Persistent Organic Pollutants (POPs) Project

Ministry of Environment
Sri Lanka

Preliminary Inventory of POPs Pesticides













UNEP GEF

JUNE 2006

THE PERSISTENT ORGANIC POLLUTANTS (POPS) PROJECT

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POLLUTION 06

Persistent Organic
Pollutants (POPs) Project

MINISTRY OF ENVIRONMENT

Preliminary Inventory of POPs Pesticides in Sri Lanka

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Preface

This preliminary inventory on POPs Pesticides has been prepared for the purpose of developing a National Implementation Plan (NIP) for the Stockholm Convention on Persistent Organic Pollutants (POPs). Sri Lanka became a signatory on 5th September 2001 and ratified the Convention on 22nd December 2005.

The twelve (12) chemicals designated for action under the Convention consist of, eight (8) Pesticides (Aldrin, Chlordane, DDT, Dieldrin, Endrin, Heptachlor, Mirex and Toxaphene), two (2) Industrial Chemicals (PCB and Hexachlorobenzene, which is also a pesticide), and two (2) Unintentionally Produced Chemicals (Dioxins and Furans).

POPs - Pesticides form a major part of the twelve most dangerous persistent organic pollutants that have been identified for elimination from the world. It is encouraging to note that Sri Lanka does not use any of these pesticides at present. However it is necessary to identify the traces of POPs - chemicals, mostly pesticides, used in the past in agriculture, health and industry sectors and to take remedial measures to reduce and eliminate the health risks associated with exposure arising out of contaminated areas. It is also necessary to evaluate the risks associated with imported food items contaminated with POPs - chemicals.

A project for the formulation of the National Implementation Plan for POPs is executed by the Ministry of Environment, in collaboration with the relevant stakeholder institutions in the country. Financial and technical assistance for the project is provided by the Global Environmental Facility (GEF) through the United Nations Environment Programme (UNEP).

Prior to the formulation of the NIP, it is necessary to compile preliminary inventories that will help determine the scope of the POPs issue in Sri Lanka. Out of six (6) Task Teams set up to formulate the NIP, three (3) teams were assigned the tasks of compiling the three inventories on Pesticides, on Polychlorinated Biphenyls (PCBs), and on Dioxins and Furans. All the Task Team members were selected from relevant stakeholder institutions in order to build their capacity to ensure the effective implementation of the National Plan.

The inventory on POPs Pesticides was prepared under the direct supervision of the Registrar of Pesticides and was subjected to review by UNEP. The collection of data was possible due to the valuable information provided by various institutions and industries as well as from publications.

This inventory gives the general status of the issue of POPs-Pesticides in Sri Lanka, enabling the policy formulating and implementing agencies in decision making for the control of releases of the Pops - Pesticides used in the past.

The Ministry of Environment wishes to extend its sincere thanks to the Task Team, the International Consultants, the Technical Advisory Panel, Office of the Registrar of Pesticides, Department of Agriculture, Tea Research Institute of Sri Lanka and all other stakeholders who contributed to the production of this preliminary inventory. The Financial and technical assistance provided by UNEP/GEF is very much appreciated.

L.P.Batuwitage
Project Director/POPs Project
Director/Environment
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Acknowledgements

This preliminary inventory on Pops Pesticides was compiled by a Task Team which comprised Mr. Sumith Jayakody, Task Team Leader, Dr. M.H.J.P.Fernando, Mr. H.R.J.T. Peiris and Mrs. S.I.Vitharana who were assisted by the expert technical advice provided by Dr. G.K.Manuweera, Registrar of Pesticides.

Subsequently it was reviewed by Dr. David Piper, Task Manager, POPs Enabling Activities of UNEP. Final editorial corrections were suggested by Prof. D.C.H.Senerath of the University of Moratuwa and we thank them for their contributions towards the production of this preliminary inventory. We wish to extend sincere thanks to the Task Team, the International Consultants, the Technical Advisory Panel, the National Coordinating Committee and all stakeholders who contributed to the production of this preliminary inventory. Valuable assistance and guidance was provided by former secretaries of the Ministry of Environment Mr. Thosapala Hewage, Mr. D. Dissanayake, Mr. P.M.Leelaratne and to the current secretary Mr. J.R.W.Dissanayake to whom we offer our grateful appreciation. Special thanks are due to Mr. W.R.M.S.Wickremasinghe, Additional Secretary, who has been assisting the project team from the inception in various ways and providing advice and guidance as well as reviewing project reports and publications.

Dr. Rupa Wickremaratne, former National Project Coordinator of the POPs project has done a lot of work during the beginning of the project assisted by Mr. Lal Induruwage and Mr. Champika Somatileka, former Project Assistants and Ms. Menaka Dilrukshi former office assistant. Our thanks are due to them. Our heartfelt thanks are due to Ms. Fatoumata Ouane former Task Manager of UNEP and Dr. David Piper, Task Manager who provided valuable guidance throughout the project and to Mr. Victor Ogbuneke, Financial Officer of UNEP.

The Project Director, Ms. L.P Batuwitage has been a source of inspiration for the project staff and has been keenly involved in the administration of the project and provided valuable advice on project implementation and reporting of progress and in preparation and review of reports. Mr. Desmond de Silva, Financial Assistant has been a valuable asset and has been very helpful in attending to financial matters promptly and with diligence. Ms. Dilani Sooriyarachchi, Project Assistant who has been assisting in administrative matters has been a cheerful and hardworking staff member who helped to translate a few of our awareness materials as well. Mr. Lalith Perera, Information Technology Assistant has, apart from attending to all IT related matters helped in many other ways to keep the office functioning smoothly. We wish to extend our sincere thanks to all of them.

The Global Environmental Facility (GEF) provided the financial assistance for this project while United Nations Environment Programme (UNEP) provided technical advice and guidance. The contributions of these organizations are gratefully acknowledged.

Finally, we wish to record our appreciation of numerous other ministries, departments, institutions and individuals who have assisted us in various ways in ensuring that the project activities could be successfully completed.

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LIST OF ACRONYMS

BHC	Benzenehexachloride
CAS	Chemical Abstract Service
CFR	Case Fatality Rate
COP	Control of Pesticides
CRI	Coconut Research Institute
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DDTs	Total DDT and its Metabolites
EC	Emulsifiable Concentrates
ED(s)	Endocrine Disruptor(s)
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmer Field School
GEF	Global Environment Facility
GLP	Good Laboratory Practice
HCB	Hexachlorobenzene
HS	Harmonized System
IPM	Integrated Pest Management
IVM	Integrated Vector Management
MRL	Maximum Residue Limit
NASTEC	National Science and Technology Commission
NIP	National Implementation Plan
Pe	Pesticide
PIC	Prior Informed Consent
POP(s)	Persistent Organic Pollutant(s)
PTS	Persistent Toxic Substances
SL	Soluble Liquid
TAC	Technical and Advisory Committee
TRI	Tea Research Institute
UNEP	United Nations Environment Program
WHO	World Health Organization

Executive summary

Pest management in Sri Lanka is mostly pesticide dependent and the annual imports of pesticides cost around 0.1% of the Gross Domestic Product in 2002. Sri Lanka has successfully phased out a number of hazardous pesticides including all the WHO hazard Class 1 pesticides and POP pesticides from usage. The currently recommended pesticides are less toxic and less persistent than the earlier pesticides. Safer alternatives are available for the spectrum of pests controlled by POP pesticides. The stocks of outdated POP pesticides are negligible and hence disposal is not a serious issue but larger stocks of out-dated non-organochroline pesticides need immediate attention. Although DDT was prohibited from use in agriculture in 1971 and from public health in 1976, traces of DDT and its derivatives have been detected in some environmental compartments and this needs further investigation. There is limited information available on the residues of these chemicals in groundwater and surface water bodies, which are found in large numbers in agriculture areas. Awareness on POP pesticide related issues, concerns and required remedial measures are alarmingly poor among most of the sectors in the society.

As the regulatory authority responsible for proper management of pesticides in the country, Registrar of Pesticides has to depend on certification of product quality by the foreign manufacturer, but he is not adequately equipped to verify the claims. Cooperation received from the Customs Department in controlling illegal imports and the pesticide industry in safe handling of pesticides, are very encouraging. However, certain improvements are needed in customs classification procedure to ensure prevention of possible imports through improper declarations. Incidents of pesticide related accidents are very high in Sri Lanka. On the other hand environmental damage due to pesticides has not been adequately studied.

Replacement of all POP pesticides with other chemical alternatives in agriculture, public health vector control, industrial uses such as wood preservation and termite control have been successfully implemented in Sri Lanka. For POP pesticides, the availability of safer alternatives has made them redundant in chemical pest control. In replacing the POP pesticides, the alternatives were recommended on the basis of pests, not on the basis of the chemical, and hence in certain cases there were more than one pesticide available to cover the spectrum of pests. Sri Lanka strongly advocates adoption of IPM technology to control pests, thereby reducing the over dependence on pesticides. This in the long run helps to minimize pesticide-related hazards, in addition to ecological benefits.

Due to effective management of pesticides in Sri Lanka by the authorities through the implementation of International Guidelines, no serious problems are anticipated from disposal of currently available pesticides. However, it is imperative that vigilance be maintained on possible "hot spots" in the environment, adverse health effects arising from exposure to contamination and to avoid any possible importation of candidate POP pesticides and illegal materials.

Chapter 1

1. INTRODUCTION

The first synthetic pesticide to be used in Sri Lanka on a large scale was DDT, which was just after the World War II in the late 1940's. It was followed by Benzenehexachloride (BHC) to control the malaria vector. Subsequently, with the successes achieved in vector control, these pesticides were used in agriculture for control of pests to meet the increasing demand for food after the War. By the next decade more toxic chemicals such as Aldrin, Dieldrin, Endrin were also included in the arsenal of pesticides which were used indiscriminately for control of pests in the fields of agriculture, veterinary practice, public health, and industry. All these chemicals were lasting in the environment for a very long time before breaking down and they are now categorized as Persistent Organic Pollutants (POPs) under the Stockholm Convention. The list of POP pesticides which have been designated for action under the above convention is presented below (**Table 1-1**).

Name of POP pesticide	CAS Registry Number
Aldrin	[309-00-2]
Chlordane	[57-74-9]
DDT	[50-29-3]
Dieldrin	[60-57-1]
Endrin	[72-20-8]
Heptachlor	[76-44-8]
Hexachlorobenzene	[118-74-1]
Mirex	[2385-85-5]
Toxaphene	[8001-35-2]

Table 1-1: List of POP pesticides designated under the Stockholm Convention.

POPs may present a particularly significant problem in Asia, which were perhaps the world's largest producer and consumer of most of them until recently. These pesticides were never manufactured in Sri Lanka but were imported as ready-to-use products or technical materials for local formulation. Only limited data is available on POPs as they were either banned, not used for the last fifteen years (e.g. Endrin, Heptachlor, Toxaphene) or no records of their use were kept in Sri Lanka (Hexachlorobenzene and Mirex). Recent detection of their residues in the seabed may be due to their persistence and excessive use in the distant past or due to long distance transport by water from the sites of their use. It may also have been due to sweepings of the ships and containers arriving at the harbor points contaminated with POP pesticides. However, the source of contamination has not been identified. At the same time, though almost all these chemicals have been banned for use in domestic agriculture over a very long time, some of the chemicals had been allowed into Sri Lanka in restricted quantities for use only by trained personnel in industry for control of termites in building sites and in plantation agriculture. Even such restricted imports were completely banned by 1996.

1.1 Objectives

The POP pesticide inventory was prepared with a view to address the following objectives which are of high national importance.

1. To identify information gaps on the status of POP pesticides in the country; and
2. To prepare for the enforcement of the National Implementation Plan (NIP) with prompting actions for -
    (a) eliminating the import, distribution and usage of POP pesticides and products contaminated with POP pesticides;
    (b) prevention of import, distribution, marketing and use of candidate POP pesticides;
    (c) reducing pesticide-related environmental adverse effects and thereby eliminating potential health hazards with special emphasis on POP pesticides;
    (d) Safely disposing the existing stocks of outdated POP pesticides and other pesticides and to develop a mechanism to avoid stockpiling of pesticides.

1.2 Methodology

The Ministry of Environment and Natural Resources is responsible for the execution of the National Implementation Plan (NIP) under the Stockholm Convention. A Project Coordination Unit (PCU) has been established at the Ministry consisting of a National Project Coordinator, a Project Assistant and a Project Financial Officer. The PCU is working closely with other stakeholders within and outside the Government to achieve the tasks under the NIP project. Numbers of Task Teams have been formulated with specific set of terms of reference to develop various aspects of the NIP.

A combination of approaches were applied to find the necessary data and information to compile the inventory. Information was sought from various government institutions, research institutions, academics and pesticide industry. A team leader with an accompanying team of three members was identified to work under different tasks according to their individual expertise and experience in relevant fields (**Annex I**). The team members undertook visits, interviews, and literature surveys for the collection of data. Assessment and verification of some of the data and studying of official reports for the compilation of the inventory were also among the tasks undertaken. Some of the data included in this report were extracted from research reports published in international journals and the data generated in reputed laboratories in Sri Lanka and overseas.

1.3 Institutional and Policy Framework

The Constitution of the Democratic Socialist Republic of Sri Lanka provides that 'the State shall protect, preserve ad improve the environment for the benefit of the community.' The Constitution also provides that it is the 'Duty of every person in Sri Lanka to protect nature and conserve its riches'.

In line with the Constitution, the National Environmental Policy (NEP) renews the commitment of the government, in partnership with the people, effectively to manage the environment for the benefit of present and future generations. The aim of the NEP is to ensure sound environmental management within a framework of sustainable development in Sri Lanka. NEP also emphasizes that caring for the environment is the bounden duty of any institution, government or non-government, and of any

individual that uses or otherwise carries out an activity that has an impact on the resources of the environment The main objective will be to promote sound management of Sri Lanka's environment in its entirety without compromise, balancing the needs for social and economic development and environmental integrity, to the maximum extent possible while restricting inimical activities.

The NEP of Sri Lanka states that the resources such as land, water, air, mineral and biodiversity will be managed in a manner consistent with the viability of ecological processes. In order to do so, institutional framework for sound environmental management will be strengthened through capacity building, legislative instruments and improved inter-institutional coordination and linkages. Furthermore, responsible public-private and community partnerships will be promoted at all levels of environmental management and conservation.

1.4 Country profile

The economy of Sri Lanka is mainly agriculture based. Agriculture has two sectors namely, domestic and plantation sector. The domestic sector, which forms the dominant part of agriculture, accounts for 1.7 million farm families in a population of around 19 million. Both sectors jointly contribute 20% to Gross Domestic Product (GDP) and 34% to employment (Central Bank Report, 2002).

In the management of pests, the plantation sector is more organized whereas, in the domestic sector it is more complicated due to the large number of farmers, crops and the pests involved. Agriculture is the biggest user of pesticides in Sri Lanka. The extents under different agricultural crops are given below; Rice (6,85,625 ha), Fruit crops (99,727 ha), other agricultural crops (1,31,220 ha), and Plantation crops (6,94,674 ha) (AgStat, 2004).

In Sri Lanka, the pest control is mostly dependent on the use of synthetic pesticides. All pesticides used in Sri Lanka are imported spending about 1962 million rupees annually. Pesticides are imported to the country as ready-to-use products in handy packages, bulk formulations or technical materials for local formulations .The costs of pesticides imported into Sri Lanka in the year 2003 are given in **Table 1-2**. According to FAO (1997), Sri Lanka ranks very high in the Asia Pacific Region with regard to pesticide related health hazards. Annually the total number of pesticide accidents in Sri Lanka is around 20,000 of which 1,600 are fatal with 70% of this being suicidal attempts. The President of Sri Lanka has appointed a Task Force to delve into reduction of high rate of suicide attempts with special emphasis on pesticide poisoning.

Table 1-2: Foreign exchange spent for import of pesticides-2003

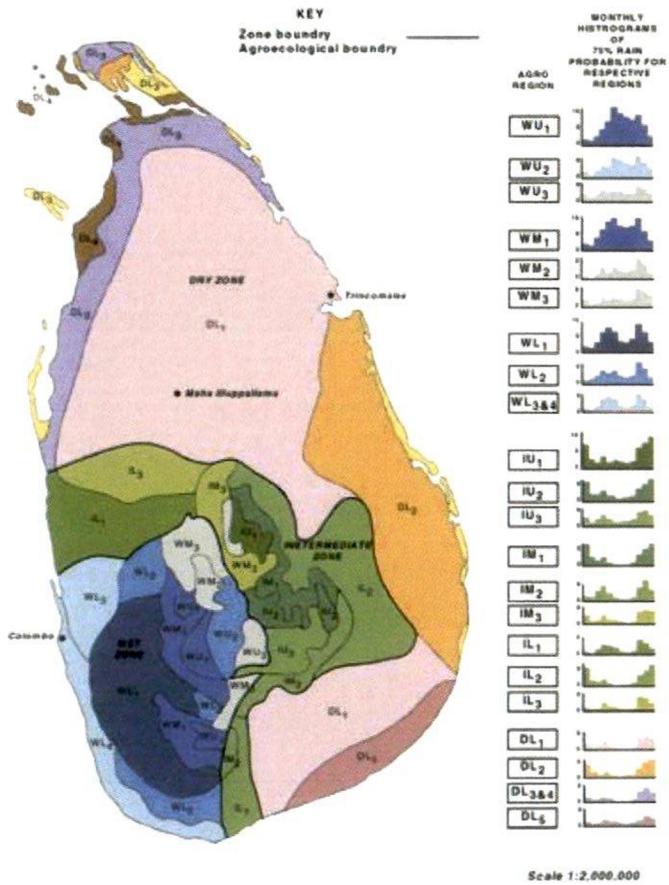
Item	Volume in Metric Tonnes	Value in US $ (x1000)
Insecticides	1684.4	7825.48
Weedicides	2924.6	8918.53
Fungicides	792.2	2805.76
Others (acaricides, rodenticides, fumigants, Molluscicides, insect repellents, etc.)	19.55	74.79
Total	**5420.75**	**19624.56**

Source: Pesticide Statistics for the Year 2003, Office of the Registrar of Pesticides

There is a regulatory mechanism in place for the implementation of relevant laws (i.e. Control of Pesticides Act No. 33 of 1980) in management of pesticides which is a mandate of the Department of Agriculture. The Act provides provisions for all required regulation and control of import, distribution and safe use of pesticides, in keeping with the international guidelines. Though the implementation of the Act is not up to expectations, due to the lack of resources like manpower, laboratory facilities, equipment, mobility, etc., Sri Lanka has effectively prohibited import and use of WHO hazard class I pesticides, which are considered to be the most dangerous with high acute toxicity and also the pesticides with longer persistence in the environment. To this second category falls the POP group of pesticides.

To circumvent the problems caused by pests and use of pesticides for their control, the strategic approach to pest control, known as Integrated Pest Management (IPM) is practiced in Sri Lanka. The government of Sri Lanka has a long-standing commitment to IPM. In the policy statement of the President of Sri Lanka in 1995, it was declared that "the dependency on chemical fertilizers and agro-chemicals will be progressively reduced through soil fertility improvement measures, adoption of integrated pest management and other agronomic practices".

Figure 1: Major agro-ecological regions of Sri Lanka.



Source: Department of Agriculture, 2002.

1.5 Sri Lanka's IPM Successes

The IPM technology has shown to reduce effectively the reliance on chemicals for control of pests in general in most of the cropping systems. Sri Lanka has been implementing an Integrated Pest Management (IPM) program for rice with the assistance of FAO since 1984. Over the last 18 years, the concept of IPM has made a mark in the agricultural community which used to believe that present day agriculture required heavy use of pesticides and as such IPM has created an interest in the agricultural sector for adopting methods of pest control involving only minimum use of pesticides. IPM has also earned national recognition after being declared as a policy recommendation in the national food production program for Sri Lanka in 1995.

The success of IPM program in rice over the last several years has resulted in the demand for IPM for other field crops as well. During 1996 *Yale* season IPM was adopted for the chilli crop that consumes extremely high quantities of pesticides. The Farmer Field Schools (FFS) conducted with a group of chilli farmers were able to change their attitudes on pesticide use and reduced the pesticide usage by about 75% (Administration Report, Department of Agriculture, 2000). This has motivated agriculture research for further studies on IPM for chilli and other crops as well. Most farmers in the central region of the country were adopting rice/vegetable mixed cropping pattern with rice being the minor crop. Since these farmers seldom apply any insecticide on rice the positive gain by IPM was not evident. Unlike in rice, vegetable farmers apply large quantities of pesticides to their vegetable crops. The experience gained by them through rice/FFS on ecosystem analysis and identification of pests and their relationship with natural enemies have made a considerable change in their thinking about pesticide usage in the growing of vegetables. These preliminary observations confirmed that there is much scope for IPM in vegetable production. Expansion of IPM on vegetables is further explored by the Department of Agriculture with the technical backup given to the provincial extension service to conduct IPM demonstrations in farmer fields on tomato and leafy vegetables (Administration Report, Department of Agriculture, 2000).

It has been observed that if a promotional package is offered with alternatives to the use of pesticides such as IPM, we can anticipate a reduction in the use of pesticides or a deviation from the trend in chemical dependant pest control (Sumith, 2002). The significant reduction in the use of Fenobucarb (BPMC) in 1995 compared to that of 1990 (**Figure 2**) may be a result of intensive rice IPM program conducted by the Department of Agriculture where Fenobucarb is mainly used in rice Brown Plant Hopper (BPH) control.

Figure 2: Annual consumption (metric tones) of selected insecticides in 1990 and 1995.

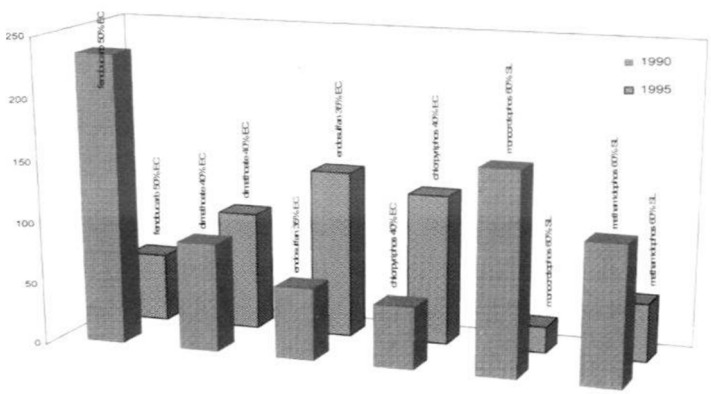


Figure 1. Annual consumption of insecticides (mt) in 1990 and 1995

Source: Sumith, J.A. (2002). Pesticide Management in Sri Lanka: Implementation Issues and Past Experience. Economic Review: November/December 2002, p. 23-31.

The overall impact of IPM revealed the following benefits:

1. *Reduction in insecticide use*: IPM farmers use an average of 0.48 insecticide applications against 2.27 applications by non-IPM farmers per season in all 8 provinces

2. *Yields*: IPM farmers obtain 23% higher yields than non-IPM farmers on the average in the experimental fields

3. *Durability of FFS training*: IPM farmers still continue to use on an average less than 0.5 times insecticide applications/season for their crops even 5-8 seasons after training

4. *Community action*: FFS training has strengthened group action thus motivating farmers to go back to traditional systems like "*aththam*" (mutual help) in labor intensive operations

5. *Farmers as leaders*: FFS training has integrated farmers to become IPM trainers and take the responsibility of training other farmers in the village, and

6. *Other Benefits*: Obtain higher profits due to cost reduction plus increased yields; become experts in crop management; enjoy better health due to minimal exposure to hazardous chemicals (Hector Senarath, IPM National Expert, IPM/FAO Project, personal communication).

