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ENVIRONMENT & MANAGEMENT LANKA (PRIVATE) LIMITED

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UPDATED NATIONAL CHEMICAL PROFILE, SRI LANKA

Executive Summary

Introduction

At the Rio Conference on Environment and Development (UNCED) held in 1992 in Rio de Janeiro, Brazil, Heads of States or Governments adopted "Agenda 21", a comprehensive document outlining the responsibilities of States towards the achievement of sustainable development.

Chapter 19 of Agenda 21 deals with environmentally sound management of chemicals and all countries present at the Rio Conference agreed with the goal of achieving sound management of chemicals by the year 2000.

The International Conference on Chemical Safety held in 1994, in Stockholm, Sweden, established the Intergovernmental Forum on Chemical Safety (IFCS) and adopted the six-programme areas "priority for action" plan to implement the recommendations of Chapter 19 of Agenda 21.

Developing the National Chemicals Management Profile falls under Programme Area E of Chapter 19, Strengthening National Capabilities and Capacities for the Management of chemicals, at the international level.

Sri Lanka has joined the international activity for the development of a National Chemicals Management Profile in 1996, with UNITAR support. The First Sri Lankan National Chemicals Management Profile was completely developed in 1997. The National Chemical Profile of Sri Lanka is prepared in order to share the information on chemical management and handling in the country. The interaction of chemicals throughout its life cycle with human and environment and subsequent impacts are described in the profile under various chapters.

Following Classes of Chemicals are widely used in the country ,

- agricultural chemicals (pesticides and fertilizers);
- chemicals used for public health, industrial and consumer uses;
- chemicals used in industrial processes;
- petrochemicals, including refined petroleum products; and
- chemicals in consumer products such as cleaning products, paints, and solvents.

1:National Background Information

Chemical safety management in Sri Lanka must be considered in the overall context of physical, political, demographic, industrial and agricultural characteristics of the country. Sri Lanka is a small island, which is about 65610km^2 in total area. The climate is mostly tropical. The population of Sri Lanka is 19 million. There is a high literacy rate -- 90%. Per capita Gross Domestic Product (GDP) is about $762. The Economic structure of Sri Lanka is composed of two major sectors, i.e. agricultural sector (mostly in rural area) and industrial sector (mostly in Colombo and its vicinity and industrial areas). Agriculture accounts for 19.4% of GDP and industry 25%.

2 : Chemical Production, Import, Export and Use

Chemicals are hardly produced in Sri Lanka compared to other countries in the region. Most of the chemicals, which are classified above have been either imported or formulated/packaged in Sri Lanka. If the chemical imports are considered petroleum products are ranked first, all chemicals including industrial and pesticides ranked as second and fertilizers are third. Mineral sands as salts are major exports. The usage of chemicals is high in agricultural, industrial and household sectors. About 98% of the chemicals, which can be considered as raw material for industrial operations is imported. The major chemical wastes generated per year are industrial hazardous wastes, followed by wastes from commerce & service, medical practice & laboratory, port & shipping, community and agriculture.

3 : Priority Concern Relating to Chemical Production, Import, Export and Use

The priority areas of concern relating to chemical production or formulation/repackaging mainly due to emissions of particulate matters and volatile organic solvents at work places. Priority areas of concern related to chemical import and export are lack of control on importing substandard chemicals, inadequate testing abilities, lack of human resources and insufficient financial assistance. The priority concerns related to the chemical use include the following: - air pollution, pollution of inland waterways, marine pollution, groundwater pollution, soil contamination, shallow - well water pollution, hazardous waste treatment / disposal, occupational health (agricultural and industrial), chemical accidents (industrial and transport), storage / disposal of obsolete chemicals, persistent organic pollutants, chemical residues in food, drinking water contamination, public health and chemical poisoning / suicides.

4 : Legal Instruments and Non-Regulatory Mechanisms for Managing Chemicals

A number of legal instruments have been enacted to control the use of chemicals and reduce chemical risks to human health and the environment. Among these are:

- Sri Lanka Ports Authority Act No.51 of 1979 (last amended in 1992)
- Customs Ordinance of 1869 (last amended in 1988)
- Control of Pesticides Act No 30 of 1980 (amendment Act No 6 of 1994)
- Import and Export Control Act No.1 of 1969 (last amended in 1987)
- Fertilizer Act No. 68 of 1988 (with amendments)
- Board Of Investment (BOI) Law No.4 of 1978 (last amended in 1992)
- Petroleum Ordinance of 1969 (with amendments)
- Explosives Acts No. 21 of 1956 (last amended 1978)
- National Environmental Act No.47 of 1980 (last amended 2000)
- Atomic Energy Authority Act No 19 of 1969 (last amended 1990)
- Poisons, Opium and Dangerous Drugs Act No 12 of 1952 (last amended in 1984)
- Cosmetics, Devices & drugs Act No 27 of 1980
- Mines and Minerals Ordinance No.4 of 1973
- Factories Ordinance No 45 of 1942 (last amended in 2000)

5: Ministries, Agencies and Other Institutions Managing Chemicals

In this document, chemicals are categorized into three groups. They are pesticides, industrial and consumer chemicals. There are at least nine ministries connected to the life cycle of chemicals from import to disposal. They are Science, Technology and Environment, Public Health, Agriculture, Labour, Commerce, Industry, Finance and Transport these have been entrusted with the responsibility of enforcing the provision of related laws, regulations and other operational guidelines.
Specific aspects of the chemical life cycle from importation, production, storage through transport, distribution / marketing, use / handling and disposal are handled by various government ministries and agencies as regards different groups of chemicals. Certain problems have been adequately managed by sound cooperation and coordination among the corresponding authorities. However, there are still some problems, which need to be better managed by close and effective collaboration among concerned authorities.

6 : Relevant Activities of Industry, Public Interest Groups and the Research Sector

This section provides information on relevant programmes conducted by non-governmental organizations and entities. Such organizations include:

- industrial organizations and entities involved in the production, formulation, sales/marketing, import, export, transport, storage or disposal of chemicals.
- universities, research institutes, private laboratories, libraries and quasi-governmental organizations
- other non-governmental organizations including labour groups and community-based organizations which have an interest in the sound management of chemicals.

There is considerable expertise available outside the government in most fields. A number of organizations indirectly take part in the management of chemicals. These organizations are identified as professional organizations, research institutes, universities, industrial associations, environmental / consumer groups, labour unions and non-governmental organizations. They can share information, pressurize and provide suggestions to the government, but they have no authority to make official decisions.
In order to strengthen the role of all counterparts, the government agencies are willing to provide almost all information on management of chemicals to all public interest groups. In return, the government agencies expect public interest groups to feedback information and suggestions relating to chemical management.

7 : Inter-ministerial Commissions and Coordinating Mechanisms

A number of inter-ministerial commissions are available for co-ordinating mechanisms among concerned institutions. All of them are centralized at the national level. They can be classified into two categories as follows:

- Inter-ministerial bodies appointed by the Cabinet to undertake policy formulation, monitoring and evaluation, as well as decision-making regarding respective chemicals.
- Standing Committees established by the Acts so as to regulate and manage various aspects of the life cycle of chemicals.

8 : Data Access and Use

It is generally accepted that the availability and reliability of information are the key factors in facilitating systemic development. Each ministry has its own system for collecting and disseminating data relevant to their functions. For instance, the Department of Health Services collects statistics of hospital admissions of poisoning cases; production / import / export statistics are available at relevant ministries. But statistics of all imports, which come into the country and all exports which go out of the country are in kept by the Customs Department. The public has access to most data on request. However, only particular authorities have access to confidential data.

9 : Technical Infrastructure

A broad range of laboratory facilities located at various Departments has been set up at national level as well as regional level. These laboratories have been designed to meet the requirements of each institution. They conduct laboratory operations in respect to quality control, regulation, chemical residue monitoring, certification, diagnosis, monitoring & surveillance for consumer protection, research & development, academic and training.
As regards computer capability, each government organization is sufficiently equipped with computers and accessories for data processing / collection / analysis as well as communication through the internet.

10 : International Linkages

Sri Lanka is a member of the United Nations , and has participated in various programmes, such as UNEP, IRPTC, WHO, FAO, UNIDO and ILO, as well as a signatory to international agreements, such as Agenda21, UNEP London Guideline, FAO Code of Conduct, Montreal Protocol, Basel Convention, and GATT / WTO agreements. The focal point for each international linkage is usually located at the institution, which is considered to be the prime responsible agency.
Through the international linkages, several local projects have accepted funding and technical assistance, e.g. chemical safety, risk reduction, environment quality monitoring system, and environmental health impact assessment. Assistance has been provided by various organizations, such as ADB, World Bank, USAID, JICA, etc.

11 : Awareness/Understanding of Workers and the Public

Workers are considered as an important component for sound management of chemicals because they directly handle chemicals in occupational settings. Moreover, the general public, especially those who are in the vicinity of a chemical industry area, have the right to gain access to appropriate information that can be applied to their situations. Both workers and the general public need information to enable them to assess potential risks of chemicals involved and make informed decisions. In general, the level of awareness among workers in the industries about hazards of chemicals and proper procedures of handling chemicals is low.

12: Resources Available and Needed for Chemical Management

The number of staff and experts present at each institution is basically dependent on the related ministry and budget available. Environmental scientists, physicians, toxicologists, pharmacists, public health officers, nurses, chemists, food scientists and many other related disciplines are required for chemical management. In this regard, specific training in the fields of chemical safety, prevention & treatment of poisoning, environmental management, toxicology, epidemiology and other related topics are required to enhance the capability and capacity of the existing human resources.

Introduction to the National Profile

The National Chemical Profile of Sri Lanka is prepared in order to share the information on chemical management and handling in the country. Chemicals, which can be classified as pesticides, industrial chemicals and consumer chemicals, have become indispensable, and are increasingly, used in the industrial, agricultural and consumer sectors. Apart from the benefits, they can also contribute to health and environmental problems at various stages during their life cycles from production through disposal. The problems due to chemicals include pollution generated during manufacturing processes, improper handling, storage contamination, transport accidents, occupational accidents and poisonings, and environmental contamination due to unsound disposal methods.

A National Profile, and the process of its preparation with input from all concerned parties, can serve important national objectives to strengthen the national chemicals management systems as well as to facilitate important national economic and trade objectives. Specifically, the National Profile can serve the following objectives:

Improved Efficiency of Governmental Operations

- to provide practical information on ongoing programmes and activities in the country which are concerned with the management of chemicals;
- to establish a process which can facilitate the exchange of information and dialogue among government ministries concerned with the sound management of chemicals, and to assist ministries in learning from each others' experience as a basis for improved co-operation;
- to strengthen national decision-making capabilities related to the management of chemicals;
- to facilitate the exchange of information and dialogue between government and parties outside of government such as industry, labour and grass-roots organizations; and
- to establish an authoritative document which can serve as a basis for further efforts to strengthen the national system for the management of chemicals through involvement of all concerned parties.

Social Benefits

- to provide a basis for improved worker, public and environmental protection as a consequence of improved knowledge and understanding of potential problems and alternative means of addressing them;
- to provide a basis for improved awareness of chemical risks among workers and the public and help to develop a national safety culture; and
- to establish a national dialogue on chemicals safety/management involving all concerned parties and sectors of society.

Economic/Trade Benefits

- to facilitate trade in chemicals, and agricultural and industrial products which rely on chemicals;
- to help ensure that chemicals produced, imported and exported support economic goals and do not create economic burdens through health, environmental and safety problems;
- to improve awareness of potential pesticide residue problems which could limit opportunities for agricultural exports; and
- to indirectly improve the productivity of workers through improved worker safety.

More Effective Participation in International Activities

- to facilitate compliance with international/regional reporting schemes in a consistent and efficient manner, e.g., reporting to the Commission on Sustainable Development and the preparation of background documents for international meetings and workshops;
- to facilitate communication among countries, which will permit improved learning from others' experiences and lead to increased co-operation (e.g., on a regional basis); and
- to provide a basis for identifying needs for technical and financial assistance and for mobilizing assistance from international sources and through bilateral arrangements
- This listing is not meant to be exhaustive but should provide a starting point to determine possible national objectives and benefits of a National Profile for a particular country. The profile can be updated periodically to include additional objectives and benefits based on national priorities.

Chapter 1 : National Background Information

This chapter provides general background information both at the national and regional levels.

