be checked regularly for quality, and a refeence sample system established to enable possible complaints to be investigated. Because of the risk of operator contact, the filling and packing of pesticides can be one of the most hazardous operations in a pesticide formualtion and packing plant. Equipment must be well maintained to prevent leaks and drips. The supervisor must ensure that all safety devices are operational and that safe and hygienic working procedures are being followed.

3. <u>Safety Guidelines on Storage and Transport</u> :

(a) All electrical equipment, including wiring, must be maintained in a safe condition. Battery-charging equipment must be well ventilated to permit safe dispersal of hydrogen generated during charging, and it must also be kept clear of stored products or other combustible matreriale.

(b) It is preferable that warehouses are unheated. Where heating is necessry to maintain the condition of the material stored, indirect heating by some of safe means, such as steam or warm air, is recommended. Heating equipment should be permanently installed (rather than being portable) and the flow of hot air should not be directed on to producted which must be stored well of heat sources.

(c) In general, all pesticides should be stored under a roof. Weather proof packs such as 200 - litre drums may be stored in the open provided their contents are not sensitive to extremes of temperature. Storage areas should have a firm, impermable base surrounded by a containment sill. If the area is not roofed over, there must be adquate facilities for the disposal of collected rain water. Asphalt is not recommended because it softens in hot climates and under the influence of certain solvents. Storage on pallets is recommended. All drums must be stored in such a way that there is always sufficient space for fire-fighting access.

(d) Storage tanks must be located in a impermeable walled area. The area must be large enough-and the wall high enough-to contain a volume of liquid at least as great as that contained by the largest of the tanks. There must be sufficient space between the tanks for fire-fighting access. If the area is not roofed over, there must be adequate facilities for the disposal of collected rain water.

(e) Within the warehouse, operations must be closely supervised by a trained and experienced supervisor. If there are several supervisors of different levels, the area and line of responsibility must be clearly defined and understood.

(f) The following written instructions and working procedures must be readily available to the supervisor :

- instructions for the safe and correct operation of any equipment and storage of materials

- Product Data Sheets for all stored and transported products.

- hygience and safety instructions and procedures.

- emergency instructions and procedures.

(g) Goods must be checked on arrival for identity, qualtiy and condition. If the goods are not in good condition or if for any reason they seem to present a particular hazard, appropriate action must be taken.

(h) A clear space should be left between all outside walls and the nearest packs and within block stacks, to allow access for inspection, free movement of air and fire fighting. Products must be arranged so that for lift trucks and other handling equipments are not obstructed. Narrow aisles or tight corners will increase the risk of damage to packs. All aisles should be clearly defined by markings on the floor.

(i) For a variety of reasons, it may be desirable to segregate pesticide products and ingredients from other products within the warehouse; for practical purposes; this will depend on the type and quantity of product involved.

(j) Segregation of flammable liquids possessing flashpoint of less than 61 °C (as well as aerosols) from other products is recommended unless otherwise specified by local laws or regulations. This segregation is best achieved with walls built to fire-resistant standard (usually applicable in large warehouses only) or in smaller units, with a barrier of essentially non-flammable products, for example, water-based products.

(k) There must be a clear space between the top of all stacks and the roof (including light fittings and roof beams) where sprinklers are fitted, a space at least 1 metre must be maintained between the top of the stack and any roof sprinkler heads. Stacking heights will vary with the types of pack used, but in every case the height must be limited to the maximum tolerable without causing damage to the lower packs. The use of pallet racks or shelves is highly recommended for this purpose. All packs must be stacked well clear of heating units and lights. The effect of solar radiation must be considered when stacking near both roof and wall windows.

(l) The conditions of the vehicle must be checked before loading and unsound floors and protrusions likely to damage the packs must be avoided. This applies also to the use of container transport. Care should be taken to ensure the stability of the load, and vehicles without clear division (barrier) between the load and the driver must not be used. The vehicle must carry documents, for example, a Transport Emergency (TREM(card. to identify the following, in the event of an accident :

(i) the despatching company, including its address and telephone number

(ii) the products being carried

(iii) the basic hazards, and the precautions to be taken.

A suitable fire extinguisher, protective and clean-up equipments, and first aid box should be available for use by the driver.

4. PRECAUTIONS FOR SAFE USE OF PESTICIDE

All the pesticides are undoubtedly poisonous and, therefore, should be stocked, handled and used with utmost care. Following precautions should be strictly observed to avoid any unforeseed mishap.

1. Read the label carefully and follow the manufacturers' instructions.

2. Do not tear open the pesticide bags, cut them with a knife. Open the liquid containers slowly and carefully so that it does not splash.