In the mean time, the national pesticide policies in Sri Lanka are also geared towards supporting IPM in crop production. Restriction of highly hazardous WHO class 1a/1b pesticides only for certified applications, total banning of all class 1a/1b pesticides from retail use, thorough and intensive screening at research level, only the pesticides having narrow activity or less effects on natural enemies, pilot scale testing before registration, and promotion of bio-pesticides are some of the supportive roles given through the implementation of the Control of Pesticides Act.

In collaboration with the Health Ministry (Anti-Malaria Officers) and International Water Management Institute (IWMI), preliminary studies on integration of disease-vector management with community IPM in rice has been initiated by the Department of Agriculture. Integrated Vector Management (IVM) is used to designate an approach largely building on the same principle as IPM which is also another milestone in the success story of the IPM in Sri Lanka (Administration Report, Department of Agriculture, 2002).

Sri Lanka has a very successful IPM program in rice spread all over the country, initially sponsored by FAO from 1984-2001. The success was made possible by right policy decisions of the governments with regard to pest management coupled with the availability of relevant technologies and institutional arrangements which facilitated the efforts of control on pesticide use (Administration Report, Department of Agriculture, 2000, 2002).

1.6 Regulatory control measures

It should be noted that the rather incomplete picture on historical use of POP pesticides observed in other related disciplines is due to the long time lag (>30 years) in between the advent of pesticides use and implementing an effective regulatory mechanism on pesticides in Sri Lanka. Prior to 1962, pesticides were more or less freely imported into the country. With the changing import policies in late 70's, pesticides were imported on open general licence even including prohibited products such as DDT and Endrin by unscrupulous traders. With the gradual involvement by the Department of Agriculture, recognizing the need to exercise control over the use of pesticides since early 60's, an effective regulatory mechanism was brought into action in 1983 through the Control of Pesticides Act No. 33 of 1980 (**Annex II**). It makes provisions to regulate the import, formulation, packing, labeling, storage, transport, sale and use of pesticides. Thus, it is evident that the law applies to all pesticides, whether the end use is in the fields of agriculture or public health, or whether the products are to be used in the household, veterinary practice or industry.

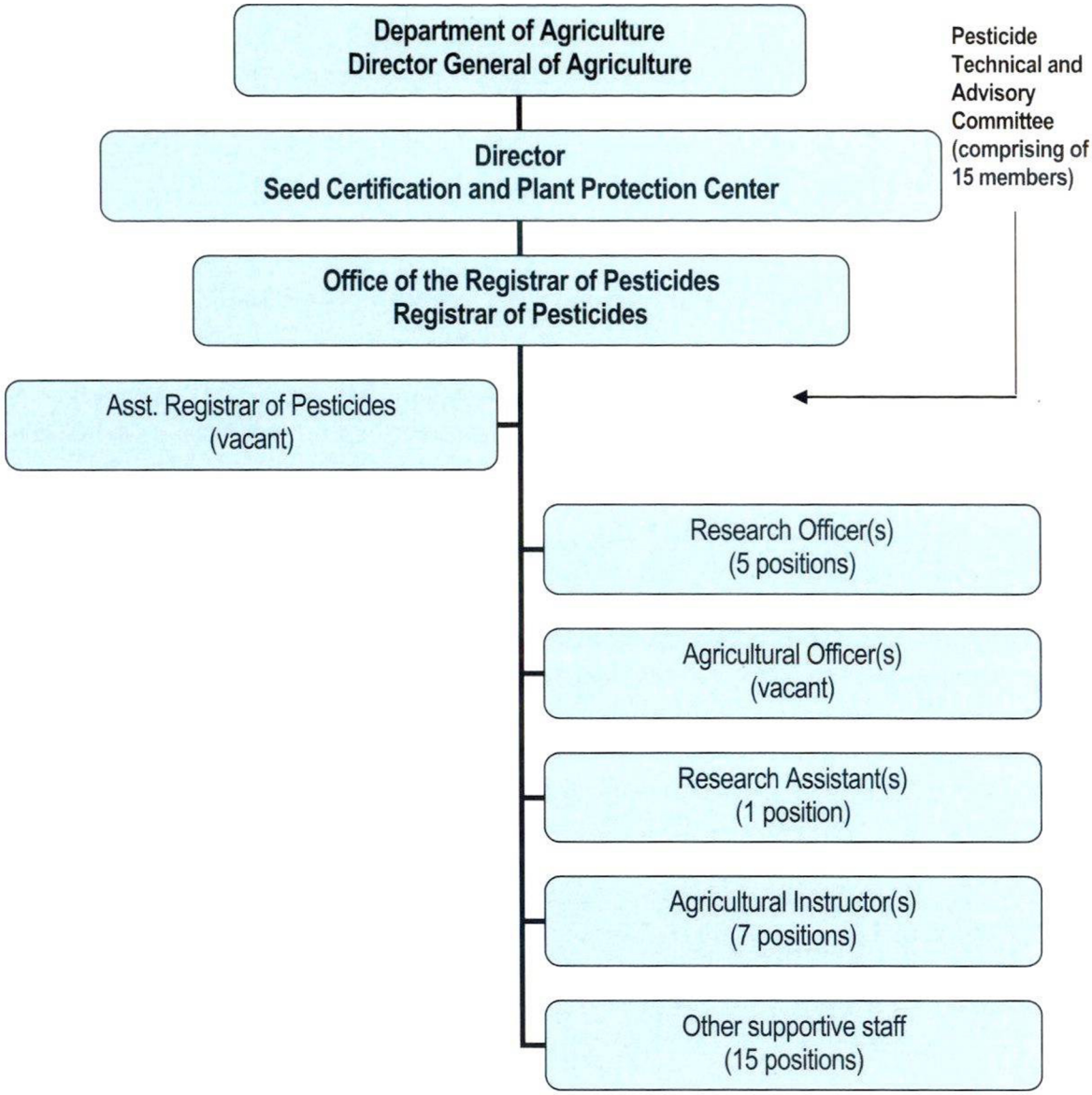
The Registrar of Pesticides is the national authority for implementing the laws and regulations under the Control of Pesticides Act No. 33 of 1980 and hence conformation to international conventions in relation to pesticides such as POP, PIC, etc. which would be carried out as a routine measure. Pesticides Technical and Advisory Committee (PeTAC) is the statutory body comprising 15 members with the representation of government agencies who give advice on policy and technical matters to the Registrar of Pesticides. The Registrar of Pesticides is further assisted in formal and informal manner with expertise available in the Department of Agriculture and other government institutions (**Figure-3**). The basis of regulation is the compulsory registration of all pesticide material. The post registration activities are an inherent part of Sections 20-22 of the Control of Pesticides Act, which enables the regulatory process to safeguard food quality, human health and the environment against pesticides. These

activities would enable a full evaluation of risks associated with the use of pesticides in the field and the implementation necessary for regulatory action.

No pesticide may be imported in to the country without registration and the appropriate licence authorizing importation of pesticides issued by the Registrar of Pesticides and only to registered importers. Processing of an import licence is based on compulsory pre-registration, quality, source identification and regulatory policies with special consideration on banned and restricted pesticides. Legal provisions are provided by the Control of Pesticides (Amendment) Act No. 06 of 1994 (**Annex III**) for licensing of traders, appointment of authorized officers, specifying the functions and powers to seize pesticides in outlets conducting activities contrary to the legal provisions and regulations. All traders engaged in the storing, selling or offering for sale any pesticides are required to obtain a certification for sale from an Authorized Officer. As a mandatory requirement for the issuance of a licence, applicants for dealership are required to undergo one-day training on the principles of pesticides safety, identification of pesticides and awareness on the registration system conducted by the officers of the Office of the Registrar of Pesticides. Awareness and legal binding thus created expect to minimize unscrupulous trade practices and thereby adverse impacts due to pesticides.

Sri Lanka has a national policy adopted in 1995 that no pesticide formulation of WHO hazard class Ia/Ib are marketed for regular pest control purposes in agriculture. Accordingly, some of the formulations of insecticides such as Endosulfan, Chlorpyrifos, Carbosulfan, and Quinalphos (**Annex IV**) which are falling into the WHO hazard class Ib have been banned. All pesticides should be subjected to a comprehensive bio-efficacy testing procedure prior to submission of application for registration. The registration package should consist of original reports on all related chemical, physical, biological, toxicological and environmental data. For commodity products the reports are required from accredited laboratories with GLP compliance. No "me too" registrations are allowed and registered products are constantly subjected to latest international developments either at the time of re-registration, after every three years or as and when necessary.

Figure 3: Administration structure and staff composition of the Office of the Registrar of Pesticides.



1.7 Import control

As indicated above, control of imports is one of the important regulatory aspects covered by the Section 17 of the Control of Pesticides Act where pesticides could be imported only on a written approval by the Registrar of Pesticides. An established working mechanism exists where pesticides are concerned under the specific HS coding system. Should any pesticide be prohibited for import (except with forged declarations), there is no possibility that they would be infiltrated through the Customs who work closely with the Registrar of Pesticides in regulating pesticide imports. Currently, pesticide formulations are classified under HS Code 38.08 and brought under import control licence. However, there have been possibilities that some of the technical materials of certain preparations could be classified under different HS Codes which were not brought under import control licence. Strict control over imports is essential to prevent infiltration of unauthorized product into the country which would have serious health

and environmental consequences. The situation is also a serious threat to effective regulation of hazardous chemicals including pesticides in the country.

A committee established under the Ministry of Science and Technology in March 2001 to implement the recommendations made by the Presidential Committee on "Chemicals Used in Agriculture, Health and Other Sectors" appointed a sub committee of which the Registrar of Pesticides was the convener, to create sub-headings in the Custom Tariff Guide under relevant HS Codes other than the ones already brought under licence in order to identify all pesticides that are banned/restricted or registered for use in the country for regulatory purposes. It is expected to urgently involve in the identification of such sub-headings of all banned pesticides, technical grade materials, formulations of pesticides and certain hazardous chemicals in order to arrest illegal importation.

In this connection, Office of the Registrar of Pesticides has already taken action to officially declare a list of all banned pesticides in Sri Lanka by the Government Gazette notification in September 2002 (**Annex IV**).

1.8 Coordination with the industry

Sri Lanka being a member nation of the United Nations is committed to support the International Code of Conduct on the Distribution and Use of Pesticides, which outlines the overall responsibility of member governments in participation of the pesticide Industry to allocate high priority and adequate resources for pesticide management. Pesticide Association of Sri Lanka (Presently called as Crop Life-Sri Lanka) was established in 1981 as an integrating body of pesticide traders in Sri Lanka. It integrates firms, companies, corporations and individuals in importation, distribution, formulation, and marketing of pesticides. The contribution shown by the Association towards the observance of the International Code of Conduct (FAO, 1990), especially in extending the message of safety in the use of pesticides in more convincing. Currently, self-monitoring in the areas of pesticide advertising and quality control of locally formulated pesticides is warranted. However, the challenge will be how to achieve compliance with local laws and regulations in an efficient way, which may involve working cooperatively with members, non-members, other state agencies and the pesticide regulatory authority.

Chapter 2

2. Status of POP pesticides in Sri Lanka

A compendium of information relevant to all POP pesticides designated under the Stockholm Convention on production, imports, exports, emissions, stocks, levels in the various environmental compartments and exposure along with relevant sources of data is presented in the **Annex V**. The following describes the survey results on individual 9 POP pesticides with their background information in Sri Lanka.

2.1 Aldrin

There is no history of production or formulation of Aldrin in Sri Lanka. Aldrin has been imported as ready-to-use products as Aldrin 20 EC (20% Aldrin) and Aldrex 25% EC containing 25% of Aldrin.

Major uses reported were for control of soil pests in agricultural lands (cockchafer grub, root-eating ants and banana weevil), pests of rice (Herath and Joshi, 1986), shot hole borer (SHB) in tea and as termiticide dip (1% w/v solution) in reforestation schemes (Midgley and Weerawardane, 1986). Aldrin became the recommendation for SHB in tea in 1964 (S.I. Vitharana, Entomologist, TRI-personal communication). Before the ban in agriculture in 1986, its uses were severely restricted by imposing quantity restriction and distribution with permission only; (1) for termites and beetle control in coconut nurseries (2) for ant and termite control prior to establishment of tobacco nurseries and (3) as termiticidal dip of potted plants in re-forestation schemes. Aldrex was the commercial formulation recommended by Coconut Research Institute for the control of termites in nurseries (CRI, 1992).

Table 2-1: Status of prohibition and import of POP pesticides in Sri Lanka.

Name of pesticide	Year of administrative declaration of prohibition/ restriction of imports	Last imports	
		Amount (kg)/year	Year
Aldrin	1986	7,040	1986
Chlordane	1996	4,600	1994
DDT	1976	316,522	1976
Dieldrin	1992	1,100	1991
Endrin	1970	NA	-
Heptachlor	1986*	NA	-
Hexachlorobenzene	HCB has never been used as a pesticide in Sri Lanka.	None	-
Mirex	Mirex has never been used as a pesticide in Sri Lanka.	None	-
Toxaphene	1970+	NA	-

NA- Not Available * Year of restriction for termite control + Year maximum expected in use

Regulatory status

Use on crops as treatment of agricultural lands was prohibited on August 1st 1986 on the directive of Pesticide Formulary Committee (presently Pesticide Technical and Advisory Committee) 23 of 1986. Legal declaration of banning of Aldrin was published in the Government Gazette (Extraordinary) No. 1190/24 of 29/06/2001 under the provisions of the sub-section (1) of the Section 11 of the Control of Pesticides Act No. 33 of 1980.

2.2 Chlordane

There is no history of production or formulation of Chlordane in Sri Lanka. Chlordane has been used in Sri Lanka as Chlordane 40 EC for industrial pest control purposes and ready to use formulation for timber protection in household environment.

It had been recommended for white ant control in floricultural crops and control of cockchafers (Hagen and Ekanayake, 1977), coconut termites (CRI, 1992) and forest termites (1% w/v solution of Chlordane) (Midgley and Weerawardane, 1986). Therefore its agricultural uses were basically on coconut plantations, horticultural projects and tobacco nurseries. M/s. Mike Flora (Rambukkana), M/s. Ceylon Tobacco Company (Kalagedihena) and Coconut Plantations (at various locations) were among the noticeable other users in the past.

Intox-8 was the registered product in 1985. Due to restrictions on minimum orders imposed by the manufacturer, Intox-8 registration was replaced with Chlordane 40% EC subsequently in October 1986. Since then, Chlordane 40% EC was the only formulation available in Sri Lanka up to 1994.

An application for registration of Dee Bug, a household insecticide containing 0.5 % w/v of Chlordane had been withdrawn in 1984. However, the details of household uses are not available.

With a few exceptions, the majority of uses for termite control was handled by pest control services such as M/s. Suren Cooke Associates, M/s. Finlay Rentokil Ceylon Limited, M/s. Lawson Pest Control Services and M/s. Ceylon Pest Control Services in building sites. With the boom on industrial activities with the free economic policy implemented by the government in 1977, major industrial sites in Free Trade Zones and other industrial places were the commonest places to use Chlordane for structural treatments against termites (**Figure 4**). Two hundred garment factory projects started across the country in 1992 might be potential "hot-spots" where chlordane had been used along with Dieldrin for termite control.

Uses on pre/post construction treatment and timber treatments for control of termites have also been in effect which were replaced by synthetic pyrethroids and other safer alternatives.

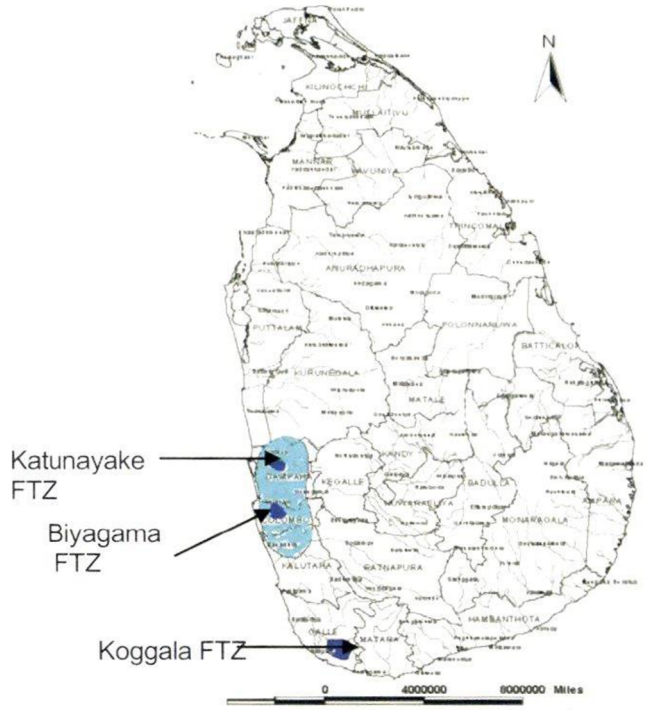
The volume of Chlordane as the active ingredient imported from 1986 through 1994 was 5240 kg.

Regulatory status

The agricultural uses were prohibited in 1985. Since then the registered pesticides were allowed only for non-agricultural purposes through authorized pest control services. Prior approval procedure was followed for each and every disposal for a second party by the Registrar of Pesticides. Non-agricultural uses were allowed under limited quantities, with a maximum of 2000 liters per annum on the directives of PeTAC of 04/1995. With the self-restrictions imposed by the manufacturer to supply a

maximum quantity of 5000 liters per consignment, imports sought after 1995 were automatically stopped. Chlordane uses were continued up to 1996-1997. Formal decision of prohibition of Chlordane was issued on 01st January 1996 by the PeTAC .....as a form of national legislative measure under the PIC convention. Legal declaration of banning of Chlordane was published in the Government Gazette (Extraordinary) No. 1190/24 of 29/06/2001 under the provisions of the sub-section (1) of the Section 11 of the Control of Pesticides Act No. 33 of 1980.

Figure 4: Distribution of industrial activities and selected locations (schematic) in Sri Lanka.



2.3 DDT

There is no history of production of DDT in Sri Lanka. DDT was first known to Sri Lanka during World War II (1946) when it was brought in to combat malaria by controlling the mosquito vector. The use of DDT was extended to agricultural crops as well, in areas where it was used for the control of mosquito even before the insecticide was officially recommended replacing traditional insecticidal solutions (e.g. soap solutions, nicotine solutions, etc).

Arkotine D18, Didimac 25 EC (200 g/l of DDT), Decnol, Sillortox and DDT 50% WP were some agricultural and public health formulations used in Sri Lanka.

DDT 50% WP had been recommended for caterpillars and stem borers in floricultural crops and for cockchafer control (Hagen and Ekanayake, 1977). DDT had been in use in tea lands from early 1950's until 1970 for the control of Tea Tortrix with concomitant severe mite outbreaks in several estates (e.g. Liddesdale, Halgranoya; Oltery, Dickoya; Dambetenna, Haputale) (Cranham and Danthanarayana, 1971). TRI discontinued its recommendation in 1970. However, the large stocks of DDT left in the

Estates were continued to use for some time and are believed to have lasted till late 70's (S.I. Vitharana, Entomologist, TRI-personal communication).

Indoor residual application of insecticides has been major measures adopted for the control of malaria in Sri Lanka since 1946. The malaria eradication program instituted in 1958 and progressed until 1977 with DDT. The strategy adopted during this period was blanket or carpet spraying of DDT for eradication of malaria. DDT had been sprayed throughout the Dry Zone and in large extents in the Wet Zone including some areas of the Colombo district (Dr. R.R.M.L.R. Siyambalagoda, Director, Anti Malaria Campaign-personal communication). Vector resistance to DDT was first detected in April 1969 (Clarke *et al*, 1974), and as it spread widely throughout the country, DDT was gradually replaced with malathion started in 1977 (Wickramasinghe, 1981). Resistance of *Anopheles nigerrimus* (a malaria vector) for DDT was recorded in 1982 though it may have developed resistance earlier (Herath and Joshi, 1986).

The use of Dicofol in tea commenced in 1965 was prohibited in 1994 due to the contaminants of DDT isomers which can be originated from the production process adopted in manufacturing of Dicofol. A large number of estates in Uva, upcountry and mid country experienced heavy mite infestations during dry weather periods necessitating repeated use of miticides (Vitharana, 2003).

According to 1971 imports figure, some 114 metric tones (mt) of DDT was used for vector control and about 4.5 mt of DDT for agriculture (Ramasundaram, *et al.*, 1978). However, according to official records of Anti Malaria Campaign of the Ministry of Health, the DDT consumption for vector control was 2,080 mt in 1971-72 while total consumption during 1954-1976 was 9000 mt. The total consumption of 42% Dicofol (Kelthane) Emulsifiable Concentrate formulation was 2,084 liters during 1988-1992.

Regulatory status

DDT was banned from agricultural uses prior to 1970. Banned from public health vector control programs in 1976. Legal declaration of banning of DDT was published in the Government Gazette (Extraordinary) No. 1190/24 of 29/06/2001 under the provisions of the sub-section (1) of the Section 11 of the Control of Pesticides Act No. 33 of 1980. Dicofol was de-registered in 1994 hitherto recommended for exclusive use on tea.

2.3 Dieldrin

There is no history of production or formulation of Dieldrin in Sri Lanka. Dieldrin has been used for a wide range of applications such as agricultural crop protection, termiticide for building construction, and consumer ready-to-use timber protection in Sri Lanka.

Dieldrin was first recommended in 1961 for use against shot hole borer in tea (Seneviratne, 1995) with the concomitant side effects in the form of severe outbreaks of looper and twig caterpilars in 1962/63 but continued until its ban in 1966 (Danthanarayana and Kadirawetpillai, 1969). The tea estates like Nayapane, Pussellawa; Galaha Group, Galaha; Goorokoya, Nawalapitiya; Mahaousa, Madulkelle were believed to have had comparatively heavy usage of dieldrin in the past based on the heavy damage due to side effects (S.I. Vitharana, Entomologist, TRI-personal communication).

Dieldrex, Dieldrin 20 EC and Termite Soil Concentrate were Emulsifiable Concentrates containing 200 g/l of Dieldrin and Wood Preservative-A was a formulation containing a mixture of 2.5 g/l of Dieldrin and 1.2 g/l of Pentachlorophenol for wood preservation. An alternate Dieldrin formulation containing 300 g/l

of Dieldrin Emulsifiable Concentrate was also imported during 1986-1987, due to the discontinuation of 20% EC formulation by the manufacturer.

All agricultural uses were prohibited prior to 1980. Registered uses were only for non-crop applications viz. subterranean treatment for control of termites and application for timber treatments. The totals of imports of Dieldrin active ingredient during the period from 1983 through 1991 was 4,309 kg.