Sri Lanka is an island surrounded by the Indian Ocean. It is blessed with many natural resources including forestry, wild life, coastal eco systems, rivers and streams, mountains and waterfalls. Sri Lanka boasts of a rich and diverse history of 2500 years including periods of reign under different foreign colonial rulers. First the Portuguese came around1500 AD followed by the Dutch around 1,650 and the British who ruled from 1797 up to1948, when Sri Lanka gained independence.

Topographically the island consists of a south central mountainous region, which rises to an elevation of 2,502m and is surrounded by broad lowland plains at an elevation of 0-75 m above sea level. From the mountainous regions nine major rivers and 94 other rivers flow across the lowlands into the Indian Ocean. The longest river in the country is called Mahaweli and is 335 km in length. The highest mountain is Pidurutalagala, which is 2524 m height. As regards plant species diversity, there are over 3,800 species of flowering plants of which 23 percent are endemic. Similarly, a rich faunal diversity exists with high endemism. Available information shows that Sri Lanka's biodiversity per unit of land area is among the highest in South Asia.

In Sri Lanka, one third of the population and two thirds of the urbanized lands are within the coastal area. The island is surrounded by about a 1770 km long coastline, which comprises highly productive marine eco systems such as fringing coral reefs and shallow beds of coastal and estuarine sea grasses. Mangrove forests (3549 ha), salt marshes (19729 ha), beaches (5056 ha), sand dunes (9223 ha) lagoons and estuaries (97979 ha), coastal marshy wetlands (884 ha) and other water bodies (2006 ha) are the other important eco systems found along the coastal zone of Sri Lanka.

The high population density and sustained efforts to improve living standards have created tremendous pressure on the natural environment of the country. Meantime, the efforts to develop the industrial base of the country also has lead to the destruction of the environment to a certain extent. Liberalization of the economic policy in the late seventies has had a major effect on the industrial sector of Sri Lanka. Ever since the open economy policy was implemented, the industrial sector has undergone a major metamorphosis and has emerged as the backbone of the national economy. The agricultural activities of the country also underwent drastic changes because of the need to satisfy the demand for agricultural products by the increasing population. Application of agrochemicals and fertilizers has increased as a result of the necessity to attain high yield of crops. In the year 2001, industrial and agricultural sectors contributed 25% and 19.4 % to the Gross Domestic Product respectively. As a result of the growth of the industrial activities and agricultural activities, an increasing variety and quantity of chemicals are being imported and used in the country. In fact, not only the industrial sector but also the medical, research, academic, service sectors and households use chemicals widely for different purposes. At present it is estimated that close to a thousands varieties of chemicals are brought into the country but there is no mechanism that enables any regulatory body to trace the journey of chemicals except pesticides which comes under the purview of the Control of Pesticides Act, from the “cradle to the grave”. This unregulated and unmonitored usage of chemicals has caused serious concern from a social

point of view, with the manipulation as exposure to chemical pollution has been manifested in a number of adverse effects on the environment

Sri Lanka has signed many international environmental conventions, agreements, protocols and treaties on pollution control and waste management. The government has ratified a number of such conventions and in order to facilitate the implementation of these conventions a separate Global Affairs Unit was set up in the Ministry of Environment and Natural Resources. In addition to this, several other legal, policy and institutional instruments relating to the environment have been prepared over the years by the Sri Lankan government. They include;

- National Conservation Strategy – 1980
- Forestry Sector Master Plan 1995
- National Industrial Pollution Management Policy Statement – 1996
- Biodiversity Conservation in Sri Lanka: A Frame work for Action – 1998
- National Industrial Pollution Management Policy – 1998
- National Action Plan for Protection of Marine and Coastal Environment from Land Based Activities – 1999
- Clean Air 2000
- Coastal 2000
- Refrigerant Management Plan – 2000

Implementation of the provisions included in these conventions and policy instruments is difficult as there is no National Chemical Management Strategy for the country. Hence, the need of the hour is a close examination of the situation as regards to chemical management in Sri Lanka where by the weaknesses in the system can be identified and addressed through a comprehensive management strategy.

Provision is made in Article 27(14) of the Constitution of Sri Lanka for the protection of the environment as follows: " The State shall protect, preserve and improve the environment for the benefit of the community". Section 28(f) emphasizes the need to "protect nature and preserve its riches". The Central Environmental Authority was established with the enactment of the National Environmental Act (NEA) of 1980. It is entrusted with the overall responsibility of protecting and managing the environment. Under the 13th Amendment to the Constitution , "environment" is a concurrent subject – shared by both the Central Government and the Provincial Councils. Based on this, a separate Environmental Authority has been established for the Province under the statute passed by the North Western Province of Sri Lanka.

1.1 Physical and Demographic Context

This section covers the physical and geographical structure of the country and information relating to the socio – economic, labor force, educational level, agricultural and industrial production are given in the following tables.

Size of the Country (area in square km): *Total area :* 65,610 sq km
land: 62,705 sq km
water: 2,905 sq km
Form of Government: Democratic Socialist Republic

Official Language(s): Sinhala (official and national language) 74 %
Local Language(s): Tamil (national language) 18%, other 8%
note: English is commonly used in government and is spoken competently by about 10% of the population

Total Population:	18,732,000
	Male : 9,267,000
	Female : 9,465,000
Population Growth rate:	1.7 %
Urban Population:	14.62%
Rural Population:	80.04%
Estate Population:	5.33%

Age Structure of the Population:
0-14 years: 25.99%
15-64 years: 67.39%
65 years and over: 6.62%

Birth Rate:	16.58 births/1,000 population
Death Rate:	6.43 deaths/1,000 population
Life Expectancy:	*total population:* 72.09 years
	male: 69.58 years
	female: 74.73 years
Literacy Rate:	*Total population:* 90.2%
	male: 93.4%
	female: 87.2%

Source: Department of Census and Statistics- Statistical Abstract 2001

Table 1.A: Labour and Employment

LABOUR FORCE	**2000**	**2001**
Total ('000)	6,827	6,773
Employed('000)	6,310	6,236
Unemployed ('000)	517	537
LABOUR FORCE PARTICIPATION RATE (%)		
Total	50.3	48.8
Males	67.2	66.2
Females	33.9	31.9
UNEMPLOYMENT RATE BY SEX (%)		
Total	7.6	7.9
Males	5.8	6.2
Females	11.1	11.5

Source: *Department of Census and Statistics - Statistical Data Sheet 2002*

Table 1.B: Average Education Level of Adult Population

Labour Force Status & Sex	Level of education					
	Total	**No Schooling**	**Grade 0-4/ Year 1-5**	**Grade 5-9/ Year 6-10**	**GCE(O/L)/ NCGE**	**GCE(A/L), HNCE & Above**
Employed						
Total	100.0	4.6	21.8	45.9	16.1	11.7
Male	100.0	3.2	22.1	49.9	15.6	9.2
Female	100.0	7.4	21.2	37.9	17.0	16.5
Unemployed						
Total	100.0	1.1	3.3	44.8	27.4	23.4
Male	100.0	1.9	3.8	56.0	24.8	13.5
Female	100.0	0.3	2.8	33.6	30.0	33.2

Source: Department of Census and Statistics- Statistical Abstract 2001

Table 1.C: Unemployment rate by sex (%)

Sex	2000	2001
Males	5.8	6.2
Females	11.1	11.5
Total	7.6	7.9

Source: Department of Census and Statistics - Statistical Data Sheet 2002

1.2 Political/Geographic Structure of the Country

The centralized governing system of Sri Lanka, many attempts have been made to decentralize administrative decision-making powers. As early as 1955 there were proposals for decentralization but were shelved for political and other reasons. There were repeated demands for decentralization and these demands resulted in the following attempts.

- 1973/74 District Political Authority System
- 1979/80 District Development Councils/District Minister System
- 1987/88 Provincial Councils System

In order to achieve rapid economic and social development of the country administrative process was decentralized in 1988 through Provincial Councils system. At present there are eight provincial councils are functioning in nine provinces of the country. In the Sri Lankan context, devolution means transferring political and administrative decision-making authority from central government to elected bodies at lower levels.
The instruments of devolution:
(i) The Thirteenth Amendment to the Constitution (1987) and
(ii) The Provincial Councils Act No 42 of 1987

Provincial Council derives its authority and power from the Constitution and Acts of Parliament. It undertakes activities, which had earlier been undertaken by the Central Government Ministries, Departments, Corporations and Statutory Authorities.

Central and local administration system

Sri Lanka has a Parliamentary democratic system of government and legislative powers are vested in Parliament. The executive authority is exercised by a Cabinet of Ministers presided by an Executive President. The President and the members of the Parliament are elected directly by the people.

The freedom of association, the freedom to form and join a trade union, and the freedom to engage in any lawful occupation, or trade business or enterprise is a fundamental right enjoyed by the people under the Constitution of the country. (6)

For purposes of administration the Country is divided into 9 provinces (North and the East are temporarily merged), 25 districts and 302 Divisional Secretary areas. The provincial administration is vested in the Provincial Councils composed of elected representatives of the people headed by the Governor who is nominated by the Central Government. The Provincial Councils came into operation in 1989, and as such the country is still in a period of transition. The Provincial Council Act of 1989 specifies subject areas devolved to the provincial administration and the subjects strictly under the Central Government. It also provides a list of subjects that are handled concurrently with the Central Government. However no bill in respect of any matter setout under subject areas devolved to the provincial administration shall become law unless such bill is passed by the Parliament of the Central Government. The finances and budget to the provincial administration is allocated by the Central Government. The relationship between these levels of administration clearly suggests a high degree of Central control. Health and environment are subjects devolved to the provincial administration while labour is under the control of the

Central Government

Under each province and district are local authorities which basically are responsible for the public health and for providing and maintenance of infra structure facilities like roads, water, electricity, drainage, wastes etc. The members for the local authority are elected by the people. Depending on the size and population various levels of local authorities are established such as Municipal Councils, Urban Councils and "Pradeshiya Sabas" (divisional councils). To devolve power to the grass root level the Government in 1989 established "Pradeshiya sabas". Approval of the local authority is required to establish any industry. Under the Factories Ordinance the local authorities are required to ensure registration of the factory before licence is issued to carry on the business.

Powers Devolved to Provinces

The powers devolved to the provinces by the thirteenth Amendment to the Constitution are -
Executive powers to Governor
Legislative powers for the Provincial Council

The Provincial Council has power to pass a "'statute" on any subject that is assigned to it under the Constitution subject to the condition that it should not violate the Constitution. However, if any provision of a statute is inconsistent with the provisions of any law passed by Parliament, then the provisions of the law will prevail over the provisions of the statute. An exception is made in the case of laws that were in existence on the day the Thirteenth Amendment to the Constitution came into force. If any provision of a statute made by a

Council is inconsistent with the provisions of a law that was in existence on that date, the operation of the provisions of such law will remain suspended so long as the statute is in force. Parliament can however subsequently make it inoperative by passing a new law or a resolution, as is provided for under the Constitution.

Executive Power

The Executive power extending to matters in respect of which a Provincial Council has power to make statutes is vested in the Governor of the Province. He can exercise this power either directly or through the Ministers of the Board of Ministers or through officers subordinate to him subject to the condition that the Governor shall act in accordance with the advice of the Board of Ministers except where he is required under the Constitution to exercise his functions in his discretion.

Judicial Power

The following Judicial powers are devolved to the High Court of the Province:

1. The exercise of original criminal jurisdiction of the High Court of Sri Lanka in respect of offences committed within the province.
2. The exercise of appellate and revisionary jurisdiction in respect of convictions, sentences and orders entered or imposed by Magistrate's Courts and Primary Courts within the province.
3. The exercise of such other jurisdiction and powers as Parliament by law may from time to time provide.
4. The issue of writs of Habeas Corpus in respect of persons illegally detained within the province and writs of certiorari, prohibition, *procedendo*, *mandamus* and *quo warranto* against any person exercising within the Province and any power under any law or any statute made by the Provincial Council.

Local authorities, their powers and duties

The Local authorities for the purpose of local administration are divided into Municipal councils, Urban councils and Pradeshiya sabhas according to the size of the population. However, the constitutions form and structure of local authorities shall be determined by law. Local Government Authorities in Sri Lanka have been created with a mandate to provide services to the residents for their comfort, convenience and welfare. They have been functioning more as service providers than mainstream development.