3. Do not allow children to spray or dust.

4. Do not stir the mixture with hand. Use long handle stirrer.

5. Do not smoke, chew, eat or drink while handling the pesticides.

6. Do not apply pesticides with naked hands.

7. Never apply pesticides against the wind.

8. Apply the pesticides only during the cool hours and not during the scorching heat.

9. Do not blow, suck or apply the mouth to any sprinkler, nozzle or spraying equipment.

10. Wash your hands thoroughly with soap before touching food stuff, tobacco or "pan". Take a bath at the end of day's work.

11. Destroy completely the empty containers or packing after use.

12. Separate working clothes should be used which should be washed after the spray operation. If they get wet by the splash of the spray material, change them immediately.

13. In the handling of highly dangerous pesticides, necessary protective, clothings and devices like gloves, goggles and even gas mask, when necessary, may be used.

14. Operators should not work continuously or more than 10-12 hours, operators engaged in handling dangerous pesticides should be checked by a physician periodically.

15. In case of uneasiness while handling the product or spray solution (vomitting sensation, intestinal cramps, giddiness) stop working immediately and call a doctor at once. Hand over the bottle and all the leaflets to him.

16. Observe the waiting periods between spraying and harvesting as indicated in the directions for use.

17. If otherwise stated do not use the pesticide to kill the mosquitoes, flies or bugs in your home. Never use it on human beings or animals to get rid of fleas, lice, ticks or other parasites.

5. SPECIFIC ANTIDOTES AND TREATMENT

BHC, DOT, ENDOSULFAN, ETC.

A saline purgative be given, but oil laxatives should be avoided. To induce sedation and control convulsion phenobarbitol upto 0.7 g. per day or pentobarbitol (0.25 to -.50 g) per day be given. During the period of depression, oxygen therapy and articial respiration may be needed. 10% calcium gulconate may be given in intravenously. If ingested, evacuate the contents of the stomach by lavage, followed by universal antidote.

MALATHION, TEMEPHOS, ETC.

Atrophinize the patient immediately and maintain full atrophinization by repeated dozes of 2 to 4 mg. at 5 to 10 minutes intervals for hours together. As much as 25 to 50 mg. may be required in a day.

UNIVERSAL ANTIDOTE

Activated charcoal 2 parts, magnesium oxide 1 part and tannic acid 1 part in glass of warm water.

ANNEXURE M

HAZARD CLASSIFICATION

1. Introduction

1.1 The system of classification is based upon a simplified version of that recommended by the World Health Organisation (WHO Technical Report Series No. 513, 1973), and contains only three classes - Toxic, Harmful, Flammable;

1.2 Where products are classified as other than toxic, are contained in packages of 100 ml. (grammes) or less; and prsent no danger to the perons handling the packages; then, by agreement with the Director General of Pesticides Registration some or all of the requirements to label the package in accordance with the classification may be waived.

2. Toxicity

2.1 Solid and Liquid Formulations

The basis of classification is primarily the acute oral LD50 to the rat of the formulation although the acute percutaneous LD50 should be used if this would indicate a more severe classification. The following LD50 figures should be used in classifying a pesticide. Solid formulations with an oral LD50 of 15 mg/kg or less and liquid formulations with an LD50 of 25 mg/kg or less should not be allowed for general sale but may be permitted for special use by Department of Plant Protection Officials;

Classification	Formulation	
ORAL LD-50	Solid	Liquid
Toxic	Over 15 mg/kg but not more than 50 mg/kg	over 25 mg/kg but not more than 200 mg/kg
Harmful	over 50 mg/kg but not more than 500 mg/kg	over 200 mg/kg but not more than 2,000 mg/kg
PERCUTANEOUS LD-50		
Toxic	100 mg/kg or less	400 mg/kg or less
Harmful	over 100 mg/kg but not more than 1,000 mg/kg	over 400 mg/kg but not more than 4,000 mg/kg

2.2. Pesticides in the form of gas or liquid gas; fumigants and aerosol products; pesticides in powder form in which the diameter of the particles does not exceed 50 microns

The basis for classification is primarily the inhalation 4-hours exposure LC50 to the rat, using the following figures:

Toxic	over 0.5 mg/1 air but not more than 2 mg/1 air
Harmful	over 2 mg/1 air but not more than 20 mg/1 air

Pesticides with an LC50 of 0.5 mg/1 air or less should not be permitted.

All substances and preparations classified as toxic should be clearly and legibly marked as TOXIC and bear the symbol of a Skull and Crossfones (in black on a orange - yellow background).

All substances and preparation classified as harmful should be clearly and legibly marked as HARMFUL.

These markings should be on each contianer and also on any outer packing.