Table 2-2: Evidence based use categories of POP pesticides in Sri Lanka

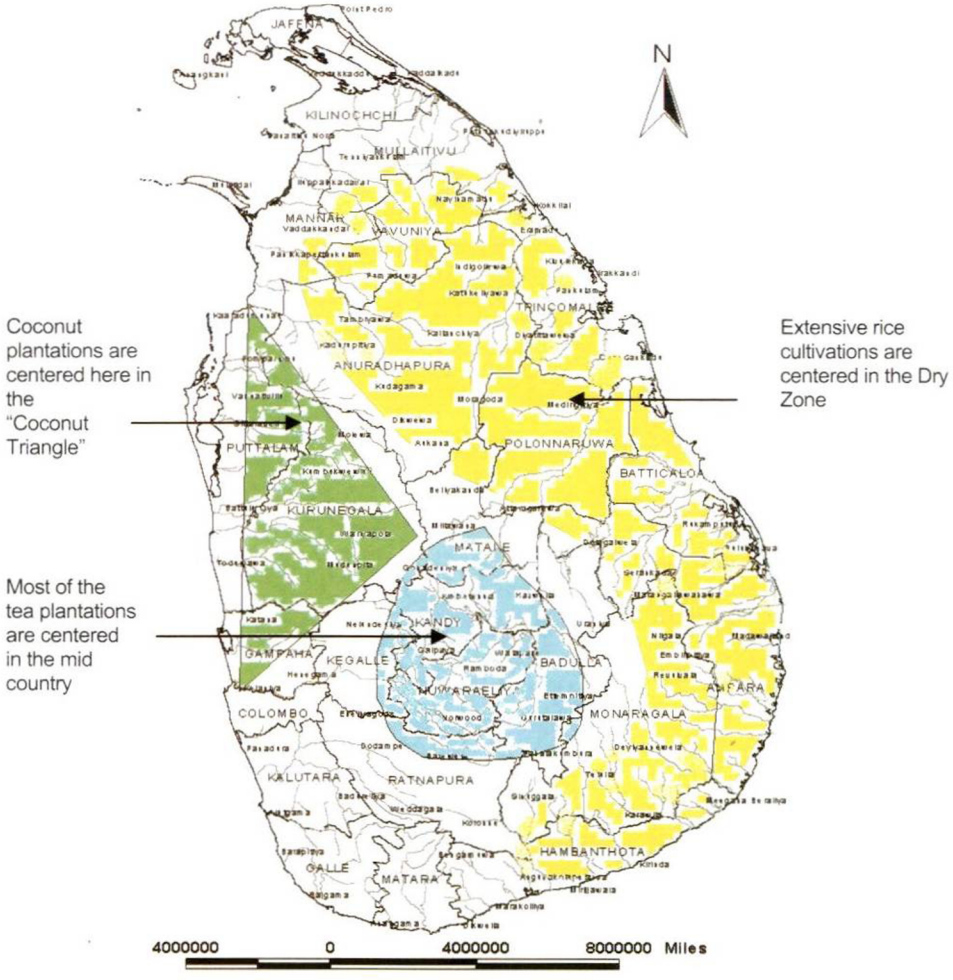
POP Pesticide	Agricultural Use								Industrial Use (Structural Termites)	Household Use (Structural termites and Mosquitoes)
	Vegetable	Rice	Tea	Coconut	Tobacco	Forestry	Floriculture	Banana		
Aldrin	■	■	■	■	■	■	■	■		
Chlordane		■		■	■		■		■	■
DDT		■	■				■			■
Dieldrin			■							
Endrin										
Heptachlor								■	■	
Hexachlorobenzene										
Mirex										
Toxaphene										

Note: Shades represent for relevant use categories with sufficient evidence.

Regulatory status

All agricultural uses of Dieldrin were prohibited prior to 1980. Since then the registered pesticides were allowed only for non-agricultural purposes through authorized pest control services. Prior approval procedure was followed for each and every disposal for a second party by the Registrar of Pesticides. All imports of Dieldrin products ceased from 1992. Legal declaration of banning of Dieldrin was published in the Government Gazette (Extraordinary) No. 1190/24 of 29/06/2001 under the provisions of the sub-section (1) of the Section 11 of the Control of Pesticides Act No. 33 of 1980.

Figure 5: Major crop sectors and their distribution (schematic) in Sri Lanka.



2.5 Endrin

There is no history of production of Endrin in Sri Lanka. Endrin is claimed to be used for a wide range of applications in agriculture in the past but no credible references could be found on further details of usage.

According to the limited information available Endrex EC was the commercial formulation that existed

Regulatory status

The agricultural use was prohibited prior to 1970. Legal declaration of banning of Endrin was published in the Government Gazette (Extraordinary) No. 1190/24 of 29/06/2001 under the provisions of the sub-section (1) of the Section 11 of the Control of Pesticides Act No. 33 of 1980.

2.6 Heptachlor

There is no history of production of Heptachlor in Sri Lanka.

Heptachlor has been used as an agricultural insecticide in banana and on cardamom rhizome borer and other soil pests prior to1986.

It was also used as a subsurface application for termite control in industrial sites.

Heptachlor 3E and Heptox EC were among the formulations used in Sri Lanka containing 200-300 g of Heptachlor per liter.

Regulatory status

On a decision taken at the PeTAC 23 of 1986, Heptachlor was restricted for termite control on July 31st 1986. The decision was taken to restrict Heptachlor based on regulatory actions reported in UN Consolidated List of Products whose consumption and/or sale have been banned, withdrawn, severely restricted or not approved by Governments (United Nations, 1985) and IRPTC due to adverse effects on health and the environment. Legal declaration of banning of Heptachlor was published in the Government Gazette (Extraordinary) No. 1190/24 of 29/06/2001 under the provisions of the sub-section (1) of the Section 11 of the Control of Pesticides Act No. 33 of 1980.

2.7 Hexachlorobenzene

There is no history of production of Hexachlorobenzene in Sri Lanka. Also, HCB has never been used as a pesticide in Sri Lanka. The only possibility of HCB to have been infiltrated into the country is through byproduct /impurity chlorinated pesticides such as Pentachlorophenol (that was used as wood preservative/fungicide) and some batches of Chlorothalonil. However, maximum allowable impurity levels of 40 ppm of HCB in Chlorothalonil containing products (US EPA, 1999) have been enforced through pesticide regulations, because of the carcinogenic risks associated with HCB impurities.

Regulatory status

HCB has never been registered as an agricultural pesticide under the Control of Pesticides Act No. 33 of 1980. No past records of history of consumption, even prior to enforcement of the COP Act in 1983.

2.8 Mirex

There is no history of production of Mirex in Sri Lanka and has never been used as a pesticide in the country.

Regulatory status

Mirex has never been registered as an agricultural pesticide under the Control of Pesticides Act No. 33 of 1980. No past records of history of consumption, even prior to enforcement of the COP Act in 1983.

2.9 Toxaphene

There is no history of production of Toxaphene in Sri Lanka.

Toxaphene (as Shell Toxaphene 50% EC) had been used on a regional recommendation (Circular No. PP/T1/62 of Dry Zone Research Institute, Maha-illuppallama, 1st May, 1962), which was withdrawn within a short period of time. As such, its use in Sri Lanka was almost negligible.

Regulatory status

Formal decision of prohibition of Toxaphene was taken on 29 March 2001 at the PeTAC 15/2001 as a form of national legislative measure under the PIC convention.

Chapter
3

3. Stocks of outdated pesticides

3.1 Stocks of outdated pesticides

Though there had been no import of POP pesticides to Sri Lanka in the recent past, a certain amount of outdated pesticides from the earlier imports are stockpiled at different places due to their withdrawal from use. However, large cumulative quantities of other outdated pesticides are available in stocks which have become a national problem for disposal. A complete list of outdated pesticide stocks, with specific locations, available in Sri Lanka is given in the **Annex VI**. This information has been collected by Registrar of Pesticides following FAO guidelines.

As shown in the **Annex VI**, except 18 liters of Aldrin and 10 kg of DDT (which are tenable to the POP convention), rest of the stock is predominantly of non-organochlorine in origin.

3.2 Contaminated sites and environmental compartments

Though a somewhat complete picture on available stockpiles can be drawn (**Annex VI**), the situation on contaminated sites with regard to POP pesticides is obscure. DDT and subsequently BHC had been used for malaria vector control programs as a household residual insecticide; with door-to-door application in malaria-infested areas in the Dry Zone (Herath, 1984) and in the Wet Zone including some areas of the Colombo district (Dr. R.R.M.L.R. Siyambalagoda, Director, Anti Malaria Campaign-personal communication). Agricultural uses were basically on coconut plantations, tea plantations, horticultural projects and tobacco nurseries. However, area specific potential contamination (non-point pollution sources) could be predicted for Aldrin, Chlordane, DDT, Dieldrin and Heptachlor for which there were specific agricultural uses in plantations, horticultural nurseries, non-food crops (e.g. tobacco) and in non-agricultural termite control uses.

Although DDT was totally banned as early as 1976, its precursors and derivatives could be present in the environment for a long period of time and thus could contaminate agricultural produce. In tea, DDT isomers could have been originated from heavy use of Dicofol in the past which could be contaminated with DDT isomers depending on the production process adopted in manufacturing Dicofol. Due to this reason, the use of Dicofol in tea commenced in 1965 was prohibited in 1994. The total consumption of 42% Dicofol (Kelthane) Emulsifiable Concentrate formulation was 2,084 liters from 1988-1992. A large number of estates in Uva, upcountry and mid country experienced heavy mite infestations during dry weather periods necessitating repeated use of miticides (Vitharana, 2003). Therefore, the detection of these pesticides in the environment may be due to agricultural run-off and excessive use or mis-use in the past.

Limited data available from a study conducted in 1999-2000 (Industrial Technology Institute) revealed the presence of some DDT residues in the form of *p,p'*-DDE at 2-5 µg/kg in bottom sediments in Hambantota coastal zone and up to 9.6 µg/kg of DDTs in sediments of Colombo port, though DDT was not in use in Sri Lanka for more than 30 years. The presence of DDT in the form of *p,p'*-DDE in almost

all samples (6) in Hambantota coastal zone though it is as high as 40-100 µg/kg in Beira Lake in Colombo (ITI, 2004), suggests the general absence of recent DDT sources in those areas. A similar trend have been observed by Guruge and Tanabe (2001) that >70% of total DDTs in sediments sampled from Negombo Lagoon, Chilaw Lagoon, Udappuwa and Mundal Lake were in the form of *p,p'*-DDE where they have concluded as insignificant local usage in recent times. However, the question on recent DDT sources remains active by the detection of DDT in the Colombo Port as reported elsewhere (ITI, 2000) in the form of *p,p'*-DDT and DDD in one out of 18 samples. More strikingly, the reason for the high *p,p'*-DDT concentration in Rabbit Fish (*p,p'*-DDT:ΣDDT was 74:120) from the Colombo Dockyard was also unknown (Guruge and Tanabe, 2001). More data is needed to make a reasonable scientific judgment whether it was due to inland sources or due to other transport mechanism of POP substances.

Very little information is available on the concentration of chlordane in the environmental compartments despite the fact that Chlordane has been used in Sri Lanka until recently compared to other POP pesticides which had been banned long ago.. Studies conducted by Guruge and Tanabe (2001) confirmed possible recent usage of chlordane in Sri Lanka by observing similar trend in ratio of *trans*-Chlordane in biological samples and sediments to that of technical Chlordane. Also, the total Chlordane concentration in the Kelani River was found to be higher than those concentrations reported from most developing Asian countries, suggesting possible recent usage of Chlordane in the up-stream areas of Kelani River (Guruge and Tanabe, 2001). There are a few citations on the presence of several POP pesticides in vegetables, processed products and export products, particularly DDT, Dieldrin and Heptachlor. Available recent data is so limited about their environmental concentrations. The probable reason may be that most of these pesticides are either not formulated or not used in Sri Lanka and even if used, not in large quantities or banned long time ago thereby diluting their levels in the environment quite considerably with time.

Since, some of the organochlorine concentrations are still found in some environmental compartments, coupled with the lack of knowledge on the true picture of toxicological impact of POP pesticides in the environment and human health point of view, the situation would have to be seriously dealt with to achieve environment and human health protection goals.

There is no planned monitoring system or infrastructure facility available with the pesticide registration authority to trigger remedial actions to mitigate the problems. So far no proper monitoring studies have been carried out on pesticides. Further, there is no surveillance system in place in the health sector to monitor the trends of health effects with respect to exposure to pesticides from environmental contamination. The data available in environmental concentrations are primarily produced for academic interests or data generated for export of agricultural commodities as a requirement from importing countries (residue levels) rather than for environmental or long-term monitoring purposes. This leads to rather discrete data coverage (spatial and temporal) which makes it difficult to evaluate significant trends of contamination by POP pesticides in the country. In this context, further research, monitoring and environment protection procedures are critically needed in Sri Lanka.

Chapter
4

4. Human health and environmental effects

POPs are known to have the potential to cause irreversible and debilitating damage on the ecosystem and species populations, including humans. The threat is made even more significant by the fact that once released into the environment, these chemicals resist degradation by natural process and persist in the ecosystems and other life forms for longer duration of time; travel long distances through atmosphere (air), water and other means to different parts of the Globe, even to remote areas thousands of kilometers away from the source of POPs; accumulation in fat through food chain or inhalation and dermal exposure; and being subjected to biomagnifications causing wider range of adverse toxic effects to human and wildlife.

For wildlife, the effects of POPs are well documented (**Annex VII**). They include birth defects, cancer, and dysfunction of immune and reproductive systems. For example, marine mammals, such as common seal has suffered large population decline after being exposed to POPs.

There are serious concerns among the international scientific community on adverse human health and wildlife effects due to specific group of chemicals known as "Endocrine Disruptors" (Colborn, *et al.* 1996; EDSTAC, 1998). Among the suspected EDs, there are number of compounds classified under the Stockholm Convention which have been used widely in the past in Sri Lanka and some non-POP pesticides are still widely used in the country (i.e. Mancozeb, Malathion, Carbaryl, Chlorpyrifos, Dimethoate) (Sumith, 2001). The indirect toxic effects of pesticides on wildlife and birds have been studied in detail through field studies in other countries. Abnormal gonadal developments and decreased phallus size in Alligators in the Lake Apopka due to DDT, DDE and Dicofol (Woodward, *et al.*, 1993; Guillette, *et al.*, 1994); Egg shell thinning in Falcon (Olsen and Olsen, 1979); and Abnormal mating and nesting behavior, skewed sex ratios and supernormal clutch in Western Gulls due to DDT and its metabolites (Fox, *et al.*, 1978; Fry and Toone, 1981; Hunt and Hunt, 1977) are well documented.

Although some data are available concerning the concentration of a limited number of pesticides in surface waters, river waters, etc. in Sri Lanka (BGS, 1992; Silva, *et al.*, 1991) little or no information is available concerning the biological significance. Isolated incidences of pesticide related deaths of fish populations, snakes, etc. have been reported in surface waters following heavy application of mostly organophosphate and carbamate type of pesticides in agricultural fields without possible long-term environmental damages. Also, scattered incidences are reported to the Office of the Registrar of Pesticides on deaths of peacocks and other birds due to the consumption of rice grains treated with insecticides.

The acute pesticide poisoning effects often resulting in mortality are easily noticeable from sub-lethal effects which require exposure to pesticides for a longer period of time. Though it is likely to be prevalent, long-term effects are either not diagnosed properly in some cases or the actual causative agent are difficult to establish under the conditions prevailing in Sri Lanka. Since all POP pesticides are banned for more than a decade, any observable effects due to POP pesticides should have been

associated with long-term sub lethal exposure from contaminated environmental compartments and food chains. Such effects are most often not studied to identify or associate with the cause though it is widely believed that cases of chronic health problems such as carcinogenicity and reproductive effects are rapidly increasing. Thus the real effects of POP pesticides are often underestimated.

Poisonings in occupationally exposed persons are usually associated with contract spray operator groups or farmers carrying out prolonged spray operations under hot humid conditions without adequate personal protection. An exposure study conducted by Bandara (1989) for pesticide applicators during application of Aldrin as the model pesticide with knapsack sprayer showed that dermal exposure levels may reach 366.10 g of Aldrin in the absence of protective clothing. Recent poisoning data reveal >80% of poisonings caused by pesticides to be due to willful ingestion of pesticides for self-harm (Ref. Police Data on Suicides, 1998; Annual Poisoning Reports 1990-1996, National Poison Information Center). In 1979, out of all pesticide poisonings recorded, 73% was suicidal attempts with unintentional poisonings from occupational exposure and accidental exposure reported to be 16% and 7%, respectively (Jeyaratnam, *et al.* 1982). Though the use of highly hazardous pesticide formulations (WHO hazard class Ib), such as Monocrotophos 60% SL, Methamidophos 60% SL, Endosulfan 35% EC, Carbosulfan 20% EC, etc., have been restricted or banned, poisoning was considered severe based on percentage of persons affected and recurrence of episodes.

By examining the cases of pesticide poisonings reported to the National Poison Information Center in 1990 it was noticed that some organochlorines such as endosulfan, "Endrex", and "Gammaxene" had been reported to be used for suicidal attempts while Dieldrin had been responsible for occupational poisonings. The same records of data for 1991 has enlisted that Endosulfan and DDT were the members of organochlorines that had been used for suicidal attempts. The record of DDT as a suicidal tool as late as 1991 after almost 15 years have elapsed from the complete banning in 1976, is questionable due to the absence of verification of reported cases in the present system. A field inspection carried out by the Officers of the Office of the Registrar of Pesticides revealed that some unscrupulous vendors illegally sell malathion often calling by the name of DDT.

Many examples worldwide have shown that restricting the availability of toxic pesticides can reduce death rates from self-harm. WHO has suggested that death rates could be reduced by restricting the availability of poisons commonly used for self-harm (WHO, 2001). For example, a national ban on the organophosphate Parathion reduced the total number of deaths reported to a poison center in Rosario, Argentina during the 1990s. (Piola, *et al.*, 2001) As shown in the **Table 4.1**, it is possible to speculate that while the total deaths due to pesticides from 1983 through 1990 remains more or less stable, the death caused by organochlorines gradually decreased, basically due to the restrictions and banning of some of the organochlorine candidates during that specified period.

A case study conducted at the Anuradhapura hospital showed that due to recent ban of Endosulfan products (35% EC formulations of WHO hazard class Ib) in Sri Lanka (the last member of organochlorine pesticide) in 1998, the number of deaths of Endosulfan poisoning fell quickly from 50 in 1998 to 3 in 2001 along with a fall in the total number of pesticide deaths (Roberts *et al.*, 2003). The overall reduction on total death rates amidst the rising incidence of self-poisoning due to pesticides from 1998 through 2001 (**Table 4.2**) would have been due to displacement of a poisoning candidate (viz. Endosulfan) which has a higher Case Fatality Rate (CFR) (42%) than that of common organophosphates (29%). This confirmed the beneficial impacts of pesticide regulation on deaths from poisoning in Sri Lanka (Roberts *et al.*, 2003).

Table 4-1: Total pesticide poisoning episodes during 1983-1990.

Pesticide Category	Year						
	1983	1984	1985	1986	1988	1989	1990
Organochlorines	269	319	105	170	95	88	94
Organophosphates/ Carbamates	900	931	1052	1022	1190	987	1069
Other Pesticides	352	209	282	260	239	-	-
Total	**1521**	**1459**	**1439**	**1452**	**1524**		

Source: Ministry of Health Statistics Division; Personal Communication, Prof. Ravindra Fernando, University of Colombo, Department of Forensic Medicine, Colombo

Field studies reveal that 80% of farmers suffer from symptoms of acute poisoning following spray sessions. However, only 20% undergo hospital admissions on occupational exposure (Environment Action Plan Report, 2002). Concerns of chronic health effects associated with pesticide residues in food and water sources are becoming more and more intensified with frequent reports of life threatening cases such as Chronic Renal Failure in Padaviya and Madawachchiya (Palitha Bandara, personal communication) and ever increasing number of cancer patients. The farming communities whose on agro-wells in intensively cultivated areas for their basic needs such as for drinking and washing purposes are at particular risk of pesticide residues.

Table 4-2: Total pesticide poisoning episodes during 1996-2002.

Category	Year						
	1996	1997	1998	1999	2000	2001	2002
Admissions	21129	19286	21429	19996	20326	19081	17364
Deaths	1852	2121	2250	1847	1843	1717	1437

Source: Annual Poisoning Data, National Poison Information Center, Colombo.

It appears that the scientific investigation in 70's and 80's linking DDT and other persistent organochlorines to impaired health in wildlife and humans in USA and other developed countries influenced environmental scientists the world over to determine their own environmental levels for those suspected chemicals. DDT has been detected in human tissues and breast milk in many parts of the world. In Sri Lanka, the mean level of DDT in breast milk collected during 1979-1981 from 185 samples was 0.087 ppm which is relatively lower than those reported elsewhere in the world (Shanthakumar, *et al.* 1981-unpublished data).

Deficiencies in health related information collection and recording, prevalent in the system, has very seriously effected the formulation of effective control strategies for proper management of pesticides in the field.

Chapter
5

5. Awareness on POP pesticides

Varied levels of awareness among different stakeholders would create confusion in the minds of the public which disrupt effective management of POP related issues by the authorities. Though some of the potent organochlorines such as DDT, Dieldrin, Endrin, Heptachlor have been "exterminated" from agricultural use in Sri Lanka almost for the last 15 years, some distorted facts/ claims appeared in published articles in the recent past.

For example:

"The importation, formulation and distribution of agrochemicals are controlled by the private trade whose leading firms collaborate with multinational corporations or are the latter's subsidiaries. Many of these are thus powerful enough to have found a market in Sri Lanka, as in the Third World generally. They have sold pesticide products, which are banned in developed countries. In Sri Lanka, before the recent import licensing, seven of the "Dirty Dozen", though officially prohibited were available in the local market added Dr. S.B.D. de Silva."

Ref.

Pesticides can cause greater harm to environment than fertilizers-Agricultural Economist. Island 30/08/1993 by L.B. Wijayasiri, Kandy Correspondent.

"The World Health Organization is currently translating the objectives in "The action plan for the reduction of reliance on DDT for public health purposes" into detailed work plans, which also affects Sri Lanka as a major user of this notoriously toxic pesticide....Sri Lanka and 15 other developing nations legally use dichlorodiphenyltrichloroethane on crops to effectively control Malaria, but which disrupts the working of human hormones, interfering with reproduction and the functioning of the immune system."

Ref.

WHO works on action plan on DDT use which also affects Sri Lanka. Daily News 28/09/1999. Quote Colombo, September 26 (Lanka Puvath).

"Chlorinated hydrocarbons are still being used as pesticides in agriculture and industry...especially in areas such as Nuwara Eliya, where there is massive use of pesticides in vegetable cultivation, the probability of streams and rivers being polluted with hydrocarbons is high."

Ref.

Save the otter? We sure ought'a! Nature, September 1999. p. 27-29 by Padma K. de Silva, Department of Zoology, University of Peradeniya, Peradeniya.

"Sri Lanka has been identified as a country which allowed import and use of DDT, Aldrin, Dieldrin, Chlordane in 1999 (WWF, 1999)."

Ref.

In Persistent Organic Pollutants: Hand-me-down poisons that threaten wildlife and people. January 1999. Issue Brief, World Wildlife Fund, Washington, D.C. p. 15.

There is a possibility of POP pesticides been classified under different HS Codes other than 38.08 designated for pesticides and brought under license. According to the Customs data for the year 2003, some importers have incorrectly classified some chemical substances under the HS Code 2903.62 where DDT and HCB have been included which led authorities to misinterpret the situation (personnel communication, D.D. Jayasinghe, Officer In-Charge, Chemicals Division, Department of Customs). It is mentioned that such confusion was mainly due to the lack of awareness/negligence among the importers/users as well as among some of the Customs Officers about the current restrictions/regulations on these two chemicals.