Rural Local Authorities have been empowered to conduct research into agriculture and animal husbandry and establish farms for this purpose. Although Local Authorities do not get directly engaged in economic development, activities, they can provide the infrastructure facilities required for agricultural, industrial and commercial activities. In rural areas, agricultural development as well as industry are facilitated by local authorities providing good roads, water , electricity etc.

The details of the local authorities in the country and the administrative divisions are given in the following map.

1.3 Industrial and Agricultural Sectors

The importance of both the industrial and agricultural sector to the country's economic development is described with the help of relevant tables. The industrial sector is basically categorized into two sectors, Manufacturing and Mining & Extraction. The details of agricultural production are given separately by regions and crops.

Table 1.D: Overview of the Industrial and Agricultural Sectors

Sector	Major Products in each Sector	Contribution to the Gross Domestic Product (%)	Number of Employees
Industrial			
Manufacturing Sector	Food, Beverages & Tobacco, Textile, Wearing Apparel and Leather Products, Wood and Wood products, Paper & Paper products Printing and Publishing, Chemicals, Petroleum, Coal, Rubber and Plastic Products	24.6	1013216
Mining and Extraction	Gem, Graphite, Mineral sands	1.9	77845
Agricultural Sector	Tea, Rubber, Coconut, Paddy	19.4	2290026

Source : Central Bank Report -2001

1.3.1 Structure of the Manufacturing Sector

The number of industries, employment and investment details are given for both industries registered with the Ministry of Industries and Board of Investment of Sri Lanka.

Table 1.E: Structure of the Manufacturing Sector

Registered Industries in operation under the Ministry of Enterprises Development, Industrial Policy and Investment Promotion by major manufacturing sectors (As at end of December 2001)

Sector	No of firms in Operation	%	No of employees	%	Total investment (Rs MN)	%
Food, Beverages & Tobacco	178	11.1	34,153	12.2	25,774	22.3
Textile, Wearing Apparel & Leather	440	27.4	127,304	45.4	21,172	18.3
Wood, Wood Products & Furniture	35	2.2	7,252	2.6	2,090	1.8
Paper Products, Printing & Publishing	109	6.8	16,723	6.0	5,630	4.9
Chemicals, Petroleum, Rubber & Plastic	370	23.1	46,662	16.7	30,138	26.0
Non-metallic Mineral Products	81	5.0	16,589	5.9	13,325	11.5
Basic Metal Industries	35	2.2	4,124	1.5	3,412	2.9
Fabricated Metal Products	275	17.1	19,468	6.9	9,755	8.4
Other Manufacturing Industries	82	5.1	7,950	2.8	4,464	3.9
Total	**1605**	**100.0**	**280,225**	**100.0**	**115,760**	**100.0**

Source: Ministry of Enterprises Development, Industrial Policy and Investment Promotion – 2001

Table 1.F: Registered Industries in Operation by Scale – as at end of Dec 2001

Investment (Rs MN)	Category	No of Registered industries	%	No of employees	%
0<Invest<2	Micro	577	35.9	193,075	68.9
2<Invest<10	Small	146	9.1	22,978	8.2
10<Invest<20	Medium	433	27.0	36,429	13.9
20<Invest	Large	449	28.0	27,743	9.9
Total		1,605	100.0	280,225	100.0

Source: Ministry of Enterprises Development, Industrial Policy and Investment Promotion - 2001

Table 1.G: Registered Industries in operation under the Board of Investment by major manufacturing sectors (As at end of November 2002)

Sector	No of projects in Operation	No of employees	Total investment (Rs MN)
Food, Beverages & Tobacco	157	40,495	19,895.214
Textile, Wearing Apparel & Leather	365	205,010	49.680.811
Wood, Wood Products & Furniture	27	5,265	2,435.898
Paper Products, Printing & Publishing	22	2,371	852.418
Chemicals, Petroleum, Rubber & Plastic	142	44,282	14,429.757
Non-metallic Mineral Products	101	20,081	11,678.549
Services & Horticulture	538	54,928	131,014.873
Fabricated Metal Products	60	11,094	7,902.924
Manufactured products	198	50,471	13,437.114
Total	1,610	433,997	251,327.558

Source : Board of Investment

Table 1.H: Breakdown of Agricultural Production Extent by Regions

District	Tea (ha)	Rubber (ha)	Coconut (ha)
	1994	1998	Total area (including scattered trees) 1993
Sri Lanka	**188,966**	**158,672**	**443,952**
Colombo	74	10,141	9,147
Gampaha	-	4,912	56,751
Kalutara	4,036	41,375	12,754
Kandy	23,391	2,108	9,418
Matale	4,025	2,520	11,889
Nuwara Eliya	51,906	-	1,040
Galle	20,625	11,211	12,880
Matara	20,010	5,330	16,123
Hambantota	306	23	23,199
Jaffna	-	-	10,027*
Kilinochchi	-	-	
Mannar	-	-	1,181*
Vavuniya	-	-	425*
Mullaitivu	-	-	2,205*
Batticaloa	-	-	4,091*
Ampara	-	-	3,886*
Trincomalee	-	-	1,807*
Kurunegala	42	3,210	159,846
Puttalam	-	-	47,933
Anuradhapura	-	-	8,692
Polonnaruwa	-	-	4,707
Badulla	30,406	340	1,222
Moneragala	124	1,524	6,420
Ratnapura	28,242	30,068	16,817
Kegalle	5,779	45,910	21,492

** Based on the Census of Agriculture - 1982*
Source: Department of Census and Statistics- Statistical Abstract 2001

Table 1.I: Cultivated extent of crops

Crop	1997 (ha)	1998 (ha)	1999 (ha)
Tea	190,473	188,971	195,460
Rubber	158,200	158,672	159,097
Coconut	443,952	443,952	443,952
Cinnamon	24,360	24,510	24,570
Coffee	16,460	16,260	16,300
Cocoa	5,840	5,760	5,640
Pepper	27,030	28,050	28,230
Cardamom	4,410	4,350	4,110
Paddy			
Culti.Year Total	729,810	848,264	892,053
Maha	472,998	573,845	546,586
Yala	256,812	274,419	345,467
Kurakkan			
Cultivared Total	5,560	6,040	6,490
Maha	4,730	5,090	5,570
Yala	830	950	920
Maize			
Cultivated Total	25,790	29,790	28,900
Maha	23,820	27,530	26,820
Yala	1,970	2,260	2,080
Meneri			
Cultivated Total	200	220	160
Maha	120	120	90
Yala	80	100	70
Sorghum			
Cultivated Total	200	110	200
Maha	170	70	140
Yala	30	40	60
Green Gram			
Cultivated Total	16,640	17,510	15,370
Maha	11,680	13,490	11,710
Yala	4,960	4,020	3,660
Cowpea			
Cultivated Total	16,210	14,830	13,150
Maha	12,390	10,090	9,340
Yala	3,820	4,740	3,810

Source:Department of Census and Statistics- Statistical Abstract 2001

Table 1.J: Production of crops

	MAJOR CROPS (Hec.)				
	Paddy		**Tea**	**Rubber**	**Coconut (Million Nuts)**
	Maha[1]	**Yala[2]**			
CULTIVATED EXTENT (Hec)					
2000	549,246	328,748	188,971	157,031	443,952
2001	478,986	319,273	188,971	157,100	443,952
PRODUCTION (MT '000)					
2000	1,781	1,079	306	88	3,096
2001	1,612	1,082	295	86	2,905
COST OF PRODUCTION (Rs.)			(per kg.)	(per kg.)	(per 1000 nuts)
2000			105.88	5 1.72	3,161.79
2001			113.39	53.05	3,218.64

Source – Department of Census and Statistics-2002 statistical data Sheet
- Statistical News bulletin 2001 September

[1] Cultivation Pattern in Sri Lanka based on the rainfall, generally the period of March – May
[2] Cultivation Pattern in Sri Lanka based on the rainfall, generally the period of Sept - Dec

Table 1.K: Principal indicators of industrial activity classified by industry division – 1997

Industry division	No. of establishments (No)	Persons engaged (No)	Employees (No)	Salaries & Wages (Rs)	Value of output (Rs)	Value of input (Rs)	Value added (Rs)	Gross additions to fixed assets (Rs)
Other Mining	1,633	15,665	13,666	255,873,327	1,005,616,688	238,203,487	767,413,202	66,868,859
Food, Beverages & Tobacco	4,141	87,822	80,576	3,356,464,544	90,090,764,183	43,497,851,688	46,592,912,495	1,513,361,275
Textile, Wearing Apparel & Leather	2,918	221,649	218,654	9,670,214,567	74,197,230,731	42,465,962,041	31,731,268,690	20,005,839,320
Wood, Wood Products & Furniture	1,039	15,895	14,923	308,559,416	1,791,686,162	567,158,476	1,224,527,686	150,381,312
Paper Products, Printing & Publishing	324	16,402	16,069	1,301,195,937	7,433,936,083	4,038,710,005	3,395,226,078	232,738,877
Chemicals, Petroleum, Rubber & Plastic	969	44,444	43,455	2,540,578,957	58,002,289,186	40,122,615,221	17,879,673,965	2,140,604,203
Non-metallic Mineral Products	1,585	28,014	26,092	1,318,776,624	11,408,698,514	5,426,791,232	5,981,907,283	305,876,678
Basic Metal Industries	14	1,432	1,427	160,696,316	2,502,630,042	1,655,370,834	847,259,208	267,171,327
Metal Products, Machinery & Equipment	640	25,870	24,730	1,648,016,499	18,229,864,374	10,738,056,437	7,491,807,937	656,759,765
Other Manufacturing Industries	292	16,504	15,879	683,829,652	11,758,746,693	8,437,739,770	3,321,006,923	457,714,171
Electricity, Gas & Steam	1	14,303	14,303	1,049,915,325	17,525,000,000	1,890,508,000	15,634,492,000	1,038,000,000
Water Works & Supply	1	7,356	7,356	798,165,000	1,862,977,000	601,458,720	1,261,518,280	5,817,146,800
Total	**13,557**	**495,355**	**477,129**	**23,092,286,163**	**295,809,439,655**	**159,680,425,910**	**136,129,013,745**	**32,652,462,586**

Source: Statistical Abstract 2000- Department of census

Chapter 2 : Chemical Production, Import, Export and Use

Basic information about the existence of chemicals, through production and import, as well as basic information concerning the export and use of chemicals in the country are described under this chapter.

The past few decades have seen a transformation in Sri Lanka from a traditional agricultural based rural economy with sustainable lifestyles to a more diversified and commercialized economy trying to move away from total dependence on agriculture to solve the growing problems of unemployment and poverty. Sri Lanka's efforts at developing an industrial base could be traced back to the 1930s, when the colonial government, under strong pressure from local legislators, prepared plans for state-sponsored factories, because the private sector was considered unwilling to take on the responsibility for this type of activity. At that time, Sri Lanka's industries were mainly limited to small-scale factories processing agriculture crops such as tea, rubber and coconut and manufacturing simple products such as matches and carbonated drinks. In 1977, most of the import and export controls were eliminated and the foundation for liberalization of the economy laid. The most recent relevant Act is the (Industrial Promotion Act of No. 46 of 1990), which provides for the identification and registration of industries carried on or to be commenced. This also established regional industrial cells. Today Sri Lanka offers many benefits to investors and recognised an investor friendly country.

The Contribution of the Industrial Sector to the gross domestic product of the country is about 25 %. The manufacturing sector comprises Food, Beverages & Tobacco, Textile, Wearing Apparel and Leather Products, Wood and Wood products, Paper & Paper products Printing and Publishing, Chemicals, Petroleum, Coal, Rubber and Plastic Products.

With respect of chemicals use , the classes of chemicals to be addressed are:

- Agricultural chemicals (pesticides and fertilizers);
- Chemicals used for public health, industrial and consumer uses;
- Chemicals used in industrial processes;
- Petrochemicals, including refined petroleum products; and
- Chemicals in consumer products such as cleaning products, paints, and solvents.

Chemicals are hardly produced in Sri Lanka compared to other countries in the region. Most of the above mentioned classes of chemicals have been either imported or formulated/ repacked in Sri Lanka. According to the Central Bank report 1999, based on the monetary value of the imports of chemicals, petroleum products are ranked as first, chemicals including industrial and pesticides as second and fertilizers as third. Petroleum products are being manufactured in the country’s only refinery situated in Sapugaskanda, which is owned by the Government of Sri Lanka. The raw material for the refinery, crude oil is imported mostly from Middle East countries.