3. Flammability

3.1. Liquid substances or preparations having a flash point below 21 °C should be classed as highly inflammable and their use as pesticides in Afghanistan should not be permitted;

3.2. Liquid substances or preparations having a flash point of 21 °C or over (but under 55 °C) should be classified as flammable and be clearly and legibly marked as FLAMMABLE and bear the symbol of a naked flame (in black on an orange-yellow background);

3.3. Pre-pressurised aerosol dispensers should be clearly and legibly marked FLAMMABLE and bear the symbol of a naked flame if the contents include more than 45% by weight, or more than 250 grammes, of flammable components i.e.

a) gases which are flammable in air at normal pressure

b) substances and preparations in liquid form which have a flash point less than or equal to 100 °C.

ANNEXURE N

L A B E L L I N G

1. The Label

1.1. Introduction

A label should possess the appropriate technical qualities in such matters as strength, attachment and durabilituy to the elements and to the contents of the container or other substances with which it might be expected to come into contact. The label should always include sufficient information, clearly set out, to ensure the safe handling and proper use of the product. The label must be in a prominent position on the contianer and affixed so that it can be read horizontally when the container is set down normally. If the space on the container is too small for all the information, priority must be given to guide the user on the safe handling of the product. Additional information can be on a special, separate leaflet accompanying the container. The information on safe handling must be repeated in the leaflet;

1.2. Language

The label should be written in English and either Dari or Pashtu (at the discretion of the Director General of Pesticide Regisration);

1.3. Multiple Packs

Where an outer pack contians one or more detachable inner containers, the inner(s) must also be labelled in accordance with paragraph 2 below at least as regards the name of the product, active ingredient, the name of the manufacturer, hazards and other legal requirements.

1.4. Draft Label

A firm requesting registration should submit a complete draft lable in English.

2. Label Information

2.1. The following information should be included on the label and any accompanying leaflet:

2.1.1. Trade or Proprietary Name,

2.1.2. The word Insecticide, Fungicide, Herbicide etc. (as appropriate),

2.1.3. Common name of the active ingredient(s) according to ISO (or if this is not available BSI, AFNOR, WSSA, ANSI, ESA, JMAF or similar) and the content of its (as 100% active chemical) as a percentage by weight for solids and aerosols or in grammes per litre for liquids,

2.1.4. For dangerous pesticides, a statement of the hazard classification (e.g. toxic, flammable etc.) together with the appropriate symbol as set out in Appendix A2,

2.1.5. Registration number allocated by the Director General of Pesticides Registration,

2.1.6. The net quantity (in grammes/kilos/ millilitres/litres) of the preparation,

2.1.7. Name and address of te manufacturer and, if different, that of any agent through whom further advice on safety and use may be obtained;

2.1.8. A statement tht the packaging must not be reused for any other purpose,

2.1.9. Directions for use - or a reference to a source of such information,

2.1.10. Any appropriate information on First Aid, Antidotes and Medical Treatment,

2.1.11. Any special storage conditions e.g. protect from frost,

2.1.12. Any special precautions to be taken in handling product;

2.2. There must also be on the lable or on the container and on outer containers a means of identifying the batch and date of manufacture (The key to any coding must be disclosed to the Director General of Pesticide Registration).

3. Label Size and Presentation

3.1. The colour and presentation of the label must be such that a hazard symbol stands out clearly from the background;

3.2. The minimum dimensions of the label should be as follows :

Capacity of Container	Dimensions of Label
a) 3 litres or less	not less than 50x75 mm
b) exceeding 3 litres but less than 50 litres	not less than 75mm x 100 mm
c) exceeding 50 litres but	not less than 100mm

Except that where, in case to which (a) applies, it is impracticable to comply with these requirements, the label should be as large as possible. The size of any hazard symbol (including the background) should be at least one-tenth of the above minimum lable areas and never less than 1 square centimetre.

4. Layout of Information

4.1. If necessary labelling may be in 2 ore more distinct areas;

4.2. The MAIN AREA should carry at least the information required by paragraphs 2.1.1. - 2.1.5;

4.3. SUBSIDIARY AREA (s) should carry all other information.

5. Legibility of Information

5.1. It is important that the maximum legibility is obtained and the size of print should be the largest possible in relation to label and pack size. The minimum type size should be 6 point with a point leading;

5.2. The Trade or Proprietary name should not be more than 6 times the size of the print in the main text;

5.3. The warning words TOXIC, FLAMMABLE etc. should be in bold capitals and not less than twice the size of the print in the main text.

ANNEXURE O

GUIDELINES FOR THE

STORAGE AND DISPOSAL OF PESTICIDE CONTAINERS

1. Storage of Pesticides Containers

1.1. Care in storing and handling is essential to prevent damage to containers;

1.2. The store should be a dry, well ventilated, secure place, protected from excesses of heat or cold, to which only authorised persons have access;

1.3. Pesticides should not be stored near feeding stuffs, seeds, fertilizers, veterinary or other products;

1.4. Products should be stored in an orderly manner with despatch being in order of arrival (first in-first out);

1.5. Observe safe stack heights;

1.6. Stocks should be checked regularly both for damage and to avoid accumulation of outdated products;

1.7. Stores should be kept clean;

1.8. Empty pesticides containers should be kept in an empty container compound". This is a well defined and enclose area, in which empty and (if possible) rinsed containers await disposal and from which animals and unauthorised persons (especially children) are excluded. Empty paper sacks and contaminated outer cartons should either be placed in a special weatherproof container in the compound or disposed of at once as in paragraph 3 below.