Unlike in some of the regional countries, Sri Lanka being an island has the advantage for effectively preventing the illegal transboundary movement of POPs. It has been reported that smuggling is one of the sources of POP pesticides in Nepal. (Manandhar and Palikhe, 1999)

Though, Sri Lanka enjoys a good natural barrier against illegal entry of pesticides by smuggling, a case for concern with respect to issue of illegal import was the complaints received by the Office of the Registrar of Pesticides on the sale and use of a powdered pesticide product suspected to be "DDT" in the Eastern Province of Sri Lanka for agricultural purposes (A.B. Jiffry, personal communication). DDT, though a restricted chemical is manufactured and used in the neighboring India for vector control (UNEP/GEF, 2003). Pesticide exporting countries are obliged under the provisions of the Basel Convention to notify recipient countries of the shipments of banned chemicals. Therefore, having no proper judgment on the exact situation, it is not fair to make definite conclusions. However, the possibility of illegal smuggling cannot be totally ruled out. Control of illegal trade is a complex issue and there should be a concerted effort among agencies, for active enforcement by informed and well-equipped Officers. In one such instance, a field inspection carried out by the Officers of the Office of the Registrar of Pesticides at several locations in Anuradhapura and Kurunegala districts revealed that some unscrupulous vendors illegally sell Malathion[1] often calling it by the name of DDT.

[1] Malathion is restricted for exclusive use by the Department of Health for combating malarial mosquito vector.

Chapter
6

6. Problems encountered in the quality of pesticides

Recurring problems encountered by the Office of the Registrar of Pesticides is in relation to-

(1) The reliability of data submitted for registration;

(2) The reliability of quality certificates for commodity products;

(3) Adulteration at field level; and

(4) Re-labeling of outdated pesticides.

In-house quality testing facilities are not in place with regard to manpower development in the field of pesticide quality and residue analysis. The registration authority is therefore unable to check imported consignments with sufficient coverage and has to depend on Quality Certificates submitted by the manufacturer or formulator of the exported commodity products. In spite of assurance of quality through registration procedure, which mainly focuses on the literature of the product, there were a number of occasions where inferior quality had been reported in products offered to the farmer. It is believed that a large number of such incidences are not reported due to lack of proper investigations and recording systems in every related discipline. In the case of commodity products from doubtful sources, as a means of cross checking their Quality Certificates, the services of independent testing laboratories have been employed.

A recent study (A paper presented at the NASTEC workshop on Technology of Application of Pesticides in June (23-26), 2003) revealed some updated findings of pesticide quality control analysis in some developing countries which identified the causes of poor quality of pesticides. Case studies from Gambia (1995), Benin (1996), Jamaica (1995) and Madagascar (1989) revealed some brands of mosquito coils being adulterated with large quantities of DDT (9-12%), without any reference whatsoever to the DDT content. Similarly, some cases have also been found where pesticide labels were falsely declared for the active ingredient content. For instance, in Jamaica, a brand pesticide product had been tested and found to contain DDT in place of the expected Pyrethrins. The situation may be true in most of the countries where suitable mechanisms do not exist for pesticide control. Results of a survey published in 1989 revealed that more than 50% of developing countries and 76% of African countries have no legislation to enable governments control over pesticides (FAO, 1989).

Irrespective of the presence or not of regulatory systems in individual countries, it appeared that the maintenance of quality of pesticide products is becoming a challenge. Thus, it is vital that routine testing of quality standards are carried out by the regulatory authorities for commodity products to ensure the safety. Presently, precautionary measures are adopted by the Office of the Registrar of Pesticides for regular monitoring of mosquito coil samples for illegal admixtures of POP pesticides particularly for DDT.

While the services of independent laboratories can be utilized for basic product related data generation and for other specific testing programs with respect to pesticide registration compliance, surveillance on enforcement activities and internal verifications in pesticide management activities is essential and is a necessary mandate of the regulatory authority.

Chapter 7

7. Conclusion

In Sri Lanka with the implementation of the Control of Pesticides Act No. 33 of 1980, presently there are no POP pesticides used in the fields of Agriculture, Public health, Industry or any other field. The prohibition of use of POP pesticides initiated in early 1970's and was completed in 1996 with the ban of Chlordane, which was the last POP pesticide used in Sri Lanka. One of the main concerns associated presently with POP pesticides is the possibility of exposure through contaminated sites/environmental compartment which have resulted from historical uses. However, there is very little information available on environmental levels which seriously incapacitate, to arrive at sound and reasonable prediction on potential human and environmental adverse effects arising from POP pesticide use in Sri Lanka. As a social and environmental security measure, regardless of whether and how pesticides (whether it is a POP pesticide or not) affects human and wildlife (where a highly organized scientific investigation is required for assessing the risks of pesticides in the areas of human health and environmental effects), it is an important aspect to assess human health and the environment against anticipated toxic effects highlighted through various epidemiological and other studies. Therefore, monitoring and surveillance of pesticides in environmental compartments are a necessary for the protection of health of human beings, wildlife and the environment.

As a result of the preparation of the inventory it was possible to identify some of the key issues in the related field;

1. Lack of information on environmental levels of POP pesticides in various environmental compartments and sites where they were used in the past (The inventory provides information regarding the areas and sites of potential contamination sites, identified according to the history of use of individual POP pesticides).

2. Lack of facilities to monitor the quality of pesticides at the point of import including possible contamination with POP pesticides or possible false declarations by the importer.

3. Absence of facilities for safe disposal of outdated stocks of pesticides.

4. Lack of effective information dissemination system leading to poor awareness on present status on POP pesticides among all the sectors including the scientific community.

5. Absence of a proper system to monitor serious human health and environmental adverse effects of pesticides under the local conditions and practices, which would also hinder identification of potential candidate POP pesticides.

Chapter
8

8. Recommendations

(1) The gaps in available data and information are essential to be filled to draw up an effective management plan.

(2) The relevant authorities should be provided with adequate facilities and strength to generate additional data and information required to develop a management plan. Therefore, development of infrastructure at Office of the Registrar of Pesticides and Customs for compliance monitoring programs with respect to contamination/adulteration of chemical products with POP pesticides is envisaged.

(3) Surveillance should be carried out on environment compartments (air, sediments, water, soil, biological) and food products for presence of POP pesticides and candidate POPpesticides, including-

- Assessment of pesticides residues for ground and surface water bodies;
- Further investigation on the presence of POP pesticide residues in coastal seabed;
- Study of all pesticides recommended for agriculture on the fate and effects in the environment under the local conditions to ascertain any relevance to POP qualities;
- Establishment of MRLs for Sri Lanka and devising methods to minimize the residue levels in agricultural commodities;
- Establish regular pesticide residue monitoring programs on food (local and imported) by strengthening the relevant aspects under the Food Act;

(4) Surveillance should be carried out on adverse effects of pesticides including POPs on the environment and human health under the local conditions by-

- Establishing a proper surveillance and reporting system (social and scientific) within the health sector on chronic health effects from exposure to pesticides.
- Establishing a complimentary analytical program to study the fate of such pesticides in the environmental compartments for the establishment of correlations between presence and their health effects.

(5) Development of coordinating system by establishing a network among the health, agriculture, industry and environmental sector research groups through the Office of the

Registrar of Pesticides as the focal point for coordination, information collection and sharing and policy decisions for prevention of POP pesticide related adverse effects.

(6) Safe Disposal of existing stocks of outdated pesticides including POP pesticides.

(7) Strengthening of analytical capabilities at the regulatory authorities so that routine testing of quality standards are carried out for commodity products to ensure the safety.

(8) It is urgently required to identify sub-headings for all banned pesticides, technical grade materials, formulations of pesticides and certain other hazardous chemicals in order to arrest illegal importation.

(9) Awareness raising among importers, Ports Authority, Customs and Import Controller on accurate documentation, regulation and monitoring is recommended. Public awareness campaigns and programs, information dissemination through printed and electronic media should be exploited as much as possible in order to achieve the necessary levels of awareness on POPs among the public.

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PARLIAMENT OF THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

CONTROL OF PESTICIDES ACT, No. 33 OF 1980

[Certified on 5th September, 1980]

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Control of Pesticides Act, No. 33 of 1980

[Certified on 5th September, 1980]

L.D.—O.13/79

AN ACT TO PROVIDE FOR THE LICENSING OF PESTICIDES ; TO REGULATE THE IMPORT, PACKING, LABELLING, STORAGE, FORMULATION, TRANSPORT, SALE AND USE THEREOF ; FOR THE APPOINTMENT OF A LICENSING AUTHORITY FOR PESTICIDES ; FOR THE ESTABLISHMENT OF A PESTICIDE FORMULARY COMMITTEE AND FOR MATTERS CONNECTED THEREWITH OR INCIDENTAL THERETO.

BE it enacted by the the Parliament of the Democratic Socialist Republic of Sri Lanka as follows :—

Short title.

1. This Act may be cited as the Control of Pesticides Act, No. 33 of 1980.

Application of the Act.

2. This Act shall apply to—

(*a*) active ingredients and pesticide formulations with included adjuvants ; and

(*b*) adjuvants other than those included in pesticide formulation if sold for addition at the point of use to the spray tank or other container of pesticide formulations.

Licensing Authority for pesticides.

3. (1) There shall be appointed a Registrar of Pesticides who shall be the licensing authority for pesticides.

(2) The Registrar of Pesticides shall be a person with knowledge of toxicology and biological subjects associated with pest control and shall be responsible to the Director of Agriculture.

Pesticide Formulary Committee.

4. (1) There shall be a Pesticide Formulary Committee (hereinafter referred to as the " Committee ")

(2) The Committee shall consist of—

(*a*) the folowing *ex officio* members namely—

(i) the person holding office for the time being as the Director of Agriculture (hereinafter referred to as the " Director "). and

(ii) the person holding office for the time being as the Registrar of Pesticides (hereinafter referred to as the " Registrar ") ; and

A 49925 -19,600 (80/06)

(*b*) not more than eight persons who are experienced in the use of pesticide or in pest control and related scientific disciplines who shall be appointed by the Minister :

Provided, however, that no person having a commercial interest in the manufacture, import, marketing, formulation, storage, transport or sale of pesticides shall be so appointed.

(3) The Director shall if present preside at all meetings of the Committee. In the absence of the Director from any such meeting, the members present shall elect one of the members to preside at such meeting.

(4) Every member, other than the *ex officio* members shall, unless he vacates office earlier by death, resignation or removal by the Minister, hold office for a period of three years from the date of the appointment to such office :

Provided that a member appointed in place of a member who dies, resigns or otherwise vacates office, shall, unless he earlier vacates office, hold office for the unexpired part of the term of office of the member whom he succeeds.

(5) The Minister may, by Order published in the *Gazette* remove any member, other than the ex-officio members, from office, without assigning any reason therefor and such removal shall not be called in question in any Court.

(6) Any member other than the *ex officio* members vacating office by the effluxion of time shall be eligible for reappointment.

(7) If any member, is temporarily unable to perform the duties of his office during any period due to ill health or absence from Sri Lanka or for any other cause, the Minister may appoint some other person to act in his place during such period in like manner as such member was appointed in accordance with the provisions of subsection (1).

(8) The Minister may, determine the remuneration of such members and the manner of such payment in consultation with the Minister in charge of the subject of Finance.

Functions of the Committee.

5. (1) The functions of the Committee shall be to advise the Registrar on any important matter relating to the registration of pesticides, approval of containers, and the storage, formulation, import, sale and use of pesticides and such other matters relating thereto as may be prescribed by regulations made under this Act.

(2) (*a*) The Committee may make rules in respect of all or any of the following matters :—

(i) the procedure to be followed at its meetings ;

(ii) the conduct of its business ; and

(iii) all matters connected with or incidental to the carrying on of its business.

(*b*) Such rules shall be made at a meeting of all members of the Committee.

(*c*) No rule made by the Committee shall have effect unless it is approved by the Minister and published in the *Gazette*.

Application for licence.

6. (1) Every person desirous of licensing any pesticide shall make an application to the Registrar in that behalf.

(2) An application under sub-section (1) shall contain the following particulars :—

(*a*) the name and address of the applicant ;

(b) the name and address of the manufacturer or producer of the pesticide in respect of which such application is made ;

(*c*) the proposed trade name under which such pesticide shall be marketed or sold ;

(*d*) a copy of the draft label which shall be affixed on any container in which such pesticide shall be sold ;

(*e*) samples of the container in which such pesticide shall be distributed or sold ;

(*f*) a statement of the claim made by the manufacturer or producer of such pesticide as to its uses, potency, shelf-life and effect ;

(*g*) a statemnt of the composition of such pesticide, its chemical identity, nett weight, its stability in storage, methods of use and date of expiry for usage ;

(h) adequate toxicological data concerning such pesticide including information on antidote ;

(*i*) methods of analysis of the formulated compound ;

(*j*) methods for the determination of the residue of such pesticide ;

(*k*) report of official or other experimental stations or laboratory or biological tests concerning the efficacy of such pesticide ;

(*l*) such other information relating to the efficacy or safety of the pesticide as may be required by the Registrar.

(3) Where the information contained in an application made under subsection (1) is given by the applicant in confidence, it shall be treated as confidential by the Registrar :

Provided that the preceding provisions of this subsection shall not apply where it is necessary to divulge such information if so required by a court of law.

Consideration of application.

7. (1) The Registrar shall, on receipt of an application under subsection (1) of section 6—

(*a*) register the pesticide and issue a licence ; or

(*b*) register the pesticide and, pending the issue of a licence, issue a provisional permit for limited marketing and use of the pesticide in accordance with conditions stipulated in the permit ; or

(*c*) reject the application and state the reasons for such rejection.

(2) The issue of a licence or a permit shall be effective for the period stated in the licence or permit, and shall be renewable on application made in that behalf. Such renewal shall be conditional upon a review by the Registrar of the data on the pesticide in question.

Issue of licence.

8. (1) The Registrar shall not issue a licence under paragraph (*a*) of subsection (1) of section 7 unless the copy of the draft label submitted with the application contains in the Sinhala, Tamil and English languages the following particulars :—

(*a*) the trade name under which the pesticide shall be sold ;

(*b*) the common names of the active ingredients of the pesticide, in characters not smaller in size than half the size of those used for the trade name of the pesticide, and in a position placed directly below the trade name ;

(*c*) a statement of the composition of the pesticide with the chemical identity of the active ingredients expressed on a weight by weight percentage basis, together with the percentage of other materials present, to give one hundred per cent, and in the case of liquid formulations, the active ingredient expressed as grams per litre ;

(*d*) the name and address of the holder of the licence ;

(*e*) adequate directions concerning the manner in which the pesticide is to be used, including information as to the period of time which should elapse between the last application of the pesticide and harvest of the crop to which it is applied and where the Registrar deems appropriate, the shelf-life of the pesticide ;

(*f*) adequate warning and precautionary symbols and statements including first aid and antidote information ;

(*g*) the statement "Registered under the control of Pesticides Act, 1980" which shall be an official symbol indicating that the pesticide has been licensed under this Act and the licence number assigned to it by the Registrar ;

(*h*) any other particulars as may be prescribed by regulations under this Act.

(2) Where licensing of a pesticide has been effected under subsection (1) of section 7 no change in respect of any matters set out in paragraphs (*a*) to (*h*) of subsection (1) of this section shall be made without the prior approval of the Registrar.

Approved pesticide.

9. (1) Where the Registrar issues a licence under subsection (1) of section 7, he shall declare that pesticide to be an approved pesticide.

(2) Every declaration made under subsection (1) shall be approved by the Minister and published in the *Gazette*.

Approved container or package.

10. The Registrar shall, when he approves a pesticide, also approve the container or package containing such pesticide, if he is satisfied, having regard to the conditions required for safe and effective storage and handling of such pesticide, that such container or package is satisfactory.

Cancellation of licence.

11. (1) Where any person contravenes any provision of this Act or any regulation or Order made thereunder, or where the Registrar considers it necessary in the interest of the public to do so, he may, on the advice of the Committee cancel, suspend or modify the licence issued in respect of such pesticide or withdraw, suspend or modify the provisional permit issued to such person.

(2) Where the Registrar cancels, suspends or modifies the licence or withdraws, suspends or modifies the provisional permit issued in respect of a pesticide under subsection (1) he shall state the reasons for such cancellation, suspension modification or withdrawal as the case may be.

(3) Where any cancellation or suspension takes place in respect of a pesticide under subsection (1) such pesticide shall cease to be an approved pesticide.

(4) Every cancellation or suspension under subsection (1) shall be by Order published in the *Gazette*.

Alteration in package or composition.

12. No alteration in the package, label or composition of a pesticide shall be made by the holder of a licence issued in respect of a pesticide unless an application is made in that behalf and approval obtained from the Registrar in respect of such intended alteration.

Appeals.

13. (1) Any person aggrieved by the rejection of an application under section 7 or the cancellation, suspension, or modification of a licence or the withdrawal, suspension or modification of a provisional permit under section 11, may prefer an appeal in writing to the Secretary to the Ministry of the Minister in charge of the subject of Agricultural Development and Research (hereinafter referred to as the "Secretary") against such rejection or cancellation, suspension, withdrawal or modification within sixty days after such decision is communicated to such person and the Secretary may, in dealing with any appeal preferred to him, affirm, vary or annul the order against which the appeal has been preferred.

(2) The decision of the Secretary upon an appeal shall be final and conclusive for all purposes whatsoever, and shall not be called in question in any Court.

Prohibition.

14. No person shall manufacture, formulate, pack or distribute, sell, offer for sale or deliver within the country, any pesticide unless—

(a) such pesticide is registered and a valid licence or a provisional permit is obtained from the Registrar ; and

(b) such pesticide is contained in an approved container or package and an approved label is conspicuously fixed thereon :

Provided, however, that the foregoing provisions of this section shall not apply where any approved research organization imports with the written consent of the Registrar any specified quantity of pesticides or pesticide components for the purposes of research.

Adulterated, decomposed or deteriorated pesticides.

15. No person shall manufacture, pack, distribute, sell or offer for sale or deliver within the country any pesticide, which is adulterated or which has decomposed or deteriorated so as to be ineffective or dangerous or which is packed in containers which have deteriorated or have been damaged as to be dangerous in storage or use.

Storage, transport and sale of pesticides in close juxtaposition with foodstuffs.

16. No person shall store, transport, sell or offer for sale any pesticide in close juxtaposition with foodstuffs or in any such manner as would result in the contamination of such foodstuffs.

Prohibition of import of pesticides except upon approval.

17. No person shall import any pesticide except with the written approval of the Registrar granted on the advice of the Committee.

Advertisement of pesticides.

18. (1) Any written, printed or graphic material relating to and accompanying a pesticide when stored, transported, distributed, sold, offered for sale or delivered within the country shall include the substance of the particulars referred to in section 8.

(2) It shall be unlawful to advertise any pesticide in a manner that is false, misleading or deceptive, and not justified by the conditions of its registration.

(3) Any claim for a pesticide contained in any advertisement or device shall be in accordance with the label statements referred to in section 8, and not be contrary to the requirements of subsection (2) of this section.

Storage of pesticides in bulk.

19. (1) No person shall store pesticides in bulk other than in a special store kept for that purpose. The store shall be kept locked when loading or unloading is not in progress.

(2) A notice shall be displayed in a conspicuous position outside the store indicating the hazardous nature of its contents.

Harvesting of crops.

20. No person shall harvest, or offer for sale any food crops, in which pesticides have been used unless a time limit as may be prescribed by regulations has elapsed between such use and harvest, or if the food crops shall contain pesticide residue in excess of levels as may be prescribed.

Authorized officers and their powers and functions.

21. (1) The Director shall nominate such number of officers of his department as may be necessary to carry out the purposes of this Act, who shall be known as "authorized officers".

(2) An authorized officer may—

(a) ascertain whether any person has contravened any provision of this Act or any regulation or Order made thereunder;

(b) obtain samples of pesticides for the purpose of determining whether any deterioration, adulteration or decomposition thereof has occurred; and

(c) do all other acts or things which are connected with or are in furtherence of the exercise, performance and discharge of the powers, duties and functions under this Act.

(3) Any authorized officer may enter any premises, after sufficient notice at all reasonable hours of the day in the discharge of his functions under this Act. Such authorized officer shall not be liable on account of such entry or on account of anything done bona fide in such premises which is necessary in the exercise, performance and discharge of the powers, duties and functions under this Act.

Analysis of samples.

22. (1) An authorized officer on obtaining a sample of a pesticide shall forthwith inform the seller or his agent of his intention to have the same analysed by an authorized analyst and shall forthwith divide the sample into three equal parts and cause each part to be marked and sealed in such manner as its nature will permit and shall deliver one part each to the seller or his agent, the authorized analyst and the Registrar.

(2) In the event of a dispute in respect of the result of an analysis the Registrar shall forward such part of the sample as is in his custody to a referee analyst nominated by him.

(3) In any proceedings under this Act the production of a certificate signed by an authorized analyst or a referee analyst with regard to any sample procured for analysis under this section shall be prima facie evidence of the facts stated therein.

Fees.

23. (1) (*a*) Every application for the licensing of a pesticide under section 6, and

(*b*) every appeal against any rejection, cancellation, suspension, withdrawal or modification under section 13,

shall be accompanied by such fee as may be prescribed by regulations made under this Act.

(2) In addition to such fee payable under subsection (1), a levy on the importer, manufacturer, formulator or packer of a pesticide may be prescribed by regulations made under this Act for the general purpose of making proper financial provision for the effective implementation of this Act and of the regulations made thereunder.

Penalty for contravention of this Act.

24. (1) Every person who contravenes or fails to comply with any provision of this Act or any regulation made thereunder shall be guilty of an offence under this Act and shall on conviction by a Magistrate be sentenced to imprisonment of either description for a period of two years.

(2) Where an offence under this Act is committed by a body of persons, then—

(*a*) if that body of persons is a body corporate, every director, manager, secretary or officer of that body corporate ; or

(*b*) if that body of persons is a firm, every partner of that firm,

shall be deemed to be guilty of that offence :

Provided, however, that no such person shall be deemed to be guilty of an offence if he proves that such offence was committed without his knowledge or that he exercised due diligence to prevent the commission of the offence.

Forfeiture.

25. The Court which convicts any person of an offence under this Act, may impose any of the penalties hereinbefore prescribed, and may, if it thinks fit, in addition order that all or any article or articles in respect of which the offence was committed be seized and forfeited to the State.

Regulations.

26. (1) The Minister may make regulations in respect of matters required by this Act to be prescribed or in respect of which regulations are authorized to be made and in particular in respect of all or any of the following matters :—

(i) setting forth the position, size and colouring of the label as well as the system or systems of weights or measures to be stated in the label ;

(ii) setting forth special provisions with regard to the substances or operations which presents a high or unusual degree of hazard ; such special provisions may in particular—

(*a*) provide for the field evaluation of certain substances ;

(*b*) regulate the marketing or distribution of certain substances as may be necessary to safeguard third parties, the environment and wildlife resources other than such noxious plants and animals whose control is desired ;

(iii) fixing the dates on which the marketing and sale of pesticides for which licences are issued under this Act shall cease and the disposal of such pesticides ;

(iv) establishing standards or technical competence and equipment used by any person or body of persons engaged in the manufacture, formulation and packing of pesticides ;

(v) the designation of any product as a pesticide formulation ; and

(vi) the mode and manner of use of pesticides.