Chemical wastes are considered as hazardous wastes gazetted (No 924/13 – 1996 May 23) under the National Environmental Act. A recent study estimated that country generates 40000 MT of hazardous waste annually (*Hazardous waste management and disposal for Sri Lanka- ERM Lanka (pvt) Ltd (1996).*

Table 2.A: Chemical Imports – Year 2000

ITEM	QUANTITY (KG)	VALUE (Rs)
Chemical element	22,671,281	791,805,926
Inorganic acids and inorganic oxygen compounds of non-metals	7,905,477	219,577,286
Halogen or Sulphur compounds of non-metals	23,061,324	825,077,446
Salts and Peroxysalts of inorganic acids and metals	43,782,738	869,281,924
Hydrocarbons and their Halogenated, Sulphonated, nitrated or Nitrosated derivatives	6,429,759	345,624,575
Alcohols and their Halogenated, Sulphonated, Nitrated or Nitrosated derivatives	4,905,386	242,919,841
Phenols, Phenol alcohols, and their Halogenated, Sulphonated, nitrated or Nitrosated derivatives	246,986	54,182,822
Esters, Alcohol peroxides, Ether peroxides, Ketone peroxides, Epoxides, Acetals	457,634	49,159,224
Aldehyde function compounds	530,032	48,486,039
Ketone function compounds and Quinone function compounds	2,798,213	189,433,864
Carboxylic acids and their anhydrides, Halides, Peroxides and Peroxi acids	6,935,202	537,779,469
Esters of inorganic acids and their Halogenated, Sulphonated, Nitrated or Nitrosated derivatives	275	567,989
Nitrogen function compounds	2,926,627	497,543,558
Organo-inorganic compounds, Heterocyclic compounds, Nucleic acids and their salts, and Sulphoamides	2,015,783	660,155,507
Provitamins, vitamins and hormones	306,117	200,040,333
Glycosides and vegetable alcolides, their salts, ethers	6,595	10,329,830
Other organic compounds	117,642	176,745,904
Glands, other organs for Organother apic uses, Medicaments	9,490,131	6,239,944,200
Fertilizer	557,030,131	6,005,718,089

Tanning extracts	439,153	35,061,592
Coloring matter, prepared pigments	8,456,192	1,908,188,389
Paints and varnishes	4,863,405	987,712,494
Essential oils, perfumes, Cosmetics	3,249,005	1,478,979,263
Soap, surface active agents	4,788,675	630,012,920
Lubricating preparations, Waxes, Polishes, Candles	3,170,516	343,304,995
Casein, Albumin, Gelatin, Dextrin, Enzymes	3,313,036	669,560,927
Explosive materials	823,557	123,217,340
Polymers in primary form	124,762,365	8,039,669,974
Natural rubber	3,291,878	169,083,281
Synthetic rubber	16,851,393	1,246,960,558
Minerals	81,735,358	627,584,511
Cement	2,168,004,196	5,700,971,624
Asbestos	22,574,921	764,394,417
Mica, Felspar and other mineral substances	7,834,167	103,401,057
Natural ores, slag, ash	11,500,303	79,264,808
Coal, Coke, Peat related products	5,798,895	172,304,594
Petroleum oils and related products	2,782,682,609	43,945,832,089
Miscellaneous	3,551,457	113,143,937

Source : Customs Data Base - 2000

Table 2.B: Chemical Exports (January –June 2002)

ITEM	QUANTITY (KG)	VALUE (Rs)
Chemical elements	16,467	2,622,629
Inorganic acids and Inorganic oxygen compounds of non-metals	5,764	909,240
Halogen or Sulphur compounds of non-metals	1	8,666
Salts and Peroxysalts of inorganic acids and metals	1,071,589	19,564,271
Hydrocarbons and their Halogenated, Sulphonated, nitrated or Nitrosated derivatives	1,193	317,784
Alcohols and their Halogenated, Sulphonated, nitrated or Nitrosated derivatives	225	73,960
Phenols, Phenol alcohols, and their Halogenated, Sulphonated, nitrated or Nitrosated derivatives	32,501	1,260,763
Esters, Alcohol peroxides, Ether peroxides, Ketone Peroxides, Epoxides, Acetals	0	0
Aldehyde function compounds	0	0
Ketone function compounds and Quinone function compounds	1,166	608,250
Carboxylic acids and their anhydrides, Halides, Peroxides and Peroxi acids	516,190	15,536,344
Esters of inorganic acids and their halogenated, sulphonated, nitrated or nitrosated derivatives	0	0
Nitrogen function compounds	3,624	1,061,499
Organo-inorganic compounds, Heterocyclic compounds, Nucleic acids and their salts, and Sulphoamides	63	103,184
Provitamins, vitamins and hormones	3,248	1,529,809
Glycosides and vegetable alcolides, their salts, ethers	805	532,025
Other organic compounds	165	34,699

Glands, other organs for Organotheropic uses, Medicaments	48,011	41,460,796
Fertilizer	494,954	8,127,287
Tanning extracts	13	13,531
Coloring matter, prepared pigments	107,810	12,809,477
Paints and varnishes	411,258	53,501,653
Miscellaneous	1,003	24,913

Source : Customs Data Base - 2002

Table 2.C: Petroleum Products Export and Import

Quantity Imported	**Quantity (MT)**
Crude Oil	1,191,250
Refined Products	656,967
L.P. Gas	69,001
Quantity Exported	**110,498**
Sales (Local)	
Petrol	111,588
Auto Diesel	909,606
Super Diesel	20,759
Marine Diesel	5,490
Kerosene	114,327
Furnace oil	373,724
Avtur	76,881
LP gas	72,719

Source: Central Bank Report 2000

Table 2.D: Pesticides Import and Use

Product Import	**1999 (in MT/KL)**	**2000 (in MT/KL)**
Insecticides	2,496.17	2,204.04
Weedicides	2,345.98	2,243.34
Fungicides	475.18	517.78
Fumigants	1.09	1.17
Product sales		
Insecticides	3,244.98	2347.89
Weedicides	2,872.47	2713.64
Fungicides	629.30	697.11

Source: Registrar of Pesticide

Table 2.E: Fertilizer Import & Production (MT)

Annual Fertilizer Import (MT)	**2000**	**2001***
Sulphate of Ammonia	60423	69405
Urea	326511	258807
Triple super Phosphate	44508	19968
IRP	4800	12250
Muriate of Potash	98686	71837
Kieserite	5129	4111
Zinc Sulphate	322	505
Sulphate of Potash	191	195
SPM	398	400
DAP	60	154
Others	9513	7204
Total	**550542**	**444836**
Annual Fertilizer Production (MT)	**1999**	**2000**
Production (local rock phosphate)	30258	35085
Issues	31978	35805

*Provisional data *Source: National Fertilizer Secretariat*

Table 2.F: Mining and Minerals Production (MT)

ITEM	**1998**	**1999**
1. Ilmenite	34,118	0
2. Rutile	1,930	0
3. Zircon	8,814	0
4. HI Ilmenite	3,030	0
5. Graphite	5,868	5,270
6. Epatite	36,596	30,270
7. Common salt	82,483	91,920
8. Kaolin	9.295	8,644
9. Ball clay	15,220	22,278

Source: Lanka Mineral Sands Limited
State Mining and Minerals Development Corporation
Lanka Salt Limited

Table 2.G: Estimated Hazardous Waste Details

Type of Chemical Waste	**Generation (tons/year)**
Inorganic wastes	
Inorganic acids	2,744.00
Inorganic alkalines	4,396.00
Zinc bearing wastes	8.75
Heavy metal wastes	18.75
Waste treatment sludge	271.75
Containers contaminated with inorganic materials	1.25
Solid waste contaminated with inorganic materials	1,837.50
Sub total	**10,278.00**
Organic wastes	
Oil wastes (liquid)	2,371.25
Oil wastes (semi solid)	1,237.50
Solvent wastes (Non-halogenated)	1,533.75
Solvent wastes (halogenated)	1,497.50
Waste paints, lacquers, varnish etc	255.00
Waste agro chemicals	2,857.50
Waste pharmaceuticals	210.00
Wood preservative wastes	38.75
PCB, PBB, PCT wastes	6.25
Containers contaminated with organic materials	8.75
Solid waste contaminated with organic materials	4,722.50
Sub total	**14,739.00**
Other wastes	
Asbestos wastes	117.50
Plastic/resin wastes	1,482.50
Sub total	1,600.00
Oil wastes from motor vehicles	14,000.00
Total (hazardous wastes)	**40,617.00**

Source: Hazardous waste management and disposal for Sri Lanka-ERM Lanka (pvt) Ltd(1996)

Chapter 3 : Priority Concern Related to Chemical Production, Import, Export and Use

An overview of the nature of problems associated with chemical production, trade and use and, to the extent known, the chemicals or the categories of chemicals, which are causing the concerns is provided in this chapter.

The sources of pollution with respect to chemicals are basically associated with the use of chemicals either by industries or individuals. Sri Lanka does not manufacture chemicals but import most of them. The major pollutants discharged by industrial activities include oil, phenol, chromium, lead compounds. These toxic and hazardous substances are seriously detrimental to both human beings and the environment.

In Sri Lanka, the priority concern is not only to satisfy the demands of the national economy but also to minimize their pollution effects on the environment and to human health caused by chemicals. Sri Lankan government has formulated various laws, regulations, standards and policies to strengthen environmental management. These directly or indirectly cover the production, transportation, storage, marketing, use, import and export of chemicals.

Table 3.A: Description of Problem Areas and Priority Concerns

Nature of Problem	Brief Description of Problem	Chemical(s)/ Pollutant(s)
Air pollution	Mainly due to the vehicular emissions Considerable contribution from industrial and power sector	Lead, Carbon Dioxide, Carbon Monoxide, SPM, Sulfur Dioxide
Pollution of inland waterways	Disposal of sewage and industrial wastewater are the main causes for the pollution.	Carbonaceous matters, Dyes, Heavy metals, faecal matters
Marine pollution	Dumping of waste oil from fishing boats into coastal/marine waters	Waste oil
Ground water pollution	High usage of fertilizers and pesticides in agricultural activities led to this problem	Nitrates
Soil contamination	Excessive usage of chemical fertilizer and pesticides	Pesticides
Chemical residues in food	Pesticides, Additives	
Drinking water contamination	High usage of fertilizers and pesticides in agricultural activities led to this problem	Nitrate
Hazardous waste treatment/Disposal	No common waste treatment facilities available in the country, industrialists advised to keep the wastes inside the premises	Please refer Chapter 2

	without any contamination	
Occupational health - Agriculture	Sub-lethal acute and chronic poisoning of agro-chemical due to improper handling	Pesticides
Occupational health: Industrial	Inhalation of volatile organic chemicals, metal dusts is common problem but not addressed much	Acid fumes, Toluene, Lead, Mineral Dust
Public health	Misuse of chemicals - The use of carbide, which is imported for the welding industry, in the fruit ripening and formalin in fish preservation are few examples	Use of Methanyl Yellow and Rhodamine B, which are carcinogenic substances, as food colouring, use of Carbite in fruit ripening, use of formalin in fish preservation
Chemical Accidents: Industrial	The technology & procedures currently employed by the industrial sector in the storage and handling of industrial chemicals is an area that needs improvement.	Pesticides, biocides
Chemical Accidents: transport	Vehicles used in the transport of chemicals to its destination are hardly ever checked for their roadworthiness. The railway service does not have any system to manage the transport of chemicals by trains.	Often chemical cargo is taken in passenger trains with minimum protection for the passengers from potential risks
Controlling chemical imports	In most occasions the stakeholders involving at the stage of import mainly verify the authenticity of chemicals entering the country mainly based on the accompanying documents. Qualitative examination of chemicals is carried out only if there is reason to suspect irregularities.	Eg import of Sodium dithionate. There isn't an organized system to control the inflow of low-grade environmentally problematic chemicals
Storage/ Disposal of Obsolete Chemicals	In general, handling and storage is an area not adequately addressed in the industrial sector In the medical sector, vast quantities of expired chemicals are disposed of by way of burying in selected sites (Example: Mulariyawa and	Pesticides

	Welisera) without receiving any treatment.	