2. Empty Containers

2.1 For safety's sake it is essential that before disposing of any container it must be thoroughly emptied and, wherever possible, rinsed out;

2.2. To rinse out empties, fill container about one-quarter full with water, replace stopper tightly and shake well. Dispoce of rinsings away from potable water supplies;

2.3. Contents of damaged containers should be transferred to a suitable container, clearly labelled as to content and disposed of as directed by a competent authority e.g. The Director General of Pesticide Registration;

2.4. Where possible avoid emptying containers holding flammable or volatile products in a confined space;

2.5. Once emptied and, wherever possible rinsed out, the container should either be disposed of as in paragraph 3 below or immediately palced in the empty container compound;

2.6. Emptied pesticide containers should not be re-used for any purpose or chemical other than those for which they are labelled.

3. DISPOSAL OF EMPTY CONTAINERS

3.1. Metal and Glass Containers
(but not aerosol cans)

Remove caps and lids from the containers, punch holes in metal containers and flatten; crush glass containers in a sack. Bury at once at least half a metre deep in an isolated place away from ponds, watercourses and boreholes. A record should be kept of the site's position and burial load;

3.2. Paper Packs and Plastic Containers

3.2.1. Containers which have held toxic substances should not be burnt but should be buried as paragraph 3.1 above,

3.2.2 Other containers may be burnt. Do no bury packs within 15 metres of a public highway or where smoke will drift over people, animals, houses, industrial premises or crops. They should be opened and thrown onto a roaring fire away from buildings. Do not add to a slow burning or smouldering fire. Burn packs a few at a time and ensure the last ones are completely burnt before adding more. Do not breathe the smoke. Keep fire under control and ensure it is extinguished before leaving;

3.3. Aerosol Containers

Do not puncture or burn aerosol containers but bury them as in paragraph 3.1. above.

4. Spilt Pesticides

4.1. Liquid

4.1.1. Cover with saw dust. Sweep up thoroughly and place in a marked container.

4.2. Solids

4.2.1 Sweep up area carefully to avoid dust, sprinkle area with saw dust. Place sweepings in a marked container repeat, if necessary

4.3. Sweepings

4.3.1. Place the container holding the sweepings in the empty container compound.

4.3.2. If they contain toxic products bury as in paragraph 3.1.

4.3.3. If they do not contain toxic products, burn as in paragraph 3.2.

A. Special Instruction for disposal of Empty and Surplus Containers

B. Special Storage Condition

It should be noted that storage temperature in Afghanistan can vary from -20 ^{o}C to +50^{o}C.

UNIDO COMMENTS

The report gives a detailed account of the pesticides imported and used in Afghanistan and the type of raw materials that are available in the country. While Afghanistan is being provided with pesticides by different organizations, they seem to have a great accumulation of unused pesticides. It is very important that these should be examined as to the expiry of the date, status of the packages and samples analyzed to see whether they have deteriorated or not. Those batches which could still be redeemed and re-used would be more acceptable than disposing off which might cause more pollution.

A technical committee should decide as to what should be done with the accumulated pesticides. The report clearly indicates that raw materials do exist in the country for solid formulations but to make them suitable for pesticide formulation is very difficult due to lack of infrastructure and supporting industries. The packaging materials are again to be imported for use in any pesticide formulation. It is well established that even if one imports all raw materials, small scale pesticide formulation is feasible due to creation of jobs and savings in foreign exchange using local labour. However, there should be firm commitment from the government to develop packaging industry [glass bottles - (250 to 500 ml), packaging materials inerts carriers for making granular formulations].

With the political and economic situation very uncertain in the country we suggest following action.

Priority 1: Strengthening Government Analytical Laboratory to check accumulated stock for their suitability. RENPAP in New Delhi could help.

Priority 2: Make a basic economic study for setting up of a pilot or demonstration plant for granules only by importing raw materials and slowly making use of locally available inert carriers.

Priority 3: Carry out some tests for suitability of local carriers in the UNDP/UNIDO centre - Institute of Pesticide Formulation Technology.

Priority 4: Set up a small pilot plant for granular formulations only which will no be expensive and make use of locally available inert carriers by carrying out experiments for their suitability.

UNIDO could be of help in this area especially on a TCDC basis making use of RENPAP in New Delhi.