(2) Every regulation made by the Minister shall be published in the *Gazette* and shall come into operation on the date of such publication or on such later date as may be specified in the regulation.

(3) Every regulation made by the Minister shall, as soon as convenient after publication in the *Gazette*, be brought before Parliament for approval. Any regulation which is not so approved shall be deemed to be rescinded as from the date of disapproval, but without prejudice to anything previously done thereunder.

(4) Notification of the date on which any regulation shall be deemed to be so rescinded shall be published in the *Gazette*.

Interpretation.

27. In this Act, unless the context otherwise requires—

"active ingredient" means any substance which gives a formulated product its pesticidal properties;

"adjuvant" means any substance used as an aid to the efficacy of a pesticide;

"Authorized analyst" means the Government Analyst, the Additional Government Analyst, a Deputy Government Analyst, a Senior Assistant Government Analyst, an Assistant Government Analyst and any other person authorized by the Minister by notification in the *Gazette* to act as such;

"pest" means any insect, rodent, bird, fish, mollusc, nemtode, fungus, weed, micro-organism, virus or other kind of plant or animal life which is injurious, troublesome or undesirable to crops, stored products, processed foods, wood, clothes, fabrics or inanimate objects or which are objectionable from the view point of public health and hygiene, and shall also include ectoparasites and endoparasites of man and domestic animals other than any pest which may be specifically included or excluded by regulations made under this Act;

"pesticide" means any substance intended for use or used for controlling a pest and shall include active ingredients, adjuvants and pesticide formulations;

"pesticide formulations" means any mixed or unmixed products sold, supplied, imported for use, or used for one or more of the following purposes, namely, for destroying or repelling any pest within the meaning of this Act or for preventing its growth or mitigating its effects, as a plant regulator defolient or desiccant or as an adjuvant and includes any similar product so designated by regulations made under this Act.



PARLIAMENT OF THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

CONTROL OF PESTICIDES (AMENDMENT) ACT, No. 6 OF 1994

[Certified on 6th April, 1994]

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L.D.—O. 52/87.

AN ACT TO AMEND THE CONTROL OF PESTICIDES ACT, No. 33 OF 1980

WHEREAS Parliament deems it expedient in the public interest for the Government to control the pesticide industry including the import, packing, labelling, storage, formulation, transport, sale, and use thereof:

BE it enacted by the Parliament of the Democratic Socialist Republic of Sri Lanka as follows:—

Short title.

1. This Act may be cited as the Control of Pesticides (Amendment) Act, No. 6 of 1994.

Amendment of the long title of Act, No. 33 of 1980.

2. The long title of the Control of Pesticides Act, No. 33 of 1980 (hereinafter referred to as the "principal enactment") is hereby amended by the substitution for the words "FORMULARY COMMITTEE", of the words "TECHNICAL AND ADVISORY COMMITTEE".

Replacement of section 2 of the principal enactment.

3. Section 2 of the principal enactment is hereby repealed and the following section substituted therefor:—

"Application of the Act.

2. This Act shall apply to active ingredients and pesticide formulation with adjuvants, other than such formulations as are set out in the Schedule to this Act.".

Amendment of section 3 of the principal enactment.

4. Section 3 of the principal enactment is hereby amended by the addition immediately after subsection (2) of that section, of the following new subsections:—

"(3) There shall be appointed such number of Assistant Registrars of Pesticides as may be necessary for the purposes of the Act.

(4) Every Assistant Registrar of Pesticides may exercise all or any of the powers of the Registrar of Pesticides and in the exercise of such powers shall be subject to the control and direction of the Registrar of Pesticides.".

Amendment of section 4 of the principal enactment.

5. Section 4 of the principal enactment is hereby amended as follows:—

(1) by the repeal of subsections (1) and (2) of that section and the substitution therefor of the following subsections:—

(1) There shall be a Pesticide Technical and Advisory Committee (hereinafter referred to as the "Committee").

(2) The Committee shall consist of—

(*a*) the following *ex officio* members, namely :—

(i) the Director of Agriculture (hereinafter referred to as the "Director") or any officer nominated by him :

(ii) the Registrar of Pesticides (hereinafter referred to as the "Registrar") or any officer nominated by him ;

(iii) the Government Analyst or any officer nominated by him ;

(iv) the Secretary to the Ministry of the Minister in charge of the subject of Health or any officer nominated by him ;

(v) the Commissioner of Labour or any officer nominated by him ;

(vi) the Director of the Tea Research Institute established under the Sri Lanka Tea Board Law, No. 14 of 1975, or any officer nominated by him ;

(vii) the Director of the Rubber Research Institute established under the Rubber Research Ordinance (Chapter 439), or any officer nominated by him ;

(viii) a member of the Sri Lanka Standards Institution established by the Sri Lanka Standards Institution Act, No. 6 of 1984, nominated by the Chairman of such Institution or any officer nominated by such member ;

(ix) the Director of the Coconut Research Institute established under the Coconut Development Act, No. 46 of 1971, or any officer nominated by him ;

(x) a Senior Officer of the Central Environmental Authority established by the National Environmental Act, No. 47 of 1980, nominated, by the Chairman of such Authority ; and

(b) not more than five persons who are experienced in the use of pesticides, pest control and related scientific disciplines who shall be appointed by the Minister :

Provided however that no person having a commercial interest in the manufacture, import, marketing, formulation, storage, transport or sale, of pesticides shall be appointed. ' ; and

(3) by the substitution for the marginal note to that section of the following marginal note : —

" Pesticide Technical and Advisory Committee. ".

Amendment of section 5 of the principal enactment.

6. Section 5 of the principal enactment is hereby amended as follows : —

(1) by the repeal of subsection (1) of that section and the substitution therefor of the following subsection : —

" (1) The functions of the Committee shall be—

(a) to advise the Registrar on any important matter relating to the registration of pesticides, approval of containers, the storage, formulation, import, sale and use of pesticides and such other matters relating thereto as may be prescribed ;

(b) to appoint technical sub-committees to assist such committee in the performance of its functions. " ; and

(2) in paragraph (b) of subsection (2) of that section by the substitution for the words " at a meeting of all members of the Committee. ", of the words " at a meeting of the Committee. ".

Amendment of section 6 of the principal enactment.

7. Section 6 of the principal enactment is hereby amended in subsection (2) of that section as follows :—

(i) by the repeal of paragraph (*b*) of that subsection and the substitution therefor, of the following paragraph :—

" (*b*) the name and address of the manufacturer of the technical grade of the active ingredient and the name and address of the manufacturer of the pesticide formulation in respect of which such application is made ; " ;

(ii) by the repeal of paragraph (*f*) of that subsection and the substitution therefor, of the following paragraph :—

" (*f*) a statement of the claim made by the manufacturer or producer of such pesticide as to its uses, potency, stability in storage and the period of usage and a statement with regard to its efficacy and crop safety supported by the result of any experimental data as evidence ; " ; and

(iii) by the repeal of paragraphs (*g*), (*h*), (*i*) and (*j*) of that subsection and the substitution therefor, of the following paragraphs :—

" (*g*) a statement of the composition of such pesticide, its chemical identity including the chemical and physical properties of the technical grade material from which the pesticide formulation is prepared, its net weight and the identity and amount of isomer impurities and other by products ;

(*h*) adequate toxicological data concerning such pesticide including information on antidote, to show that when used as recommended the product would not cause ill effects to those applying it or to the consumer of treated crops ;

(*i*) methods of analysis of the pesticide formulation with the results of the analysis as evidence ; and

(*j*) methods of determining the residue of such pesticide in foods and feed after application as directed with the results of any experiments as evidence. ".

Amendment of section 7 of the principal enactment

8. Section 7 of the principal enactment is hereby amended in subsection (1) of that section by the repeal of paragraphs (*a*) and (*b*) of that subsection, and the substitution therefor of the following paragraphs :—

" (*a*) register the pesticide and issue a licence valid for a period not exceeding three years ; or

(*b*) register the pesticide provisionally, and pending the issue of a licence or in lieu of a licence, issue a provisional permit valid for a period not exceeding twelve months for restricted marketing and use of the pesticide in accordance with the conditions stipulated in such permit ; ".

Amendment of section 8 of the principal enactment

9. Section 8 of the principal enactment is hereby amended by the repeal of subsection (1) of that section, and the substitution therefor of the following subsection :—

'8. (1) The Registrar shall not issue a licence under paragraph (*a*) of subsection (1) of section 7 unless the copy of the draft label submitted with the application contains the following particulars :—

(*a*) the trade name under which the pesticide shall be sold and its use category ;

(*b*) the common names of the active ingredients of the pesticide, in characters not smaller in size than half the size of those used for the trade name of the pesticide and in a position placed directly below the trade name ;

(*c*) the contents of all active ingredients expressed, in the case of a solid formulation as a percentage or as grams per kilogram and in the case of liquid formulation, as grams per litre ;

(*d*) the name and address of the holder of the licence ;

(*e*) adequate directions concerning the manner in which the pesticide is to be used, including information as to the period of time which should elapse between the last application of the pesticide and harvesting and marketing of the crop to which it is applied and where the Registrar deems appropriate, the shelf-life of the pesticide ;

(*f*) adequate warning and precautionary symbols and statements including first-aid and antidote information supplemented, when necessary, in a leaflet in the package, giving detailed instructions;

(*g*) the word "registered" which shall be an official symbol indicating that the pesticide has been licensed under this Act and the licence number assigned to it by the Registrar;

(*h*) any other particulars as may be prescribed by regulation under this Act,

in Sinhala and Tamil languages:

Provided, however, the particulars set out in paragraphs (*a*), (*b*) and (*f*) shall in addition be stated in English.'.

Replacement of section 9 of the principal enactment.

10. Section 9 of the principal enactment is hereby repealed and the following section substituted therefor:—

"Approved pesticides.

9. Where the Registrar issues a licence under subsection (1) of section 7, he shall—

(*a*) declare that pesticide to be an approved pesticide;

(*b*) classify such pesticide as a restricted, general, or domestic pesticide,

by Order published in the *Gazette*.".

Amendment of section 14 of the principal enactment.

11. Section 14 of the principal enactment is hereby amended as follows:—

(1) in paragraph (*b*) of that section by the substitution for the words "such pesticide is contained in an approved container", of the words "such pesticide in contained in an approved leak proof container";

(2) by the repeal of the proviso to that section, and the substitution, therefor of the following proviso:—

"Provided however, that the preceding provisions of this section shall not apply in any case—

(i) where on the recommendation of the committee, any pesticide is imported for the purpose of counteracting an epidemic or pest out break;

(ii) where any approved research organisation imports with the written consent of the Registrar any specified quantity of pesticides or pesticide formulation for the purpose of research. ".

Amendment of section 21 of the principal enactment.

12. Section 21 of the principal enactment is hereby amended as follows :—

(1) in subsection (1) of that section by the substitution, for the words " such number of officers of his department ", of the words " such number of agricultural officers " ; and

(2) in subsection (2) of that section by the insertion immediately after paragraph (*b*) of that subsection of the following paragraph :—

"(*bb*) seize and detain, for such time as may be necessary for the purposes of a prosecution under this Act any pesticide which has been offered for sale in contravention of section 14 or section 21A, after compiling a list of such pesticides and handing over copies of such list to the seller or his agent and to the Registrar ; ".

Insertion of new section 21A in the principal enactment.

13. The following new section is hereby inserted immediately after section 21 and shall have effect as section 21A of the principal enactment :—

"Prohibition of sale without certificate.

21A. (1) No person shall sell or offer for sale any pesticide except under the authority of a certificate issued by an authorized officer.

(2) Notwithstanding the provisions of subsection (1), any person may sell or offer for sale any domestic pesticide without obtaining a certificate.

(3) Every application for a certificate shall be made to an authorized officer, in such form as may be prescribed.

(4) Every certificate for sale shall—

(*a*) be in the prescribed form ;

(*b*) unless it is cancelled earlier, be in force for a period of twelve months from the date of its issue.

(5) The certificate referred to in subsection (1) shall be exhibited in a conspicuous place where the pesticide is sold. ".

Amendment of section 23 of the principal enactment.

14. Section 23 of the principal enactment is hereby amended by the repeal of subsection (1) of that section, and the substitution therefor, of the following subsection :—

" (1) (*a*) Every application for the licensing of a pesticide under section 6 ; or

(*b*) every application for the renewal of a licence of a pesticide under section 7 ; or

(*c*) every application for a certificate for sale of pesticide under section 21A ; or

(*d*) every appeal against any rejection, cancellation, suspension, withdrawal or modification under section 13,

shall be accompained by such fee as may be prescribed by regulations made under this Act.".

Amendment of section 24 of the principal enactment.

15. Section 24 of the principal enactment is hereby amended in subsection (1) of that section by the substitution for the words "be sentenced to imprisonment of either description for a period of two years.", of the words "be liable to imprisonment of either description for a period not exceeding two years or to a fine not exceeding ten thousand rupees or to both such fine and imprisonment.".

Insertion of new section 24A in the principal enactment.

16. The following new section is hereby inserted immediately after section 24 of the principal enactment and shall have effect as section 24A of that enactment :—

"Persons authorised to institute and conduct, prosecutions.

24A. (1) For the avoidance of doubt, it is hereby declared that the Registrar or any Food Inspector, Public Health Inspector, Grama Niladhari, Inspector of Labour or any public officer authorized in that behalf by the Registrar shall be empowered to institute proceedings and conduct prosecutions for offences under this Act.

(2) Any person authorized under subsection (1) by the Registrar shall have the power to ascertain whether—

(*a*) the packaging of pesticide is effected in compliance with the provisions of this Act ;

(*b*) any person has contravened the provisions of section 16 ;

(c) a certificate for sale has been obtained by every seller.

(3) For the purposes of exercising the powers referred to in subsection (2), every officer authorized under subsection (1), may enter any premises, after sufficient notice at all reasonable hours of the day in the discharge of his functions under this Act. Such officer shall not be liable on account of such entry or on account of anything done *bona fide* in such premises after such entry which is necessary for the exercise performance and discharge of his powers, duties and functions under this Act.".

Amendment of section 26 of the principal enactment.

17. Section 26 of the principal enactment is hereby amended in subsection (1) of that section as follows:—

(i) in paragraph (v) of that subsection by the substitution for the words "pesticide formulation; and", of the words "pesticide formulation;";

(ii) in paragraph (vi) of that subsection by the substitution for the words "manner of use of pesticides.", of the words "manner of the sale and use of pesticides; and";

(iii) by the addition immediately after paragraph (vi) of that subsection of the following paragraph:—

"(vii) prohibiting the importation or manufacture of any pesticide which is considered to be injurious to public health.".

Amendment of section 27 of the principal enactment.

18. Section 27 of the principal enactment is hereby amended as follows:—

(i) by the substitution for the definition of "authorized analyst" of the following definition:—

"authorized analyst" means the Government Analyst, the Additional Government Analyst, a Deputy Government Analyst, a Senior Assistant Government Analyst, an Assistant Government Analyst, the chemist of the Central Agricultural Research Institute of the Department of Agriculture, an Analyst of the Ceylon Institute of Scientific and Industrial Research, an

Amendment of section 7 of the principal enactment

8. Section 7 of the principal enactment is hereby amended in subsection (1) of that section by the repeal of paragraphs (*a*) and (*b*) of that subsection, and the substitution therefor of the following paragraphs :—

" (*a*) register the pesticide and issue a licence valid for a period not exceeding three years ; or

(*b*) register the pesticide provisionally, and pending the issue of a licence or in lieu of a licence, issue a provisional permit valid for a period not exceeding twelve months for restricted marketing and use of the pesticide in accordance with the conditions stipulated in such permit ;".

Amendment of section 8 of the principal enactment

9. Section 8 of the principal enactment is hereby amended by the repeal of subsection (1) of that section, and the substitution therefor of the following subsection :—

'8. (1) The Registrar shall not issue a licence under paragraph (*a*) of subsection (1) of section 7 unless the copy of the draft label submitted with the application contains the following particulars :—

(*a*) the trade name under which the pesticide shall be sold and its use category ;

(*b*) the common names of the active ingredients of the pesticide, in characters not smaller in size than half the size of those used for the trade name of the pesticide and in a position placed directly below the trade name ;

(*c*) the contents of all active ingredients expressed, in the case of a solid formulation as a percentage or as grams per killogram and in the case of liquid formulation, as grams per litre ;

(*d*) the name and address of the holder of the licence ;

(*e*) adequate directions concerning the manner in which the pesticide is to be used, including information as to the period of time which should elapse between the last application of the pesticide and harvesting and marketing of the crop to which it is applied and where the Registrar deems appropriate, the shelf-life of the pesticide ;

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The Gazette of the Democratic Socialist Republic of Sri Lanka

EXTRAORDINARY

අංක 1254/8 - 2002 සැප්තැම්බර් 18 වැනි බදාදා - 2002.09.18

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PART I : SECTION (I) — GENERAL

Government Notifications

CONTROL OF PESTICIDES ACT, No. 33 OF 1980

CANCELLATION made by the Registrar of Pesticides under Sub-section (1) of the Section 11 of the Control of Pesticides Act, No. 33 of 1980, and notified by Order under Sub-section (4) of that section of the Act.

Registrar of Pesticides.

Peradeniya,
16th July, 2002.

Notification

It is hereby notified that, in the interest of the public :

Every pesticide specified in Column I of the Schedule I hereto by its registration number, with the trade name of the cancelled pesticide specified in the corresponding entry in Column II of that Schedule I, with the active ingredient which is in the cancelled pesticide specified in the corresponding entry in Column III of that Schedule I, and the percentage expressed in each such active ingredient of the cancelled pesticide in the corresponding entry in Column IV of that Schedule I, shall be a cancelled pesticide for the purpose of this Act.

SCHEDULE I

COLUMN I	COLUMN II	COLUMN III	COLUMN IV
Registration Number	*Trade Name*	*Active Ingredient*	*Percentage*
B54	Amitage	carbosulfan	20%
B64	General	carbosulfan	20%
B67	Master	carbosulfan	20%
B74	Harcosulfan	carbosulfan	20%
B91	Mashikodan 200	carbosulfan	20%
C35	Morison's Carbosulfan	carbosulfan	20%
C41	Netsulfan	carbosulfan	20%
C43	Carbosulfan 20% EC	carbosulfan	20%

CONTROL OF PESTICIDES ACT, No. 33 OF 1980

DECLARATION made by the Registrar of Pesticides under Section 9 of the Control of Pesticides Act, No. 33 of 1980, as amended by Act No. 6 of 1994 and notified by Order of that section of the Act.

Registrar of Pesticides.

Peradeniya,
28th August, 2002.

Notification

It is hereby notified that :

Every pesticide specified in Column I of the following Schedule I hereto by its registration number, with the trade name of the approved pesticide specified in the corresponding entry in Column II of that Schedule I, with the active ingredient(s) which are in the approved pesticide specified in the corresponding entry in Column III of that Schedule I, and the content expressed in each such active ingredient(s) of the approved pesticide in the corresponding entry in Column IV of that Schedule I, shall be an approved *general pesticide* for the purposes of this Act.

SCHEDULE I

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
C85	Nufarm 2, 4-D Technical Acid	2, 4-D	98	%
705	2, 4-D Tech	2, 4-D	99	%
014	Hedonal D 55	2, 4-D	550	g/l
A27	2, 4-D Amine	2, 4-D	720	g/l
992	2, 4-D Amine	2, 4-D	720	g/l
A45	Lancer	acephate	75	%
0114400	Harthene	acephate	75	%
A75	Apollo	acephate	75	%
C02	Mospilan	acetamiprid	20	%
170	Alachlor	alachlor	480	g/l
C52	Haychlor EC 48%	alachlor	480	g/l
052	Lasso	alachlor	480	g/l
A59	Lasso	alachlor	480	g/l
872	Mackchlor	alachlor	480	g/l
931	Regal	alachlor	480	g/l
778	Citowett	alkyl aryl polyglycol ether	990	g/l
C16	Ridd	amitraz	125	g/l
B62	Neemazal-T/S	azadirachtin	10	g/l
947	Neemazal-F	azadirachtin	50	g/l
B20	Nominee	bispyribac-sodium	100	g/l
025	Baycor EC 300	bitertanol	300	g/l
601	Applaud 10 WP	buprofezin	10	%
0126300	Captan	captan	50	%
D32	Captan 50 WP	captan	50	%
A70	Captaf 50 WP	captan	50	%
A44	Sevin 85 S	carbaryl	85	%
575	Sevin 85% WP	carbaryl	85	%
516	Sevin XLR	carbaryl	400	g/l

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
185	Sevin XLR	carbaryl	400	g/l
0111308	Mackdazim	carbendazim	50	%
979	Baur's Carbendazim	carbendazim	50	%
B92	Bullet 50	carbendazim	50	%
925	Bavistin FL	carbendazim	500	g/l
C45	Ureka	carbofuran	3	%
350	Furadan 3 G	carbofuran	3	%
684	Mackwoods Carbofuran	carbofuran	3	%
0068423	Mackwoods Carbofuran	carbofuran	3	%
0169000	Harfurdan	carbofuran	3	%
A69	Chinufur	carbofuran	3	%
C77	Poloran	carbofuran	3	%
00A3523	Finchem Carbofuran	carbofuran	3	%
F089528	Baur's Carbofuran 3G	carbofuran	3	%
D65	Victor 300	carbofuran	3	%
F001600	Curaterr 3% G	carbofuran	3	%
0101604	Curaterr	carbofuran	75	%
B48	Carbofuran	carbofuran	75	%
C06	Marshal 20 SC	carbosulfan	200	g/l
513	Atabron 5 EC	chlorfluazuron	50	g/l
A91	Daconil SC	chlorothalonil	500	g/l
F0A0700	Chlorban	chlorpyrifos	200	g/l
A88	Cyren 20	chlorpyrifos	200	g/l
112	Mackfos	chlorpyrifos	200	g/l
470	Pyrinex 20 EC	chlorpyrifos	200	g/l
A60	Amichlor	chlorpyrifos	400	g/l
0055820	Ceyphos 40 EC	chlorpyrifos	400	g/l
0055828	Ceyphos 40 EC	chlorpyrifos	400	g/l
0155809	Ceyphos 40 EC	chlorpyrifos	400	g/l
924	Chlorban Plus	chlorpyrifos	400	g/l
967	Chlorpyrifos	chlorpyrifos	400	g/l
921	Commando	chlorpyrifos	400	g/l
0092125	Commando	chlorpyrifos	400	g/l
A87	Cyren 40	chlorpyrifos	400	g/l
D71	Inciban	chlorpyrifos	400	g/l
0164800	Judo 40 EC	chlorpyrifos	400	g/l
C93	Leedorban	chlorpyrifos	400	g/l
00C9325	Leedorban	chlorpyrifos	400	g/l
D16	Lorsban 40 EC	chlorpyrifos	400	g/l
0073823	Morifos 40	chlorpyrifos	400	g/l
C70	Nokia	chlorpyrifos	400	g/l
0063205	Pattaas	chlorpyrifos	400	g/l
0063220	Pattaas	chlorpyrifos	400	g/l
0063208	Pattaas	chlorpyrifos	400	g/l
F0A3200	Pyriban	chlorpyrifos	400	g/l
0057008	Pyrimack	chlorpyrifos	400	g/l
0057023	Pyrimack	chlorpyrifos	400	g/l
0057005	Pyrimack	chlorpyrifos	400	g/l
570	Pyrimack	chlorpyrifos	400	g/l
607	Pyrinex 400	chlorpyrifos	400	g/l