Table 3.B.1: Priority Concerns Related to Chemicals with High Level of Concern

Nature of Problem	Scale of Problem	Ability to Control Problem	Availability of Statistical Data
Pollution of inland waterways	**Local**	**Medium (non point sources only)**	**Sufficient** CEA, IWMI, Research by universities
Drinking water contamination	**Local**	**Medium**	**Sufficient** NWPEA, NWS&DB (only for basic parameters)
Occupational health: Agriculture	**Local**	**Low**	**Sufficient** RoP, Universities, CEA, NWPEA
Occupational health: Industrial	**Local**	**High**	**Insufficient**
Public health	**Local**	**High**	**Insufficient**
Chemical Accidents: Industrial	**Local**	**Medium**	**Insufficient**
Controlling Pesticides imports	**Regional**	**High**	**Sufficient** RoP

Table 3.B.2: Priority Concerns Related to Chemicals with Medium Level of Concern

Nature of Problem	Scale of Problem	Ability to Control Problem	Availability of Statistical Data
Air pollution	**Local**	**Medium**	**Insufficient** Data can be accessed from CEA (ambient Air Quality)
Marine pollution	**Regional**	**Low**	**Sufficient** MPPA
Ground water pollution	**Local**	**Low**	**Insufficient**
Chemical residues in food	**Local**	**Medium**	**Insufficient**
Hazardous waste treatment/Disposal	**Local**	**Low**	**Insufficient**

Table 3.B.3: Priority Concerns Related to Chemicals with Low Level of Concern

Nature of Problem	Scale of Problem	Ability to Control Problem	Availability of Statistical Data
Soil contamination	**Local**	**Low**	**Insufficient**
Chemical Accidents: transport	**Local**	**Low**	**Insufficient**
Controlling chemical (other than Pesticides) imports	**Regional**	**Low**	**Sufficient** - Department of Customs, RoP, BOI, MID

Comments and Analysis

National priorities relating to chemical management have to be identified and explained clearly to the stakeholders. The Central Environmental Authority, which is a statutory body and which was setup under the National Environmental Act to protect and manage the environment, has taken various initiatives to mitigate pollution caused by chemicals. Some of the initiatives are yet to be implemented; a technical advisory committee was formed under the UNEP's London Guidelines Scheme on Chemicals to make decisions regarding future imports of chemicals. In 1990s, the committee identified 26 hazardous chemicals, which are imported into Sri Lanka, to be brought under import control. Other stakeholders consider chemical management as a secondary activity to their primary activities. Problems relating to chemicals are not treated with special attention. The Department of Customs plays an important role in the chemical life cycle and mechanisms to regularize inflow of chemicals to the country can effectively be applied by this Department. At present, the first priority of the Customs Department is to verify the authenticity of chemicals entering the country based on the documents that accompany the cargo, with the main objective of collecting taxes. The purpose for which each chemical is imported is not recorded under the current procedural requirements. Qualitative examination of chemicals is carried out only if there is reason to suspect irregularities.

The Department of Motor Traffic has the mandate for all transport related matters. It does not maintain any record of chemical related accidents. Hence, chemical related incidents related to transport is not taken into account.

Stakeholders who are involved with the various stages of the chemical life cycle have to address clearly their priorities related to chemical management. The CEA can take the lead role in this aspect and perform the monitoring operation with the assistance of other stakeholders.

Information on quantities of chemicals consumed in the different sectors is not recorded and monitored by any agency. The situation is the same as regards quantity of chemical waste generated and disposed of. More than 90% of chemicals are imported by the private sector. A majority of these chemicals belong to the categories of pesticides, plastics, polymers, cleaning preparations and paints. For example , in the year 2001 65 million Kg of Phthalates were imported, mainly for use in the plastic industry. Such qualitative and quantitative information pertaining to the consumption and disposal of chemicals is available with the private industry owners. However, there are no mechanisms to collect feedback data on the

environmental fate of these hazardous materials on a routine basis. Obtaining accurate information for survey studies from the private sector is also not always easy because of their general reluctance to divulge details.

Chapter 4 : Legal Instruments and Non-Regulatory Mechanisms for Managing Chemicals

This chapter gives an overview of existing legal instruments and non-regulatory mechanisms for managing chemicals, including their implementation and enforcement, and the identification of relevant strengths, weaknesses and gaps.

Chemicals are governed under a multitude of statutes. These statutes have been formulated for a variety of therefore do not have a uniform approach to all types of chemicals. Given below is a summary containing the salient points of the most important legislation relating to the sound management of chemicals followed by a critical analysis of the existing legal framework.

Table 4.A: References to Existing Legal Instruments, which address the Management of Chemicals

Legal Instrument	**Responsible Ministries or Bodies**	**Chemical Use Categories Covered**	**Objective of Legislation**	**Relevant Articles/ Provisions**
Sri Lanka Ports Authority Act No.51 of 1979 (last amended in 1992)	*Sri Lanka Ports Authority*	Dangerous Chemicals	To control the inflow of substances under the category of "Dangerous goods". Proper handling of import and export commodities	
Customs Ordinance of 1869 (last amended in 1988)	Sri Lanka Customs Department	All categories	Empowered to act upon violations pertaining to imports and exports.	
Control of pesticides Act No 30 of 1980 (amendment Act No 6 of 1994)	Registrar of pesticides	Pesticides	Control the importing, packing, labeling, storage, formulating, transport, sale and use of pesticides	All sections
Import and Export Control Act No.1 of 1969 (last amended in 1987)	Department of Imports and Controls	Hazardous Chemicals	Overall control of import and export "Controlled Substances"	
Fertilizer Act No. 68 of 1988 (with amendments)	National Fertilizer Secretariat (NFS)	Fertilizers	Control the importing, manufacturing, formulating, distributing and disposal of fertilizers	
Board Of Investment (BOI) law No.4 of 1978 (last amended in 1992)	Board of Investment (BOI)	All categories of chemicals for BOI projects	Facilitating investment projects through examination of cargo, which is imported jointly with customs dept and granting duty free imports & exports for items entitled for each enterprise.	
Industrial Promotion Act	Ministry of Industrial		Empowers the Ministry to grant	

No.46 of 1990	Development		approval/recommendation for the importation of chemicals that are restricted and under import control license.	
Petroleum Ordinance of 1969 (with amendments)	Ceylon Petroleum Cooperation	Petroleum products	Control of import, possession, transport	Section 5&6- transport and labelling
Atomic Energy Authority Act No 19 of 1969 (last amended 1990)	Atomic Energy Authority	Ionizing radiation chemicals	To control the import of ionizing chemicals	
Explosives Acts No. 21 of 1956 (last amended 1978)	Ministry of Defense/Controller of Explosives	Explosive chemicals	To control the importation, transport, sale and use of explosive substances	All sections
National Environmental Act No.47 of 1980 (last amended 2000)	The Central Environmental Authority	Industrial chemicals- all waste discharges	To protect the environment	Environmental Protection License for industry
		Hazardous chemical waste	To control hazardous waste	Hazardous waste management regulation
	Ministry of Environment	Ozone depleting substances-CFCs and halons	To ban the use of CFC	
Poisons, Opium and Dangerous Drugs Act No 12 of 1952 (last amended in 1984)	Department of Health	Poisonous chemicals & narcotics substances	To control the importation of poisonous chemicals & narcotics substances	
Cosmetics, Devices & Drugs Act No 27 of 1980	Ministry of Health	Cosmetic chemicals, pharmaceuticals	To control import, manufacture, formulation and sale of cosmetics and pharmaceuticals	All sections
Factories Ordinance No 45	Department of Labour	Industrial	Safety & welfare of workers in	Section 16-

of 1942 (last amended in 2000)		chemicals	factories	medical examination Section 23- Cleansing of vessels containing dangerous substances Section 51- removal of dust fumes Section 51(a)- precautions against asphyxiates and irritant gases Section 52- prohibits taking meals in contaminated workplace Section 55- prohibition of use of white phosphorous Section 61,62 &63- notification of industrial accidents, dangerous occurrences and industrial diseases.

Mines and Minerals Ordinance No.4 of 1973	Ministry of Industrial Development	Explosive chemicals	Health , safety and welfare of workers in mines	Section 36,37 and 38- storage of explosives , notification of explosions, and notification of serious accidents Accidents Section 48- powers to enact regulations on health, safety and welfare of workers

Legal instruments/regulations relating to import of chemicals

- **Legislation:** *Sri Lanka Ports Authority Act No.51 of 1979 (last amended in 1992)*
  Implementing Agency: *Sri Lanka Ports Authority*

This piece of legislation lays down terms and conditions relating to the entry of chemicals defined as 'Dangerous Goods' into the country. Chemicals belonging to this category are specified in the act either by name or by the physical/chemical properties. The act stipulates certain specified procedures and formalities, required by the Sri Lanka Ports Authority, to be conformed to by ships, with regard to entry/unloading of these chemicals through any of the specified ports. *(Ref: SLPA act)*

- **Legislation:** *Customs Ordinance of 1869 (last amended in 1988)*
  Implementing Agency: *Sri Lanka Customs Department*

Customs Ordinance (CO): Piece of legislation under which the Director General of Customs has been empowered to act upon violations pertaining to imports and exports.

Schedule A. is the table of duties and other levies (including the list of concessions and exceptions), comprising nomenclature of commodities or group of commodities, and rates of duties prescribed for commodities classified therein. Schedule A has been prescribed under section 10 of the CO (chapter 235)

Schedule B: A gazetted list of restrictions, bans, enactments, laws and regulations already enacted or to be enacted in future, by any agency/authority pertaining to imports and exports which are to be enforced, monitored or regulated by the DGC. Section 12 of the CO has stipulated provisions to take necessary action against such violations.

Import and Export Control Act No.1 of 1969 (last amended in 1987)
Implementing Agency: *Department of Imports and Exports Control*

This Act has introduced the 'Special Import License Scheme (SIL)' under which chemicals that come under the scheme cannot be imported without a license issued by the Controller of Imports and Exports. The license is issued on recommendations/certification given by the relevant body (Eq: Fertilizer from the Fertilizer Secretariat). On the arrival of these chemicals to the country, clearance from the Import Control Department must be obtained before the Customs Officials can release the goods to the importer. The Act has provisions for further additions to the dangerous chemicals list through gazette notifications.

- **Legislation:** *Fertilizer Act No. 68 of 1988 (with amendments)*
  Implementing Agency: *National Fertilizer Secretariat(NFS)*

This Act provides the National Fertilizer Secretariat with authority to issue licenses to importers of fertilizers and fertilizer raw materials, which is subjected to periodic renewal. The licenses are granted based upon technical advice given by the relevant

agricultural body. For items that come under 'SIL' a license from the Controller of Imports and Exports must be obtained.

Legislation: *Board Of Investment (BOI) law No.4 of 1978 (last amended in 1992)*
Implementing Agency: *Board of Investment(BOI)*

Under Section 17(1) of the BOI Act of 1978 and as amended, BOI shall have the power to grant exemptions from any law referred to in schedule B to BOI Law No 4 of 1978 and as amended or to modify or vary the application of any such laws to such enterprises in accordance with such regulations as may be made by the Minister. As such a clause to this effect can not be incorporated in the agreement which is signed between the board and the enterprise enabling to import chemical and chemical allied product on approval from the BOI, as import export control Act No 1. 1969 has not been introduced to the schedule 'B' to BOI Law.
BOI enterprise can import chemicals and equipment, which are required for operating the particular industry. After submitting the list of chemicals and equipments to the Appraisal Dept of the BOI to obtain the approval, the list of chemicals and equipment is referred to the Environment Department. Accordingly, the Environment department gives recommendations to the Investor Services Dept of BOI for clearing chemicals/equipment. In the event the list is changed, investor Services Dept advice from the Environment Dept whereupon an inquiry is held and instructions are given.

Legislation: *Control of Pesticides Act, No 30 0f 1980:2.1 Control of Pesticides (Amendment) Act, No 6 of 1994*
Implementing agency: *Registrar of Pesticides*

Under this Act all pesticides are required to be registered with the Registrar of pesticides prior to sale. Further the Act requires, prior to registration of a pesticide, a statement of the claim made by the manufacturer or producer of such pesticides as to its "Use, potency, stability in storage and the period of usage" in addition to a statement with regard to its " efficiency and crop safety supported by the results of any experimental data as evidence".
Person applying for import of a pesticide should submit all relevant data pertaining to the pesticides which include its physical and chemical properties, toxicological data, methods of analysis, etc. Before license is granted for import the container and the label is also approved.