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
0098628	Unifos 400	chlorpyrifos	400	g/l
986	Unifos 400	chlorpyrifos	400	g/l
0098605	Unifos 400	chlorpyrifos	400	g/l
0098609	Unifos 400	chlorpyrifos	400	g/l
919	Vitashield 40 EC	chlorpyrifos	400	g/l
D38	Vitashield 40 EC	chlorpyrifos	400	g/l
B24	Command 3 ME	clomazone	360	g/l
D13	ComPro 60 EC	clomazone + propanil	200 + 400	g/l
B26	Blue Diamond	copper (as copper oxychloride)	50	%
B69	Blue Diamond	copper (as copper oxychloride)	50	%
643	Champion	copper (as copper oxychloride)	50	%
0215900	Coblite	copper (as copper oxychloride)	50	%
597	Cobox	copper (as copper oxychloride)	50	%
0210106	COC 50% WP	copper (as copper oxychloride)	50	%
0087120	Copperdoz 50% WP	copper (as copper oxychloride)	50	%
713	Helmoxy WP 50%	copper (as copper oxychloride)	50	%
D08	Protek	copper (as copper oxychloride)	50	%
02B0706	Punch	copper (as copper oxychloride)	50	%
D15	Rusta WP 50%	copper (as copper oxychloride)	50	%
137	Perenox	copper (as cuprous oxide)	50	%
402	Kocide 101	copper (as cupric hydroxide)	50	%
550	New Asuntol	coumaphos	50	%
913	Racumin Premix 40%	coumatetralyl	40	%
D35	Notix CP	cypermethrin	100	g/l
B72	Trigard 75 WP	cyromazine	75	%
A94	Pestguard FG 161	*d*-tetramethrin + cyphenothrin	40 + 120	g/l
C40	Pestar	*d*-tetramethrin + cyphenothrin	40 + 120	g/l
146	Basudin 5 G	diazinon	5	%
A46	Surya 5% G	diazinon	5	%
00A4606	Surya 5% G	diazinon	5	%
00A9305	Diodin	diazinon	95	%
A93	Diodin	diazinon	95	%
01A9300	Diodin	diazinon	96	%
D28	Vitanon Technical	diazinon	95	%
160	Basudin 50 EC	diazinon	500	g/l
F081200	Diazinon 50 EC	diazinon	500	g/l
C72	Diazol	diazinon	500	g/l
A74	Surya 50% EC	diazinon	500	g/l
C18	Baraki Wax Blocks	difethialone	0.0025	%
C19	Baraki Pellets	difethialone	0.0025	%
0090605	Agromet EC 40%	dimethoate	400	g/l
951	Baur's Dimethoate	dimethoate	400	g/l
670	Dimethoate	dimethoate	400	g/l
0095105	Dimethoate 40 EC	dimethoate	400	g/l
0009105	Dimethoate 40 EC	dimethoate	400	g/l
0013408	Dimethoate 40 EC	dimethoate	400	g/l
0005905	Dimethoate 40 EC	dimethoate	400	g/l
0013405	Dimethoate 40 EC	dimethoate	400	g/l
0009106	Dimethoate 40 EC	dimethoate	400	g/l
966	Dimethoate 40% EC	dimethoate	400	g/l

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
C92	Dora 40	dimethoate	400	g/l
148	Harcros Demro	dimethoate	400	g/l
0014805	Harcros Demro	dimethoate	400	g/l
0062005	Mackthoate	dimethoate	400	g/l
D77	Oasis Dimethoate 40%	dimethoate	400	g/l
D05	Perfekt	dimethoate	400	g/l
00D0505	Perfekt	dimethoate	400	g/l
587	Perfekthion	dimethoate	400	g/l
855	Rogrow	dimethoate	400	g/l
0085506	Rogrow	dimethoate	400	g/l
B71	Turbo 40 EC	dimethoate	400	g/l
D80	Dimezyl 40 EC	dimethoate	400	g/e
954	Diuron 80 WP	diuron	80	%
C49	Diuron 80 WP	diuron	80	%
130	Diuron 80 WP	diuron	80	%
F009825	Diuron 80 WP	diuron	80	%
F109810	Diuron 80%	diuron	80	%
0014702	Ducron	diuron	80	%
0314700	Ducron	diuron	80	%
0014725	Ducron	diuron	80	%
0014713	Ducron	diuron	80	%
0185300	Mackwoods Diuron	diuron	80	%
853	Mackwoods Diuron	diuron	80	%
C38	Hinosan EC 30%	edifenphos	300	g/l
187	Ethrel Latex Stimulant	ethephon	26	g/l
240	Harcros Ethrel	ethephon	52	g/l
706	Trebon Tech	etofenprox	97	%
701	Trebon 10 EC	etofenprox	100	g/l
0163900	BPMC Tech	fenobucarb	95	%
692	BPMC Technical	fenobucarb	96	%
0005605	Bassa 50	fenobucarb	500	g/l
F005600	Bassa 50	fenobucarb	500	g/l
C54	Baur's BPMC	fenobucarb	500	g/l
010	Baycarb	fenobucarb	500	g/l
0028805	BPMC 50 EC	fenobucarb	500	g/l
169	BPMC 50 EC	fenobucarb	500	g/l
0063605	Finchem BPMC	fenobucarb	500	g/l
0090705	Hayleys Agrocare BPMC EC 50%	fenobucarb	500	g/l
0044805	Mackarb	fenobucarb	500	g/l
C12	Moricarb	fenobucarb	500	g/l
D70	Unipower BPMC	fenobucarb	500	g/l
A77	Vitagro 50 EC	fenobucarb	500	g/l
815	Whip Super	fenoxaprop-*p*-ethyl	75	g/l
762	Whip Super 7.5 EW	fenoxaprop-*p*-ethyl	75	g/l
017	Lebaycid EC 50	fenthion	500	g/l
234	Baytex EC 50	fenthion	500	g/l
C84	Lecspro WP 44%	fentrazamide + propanil	6.75 + 37.5	%
A05	Regent	fipronil	50	g/l
998	Regent 50 SC	fipronil	50	g/l
A66	Prince GR	fipronil	0.3	%
A65	Regent GR	fipronil	0.3	%
948	Moncut 50 WP	flutolanil	50	%

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
C76	Folpet WP 50%	folpet	50	%
257	Anthio 33	formothion	330	g/l
877	Basta	glufosinate	150	g/l
A86	Spark	glyphosate	120	g/l
C96	Aarrow	glyphosate	360	g/l
0074428	Baursate 36	glyphosate	360	g/l
0174400	Baursate 36	glyphosate	360	g/l
0074405	Baursate 36	glyphosate	360	g/l
A85	Blaster	glyphosate	360	g/l
0167600	Destroy	glyphosate	360	g/l
0167623	Destroy	glyphosate	360	g/l
0067605	Destroy	glyphosate	360	g/l
C08	Glyphos	glyphosate	360	g/l
A82	Glyphosate	glyphosate	360	g/l
D68	Glyphosate	glyphosate	360	g/l
00C7932	Glytoll	glyphosate	360	g/l
C79	Glytoll	glyphosate	360	g/l
A01	Harass	glyphosate	360	g/l
530	Harcros Counter	glyphosate	360	g/l
00B5305	Hatrik	glyphosate	360	g/l
00B5307	Hatrik	glyphosate	360	g/l
B53	Hatrik	glyphosate	360	g/l
F098400	Mamba	glyphosate	360	g/l
C37	Morison's Glyphosate	glyphosate	360	g/l
996	Powermet 36%	glyphosate	360	g/l
C74	Powermet 36%	glyphosate	360	g/l
D27	Ridweed 360	glyphosate	360	g/l
A63	Roundup	glyphosate	360	g/l
383	Roundup	glyphosate	360	g/l
805	Surpass	glyphosate	360	g/l
B73	Teedole	glyphosate	360	g/l
999	Touchdown	glyphosate	360	g/l
A23	Uproot	glyphosate	360	g/l
00A2305	Uproot	glyphosate	360	g/l
01A2300	Uproot	glyphosate	360	g/l
0081828	Weedol	glyphosate	360	g/l
0181800	Weedol	glyphosate	360	g/l
0281800	Weedol	glyphosate	360	g/l
0081805	Weedol	glyphosate	360	g/l
C68	Weep Pack	glyphosate	360	g/l
C97	Wipe-out	glyphosate	360	g/l
B98	Contaf 5E	hexaconazole	50	g/l
D50	Eraser	hexaconazole	50	g/l
C28	Nissorun 10 WP	hexythiazox	10	%
808	Admire SL 200	imidacloprid	200	g/l
A34	Gaucho 70 WS	imidacloprid	70	%
F088000	Fuji-One	isoprothiolane	400	g/l
100	Kasumin 2 WSC	kasugamycin	20	g/l
B35	Match 50 EC	lufenuron	50	g/l

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
D44	Agrithane M 45	mancozeb	80	%
A67	Amicozeb	mancozeb	80	%
138	Dithane M 45	mancozeb	80	%
F0A3100	Dynamic 80	mancozeb	80	%
0086825	Hayleys Agrocare Mancozeb 80 WP	mancozeb	80	%
859	Mackzeb Indofil M 45	mancozeb	80	%
D06	Mancol	mancozeb	80	%
0048325	Mancozeb 80 WP	mancozeb	80	%
0010625	Mancozeb 80%	mancozeb	80	%
0048310	Mancozeb 80% WP	mancozeb	80	%
0004510	Manzate	mancozeb	80	%
C86	Polyzate	mancozeb	80	%
00C8625	Polyzate	mancozeb	80	%
00A7228	Unithane	mancozeb	80	%
994	Uthane	mancozeb	80	%
265	Vondozeb	mancozeb	80	%
255	Tri Miltox Forte	mancozeb + copper	20 + 21	%
B57	Ridoaxyl	mancozeb + metalaxyl	64 + 8	%
F015100	Ridomil MZ 72 WP	mancozeb + metalaxyl	64 + 8	%
C75	Unilax	mancozeb + metalaxyl	64 + 8	%
D72	Metalax	mancozeb + metalaxyl	64 + 8	%
850	Maneb 80 WP	maneb	80	%
598	Polyram M	maneb	80	%
B96	Saneb WP 80%	maneb	80	%
00B9620	Saneb WP 80%	maneb	80	%
D47	Paribadra	Margosa Seed Powder	35	g/l
667	MCPA Tech	MCPA	95	%
A76	MCPA Tech	MCPA	95	%
661	MCPA Technical	MCPA	95	%
C50	Nufarm MCPA Technical	MCPA	95	%
663	MCPA Tech	MCPA	97	%
618	MCPA Technical	MCPA	97	%
784	MCPA Technical	MCPA	97	%
0033713	Baur's MCPA 40	MCPA	400	g/l
A16	Fezone 4K	MCPA	400	g/l
589	Finchem M 40	MCPA	400	g/l
0258908	Finchem M 40	MCPA	400	g/l
873	Hayleys Agrocare MCPA 40%	MCPA	400	g/l
006	Hedonal M 40	MCPA	400	g/l
F005800	Lankem M-50	MCPA	400	g/l
665	MCPA	MCPA	400	g/l
225	Morice 40	MCPA	400	g/l
248	M-Power	MCPA	400	g/l
150	Super 40	MCPA	400	g/l
866	Agrocare MCPA 60	MCPA	600	g/l
0047413	Baurmat 60	MCPA	600	g/l
590	Finchem M 60	MCPA	600	g/l
0159006	Finchem M 60	MCPA	600	g/l
0259008	Finchem M 60	MCPA	600	g/l
007	Hedonal M 60	MCPA	600	g/l

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
F064700	Lankem MCPA 60	MCPA	600	g/l
0064708	Lankem MCPA 60	MCPA	600	g/l
249	M 60	MCPA	600	g/l
0024908	M 60	MCPA	600	g/l
664	MCPA	MCPA	600	g/l
0061208	MCPA 60	MCPA	600	g/l
F069400	MCPA 60%	MCPA	600	g/l
0120400	Super 60	MCPA	600	g/l
204	Super 60	MCPA	600	g/l
B80	Unipower M-60	MCPA	600	g/l
481	Bi-Hedonal SL 70%	MCPA + 2, 4-D	600 + 100	g/l
D14	Cascade Condor Super Snail Bait	metaldehyde	3	%
C34	Meta Ready-for-Use	metaldehyde	6.7	%
C17	Meta Powder	metaldehyde	98	%
D34	Metham	metam	423	g/l
F088900	Lannate 40% SP	methomyl	40	%
015	Sencor	metribuzin	70	%
718	Ronstar 25 EC	oxadiazon	250	g/l
125	Ronstar 25 EC	oxadiazon	250	g/l
029	Metasystox R 250 EC	oxydemeton-methyl	250	g/l
C29	Control 240	oxyfluorfen	240	g/l
B05	Galigan	oxyfluorfen	240	g/l
131	Goal 2 E	oxyfluorfen	240	g/l
D21	Goal 2 XL	oxyfluorfen	240	g/l
C99	Baur's Paraquat	paraquat	200	g/l
136	Gramoxone	paraquat	200	g/l
D03	Oneshot	paraquat	200	g/l
536	Monceren	pencycuron	25	%
D76	Pendimethalin	pendimethalin	300	g/l
D58	Stomp	pendimethalin	300	g/l
B78	Chase	pendimethalin + propanil	123 + 212	g/l
520	Elsan 5% Dust	phenthoate	5	%
946	Mackso 5% Dust	phenthoate	5	%
B99	Pensan Dust	phenthoate	5	%
213	Cidial	phenthoate	500	g/l
055	Elsan 50	phenthoate	500	g/l
A98	Kemidol 500	phenthoate	500	g/l
A38	Leader	phenthoate	500	g/l
0085420	Mackso	phenthoate	500	g/l
854	Mackso	phenthoate	500	g/l
00A5209	Pensan 50 EC	phenthoate	500	g/l
A52	Pensan 50 EC	phenthoate	500	g/l
B58	Phenthoate 50 EC	phenthoate	500	g/l
997	Visan 50 EC	phenthoate	500	g/l
141	Actellic 50	pirimiphos-methyl	500	g/l
791	Safer's Natural Insecticide	potassium salts of fatty acids	505	g/l
D17	Sofit 300 EC	pretilachlor	300	g/l
A40	Calcron 500 EC	profenofos	500	g/l
152	Selecron 50 EC	profenofos	500	g/l

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
863	Previcur 607 SL	propamocarb	607	g/l
B95	Stam Technical	propanil	97	%
825	Propanil Technical	propanil	98	%
0006208	3, 4-DPA	propanil	360	g/l
0406200	3, 4-DPA	propanil	360	g/l
0006228	3, 4-DPA	propanil	360	g/l
0109707	3, 4-DPA 36%	propanil	360	g/l
0009723	3, 4-DPA 36%	propanil	360	g/l
0033823	Baur's 3, 4-DPA	propanil	360	g/l
0133808	Baur's 3, 4-DPA	propanil	360	g/l
0160508	Sure	propanil	360	g/l
0060523	Sure	propanil	360	g/l
0115408	Harcros Supereon	propanil	360	g/l
0015428	Harcros Supereon	propanil	360	g/l
A73	Lexusnil	propanil	360	g/l
B61	Marathon 36	propanil	360	g/l
00B6107	Marathon 36	propanil	360	g/l
0028707	Marunil	propanil	360	g/l
0128700	Marunil	propanil	360	g/l
0128708	Marunil	propanil	360	g/l
0028723	Marunil	propanil	360	g/l
0021428	Morison's Propanil	propanil	360	g/l
0108100	Propanil	propanil	360	g/l
894	Propanil EC 36%	propanil	360	g/l
875	Propanil EC 36%	propanil	360	g/l
C59	Score	propanil	360	g/l
0316700	Propanil	propanil	360	g/l
832	Wham EZ	propanil	480	g/l
C61	Bumper	propiconazole	250	g/l
929	Tilt	propiconazole	250	g/l
020	Antracol 70% WP	propineb	70	%
399	Fruvit WP 66%	propineb + oxadixyl	56 + 10	%
004	Unden 1% Dust	propoxur	1	%
012	Unden EC 20%	propoxur	200	g/l
013	Tokuthion EC 50%	prothiophos	500	g/l
936	Bayrusil EC 25%	quinalphos	250	g/l
176	Ekalux 25 EC	quinalphos	250	g/l
D18	Kuinal 25 EC	quinalphos	250	g/l
0095807	Quintox	quinalphos	250	g/l
0095805	Quintox	quinalphos	250	g/l
D75	Quick	quinalphos	250	g/l
695	Facet	quinclorac	250	g/l
813	Nabu S	sethoxydim	125	g/l
D04	Exsul	sulphur	80	%
0102300	Haymite WG 80%	sulphur	80	%
594	Kumulus DF	sulphur	80	%
703	Macksul Microthiol Special	sulphur	80	%
0121907	Morisal	sulphur	80	%
F010301	Sulphur 80 WP	sulphur	80	%

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
985	Sulphur 80%	sulphur	80	%
874	Suvisal DF 80%	sulphur	80	%
886	Thiosan	sulphur	80	%
256	Thiovit WP	sulphur	80	%
937	Folicur 250 EW	tebuconazole	250	g/l
D10	Orius 25 EW	tebuconazole	250	g/l
903	Mimic 20 F	tebufenozide	200	g/l
B15	Saturn Tech	thiobencarb	93	%
F054100	Satunil 60	thiobencarb + propanil	400 + 200	g/l
A15	Larvin 375 F	thiodicarb	375	g/l
276	Larvin 375 F	thiodicarb	375	g/l
220	Topsin M 70	thiophanate-methyl	70	%
B79	Thiophen-M 70	thiophanate-methyl	70	%
221	Homai	thiophanate-methyl + thiram	50 + 30	%
022	Pomarsol Forte WP 80%	thiram	80	%
C88	Scope	thiram	80	%
284	Secto	thiram + 1-naphthylacetic acid	0.2+0.3	%
189	Rootone F	thiram + 1-naphthylacetic acid + 4-indol-3-ylbutyric acid	4 + 0. 116 + 0.057	%
001	Dipterex LC 50%	trichlorfon	500	g/l

Every pesticide specified in Column I of the following schedule II hereto by its registration number with the trade name of the approved pesticide specified in the corresponding entry in Column II of that Schedule II, with the active ingredient(s) which are in the approved pesticide specified in the corresponding entry in Column III of that Schedule II and the content expressed in each such active ingredient(s) of the approved pesticide in the corresponding entry in Column IV of that Schedule II, shall be an approved *restricted pesticide* for the purposes of this Act.

SCHEDULE II

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
C46	Nipacide BIT 20	1, 2-benzisothiazolin-3-one	20	%
D42	Nipacide BIT 20	1, 2-benzisothiazolin-3-one	20	%
681	Proxel GXL	1, 2-benzisothiazolin-3-one	20	%
C44	Letharin MK	2-(thiocyanomethylthio) benzothiazole	30	%
D37	Nipacide TC	2-(thiocyanomethylthio) benzothiazole	30	%
841	Tolcide 2230	2-(thiocyanomethylthio) benzothiazole	30	%
B77	Aquacid DSB	2, 2-dibromo-3-nitrilopropionamide	30	%
B83	Tandex CW-N	alkylamines	10	%
D52	Tandex CW-N	alkylamines	10	%
032	Phostoxin	aluminium phosphide	56	%
B66	Phostoxin	aluminium phosphide	56	%
C26	Quickphos	aluminium phosphide	56	%
831	Detia Gas EX B	aluminium phosphide	57	%
B42	Gastoxin	aluminium phosphide	57	%

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
D56	Vectobac G	*Bacillus thuringiensis* subspecies *israelensis*, serotype H-14	0.2	%
D57	Vectobac 12 AS	*Bacillus thuringiensis* subspecies *israelensis*, serotype H-14	1.2	%
522	Harcros Benor	benomyl	50	%
B32	Biflex 10 TC	bifenthrin	100	g/e
C91	Bulldock EC 025	*beta*-cyfluthrin	25	g/l
F097800	Celbor SP	borax deca + boric acid	54 + 36	%
579	Marshal Suscon	carbosulfan	10	%
F098100	ASCU Paste	copper sulphate + sodium dichromate + arsenic pentoxide	37.5 + 50 + 12.5	%
0170400	Celcure A	copper sulphate + sodium dichromate + arsenic pentoxide	31.5 + 39 + 24.5	%
582	Solfac WP 10	cyfluthrin	10	%
D39	Solfac WP 10	cyfluthrin	10	%
583	Solfac EW 050	cyfluthrin	50	g/l
B75	Pestguard PS 102	*d*-allethrin + *d*-phenothrin	50 + 50	g/l
934	Sumithrin	*d*-phenothrin	92	%
596	Basamid Granular	dazomet	97	%
C55	Residex D 2.5 WP	deltamethrin	2.5	%
793	Cislin WP	deltamethrin	2.5	%
D49	Deltamethrin 5% WP	deltamethrin	5	%
A14	K-Othrine 50 WP	deltamethrin	5	%
D46	K-Othrine 50 WP	deltamethrin	5	%
794	Cislin	deltamethrin	25	g/l
C20	Decis	deltamethrin	25	g/l
878	Decis	deltamethrin	25	g/l
A53	Residex D 2.5 EC	deltamethrin	25	g/l
796	Deltacide	deltamethrin + *s*-bioallethrin + piperonyl butoxide	5 + 7.1 + 89	g/l
787	Acticide THP	diethylene glycol methylol + chloracetamide	80 + 10	%
C56	Acticide THP	diethylene glycol methylol + chloracetamide	80 + 10	%
521	Fentrol	difenacoum	0.005	%
D54	Algaecide S	potassium *N*-methyldithiocarbamate + disodiumcyano-dithioimidocarbonate	17	%
B84	Algaecide S	potassium *N*-methyldithiocarbamate + disodiumcyano-dithioimidocarbonate	17	%
F077100	Acticide EP Paste	diuron + carbendazim + 2-(*N*-octyl)-4-isothiazolin-3-one	20 + 10 + 3	%
A03	Nipacide DFX	diuron + carbendazim + 2-(*N*-octyl)- 4-isothiazolin-3-one	20 + 10 + 3	%
D41	Nipacide DFX	diuron + carbendazim + 2-(*N*-octyl)-4-isothiazolin-3-one	20 + 10 + 3	%
C30	Acticide EPW	diuron + carbendazim + 2-(*N*-octyl)-4-isothiazolin-3-one	20 + 9 + 2.5	%
C23	Acticide EPW	diuron + carbendazim + 2-(*N*-octyl)-4-isothiazolin-3-one	20 + 9 + 2.5	%
C66	Acticide EPW	diuron + carbendazim + 2-(*N*-octyl)-4-isothiazolin-3-one	20 + 9 + 2.5	%