Legislation: *Industrial Promotion Act No.46 of 1990*
Implementing Agency: *Ministry of Industrial Promotion*

This Act empowers the Ministry to grant approval/recommendation for the importation of chemicals that are restricted and under import control license.

Legislation: *Petroleum ordinance of 1969 (with amendments)*
Implementing Agency: *Ceylon Petroleum Corporation*

The act gives sole authority of importing petroleum products to the country to the Ceylon Petroleum Co-operation.

Legislation: *Atomic Energy Authority Act No 19 of 1969 (last amended 1990)*

Implementing Agency: *Atomic Energy Authority*

This Act regulates the import of radio active chemicals by empowering the Authority to grant approval/recommendations to the Controller of Imports to issue licenses for the import of such items. A complete list of ionizing radiation sources has been gazetted in the Regulations No 1 of 1999 of the Atomic Energy Authority.

Legislation: *Explosives Act No. 21 of 1956 (last amended 1978)*
Implementing Agency: *Ministry of Defense / Controller of Explosives*

This Act stipulates that The Controller of Explosives must issue a license for the importation of explosive substances. For items that come under 'SIL' a license from the Controller of Imports and Exports must be obtained.

Legislation: *National Environmental Act No.47 of 1980 (last amended 2000)*
Implementing Agency: *The Central Environmental Authority*

Gazette Extraordinary No. 850/14 of 20/12/1994 (Montreal protocol) prohibits the importation of CFCs after 1st January 2000 and Control of Transboundary Movements of Hazardous wastes and their disposal. However, CFCs that are allowed to be imported for very specific purposes are subjected to licensed control.

Legislation: *Poisons, Opium and Dangerous Drugs Act No 12 of 1952 (last amended in 1984)*
Implementing Authority: *Department of Health*

This act specifies that a license from the Director of Health Services must be obtained for the importation of specified poisonous chemicals & narcotic substances and bans the importation of particular narcotics such as heroin.

Legislation: *Veterinary Drug Control Act No 59 of 1992*
Implementing Authority: *Department of Health*

Legal instruments/regulations relating to processing, storage, disposal of chemicals

Legislation: *Industrial Promotion Act No.46 of 1990*
Implementing Agency: *Ministry of Industrial Development*

This Act gives authority to the Ministry of Industries to license industries falling under explosives, ammunition, poisons, narcotics, alcohol, dangerous drugs, toxic, hazardous and carcinogenic materials.

Legislation: *Fertilizer Act No. 68 of 1988 (with amendments)*
Implementing Agency: *National Fertilizer Secretariat (NFS)*

This Act stipulates that all manufacturers/formulators of fertilizers must obtain a license from the NFS. The Act also prohibits the distribution and disposal of adulterated fertilizers.

Legislation: *Control of Pesticides Act, No 30 0f 1980:2.1 Control of Pesticides (Amendment) Act, No 6 of 1994*
Implementing agency: *Registrar of Pesticides*

Under this Act all pesticides are required to be registered with the Registrar of pesticides prior to sale in the open market. Further the Act requires, prior to registration of a pesticide, a statement of the claim made by the manufacturer or producer of such pesticides as to its "Use, potency, stability in storage and the period of usage" in addition to a statement with regard to its " efficiency and crop safety supported by the results of any experimental data as evidence". It further requires: a statement of the composition of such pesticides, it's chemical identity , it's net weight and the identity and the amount of isomer impurities and other by products, adequate toxicological data concerning such pesticide, methods of analysis of the pesticide formulation with the results of the analysis as evidence, methods of determining the residue of such pesticide in foods and feed after application.

Legislation: *National Environmental Act No.47 of 1980 (last amended 2000)*
Implementing Agency: *The Central Environmental Authority*

This Act approaches pollution control mainly through the Environmental Protection Licensing (EPL) and the Environmental Impact Assessment (EIA) schemes. The NEA makes no distinction between pollution in general and pollution caused by chemicals' Nevertheless the standards prescribed under the NEA include impacts caused by waste generated through processes that use such chemicals. At present the EPL scheme is limited to certain activities set out under the Act. Even though the Act seems to consider cumulative impacts of discharges in practice this has not been given much relevance. The Hazardous Waste Regulations under the NEA establish an important regulatory scheme in relation to hazardous waste.

Legislation: *Board Of Investment (BOI) law No.4 of 1978 (last amended in 1992)*
Implementing Agency: *Board of Investment (BOI)*

This act grants power to the BOI to carry out Environmental Impact Assessment and issue Environment Protection Licenses for BOI projects.

Legislation: *Cosmetic Devices and Drugs Act No 27 of 1980*
Implementing Agency: *Cosmetic, Devices and Drugs Authority*

This Act specifies that all premises that manufacture, store or sell pharmaceutical products must be licensed and that all pharmaceutical products must be manufactured according to accepted standards including raw material handling. Only products that conform to such standards can be sold and distributed in the country.

Legislation: *Explosives Acts No. 21 of 1956 (amended by Act No33 of 1969, Law No 36 of 1976, Law N. 14 of 1978)*
Implementing Agency: *Ministry of Defense / Controller of Explosives*

Under this Act, it is illegal to transport, possess, use or sell explosives without permission from the Controller of Explosives.

Legislation: *Atomic Energy Authority Act No 19 of 1969 (last amended 1990)*

Implementing Agency: *Atomic Energy Authority (AEA)*

Under this Act, transport, storage, use and disposal of chemicals emitting ionizing radiation are brought under strict control. An industry or individual intending to engage in any of the activities specified in the regulation must register with the AEA. Close monitoring is done by the AEA to ensure prevention of environmental contamination to the maximum extent that is reasonably practicable. Special provisions are present with regard to burial of spent radioactive material.

Legislation: *Factories Ordinance No 45 of 1942 (last amended in 2000)*
Implementing Agency: *Department of Labour*

This Act stipulates certain safe working conditions to be implemented in factory premises in the interest of the health and safety of factory employees. The Act contains a few specific provisions relating to chemical hazards.

Legal Instruments/regulations pertaining to transport of chemicals

Legislation: *Motor Traffic Act*
Implementing Agency: *Department of Motor Traffic*

It has no specific regulations relating to the transport of chemicals.

Legislation: *Atomic Energy Authority Act No 19 of 1969 (last amended 1990)*
Implementing Agency: *Atomic Energy Authority (AEA)*

The act stipulates conditions, such as the minimum distance between the driver and the chemical container, to be adhered to during the transport of ionizing radiation chemicals. This is usually supervised by officers from the AEA.

Legislation: *Control of Pesticides Act, No 30 0f 1980:2.1 Control of Pesticides (Amendment) Act, No 6 of 1994*
Implementing agency: *Registrar of Pesticides*

Under this Act all pesticides are required to be registered with the Registrar of pesticides prior to sale. Further the Act requires, prior to registration of a pesticide, a statement of the claim made by the manufacturer or producer of such pesticides as to its "Use, potency, stability in storage and the period of usage" in addition to a statement with regard to its " efficiency and crop safety supported by the results of any experimental data as evidence".

Other relevant legal instruments

Legislation: *Workers Compensation Act No. 19 of 1934 (last amended in 1990)*
Implementing Agency: *Department of workmen compensation*

This Act specifies the liabilities of the employer in paying compensation to the employee, if he/she is injured in an occupational mishap involving chemicals.

Legislation: *Atomic Energy Authority Act No 19 of 1969 (last amended 1990)*
Implementing Agency: *Atomic Energy Authority (AEA)*

This Act (i) imposes conditions to be fulfilled by the relevant industry/user within the premises where any activity involving radio active chemicals are to be used (ii) specifies criteria to be met by workers employed (iii) specifies monitoring of the health of the workers through medical examination

Legislation: The Code of Criminal Procedure
The Public Nuisance Act gives the right to the public to take litigatory action against any of the activities mentioned in it that cause disturbances to normal public life. Public nuisances under the Code includes any trade or occupation or keeping of any goods or merchandise injurious to the health or physical comfort of the community

Non-regulatory mechanisms

In the pharmaceutical sector, traders are reluctant to accept drugs/chemicals not registered under the Cosmetics Drugs & Devices Authority. Cosmetics Drugs & Devices Authority does the surveillance for the substandard drug in the market and officially informed to avoid the purchase of such drugs.

Various quality assurance and awareness programmes conducted at different levels to educate the users of chemicals such as in fertilizers, Farmers are educated in quality of products available in the market, usage procedures, etc.

Watchdog groups have been instrumental in bringing pressure on industries that violate laws and engage in environmentally detrimental practices. One such group plans for a comprehensive five-year awareness programme, which also includes industrial chemical management.

Table 4.B: Overview of Legal Instruments to Manage Chemicals by Use Category

Category of Chemical	Import	Production	Storage	Transport	Distribution/ Marketing	Use / Handling	Disposal
Pesticides	X	X	X	X	X	X	X
Fertilizer	X	X			X		X
Industrial chemicals	X	X				X	X
Pharmaceuticals	X	X			X	X	

Table 4.C: Banned or Severely Restricted Chemicals

Name of Chemical	Level of Restriction(ban (B) or severe restriction (SR))	Details of Restriction (e.g. reason for control action, remaining allowed uses,...)
CFC 11,12,13,111,112,113,114,115,211,212,213,214,215,216,217	SR	Ozone depleting materials
Halon 1211,1301,2402	SR	
Blue Asbestos	B	Carcinogenic substance
Monocrotophos	SR	Imported only on request
Methamidophos	SR	Not imported from May 1995
Alluminium phospide	SR	Use only by trained applicators
Magnesium phosphide	SR	Use only by trained applicators
Malathion	SR	Only for malaria vector control
Mercurials	SR	Not in use
1,3- dichoropropane 2,4,5-T Aldicarb Aldrin Arsenic (arsenites and aresenates) Captafol Chlordimeform DDT Dieldrin Endrin Ethyl parathion HCH (mixed isomers) Heptachlr Leptophos Lindane Mercuric chloride Mercuricoxide Mercury Mercury chloride Methamidophos Methyi parathion Pentachlorophenol Phosphamidon Quintozen (PCNB)	B	Carcinogenic, highly toxic for mammals and Persistent in nature

Thaliun sulphate		

Source: Statistical compendium on Environmental Statistics 1998,
Department of Customs
Gazette no 1190/24- 2001 June 29
Gazette no 850/4- 1994 December 20

The list of commodities required submitting 'Special Import License Scheme (SIL) from Department of Imports and Controls is given in the Annex 8.

Comments and Analysis

There are serious shortcomings in law enforcement due to various reasons such as lack of resources. Some other outstanding areas of inadequate law enforcement are fertilizer quality control, occupational safety of industry workers and consumer protection standards

There are shortcomings in the existing legal framework for chemical management, which can easily lead to situations that could be exploited. For example accreditation/standardization methods are poor. Amending laws are lengthy procedures. Amendments to the Poison, Opium and Dangerous Drugs Ordinance to include a further 26 narcotic pre-cursors and psychotropic drugs in accordance with the relevant UN convention, to which Sri Lanka is a signatory, is held up since 1996.

Penalties imposed on violation of import control regulations are often minor and inadequate. In such cases, the violator is advised to obtain a license from the Controller of Imports and Exports. Misuse of chemicals does not even qualify as a punishable offence.

Although the Sri Lanka Standards Institute (SLSI) is mandated with formulating standards for chemicals as well as industrial effluent and monitoring the conformity to these standards, it does not have the legal authority to enforce the standards and hence has to depend on other agencies like the Central Environmental Authority.

Regular revisions to facilitate the updating of the existing list of restricted chemicals do not take place. Neither does the existing law require it. For example chemicals such as Sodium Thionamate used, as a bleaching agent should be brought under import control for specific uses only, due to the destruction it causes to the environment. There could be many more such chemicals that are used for processes other than its primary use that need to be brought under strict regulation. Hence, updating the list of chemicals under import control is an urgent need.

The one who pollutes should be the one to bear the expenses of remedying the effects of such pollution. However, this is not visible in the laws relating to industrial chemicals in Sri Lanka. In the first place, the main implementation tools are imprisonment and fine for violation of the law and cancellation of a license where a license has been issued. Imprisonment has only a deterrent value in relation to pollution and has no impact on the clean up. Fines generally do not reflect the real cost of clean up and the damage caused due to pollution, since they too are mainly deterrent in nature. The Marine Pollution Prevention Act seeks to remedy this situation by providing for Civil Liability where the damages can be assessed and valued and proven before Court. The Hazardous Waste Regulations recognize the

principle of strict liability in the event of damage and loss. However these tools are not prevalent in other statue laws of Sri Lanka.