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
C94	Acticide EPW	diuron + carbendazim + 2-(*N*-octyl)-4-isothiazolin-3-one	20 + 9 + 2.5	%
D43	Acticide EPW	diuron + carbendazim + 2-(*N*-octyl)-4-isothiazolin-3-one	20 + 9 + 2.5	%
C42	Acticide EPW	diuron + carbendazim + 2-(*N*-octyl)-4-isothiazolin-3-one	20 + 9 + 2.5	%
B86	Acticide EPW	diuron + carbendazim + 2-(*N*-octyl)-4-isothiazolin-3-one	20 + 9 + 2.5	%
C10	Clinafarm Smoke	enilconazole	16	%
D67	Clinafarm Smoke	enilconazole	16	%
B06	Pestguard Alpha 5 FL	esfenvalerate	50	g/l
C65	Sumicidin Plus	esfenvalerate	75	g/l
641	Sumicidin Super	esfenvalerate	75	g/l
D64	Sumicidin Super	esfenvalerate	75	g/l
D45	Vectron	etofenprox	20	%
C01	Vectron	etofenprox	20	%
567	Terrazole	etridiazole	35	%
039	Nemacur 5% G	fenamiphos	5	%
848	Sumithion 40 WP	fenitrothion	40	%
B17	Baktop MC	fenobucarb	15	%
C51	X-Termite	fenobucarb	150	g/l
B31	Sumifen 20 EC	fenvalerate	200	g/l
893	Sumifen 20 EC	fenvalerate	200	g/l
A58	Termidor	fipronil	25	g/l
B28	Nalco 7338	glutaraldehyde	400	g/l
C81	Nalco 7338	glutaraldehyde	400	g/l
A36	Pestguard LG 13 Premix	imiprothrin + cyphenothrin	15 + 45	%
865	Icon	*lambda*-cyhalothrin	10	%
C62	Lambda Cyhalothrin	*lambda*-cyhalothrin	10	%
034	Degesh Plates	magnesium phosphide	32.3	%
915	Malathion 50 WDP	malathion	50	%
184	Baur's Methyl Bromide	methyl bromide	98	%
D79	Mebrom 98	methyl bromide	98	%
D53	Algaecide LF 2	5-chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one	4.35 + 1.45	%
B82	Algaecide LF 2	5-chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one	4.35 + 1.45	%
C58	Acticide BX-H	5-chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one	1.15 + 0.45	%
C39	Acticide BX-H	5-chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one	1.15 + 0.45	%
D11	Acticide BX-H	5-chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one	1.15 + 0.45	%
B88	Acticide BX-H	5-chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one	1.15 + 0.45	%
C95	Acticide BX-H	5-chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one	1.15 + 0.45	%
C24	Acticide BX-H	5-chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one	1.15 + 0.45	%
C32	Acticide BX-H	5-chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one	1.15 + 0.45	%

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
C82	Nalco 7330	5-chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one	1.15 + 0.45	%
C14	Nalco 7330	5-chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one	1.15 + 0.45	%
0148003	Monocron	monocrotophos	600	g/l
C31	Acticide DW	2-(*N*-octyl)-4-isothiazolin-3-one	16	%
B87	Acticide DW	2-(*N*-octyl)-4-isothiazolin-3-one	16	%
C47	Acticide DW	2-(*N*-octyl)-4-isothiazolin-3-one	16	%
C13	Cannon Plus	permethrin	5	%
757	Residex P 25 WP	permethrin	25	%
792	Coopex 25% WP	permethrin	25	%
824	Peripel	permethrin	100	g/l
119	Ambush 25 EC	permethrin	250	g/l
D74	Resigen Fog RTU	permethrin + *s*-bioallethrin + piperonyl butoxide	0.28 + 0.04 + 0.3	%
B14	Huejay Omite 57 EC	propargite	600	g/l
795	Pybuthrin 33	pyrethrins + piperonyl butoxide	3 + 30	g/l
B34	Pycon 33	pyrethrins + piperonly botoxide	3 + 30	g/l
B97	Sumilarv	pyriproxyfen	0.5	%
01A4700	Brunolium Plantarium	tar acids	6-12	%
C57	Abate	temephos	500	g/l
617	Calixin	tridemorph	750	g/l

Every pesticide specified in Column I of the following Schedule III hereto by its registration number, with the trade name of the approved pesticide specified in the corresponding entry in Column II of that Schedule III, with the active ingredient(s), which are in the approved pesticide specified in the corresponding entry in Column III of that Schedule III and the percentage expressed in each such active ingredient(s) of the approved pesticide in the corresponding entry in Column IV of that Scheduel III, shall be an approved *domestic pesticide* for the purposes of this Act.

SCHEDULE III

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
A89	Maduthala Ayurveda Manjusa Dupa	*Anacardium occidentale + Azadirachta indica + Cymbopogon nardus + Ocimum sanctum + Santalum album + Cinnamomum zeylanicum*	20	%
A99	Snip RB 1	azamethiphos	1	%
117	Klerat Wax Blocks	brodifacoum	0.005	%
118	Klerat Pellets	brodifacoum	0.005	%
D02	Mortein Rat Kill	bromadiolone	0.005	%
C07	Notix Carbaryl Dust	carbaryl	5	%
C27	Notix Scrub Liquid	carbaryl	10	%
C21	Asuntol	coumaphos	1	%
236	Racumin Ready Bait	coumatetralyl	0.037	%
231	Racumin Tracking Powder	coumatetralyl	0.75	%
C60	Golden Hammer Pest Control	cypermethrin + borax	1 + 4	%
C64	Mortien Fast Kill	cypermethrin + imiprothrin	0.2 + 0.07	%
D61	ARS Mite	cypermethrin + dichlorvos	0.12 + 0.5	%
892	Gokilaht	cyphenothrin	92	%

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
B25	Gokilaht-S	cyphenothrin	96	%
B43	ABC Mosquito Coil	*d*-allethrin	0.2	%
F019900	ARS Mosquito Coil	*d*-allethrin	0.2	%
B70	Attack	*d*-allethrin	0.2	%
228	Baygon Mosquito Coil	*d*-allethrin	0.2	%
740	Bigtox	*d*-allethrin	0.2	%
D60	Good Knight Action	*d*-allethrin	0.2	%
00D6036	Good Knight Action	*d*-allethrin	0.2	%
B01	Jet Coil	*d*-allethrin	0.2	%
0477200	Lion	*d*-allethrin	0.2	%
F377200	Lion	*d*-allethrin	0.2	%
B90	Lion King	*d*-allethrin	0.2	%
D26	Lion King	*d*-allethrin	0.2	%
C53	Mistox	*d*-allethrin	0.2	%
B59	Mosfly	*d*-allethrin	0.2	%
C15	Vape Mosquito Coil	*d*-allethrin	0.2	%
D55	Super Mosfly	*d*-allethrin	0.3	%
C67	Mortein Electric Mosquito Repellent	*d*-allethrin	3.6	%
B02	Jet Mat	*d*-allethrin	40	mg/mat
493	Mortein Mosquito Mats	*d*-allethrin	40	mg/mat
0149300	Mortein Mosquito Mats	*d*-allethrin	40	mg/mat
653	Baygon Mosquito Mat	*d*-allethrin	50	mg/mat
890	Pynamin Forte	*d*-allethrin	90	%
C48	Pynamin Forte	*d*-allethrin	90	%
736	Pynamin Forte 90 EC	*d*-allethrin	90	%
D78	Good Knight Tech	*d*-allethrin	90	%
A41	Red Earth Aqua Fumigator	*d*-cyphenothrin	7.2	%
B52	Mistox Super	*d*-cyphenothrin + tetramethrin + dichlorvos	0.15 + 0.1 + 0.3	%
C90	Sumithrin	*d*-phenothrin	92	%
A49	ARS Liquid	*d*-prallethrin	0.86	%
F098300	Neo-Pynamin Forte	*d*-tetramethrin	92	%
A25	Bigtox Jumbo	*d*-trans allethrin	0.1	%
B85	Chase	*d*-trans allethrin	0.1	%
D01	Good Knight Mega	*d*-trans allethrin	0.1	%
C05	LNS Mosquito Coil	*d*-trans allethrin	0.1	%
490	Mortein Coils	*d*-trans allethrin	0.1	%
0249000	Mortein Coils	*d*-trans allethrin	0.1	%
0449000	Mortein Coils	*d*-trans allethrin	0.1	%
0349000	Mortein Coils	*d*-trans allethrin	0.1	%
B89	Mortein Lo-Smoke	*d*-trans allethrin	0.1	%
A64	Ninja	*d*-trans allethrin	0.1	%
D66	Mortein Xtra Power 12	*d*-trans allethrin	0.12	%
B56	Mortein Xtra Power 10	*d*-trans allethrin	0.12	%
C03	Mortein Liquid Machine	*d*-trans allethrin	2.8	%
822	EBT	*d*-trans allethrin	93	%
D19	Kan - BT	*d*-trans allethrin	93	%
B50	Good Knight	*d*-trans allethrin	20	mg/mat
D09	Hitline Chalk	deltamethrin	0.5	%
806	Dichlorvos Tech	dichlorvos	97	%

COLUMN I	COLUMN II	COLUMN III	COLUMN IV	
Registration Number	*Trade Name*	*Active Ingredient*	*Content*	
C78	Frontline Spray	fipronil	0.25	%
623	Bayticol Pour On	flumethrin	1	%
B39	Bayopet Tick Rinse	flumethrin	2	%
659	Bayticol EC	flumethrin	6	%
C89	ARS Ant Killer	hydramethylnon	0.9	%
A39	Pralle 50% MUP	imiprothrin	50	%
D20	Protech	*N,N*-diethyl-*m*-toluamide	12	%
918	Autan Lotion	*N,N*-diethyl-*m*-toluamide	12.5	%
C22	Deet	*N,N*-diethyl-*m*-toluamide	14.6	%
D23	Good Knight Lotion	*N,N*-diethyl-*m*-toluamide	15	%
A61	Mospel	*N,N*-diethyl-*m*-toluamide	30	%
D51	Mosguard	*N,N*-diethyl-*m*-toluamide + dimethyl phthalate + ethyl hexanediol	3.5 + 4.35 + 2.1	%
C83	Olyset Net	permethrin	2	%
232	Baythion Dust	phoxim	3	%
D33	Mistox Jumbo	prallethrin	0.05	%
C73	Punchi Veeraya	prallethrin	0.05	%
D62	Sathosa	prallethrin	0.05	%
D63	Triple Sathosa	prallethrin	0.05	%
D40	Triple Veeraya	prallethrin	0.05	%
B93	Veeraya	prallethrin	0.05	%
D22	Good Knight Liquidator	prallethrin	1.6	%
A33	Mortein King Mat	prallethrin	10	mg/mat
C98	Good Knight Super Mat	prallethrin	12	mg/mat
C33	Jet Plus	prallethrin	12	mg/mat
B63	Vape X-Tra	prallethrin	12	mg/mat
B49	Etoc 70 EC	prallethrin	70	%
935	Etoc TG	prallethrin	90	%
D12	Etoc TG	prallethrin	90	%
233	Baygon Fly Bait	propoxur	1	%
551	Bolfo Powder	propoxur	1	%
227	Baygon Cockroach Bait	propoxur	2.2	%
229	Baygon EC 20	propoxur	200	g/l
235	Baygon Oil Spray	propoxur + dichlorvos	1 + 0.5	%
A71	Baygon Aerosol Spray	propoxur + transfluthrin	1 + 0.04	%
B44	Patriot	pyrethrins + piperonyl butoxide	0.2 + 1	%
891	Neo-Pynamin	tetramethrin	92	%
957	Mortein Multi Insect Killer	tetramethrin + deltamethrin	2.38 + 0.15	%
D25	Baygon Ten	transfluthrin	0.03	%
D24	Baygon Mosquito Coil	transfluthrin	0.03	%
C09	ARS Rat Killer	warfarin	0.05	%
F099125	Run Rat	zinc phosphide	32	%
965	ZNP	zinc phosphide	32	%
D48	NoRat	zinc phosphide	32	%
A17	Zinc Phosphide Tech	zinc phosphide	80	%

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Annex V

Compendium of Available Information on POP Pesticides in Sri Lanka

Name of POP Pesticide	Production Production (kg/yr)	Date of Data	Imports Imports[7,8] (kg/yr)	Date of Data	Exports Exports (kg/yr)	Date of Data	Emissions Emissions (kg/yr)	Date of Data	Stocks Stocks (kg)	Date of Data	Concentrations in Environmental Media Concentration in Water (ppm)	Date of Data	Concentration in Bottom Sediments (ppm)	Date of Data	Conc. in Air (ppm)	Date of Data	Concentartion in Soil (ppm)	Date of Data	Concentration in Agricultural Produce (ppm)	Date of Data	Concentration in Wildlife (ppm)	Date of Data	Exposures Exposure General (micro gram)	Date of Data	Exposure Maximum (mg/kg)	Date of Data	Concentrations in Human Tissues Concentration in Tissues (ppm)	Date of Data
aldrin	None	2003	7,040 (4,224)	1987	None	2003	n.a.	2003	18	2003	Hambantota coastal zone[4] (24) n.d.	1999	Hambantota coastal zone[4] (24) n.d.	1999	n.a	2003	n.a.	2003	Tea[3] (30) 0.020-0.079	1988-1989	Shrimp[4] (7) n.d.	2001	366.10[10]	1989	n.a.	2003	n.a.	2003
											Sea water Beruwala/Marawil[4] (12) n.d	2002-2003	Colombo port[4] (2) n.d.	1999					Cigarettes[4] (10) n.d.	2001	Shrimp and Fish[3] (10) n.d.	2002						
											Sea water Koggala/Mirijjawila/Bataatha(12) n.d.	2002-2003							Tea[4](20) n.d.	2001								
																			Cigarettes[4] (2) 0.200	2003								
																			Chilli Powder[2] (3) n.d.	1997								
chlordane	None	2003	2,000 (800)	1986	None	2003	n.a.	2003	None	2003	n.a.	2003	Negombo lagoon[2] (2) 0.00012	2001	n.a.	2003	n.a.	2003	Chilli Powder[2] (3) n.d.	1997	Mullet[2] (6) 0.0046	2001	n.a.	2003	n.a.	2003	n.a.	2003
			1,500 (600)	1990									Chilaw lagoon[2] (1) 0.000076	2001							Cat Fish[3] (3) 0.0066	2001						
			3,500 (1,400)	1992									Udappuwa[4] (1) 0.000063	2001							Mussel[2] (10) 0.0017	2001						
			1,500 (600)	1993									Mundel Lake[2] (1) 0.000091	2001							Silver Batfish[2] (3) 0.0026	2001						
			4,600 (1,840)	1994																								
DDT[6]	None	2003	118,500[1]	1971	None	2003	n.a.	2003	10	2003	Jaffna Samples[1] (10) n.d.	1978	Hambantota coastal zone[4] (6) 0.002-0.005	1999	n.a.	2003	Jaffna Samples1 (5) 0.012-0.203	1978	Hulled Rice Grains[2] (13) 0.006-0.159	1974-1978	Shrimp[4] (7) n.d.	2001	n.a.	2003	n.a.	2003	Breast milk[2] (147) 0.019-0.221	1979-1981
			699,490[11]	1954-1957							Hambantota coastal zone[4] (6) n.d.	1999	Colombo port[4] (2) n.d.	1999					Vegetables[3] (179) 0.002-2.387	1974-1978	Shrimp and Fish[3] (10) n.d.	2002					Human fat[2] (5) 10.69-102.02	1974
			713,426[11]	1958-1960									Negombo lagoon[2] (2) 0.00041	2001					Jaffna vegetables/fruits[3] (32) 0.003-0.408	1978	Mullet[2] (6) 0.067	2001						
			599,937[11]	1961-1964							Surface and ground water in Walawe[4] (15) n.d.	2000	Colombo port[4] (5) n.d.	2000					Processed Products (Canned Pineapple, Tomato Sauce)[3] 0.002-0.016	1974-1978	Silver Fish[3] (3) 0.050	2001						
			202,560[11]	1965-1967							Sea water Beruwala/Marawil[4] (12) n.d.	2002-2003	Coral[4] (2) n.d.	2000					Export Products (Tobacco, Cardamom, Coffee Bean, Tea)[3] 0.002-0.025	1974-1978	Rabbit Fish[2] (3) 0.120	2001				
			1,230,780[11]	1968-1969							Sea water Koggala/Mirijjawila/Bataatha(12) n.d.	2002-2003	Colombo port[4] (1) 0.0096	2000					Milk (Jaffna)[3] (2) 0.007	1978	Clam[3] (21) 0.009	2001						
			1,090,826[11]	1970									Chilaw lagoon[2] (1) 0.0016	2001					Tea[3] (15) 0.580	1988-1989								
			2,080,606[11]	1971-1972									Udappuwa[4] (1) 0.00009	2001					Tea[4] (15) n.d.	2001								
			1,624[11]	1973									Mundel Lake[2] (1) 0.0001	2001					Cigarettes[4] (10) n.d.	2001								
			1,010,498[11]	1974															Tea[4] (20) n.d.	2001								
			551,833[11]	1975															Cigarettes[4] (2) 0.200	2003								
			316,522[11]	1976															Chilli Powder[2] (3) n.d.	1997								
dieldrin	None	2003	1,000 (200)	1983-1984	None	2003	n.a.	2003	None	2003	Jaffna Samples[1] (10) n.d.	1978	Hambantota coastal zone[4] (24) n.d.	1999	n.a.	2003	Jaffna Samples1 (2) 0.004-0.032	1978	Hulled Rice Grains[2] (9) 0.002-0.161	1974-1978	Shrimp[4] (7) n.d.	2001	n.a.	2003	n.a.	2003	Breast milk[2] (43) 0.003-0.100	1979-1981
			2,000 (400)	1985							Hambantota coastal zone[4] (24) n.d.	1999	Colombo port[4] (2) n.d.	1999					Vegetables[3] (82) 0.001-0.233	1974-1978	Shrimp and Fish[3] (10) n.d.	2002						
																			Jaffna vegetables/fruits[3] (24) 0.001-0.040	1978								
			7,560 (2,088)	1986							Sea water Beruwala/Marawil[4] (12) n.d	2002-2003							Processed Products (Canned Pineapple, Tomato Sauce)[3] 0.001	1974-1978								
			5,200 (1,360)	1987							Sea water Koggala/Mirijjawila/Bataatha(12) n.d.	2002-2003							Export Products (Tobacco, Cardamom, Coffee Bean, Tea)[3] 0.001-0.042	1974-1978								
			125 (25)	1990															Milk (Jaffna)[3] (3) n.d.	1978								
			1,180 (236)	1991															Tea[3] (20) 0.008-0.319	1988-1989								
																			Cigarettes[4] (10) n.d.	2001								
																			Tea[4] (20) n.d.	2001								
																			Chilli Powder[2] (3) n.d.	1997								
endrin	None	2003	n.a.	2003	None	2003	n.a.	2003	None	2003	Jaffna Samples[1] (10) n.d.	1978	Colombo port[4] (2) n.d.	1999	n.a.	2003	Jaffna Samples1 (8) n.d.	1978	Hulled Rice Grains[2] (3) 0.013-0.027	1974-1978			n.a.	2003	n.a.	2003	n.a.	2003
																			Vegetables[3] (18) 0.001-0.413	1974-1978								
																			Jaffna vegetables/fruits[3] (62) n.d.	1978								
																			Processed Products (Canned Pineapple, Tomato Sauce)[3] 0.002	1974-1978								
																			Export Products (Tobacco, Cardamom, Coffee Bean, Tea)[3] 0.002-0.140	1974-1978								
																			Milk (Jaffna)[3] (3) n.d.	1978								
																			Tea[3] (15) 0.027-0.278	1988-1989								
																			Chilli Powder[2] (3) n.d.	1997								
heptachlor	None	2003	n.a.	2003	None	2003	n.a.	2003	None	2003	Jaffna Samples[1] (10) n.d.	1978	Hambantota coastal zone[4] (24) n.d.	1999	n.a.	2003	Jaffna Samples1 (5) 0.001-0.021	1978	Hulled Rice Grains[2] (6) 0.018-0.057	1974-1978	Shrimp[4] (7) n.d.	2001	n.a.	2003	n.a.	2003	n.a.	2003
											Hambantota coastal zone[4] (24) n.d.	1999	Colombo port[4] (2) n.d.	1999					Vegetables[3] (39) 0.001-0.199	1974-1978	Shrimp and Fish[3] (10) n.d.	2002						
																			Jaffna vegetables/fruits[3] (17) 0.001-0.021	1978								
											Sea water Beruwala/Marawil[4] (12) n.d	2002-2003							Processed Products (Canned Pineapple, Tomato Sauce)[3] 0.001-0.002	1974-1978								
											Sea water Koggala/Mirijjawila/Bataatha(12) n.d.	2002-2003							Export Products (Tobacco, Cardamom, Coffee Bean, Tea)[3] 0.001-0.250	1974-1978								
																			Milk (Jaffna)[3] (3) n.d.	1978								
																			Tea[3] (5) 0.123	1988-1989								
																			Cigarettes[4] (10) n.d.	2001								
																			Tea[4] (20) n.d.	2001								
																			Chilli Powder[2] (3) n.d.	1997								
hexachlorobenzene	None	2003	None	2003	None	2003	n.a.	2003	None	2003	n.a.	2003	Chilaw lagoon[2] (1) 0.000021	2001	n.a.	2003	n.a.	2003	n.a.	2003	Mullet[2] (6) 0.00047	2001	n.a.	2003	n.a.	2003	n.a.	2003
mirex	None	2003	None	2003	None	2003	n.a.	2003	None	2003	n.a.	2003	n.a.	2003	n.a.	2003	n.a.	2003	n.a.	2003	n.a.	2003	n.a.	2003	n.a.	2003	n.a.	2003
toxaphene	None	2003	None	2003	None	2003	n.a.	2003	None	2003	n.a.	2003	n.a.	2003	n.a.	2003	n.a.	2003	n.a.	2003	n.a.	2003	n.a.	2003	n.a.	2003	n.a.	2003

1 Ramasundaram , N. , S. Nagarajah, W.G. Nanadasiri and H.R.J.T. Peiris (1978). A survey of organochlorine insecticide residues in Sri Lanka. Tropical Agriculturist 134 (No. 2), 1978 2 Shanthakumar, N. .S. Nagarajah, W.G. Nandasiri, H.R.J.T. Peiris and A.I. Chandrasekara (1981). Organochlorine pesticide residues in human milk in Sri Lanka. Central Agricultural Research Station, Gannoruwa, Peradeniya (un published) 3 Silva, M.P. de and W. Thiemann (1991). Organochlorine pesticide residues in different grades of Sri Lanka Tea, Chem. Mikrobiol. Technol. Lebensum., 13: 89-94. 4 Data from Industrial Technology Institute. 363, Bauddhaloka Mawatha, Colombo-07. 5 Data from Interlabor Belp AG, Birkenweg 6, Postfach CH-3123, Belp, Germany for occational samples of processed chillies exported from Sri Lanka. 6 DDT, DDE, DDD singly or in any combination (for residue data only) 7 Figure inside the brakets refers to the amount of active ingredient. 8 Office of the Registrar of Pesticides, 1056, Getambe, Peradeniya, Data from yearly import statistics (1983-1994) Figures inside the brackets refers to the number of samples in which the particular residue was detected/measured but no sample was detected. n.d.= not detected n.a.= not available 9 Goruge, K.S. and S. Tanabe (2001). Contamination by persistent organochlorines and butyltin compounds in the West Coast of Sri Lanka. Marine Pollution Bulletin. Vol. 42, No. 3, pp. 179-186. 10 Bandara, J.M.R.S. (1989). Exposure of applicators during application of aldrin with knapsack sprayer. Sri Lanka Journal of Agricultural Sciences. Vol. 26 (2): 1-9. 11 Anti Malaria Campaign, Colombo 06. Data from yearly import statistics (1954-1976).

Annex VI

Inventory of outdated pesticide stocks in Sri Lanka (sites, containers, quantities, formulations, etc.)

Inventory updated on January 2003

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No	Site/Store Affected	Common Name	Commercial Name	Formulation1	Chemical Group	Toxicity Group (WHO)	Type of Container	Condition of Container	Number of Containers	Quantity (kg)	Quantity (l)	Year Manufactured Batch Lot No	Country Manufacturer Donor, Source	Comment/ Remarks
1	Kolonnawa	quinalphos	Quinalphos	EC	OP	II	glass bottles	good	?	-	1,812	1990	India	?
2	Kolonnawa	parathion	Parathion	EC	OP	II	glass bottles	good	?	-	4.5	1980	USA	?
3	*Kolonnawa*	*dicofol*	*Kelthane*	Unknown	*OC*	*II*	*bottles*	*good*	*?*	-	*196*	*1980*	*USA/India*	*?*
4	Kolonnawa	methamidophos	Methamidophos	SL	OP	Ib	glass bottles	good	?	-	11	1990	Singapore	?
5	Colombo	carbosulfan	Marshal	EC	Carbamate	II	glass bottles	good	?	0	11	1980	USA	?
6	Colombo	carbosulfan	Marshal	EC	Carbamate	II	bottles	good	87		15	1994	Unknown	?
7	Colombo	carbosulfan	Marshal	Dust	Carbamate	II		good	3,003	300		1992	Unknown	?
8	Kolonnawa	monocrotophos	Monocrotophos	SL	OP	Ib	glass bottles	good	?	-	12	1990	Singapore	?
9	Kolonnawa	dimethoate	Dimethoate	EC	OP	II	glass bottles	good	?	-	107	1990	Singapore	?
10	Colombo	dimethoate	Dimethoate	EC	OP	II		good	89	0	615	1998	Unknown	?
11	Kolonnawa	fenthion	Fenthion	EC	OP	II	glass bottles	good	?	-	8	1995	Germany	?
12	Kolonnawa	carbofuran	Carbofuran	GR	Carbamate	II	drums	good	200	-	40,000	1978	Korea	?
13	Kolonnawa	propachlor	Propachlor	WP	Chloroacetamide	?	paper packs	good	?	234	-	1980	USA	?
14	Colombo	carbofuran	Carbofuran	GR	Carbamate	I		good	?	45,000	-	1985	Unknown	?
15	Kolonnawa	folpet	Folpet	Dust	Phthalimide	II	paper packs	good	?	186	-	1980	USA	?
16	Colombo	maneb	Harcozeb	WP	Dithiocarbamate	IV		good	?	1,395	-	1980	Unknown	?
17	Colombo	sulphur	Sulphur	WP	Inorganic	IV	paper packs	good	?	9,011	-	1990	Italy	?
18	Colombo	sulphur	Sulphur	WP	Inorganic	IV	paper packs	good	?	6,109	-	1980	Holland	?
19	Colombo	sulphur	Sulphur	WP	Inorganic	IV	paper packs	good	1,392	4,888	-	1995	Unknown	?
20	Colombo	coc	Cobox	WP	Inorganic	III	paper packs	good	?	25	-	1990	Holland/USA	?
21	Colombo	propanil	Stam-F	EC	Anilide	III	glass bottles	good	?	-	80	1980	Italy/Germany	?
22	Colombo	propanil	Stam-F	EC	Anilide	III	drum	good	2	-	280	1980	Unknown	?
23	Colombo	MCPA	Agroxone	SL	Phenoxy	III		good	?	-	3,040	1980	England	?
24	Colombo	MCPA	Agroxone	SL	Phenoxy	III	bottles	good	71	-	22	1995	Unknown	?
25	Colombo	MCPA	Agroxone	SL	Phenoxy	III	drum	good	1	-	200	Unknown	Unknown	?
26	Colombo	alachlor	Lasso	EC	Acetamide	III	drum	good	1	-	44	1980	Thailand	?
27	Colombo	alachlor	Lasso	EC	Acetamide	III	glass bottles	good	?	-	30	1996	USA	?
28	Colombo	methiram	Unknown	DF	Dithiocarbamate	II	glass bottles	good	?	-	817	1995	Unknown	?
29	Ekala	etofenprox	Trebon	EC	Bridgeddiphenyl	IV	bottles	good	5	-	2	1996	Japan	?
30	Ekala	benomyl	Benor	WP	Benzimidazole	III	paper packs	good	1	0.1	-	Unknown	Spain	?
31	Ekala	mancozeb	Harcozeb	WP	Dithiocarbamate	III	packets	good	1,024	4,600	-	1997	South africa	?
32	Ekala	pretilachlor	Sofit	EC	Chloroacetamide	III	glass bottles	?	40	-	16	1998	Switzerland	?
33	Ekala	metalachlor	Dual	EC	Acetamide	III	glass bottles	good	136	-	55	1994	Switzerland	?
34	Colombo	chlorpyrifos	Vitashield	EC	OP	II	bottles	?	806	-	165	1997	Unknown	?
35	Colombo	fenobucarb	Keedan	EC	Carbamate	II	bottles	?	27	-	5.6	1998	Unknown	?
36	Colombo	metaldehyde	Meta	Bait	?	III		?	?	1.75	-	1997	Unknown	?
37	Colombo	captan	Captan	WP	Phthalimide	IV	packets	?	9,330	2,600	-	1992	Unknown	?
38	Kelaniya	chlorothalonil	Daconil	SC	Phthalimide	III	glass bottles	?	4,067	-	857	1998	Japan	
39	Colombo	mancozeb+oxadixyl	Unknown	WP	?	?	packets	?	673	146	-	1996	Unknown	?
40	Colombo	chlorothalonil	Daconil	SC	Phthalimide	IV		?	?	-	800	1998	Unknown	?
41	Colombo	sethoxydim	Target-S	Unknown	Oxime	III		?	?	-	760	1998	Unknown	?
42	Colombo	buprofezin	Applaud	WP	Thiadiazine		packets	?	6,566	507	-	1996	Unknown	?
43	Colombo	pirimiphos methyl	Actellic	EC	OP	III	bottles	?	720	-	3,023	1997	Unknown	?
44	Colombo	pirimiphos methyl	Actellic	Dust	OP	III	packets	?	281	1,232	-	1997	Unknown	?

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No	Site/Store Affected	Common Name	Commercial Name	Formulation1	Chemical Group	Toxicity Group	Type of Container	Condition of Container	Number of Containers	Quantity (kg)	Quantity (l)	Year Manufactured	Country Manufacturer	Comment/ Remarks
45	Colombo	chlorfluazuron	Atabron	EC	Trifluoromethyl	IV	bottles	?	180	-	20	1995	Unknown	?
46	Colombo	carbaryl	Sevin	SC	Carbamate	II	bottles	?	1,506	-	353	1998	Unknown	?
47	Colombo	fipronyl	Regent	SC	Pyrazole	II	bottles	?	216	-	30	1997	Unknown	?
48	Colombo	phosalone	Zolone	EC	OP		bottles	?	11,912	-	2,961	1998	Unknown	?
49	Colombo	phosalone	Zolone	EC	OP	IV	barrels	?	22	-	4,400	1998	Unknown	?
50	Colombo	copperoxide	Perenox	WP	Inorganic	II	packets	?	2,830	566	0	1995	Unknown	?
51	Colombo	flutolanil	Moncut	WP	Anilide	III	packets	?	602	51	-	1998	Unknown	?
52	Colombo	oxyfluorfen	Goal	EC	Trifluoromethyl	III	bottles	?	229	-	38	1996	Unknown	?
53	Colombo	diuron	Diuron	WP	Urea	III	packets	?	12	104	-	Unknown	Unknown	?
54	Colombo	napropamide	Unknown	WP	Amide	?	packets	?	220	110	-	1990	Unknown	?
55	Colombo	2,4-D	Unknown	SL	Phenoxy	III	packets	?	2	80	-	Unknown	Unknown	?
56	Colombo	brodifacoum	Klerat	RB	?	III	packets	?	22	10	-	1996	Unknown	?
57	Colombo	propineb	Antracol	WP	Carbamate	III	packets	?	?	6,000	-	1985	Unknown	?
58	Colombo	permethrin	Unknown	EC	Pyrethroid	?	drums	?	1	-	200	1990	Unknown	?
59	Colombo	permethrin	Unknown	EC	Pyrethroid	?	bottles	?	184	-	27	Unknown	Unknown	?
60	*Colombo*	*endosulfan*	*Thiokil*	*EC*	*OC*	*II*	*bottles*	*?*	*1,195*	*-*	*428*	*1995*	*Unknown*	*?*
61	Polonnaruwa	fenthion	Lebaycid	EC	OP	II	bottles	?	55	-	10.4	Unknown	Unknown	?
62	*Polonnaruwa*	*aldrin*	*Aldrin*	*EC*	*OC*	*Ib*	*bottles*	*?*	*8*	*-*	*18*	*1995*	*Unknown*	*?*
62	Polonnaruwa	propoxur	Unden	EC	Carbamate	III	bottles	?	156	-	56.4	Unknown	Unknown	?
63	Polonnaruwa	propoxur	Unden	DP	Carbamate	III	packets	?	17	34	-	Unknown	Unknown	?
64	Polonnaruwa	fenobucarb	Unknown	EC	Carbamate	II	bottles	?	85	-	28.6	Unknown	Unknown	?
65	Polonnaruwa	monocrotophos	Monocron	SL	OP	Ib	bottles	?	47	-	15.2	Unknown	Unknown	?
66	Polonnaruwa	carbosulfan	Marshal	EC	Carbamate	II	bottles	?	13	-	2.2	Unknown	Unknown	?
67	Polonnaruwa	chlorpyrifos	Dursban	EC	OP	II	bottles	?	154	-	45	Unknown	Unknown	?
68	Polonnaruwa	dimethoate	Unknown	EC	OP	II	bottles	?	71	-	27.2	Unknown	Unknown	?
69	*Polonnaruwa*	*DDT*	*DDT*	*WP*	*OC*	*II*	*packs*	*?*	*23*	*10*	*-*	*1995*	*Unknown*	
69	Polonnaruwa	diazinon	Diodin	GR	OP	III	packets	?	5	10	-	Unknown	Unknown	?
70	Polonnaruwa	carbofuran	Unknown	GR	Carbamate	II	packets	?	211	422	-	Unknown	Unknown	?
71	Polonnaruwa	pirimiphos-methyl	Actellic	EC	OP	II	bottles	?	43	-	9.1	Unknown	Unknown	?
72	Polonnaruwa	carbaryl	Sevin	WP	Carbamate	II	packets	?	5	10	-	Unknown	Unknown	?
73	Polonnaruwa	MCPA	Hedonal	SL	Phenoxy	III	bottles	?	162	-	77	Unknown	Unknown	?
74	Polonnaruwa	propanil	Unknown	EC	Anilide	III	bottles	?	466	-	401	Unknown	Unknown	?
75	Polonnaruwa	fenoxaprop-p-ethyl	Whipsuper	EW	Phenoxy	?	bottles	?	40	-	46	Unknown	Unknown	?
76	Polonnaruwa	paraquat	Gramoxone	SL	Bipiridil	II	bottles	?	28	-	11.2	Unknown	Unknown	?
77	Polonnaruwa	butachlor+propanil	Unknown	EC	?		bottles	?	49	-	24.5	Unknown	Unknown	?
78	Polonnaruwa	oxyfluorfen	Unknown	EC	Diphenyl Ether	III	bottles	?	10	-	2	Unknown	Unknown	?
79	Polonnaruwa	alachlor	Unknown	EC	Acetamide	III	bottles	?	26	-	5.6	Unknown	Unknown	?
80	Polonnaruwa	propineb	Unknown	WP	Carbamate	?	packets	?	5	0.5	-	Unknown	Unknown	?
81	Polonnaruwa	sulphur	Unknown	WP	Inorganic	IV	packets	?	25	12.5	-	Unknown	Unknown	?
82	Polonnaruwa	captan	Unknown	WP	Phthalimide	IV	packets	?	134	41.2	-	Unknown	Unknown	?
83	Polonnaruwa	mancozeb	Unknown	WP	Dithiocarbamate	III	packets	?	12	2.4	-	Unknown	Unknown	?
84	Dematagoda	mancozeb	Blitox	WP	Dithiocarbamate	III	bags	?	425	10,625	-	Unknown	Unknown	?
85	Dematagoda	mancozeb	Blitox	WP	Dithiocarbamate	III	packets	?	3,094	2,340	-	Unknown	Unknown	?
86	Dematagoda	chlorpyrifos	Lorsban	EC	OP	II	bottles	?	3,990	-	1,410	Unknown	Unknown	?
87	Dematagoda	thiram	Rootone-F	WP	Dithiocarbamate	III	packets	?	2,463	216	-	Unknown	Unknown	?
88	Dematagoda	sulphur	Super six	SL	Inorganic	IV	bottles	?	1,642	-	364	Unknown	Unknown	?
89	Dematagoda	propagite	Omite 57 E	EC	Sulfite	III	bottles	?	106	-	42.4	Unknown	Unknown	?
90	Dematagoda	fenobucarb	Keedan	EC	Carbamate	II	bottles	?	48	-	4.8	Unknown	Unknown	?
91	*Dematagoda*	*endosulfan*	*Anglosulfan*	*EC*	*OC*	*II*	*bottles*	*?*	*384*	*-*	*22.8*	*Unknown*	*Unknown*	*?*

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No	Site/Store Affected	Common Name	Commercial Name	Formulation1	Chemical Group	Toxicity Group	Type of Container	Condition of Container	Number of Containers	Quantity (kg)	Quantity (l)	Year Manufactured	Country Manufacturer	Comment/ Remarks
92	Dematagoda	dimethoate	Dimitox	EC	OP	II	bottles	?	1,375	-	264	Unknown	Unknown	?
93	Dematagoda	phenthoate	Enthosan	EC	OP	II	bottles	?	11	-	4.4	Unknown	Unknown	?
94	Dematagoda	propanil	Weedex	EC	Anilide	III	bottles	?	5	-	2	Unknown	Unknown	?
95	Dematagoda	paraquat	Gramoxone	SL	Bipiridil	II	bottles	?	12	-	2.4	Unknown	Unknown	?
96	Dematagoda	copper hydroxide	Kocide	WP	Inorganic	IV	packets	?	40	-	8	Unknown	Unknown	?
97	Kelaniya	quinalphos	Ekalux	EC	OP	II	alu bottles	good	982	-	194	1997	India	?
98	*Kelaniya*	*endosulfan*	*Thionex*	*EC*	*OC*	*II*	*glass bottles*	*good*	*53*	-	*9.8*	*1998*	*Unknown*	*?*
99	Kelaniya	formithion	Anthio	EC	OP	II	glass bottles	good	7,114	-	2,806	1997	Unknown	?
100	Kelaniya	oxyfluorfen	Galigan	EC	Diphenyl Ether	III	glass bottles	good	64	-	64	1998	Israel	?
101	Ekala	chlorpyrifos	Pyrimack	EC	OP	II	glass bottles	?	107	-	21.8	1997	Israel	?
102	Ekala	chlorpyrifos	Mackfos	EC	OP	II	glass bottles	?	115	-	21	1996	Israel	?
103	*Ekala*	*endosulfan*	*Endomack*	*EC*	*OC*	*II*	*glass bottles*	*?*	*22*	-	*4.8*	*1998*	*Israel*	*?*
104	Ekala	phenthoate	Mackso 50% EC	EC	OP	II	glass bottles	?	37	-	8.8	1998	Singapore	?
105	Ekala	phenthoate	Mackso 5% dust	DP	OP	II	paper packs	?	9	6.5	-	1996	Japan	?
106	Ekala	BPMC	Mackcarb	EC	Carbamate	II	glass bottles	?	21	-	4.5	1997	Singapore	?
107	Ekala	dimethoate	Mackthoate	EC	OP	II	glass bottles	?	34	-	2.9	1997	Singapore	?
108	Ekala	carbosulfan	Master	EC	Carbamate	II	glass bottles	?	53	-	10.6	1998	Malaysia	?
109	Ekala	carbaryl	Sevin	WP	Carbamate	II	cardboard pack	?	90	9.45	-	1997	France	?
110	Ekala	diazinon	Surya 5% G	GR	OP	II	LDPE bags	?	44	25	-	1996	Korea	?
111	Ekala	carbofuran	Unknown	GR	Carbamate	II	alu foil bags	?	9	15	-	1996	Malaysia	?
112	Ekala	acephate	Apollo	WP	OP	II	LDPE bags	?	16	1.6	-	1997	India	?
113	Ekala	sulphur	Macksul	WG	Inorganic	IV	alu foil bags	?	73	36.5	-	1996	France	?
114	Ekala	carbendazim	Mackdazim	WP	Benzimidazole	IV	cardboard pack	?	12	18	-	Unknown	Unknown	?
115	Ekala	mancozeb	Mackzeb	WP	Dithiocarbamate	IV	alu foil bags	?	168	68.8	-	Unknown	Unknown	?
116	Ekala	captan	Unknown	WP	Phthalimide	IV	cardboard pack	?	693	153	-	1998	Israel	?
117	Ekala	alachlor	Mackchlor	EC	Acetamide	III	glass bottles	?	18	-	4.5	1998	Israel	?
118	Ekala	MCPA	M60	SL	Phenoxy	III	glass bottles	?	17	-	4.7	1998	UK	?
119	Ekala	MCPA	M power	SL	Phenoxy	III	glass bottles	?	45	-	14.4	1997	UK	?
120	Ekala	glyphosate	Weedol	SL	Amine salt	IV	glass bottles	?	17	-	6	1998	Malaysia	?
121	Ekala	sethoxydim	Target S	EC	Oxime	III	glass bottles	?	421	-	147.35	1998	Japan	?
122	Ekala	propanil	Marunil	EC	Anilide	III	plastic bottles	?	103	-	88	1997	USA	?
123	Kelaniya	sethoxydim	Nabu-S	EC	Oxime	III	drum		3	-	600	1998	Japan	
Total									73440	97213.3	68362.45			

Pieces of containers = 73,440 Combined total in kg/liters= 165,575 Grand total in tonnes = 166

Notes: Formulation categories referred here EC=Emulsifiable Concentrate SL=Soluble Concentrate WP=Wettable Powder WG=Dispersible Micro Granule GR=Granules DP=Dustable Powder EW=Water-in-Emulsion RB=Ready Bait SC=Suspension Concentrate DF=Dry Flowable

WHO Recommended toxicity classification referred here Class Ia: Extremely hazardous Ib: Highly hazardous II: Moderately hazardous III: Slightly hazardous IV: Unlikely to present acute hazards in normal use

Annex VII

Toxicity of POP Pesticides

Pesticide (CAS Registry Number)	LD_{50}* Oral Rat	Toxicity+	
		Toxicity to Humans/Mammals	**Environmental and Wildlife Toxicity**
aldrin (309-00-2)	38-67 mg/kg	Unclassifiable as to carcinigenicity to humans (Group 3) Can affect liver, renal damage, acute exposure; neurotoxicant such as severe seizures, suspect of pheripheral neuropathy, Parkinson's disease, teratogen, reported reproductive/endocrine disruptor (estrogenic properties, physical deformities in the foetus, foot webbing, cleft palate and open eyes)	Toxicity very low to birds, very high to fish and aquatic invertebrates, moderate to bees. Persistence moderate in soil, varied in water, low in plants. Bioaccumulation may be significant in aquatic organisms. Impared reproductive ability in fishes
Chlordane (57-74-9)	200-590 mg/kg	Probable carcinogen (Group B2), acute toxicity; abnormal balance, choice reaction time, verbal recall, slowing of motor speed, respiratory illnesses, teratogen, reported reproductive/endocrine disruptor (altered hormone function, mimicking sex steroids), Liver damage	Persistence and bioaccumulation
DDT (50-29-3)	113-800 mg/kg	Probable carcinogen (Group B2) Can affect liver, kidneys, decreased thyroid function (immune system). Neurotoxicant, teratogen, Environmental estrogen and antiandrogen effects on fetuses and breast feeding infants, decreased fertility, still birth, neonatal deaths and congenital defects among children of chronic exposed workers.	Toxicity moderate-high to birds, very high to fish and aquatic invertebrates, nontoxic to bees. Chronic effects (eggshell thinning, etc.) may be significant. Estrogenic properties and antiandrogenic sexual development feminization of males (alligators in Florida), Deformed reproductive organs, abnormal gonadal development, abnormal mating and nesting behaviour. Extremely persistent and bioaccumulative
dieldrin (60-57-1)	37-87 mg/kg	Unclassifiable as to carcinigenicity to humans (Group 3) Can affect liver, renal damage, acute exposure; neurotoxicant such as severe seizures, suspect of pheripheral neuropathy, Parkinson's disease, teratogen,	Toxicity very low to birds, very high to fish and aquatic invertebrates, moderate to bees. Persistence moderate in soil, varied in water, low in plants. Bioaccumulation may be significant in aquatic organisms.

		reported reproductive/endocrine disruptor (estrogenic properties, physical deformities in the foetus, foot webbing, cleft palate and open eyes)	Impaired reproductive ability in fishes
Endrin (72-20-8)	3-43 mg/kg	Unclassifiable as to carcinogenicity to humans (Group 3) Highly toxic to humans (occupational exposure resulting twitching muscles, mental confusion, seizure and possible death), reported reproductive/endocrine disruptor.	Persistence and bioaccumulation
heptachlor (76-44-8)	40-100 mg/kg	Probable carcinogen (Group B2), acute exposure ; hyperexcitation of the central nervous system, death from cerebrovascular disease, liver toxicity, teratogen, reported reproductive/endocrine disruptor (change in progesterone and estrogen levels)	Persistence and bioaccumulation
Hexachlorobenzene (118-74-1)	3500-10000 mg/kg	Probable carcinogen (Group B2), teratogen, Oncogenic effects, reported reproductive/endocrine disruptor High dose, acute exposure: porphyria cutanea tarda with follow-up of several years in some cases, Enlarged thyroid gland, scarring, arthritis in children of exposed mothers and exposed to breast milk, Acute neurologic toxicity with symptoms such as tremors, paralysis, incordination, weakness, and convulsions	Persistence, bioaccumulation, biomagnification in natural aquatic ecosystems
Mirex (2385-85-5)	235 mg/kg	Oncogenic effects, suppression of the immune system, reported endocrine disruptor, and toxic effects on foetuses, cataract formation. Liver hypertrophy, scolioses, runts, short tail, cleft palate and heart diseases	Persistence and bioaccumulation
Toxaphene (8001-35-2)	50-69 mg/kg	Probable carcinogen (Group B2), Acutely toxic, Oncogenic effects, reported reproductive/endocrine disruptor	Persistence and bioaccumulation Estrogenic effects in alligators, reduction of weight and egg viability in trout, reduced egg laying and hatching ability in pheasants

*The LD_{50} value is a statistical estimate based on the acute oral and dermal toxicity expressed by the mg of toxicant per kg of bodyweight required to kill 50% of a large

Population of test animals (usually rat). The lower the LD_{50} the more poisonous the chemical. Different sources frequently reported different LD_{50}s (rat/oral) for the same chemical. In general, range values from the most recent source or when values differed greatly between sources, range values incorporating all LD_{50}s given in above sources indicated.

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