Not many non-regulatory mechanisms are in existence for the management of chemicals. Procedures such as Round Robin testing, whereby certain uniformity in various applications/methods used by similar organizations can be achieved, is implemented in only a handful of places. It is an effective method of quality control.

Chapter 5 : Ministries, Agencies and Other Institutions Managing Chemicals

The following chapter describes and analyzes the mandates and programmes of different ministries, agencies and other governmental institutions responsible for, and concerned with, various aspects of chemicals management

A general overview of ministries, agencies and other institutions and their responsibilities and activities related to chemical management at each stage of the chemical life cycle is given in the following section. A brief description of their primary responsibilities and involvement in, specific aspects of chemicals management are also mentioned below.

Table 5.A: Involvements of Government Ministries, Agencies and Other Institutions

Stage of Life Cycle / Ministry Concerned	Related Chemicals	Import	Production	Storage	Transport	Distribution/ Marketing	Use/ Handling	Disposal
Environment	Pesticides, Industrial Chemicals, Hazardous chemicals	 X	 X	 X	 X	 X	 X	X X X
Health	Pharmaceuticals	X	X	X		X	X	
Agriculture	Pesticides, Fertilizers	X	X	X	X	X	X	
Labour	Industrial Chemicals		X				X	X
Trade/Commerce	Industrial Chemicals	X						
Industry	Industrial Chemicals	X				X		
Transport	Industrial Chemicals Pesticides, Fertilizers				X			
Interior/Civil Defense	Explosives	X		X	X	X	X	
Customs	Industrial Chemicals Pesticides, Fertilizers, Petroleum Products	X		X				
Others: Power & Energy	Petroleum products	X	X	X	X	X	X	

Table 5.B: Description of Ministerial Authorities and Mandates

	Name of the Institution	Main Function/s executed in relation to chemical management
1	Sri Lanka Ports Authority	-Unloading of chemical containers from ships and temporary storage
2	Sri Lanka Customs Department	-Enforcement of import control regulations for chemicals -Identification of the chemicals mainly for collection of taxes -Verification of Authenticity of documents and physical examination of cargo
3	Department of Motor traffic Department of Railway Ceylon Transport Board	-No particular function with regard to chemical management -No special attention -Internal Circular on hazardous substances transportation was issued
4	Department of Import and Export Control	-Control of import of restricted industrial chemicals by issuing licenses.
5	Ministry of Industrial Development	-Providing recommendations to the Controller of Imports on import matters of licensed chemicals -Providing site clearance for industries
6	Board of Investment	-Facilitation and promotion of investment projects including chemical based industries, -Granting site approval and issuing of EPL with concurrence of CEA -Environmental management as well as pollution control and monitoring of the BOI industries
7	Ministry of Defense/Controller of Explosives	-Control of explosive chemical import and usage
8	Geological Survey and Mines Bureau	-Clearance for mining sites
9	Ministry of Health - Cosmetics Drug & Devices Authority - Sri Lanka pharmaceutical Manufacturing Cooperation	 -Control of import of medical drugs / veterinary drugs -Licensing manufacturing facilities of pharmaceuticals & their products. -Import of medicinal raw materials, manufacture and distribution of medical drugs

	- State Pharmaceutical Cooperation - Medical Supplies Division - Medical Research Institute - Poison Information Center	 -Import, distribution and manufacture (of a few) medical drugs. - Gathering and providing information on chemical poisoning/ hazards
10	Ministry of Agriculture: -National Fertilizer Secretariat -Department of Agriculture -Department of Agrarian Development -Department of Export Agriculture -Registrar of Pesticides	 -Regulation of import, manufacture, formulation and distribution of fertilizer, control of fertilizer quality and monitoring of the presence of plant toxin. -Providing recommendation, sampling, quality control, training on fertilizer related matters. -Providing technical advice on fertilizer related issues & marketing of fertilizer -Development of research based fertilizer Providing technical services for the export oriented agricultural sector -Implementation of regulations of the fertilizer Act with regard to fertilizer malpractices -Conducting quality control and training programs on fertilizers -Control and regulation of pesticide import and use
11	Urban Development Authority	-Providing clearance and recommendation for industrial sites, ware houses
12	Ministry of Justice/Attorney General's department -Government Analyst Department	-Providing legal advisory services on chemical related matters -Providing analytical services for enforcement of regulations, identification of chemicals etc to the public sector Testing and quality monitoring of medical drugs and chemicals (not the raw materials)

13	Ministry of Power and Energy/Ceylon Petroleum Corporation	-Importation, processing and distribution of petroleum products
14	Ministry of Education and Higher Education	-Granting approval for the import of laboratory chemicals
15	Ministry of Environment and Natural Resources/ Central Environmental Authority	-Enforcement of environmental regulations for pollution control in the industrial sector -Policy formulation relating to hazardous chemical waste -Control of Ozone depleting substances
16	Ministry of Labour/Department of Labour	- Inspections and enforcement - Training and awareness of occupational safety and hygiene, information services - Advisory Services - Occupational Hygiene Services
17	Ministry of Science and Technology -Sri-Lanka Standards Institution (SLSI) -Industrial Technological Institute - Atomic Energy Authority	 -Developing standard analytical methods -Developing tolerance limits for industrial waste effluent -Providing analytical services for enforcement of regulations, identification of chemicals etc to both the public and private sector -Conducting research studies on environmental impacts from industrial waste -Consulting on waste disposal & treatment -Control of import, distribution, storage and use of radioactive chemicals and assessing the levels of exposure of users of radioactive materials to radiation.
18	Ministry of Plantation Industries -Tea Research Institute -Rubber Research Institute	 -Development of soil and foliar analysis results based fertilizer recommendations for plantation crops

	-Coconut Research institute -Sri Lanka Tea board -Tea Smallholdings Development Authority -Department of Tea commissioner -Department of Rubber Development -Coconut Cultivation Board	-Sampling of fertilizer for quality control -Carrying out Chemical analysis -Providing resource persons to conduct training programs -Providing advisory services on proper management of fertilizer
19	Ministry of Home affairs, Local governance and provincial councils - Local Authorities	-Registration of industries -Issuing of permits for industries to operate in the area (Trade licenses) -Issuing and Renewing of Environmental Protection licenses for low polluting industries
20	Ministry of Fisheries -MPPA	- Policy formulation relating to marine pollution - Preparation of guidelines for marine pollution control
21	-Employers Federation of Ceylon	-Disseminates information with regard to occupational and safety hazards and provides information on treating poisoned victims -Provides facilities for members to implement occupational safety measures.
22	Non-governmental organization	- Litigatory action against industry related issues - Dissemination of information to the public and industry workers

Comments and Analysis

The Customs Department is the most important point in the chemical life cycle where a mechanism to regularize inflow of chemicals to the country can effectively be applied. At present, the first priority of the Customs Department is to verify the authenticity of chemicals entering the country mainly based on the accompanying documents, with the main objective of collecting taxes. The purpose for which each chemical is imported is not recorded under the current procedural requirements. In addition, qualitative examination of chemicals is carried out only if there is reason to suspect irregularities.

The "industrial chemicals" sector is regulated by a multitude of authorities for a variety of purposes. There is very little coordination visible from an examination of the statues relating to these various authorities. This compartmentalization is even more prominent at the central level whereas at the field level some coordination may take place through grass root or field level officers. At present the relevant authorities act in isolation from each other and have their own advisory committees to advise them. The advisory committee set the stage for intermittent coordination in the areas of Environmental Acts, Hazardous waste, and Pesticides etc. Because of this situation, institutions and organizations try to handle problems under their respective area although there may be great commonalities in the subjects they are dealing with.

In the case of pesticides, the Registrar of Pesticides plays a major role in the life cycle in chemicals falling under the definition of the Pesticides Act and most activities of ROP are streamlined and well established. The importers and formulators of pesticides have to obtain approval from the ROP for a consignment of pesticides to be imported. A quality certificate of each product should be submitted by the importers to the ROP in order to cross check with the FAO specification.

Chapter 6 : Relevant Activities of Industry, Public Interest Groups and the Research Sector

The activities of non-governmental bodies and entities which support national efforts to manage chemicals are described and reviewed in this chapter.

This section provides information on relevant programmes conducted by non-governmental organizations and entities. Such organizations include:
industrial organizations and entities involved in the production, formulation, sales/marketing, import, export, transport, storage or disposal of chemicals.
universities, research institutes, private laboratories, libraries and quasi-governmental organizations
other non-governmental organizations including labour groups and community-based organizations which have an interest in the sound management of chemicals.

Table 6.A: Summary of Expertise Available Outside of Government

Field of Expertise	Research Institutes	Universities	Industries	Environment / Consumer Org	Labour Unions	Professional
Data Collection	X	X	X	X	X	X
Testing of Chemicals	X	X	X	X		X
Risk Assessment	X	X	X	X	X	X
Risk Reduction	X	X	X			X
Policy Analysis		X		X		X
Training and Education		X	X	X		X
Research on Alternatives	X	X				X
Monitoring	X	X	X	X	X	X
Enforcement						X
Information to Workers		X	X	X	X	X

NGO and public participation in the decision making process of industrial chemical management is low and hence their views are under-represented. The NGOs and citizens groups can play a very important role as pressure groups especially where violation or abuse of law by the industries and weak law enforcement by authorities are concerned. They can also be very useful in creating awareness and education at different levels if the necessary support can be provided.

Public involvement in monitoring the impact of chemicals is limited. The laws do not provide forums or opportunities where the views of the public could be sought in decision-making. Also there is no public notification procedure when new chemicals are introduced to the country.

Chapter 7 : Inter-ministerial Commissions and Coordinating Mechanisms

To describe and analyze mechanisms which facilitate co-ordination and co-operation among ministries, agencies and other relevant governmental and non-governmental bodies in particular areas of chemicals management

7.1 Inter-ministerial Commissions and Coordinating Mechanisms

The following table provides an overview of available relevant mechanisms for coordinating activities among relevant institutions. This table is an example of how information on such mechanisms can be summarized.

Table 7.A: Overview of Inter-ministerial Commissions and Coordinating Mechanisms

Name of Mechanism	Responsibilities	Secretariat	Members	Legislative Mandate/ Objective
Pesticides Technical Advisory Committee	Advise on the implementation of the control of pesticides Act No 33 of 1980	Office of the Registrar of Pesticides	From ministries of Agriculture, Health, Labour, Environment, Government Analyst's Dept, Standards Institute, experts in the field (TRI,RRI,CRI)	Control of Pesticides Act No 33 of 1980
Technical Advisory Committee on Chemicals	Preparation of inventory of chemicals; identification of hazardous chemicals; initiation of permit system	CEA	Representation from labour, health, Government Analyst's dept, CEA, universities	
Technical Advisory committee on drugs	Advise on the implementation of the cosmetics, Devices and Drugs Act	Ministry of Health	From health, pharmaceutical trade, universities, state Pharmaceuticals Corporation etc.	Cosmetics Devices and Drugs Act
Industrial safety and health advisory committee	Advise on health and safety measure under the provisions of the factories ordinance	Department of Labour	Representation from government (labour), employers and workers	Factories Ordinance
Committees on Environmental Policy and Management (CEPOM)	Update activities under various sectors related to environment	Ministry of Environment Sectoral Ministry		
Committee On Integrating Environment and development (CIEDP)	Integrate environment and development policy at the national level and thereby assist in the internationalization of environment in the sectoral and other development programmes.		Ministry of Finance, Environment	

Table 7.B: Mechanisms currently in use to monitor chemical related activates

Ministry / Institution	*Existing facilities / Committees*
Ministry of Enterprise, Development, Industrial Policy & Investment Promotion	None
Ministry of Health	Drugs & Therapeutics Committee (District, Provincial and National level) – regarding drug use problems, monitoring of adverse reactions, approval for new products. Staff meetings Technical Advisory Committee on Drugs –deals with any problems that arise when registering new drugs, monitoring of adverse reactions etc.
Ministry of Economic Reform, Science & Technology	None
Ministry of Policy Development & Implementations	Sectoral monitoring committee- to monitor government sector projects and programmes in agriculture, industries, human resource development, infra-structure and regional development with the participation of the private sector, civil organizations and universities.
CEA	H & M committee – involved in siting of industries Basel Technical Committee Joint inspections committee of CEA & BOI, the report of which is forwarded to the H & M Committee National Coordinating Committee for Hazardous Waste National Coordinating Committee for Persistent Organic Pollutants
National Fertilizer Secretariat	None
Registrar of Pesticides / Ministry of Agriculture & Livestock	(a) Pesticide Technical Advisory Committee – deals with policy decision regarding pesticides related to implementation ie. Banning of items, issuing of recommendations for licences for import, technical data etc.
Department of Labour	Industrial Health and Safety advisory committee
Dept. of Customs	(a) Nomenclature committee (Not specific to chemicals management)
Dept of Motor Traffic	N/A
National Dangerous Drug Control Board	None
SLSI	Laboratory division staff meetings Technical Advisory Committees (Standardization Division) – deals with the formulation of standards . specifications on finished products, methods of testing of these products and Codes of practice. Internal audits – regarding disposal of unused chemical
ITI	Chemical management systems ie. A will document system for handling and storing chemicals, setting up of standard procedures to collect chemical water generated in the ITI to be forwarded for proper disposal, providing technical reports to clients on suitable chemical handling and disposal methods

	Staff meetings (not specific to chemicals management activities)
Industries (large and multinationals)	Safety Committee – comprising all senior managers. Decisions regarding occupational health of employees.
CPC/Oil refinery	(a) Committee – involved in control of chemical usage

Control of Pesticides (COP) Act requires that pesticides cause minimal adverse effects through recommended use. The Registrar of Pesticides, as the licensing authority is entrusted with the responsibility of assuring safety to the environment. The Registrar is advised on all related technical and policy aspects of the enforcement of the Act by the Technical and Advisory committee (PeTAC) appointed by the Minister of Agriculture under the provision of the Act. Setting up standards and guidelines on import and use of pesticides emanates from the authority vested in the PeTAC under the pesticide Act. This committee consists of fifteen members; ten of them participate in an ex officio capacity and the remaining five are experts in the field. Policy matters as well as technical issues related to the environment are coordinated with the other authorities through the ex-officio member who represents CEA. Acceptable conditions and levels under which pesticides could be used in the country are decided at policy level in the committee and specific control measures required in order to protect the environment, are also drawn up.

Technical resources of organizations such as the Government Analyst, Industrial Technology Institute, Sri Lanka Standards Institute, National Building Research Organization and crop research institutes, are prepared to extend analytical services to the industry. The services of most of these organizations are available to outside agencies both in the public and private sector. Sri Lanka Standards Institute is mainly geared towards the formulation of standards.

In some of the export-oriented industries such as apparel sector, the client sets the standards. Large multi-nationals follow the safety regulations imposed by their parent company. These standards are more stringent than the local standards.

The list of contact details of following relevant non-governmental organizations (research institutes, universities, industrial organizations, labour unions and community-based organizations (e.g., environmental/consumer/women's groups) is given in the Annex 9.

Chapter 8 : Data Access and Use

This chapter provides an overview of the availability of data for chemicals management and the related infrastructure, and analyzes how information is used for national and local chemical risk reduction

This section provides the nature of national data available relating to chemicals management, and provides practical information on how to gain access to such data. Also, the location and the source of the data, who has access to the data and the form in which they are maintained etc. (e.g., automated database, paper files, register, etc.) are briefly mentioned in the following tables.

Table 8.A: Location of National Data

Type of Data	Location	Data Source	Who has access	How to gain access? (State any limitations on access)	Format (automated database, paper files, register, etc.).
Production Statistics	Central Bank of Sri Lanka Department of Census and Statistics	Annual Report Annual Report	Anyone Anyone	On request (purchase) and Web site	Published Document and Portable Document Format (PDF)
Import Statistics	Customs, Export Development Board	Computerized	Anyone	On request (purchase)	Computerized database classified according to HS code
Inventory of Existing Chemicals	CEA	Inventory of Chemicals	Reputed users	On request	Computerized database
Export Statistics	Customs Export Development Board	Computerized	Anyone	On request (purchase)	Computerized database classified according to HS code
Chemical Use Statistics	CEA (Limited Information) BOI (Limited Information)	Environment Protection License Application forms	Officials from the authorities	Confidential	Paper files
Industrial Accident Reports	Department of Labour	Information from Industries	Reputed users	On request	Paper Files Classified according to cause, agent, type of industries and nature of injury
Transport Accident Reports	(Very limited) Sri Lankan Railways Ceylon Petroleum Corporation	Accidents that have occurred during transport	Officials from the authorities	Confidential	Paper files
Occupational Health Data	Department of labour	By notification and research	Anyone	On request	Published documents

(agricultural)					
Occupational Health Data (industrial)	Department of labour	By notification and research	Anyone	On request	Published documents
Poisoning Statistics	Ministry of Health Sri Lanka Police	Medical statistician's records on in-patient statistics Police report/ statement	Reputed users Reputed Users	On request On request	Record books Paper Files
Pollutant Release and Transfer Register	CEA	Industrial database	Confidential	Confidential	Record books
Hazardous Waste Data	CEA	Hazardous waste survey (1996)	CEA; reputed users	On request	Computerized database
Register of Pesticides	Registrar of Pesticides	Computerized database	Reputed users	On request	Computerized database classified according to toxicity class, chemical group and use
Register of Toxic Chemicals	CEA	Inventory of toxic chemicals	Reputed users	On request	List
Register of Imports	Customs	Computerized database	Reputed users	On request	Computerized database
Register of Producers	CEA Ministry of Industry	Industrial database Request from Industries	CEA MID	Confidential Confidential	Paper Files Paper Files
PIC Decisions	CEA RoP	Only for Industrial Chemicals Pesticides	CEA Reputed users	On request	

Table 8.C: Availability of International Literature

Literature	Location(s)	Who has access?	How to gain access
Environmental Health Criteria Documents (WHO)	SLSI Colombo Medical Faculty	Anyone	By using library facilities
Health and Safety Guides (WHO)	SLSI Colombo Medical Faculty	Anyone	By using library facilities
International Chemical Safety Data Cards (IPCS/EC)	Department of labour Employer's Federation of Ceylon	Anyone Only the members	Upon request
Decision Guidance Documents for PIC Chemicals (FAO/UNEP)	SLSI RoP	Anyone	By using library facilities
FAO/WHO Pesticides Safety Data Sheets	RoP	Reputed users	Upon request
Documents from the FAO/WHO Joint Meeting on Pesticide Residues	Registrar of pesticides	Reputed users	Upon request
Material Safety Data Sheets (industry) MSDS(Pesticides)	Department of Labor Department of Customs Industries RoP	Reputed users In-house staff Anyone	 Internal use
Good Laboratory Practice Principles	ITI CEA SLSI	Anyone	Internal use
OECD Guidelines for the Testing of chemicals	ITI CEA SLSI	Anyone	Internal use

Table 8.D: Availability of International Databases

Literature	Location(s)	Who has access?	How to gain access
IRPTC	CEA	Authorized persons	By written request
ILO CIS	Department of Labour	Anyone	Upon request
Asia-OSH information database	Division of occupational Hygiene of Department of Labour EFC	Reputed Users Members	Upon request
IPCS INTOX	Department of Labour	Anyone	

Statistical data of chemicals, in relation to different stages of the life cycle, are largely scattered and non-uniform. For example import statistics of chemicals are available with several agencies but are fragmented and recorded in different formats that have no resemblance to one another. There is no central database that stores information on volumes and types of all the chemicals imported, used and disposed of by various industries at a given time. This system has little value in terms of monitoring and inspection for better management of chemicals.

The industries play a major role in import and usage of chemicals. Apart from the suppliers who only import and supply chemicals, most of the industries directly import whatever chemicals they require for their manufacturing process. The list of major importers of chemicals with the quantity, and the type of importers i.e. whether industry, supplier or research institutes is given in the Annex 1.

Chapter 9 : Technical Infrastructure

To provide an overview of the technical infrastructure in the country related to the management of chemicals

Table 9.A: Overview of Laboratory Infrastructure for Regulatory Chemical Analysis

Name of the Institute	Available Instruments
Industrial Technology Institute- Chemical & Environment Technology Division	1. GCMS,GC with ECD/NPD, Micro GC and GC Purge and Trap and Thermal Desorber 2. HPLC 3. Supercritical Fluid Extractor 4. Pilot Plant equipment- ion exchange column, activated carbon column, UV sterilizer, Ozone generator, RO plant, DAF unit, anaerobic and aerobic digesters, centrifugal separators, filter press, granular media filter 5. AAS with Flame Graphite furnace 6. Capillary Electrophoresis system 7. TOC analyzer 8. FT-IR 9. Ozone Resistance Tester 10. X-Ray Difractometer 11. Scanning Electron Microscope 12. Differential thermal analyzer
Labour Department- Occupational & Hygiene Division	*Atomic Absorption Spectrophotometer*
	Gas Chromatography Air Samplers
	UV spectrophotometer
Government Analyst Department	Basic laboratory facilities AAS Flame photometer GC –3 numbers Polarimeter HPLC
Sri Lanka Customs	Basic laboratory facilities FTIR UV-Visible spectrophotometer AAS FPLC GLC
Board of Investment	Basic laboratory facilities AAS UV/Visible Spectrophotometer COD Reactor BOD Manometer

CEA Laboratory	AAS Microwave Sample Digester for Samples preparations TOC analyzer (solid/liquid) UV-Vis spectrophotometer HPLC Ion Chromatograph Portable water quality checker (for pH/ temp/ Conductivity/ Turbidity/Do & salinity) COD analyzer BOD analyzer
Office of Registrar of pesticides laboratory	GC HPLC

Name/Description of Laboratory	Accreditation (if yes, by whom?)	Are there any national programs to improve the quality and quantity of the relevant laboratories
ITI		Under UNIDO programme a total of 4 officers received training in UK in the areas of 'Microbiology', 'trace element analysis' and pesticide residue analysis'.
i. Chemical and Environmental Technology Division	For common Water and wastewater parameters by ASTEL ISO17025 accreditation by SWEDAC for above is heavy metals & residues	UNIDO provide support to the CETD and AFTD laboratories to upgrade their facilities to international status with provision of training equipment and consultants, enabling this to offers SWEDAC accreditation in 2002 assistance is now being provided to the calibration laboratory & rubber and plastics laboratory for the same.
ii. Agro and Food technology division	Chemical analysis by ASTEL Microbiological analysis by SWEDAC	

The technical capacity of the Customs Department is mainly geared towards performing classification-oriented analyses to detect discrepancies between what is declared and what is actually imported. Sampling and testing of chemicals are carried out only if there is reason to suspect authenticity of the declaration. The Customs Department has a basic laboratory to carry out sample analysis. Where, expert opinion and more sophisticated analysis are needed, the Department consults external agencies such as the Industrial Technology Institute, Govt.Analyst..etc for such services. The Sri Lanka Ports Authority has a few technical officers to handle chemical related matters. It does not have a laboratory facility.

Regulatory bodies such as the Ministry of Industries, Department of Import and Export Control perform mainly an administrative function and hence do not have technical staff.

The technical capacity of other regulatory bodies are as follows

- The BOI has an Environment Department that is complete with analytical facilities. The Department has a technically qualified staff on environmental matters and gives recommendations on chemicals to be imported. It carries out Environmental Impact Assessments and grants Environment Protection Licenses for BOI ventures.

- The National Fertilizer Secretariat consists of qualified staff in the agricultural field and in addition to the in-house technical expertise, it receives technical inputs from agricultural bodies such as the Department of Agriculture, agricultural research institues..etc in cases where in-house analytical facilities are not adequate.

- The Cosmetics Devices and Drugs Authority has a Technical Committee that advises it on import of medicinal and pharmaceutical products. The National Drug Quality Assurance Laboratory has the capability to test drugs and chemicals for their identity and quality.

- The Ministry of Labour has a well-equipped laboratory and technical experts in the Occupational Hygiene Division. Its services are engaged for environmental and biological monitoring.

- The Central Environmental Authority has a Technical Advisory Committee on chemicals that gives various technical recommendations on industrial chemical management. In addition, the CEA has a separate division for environmental pollution control and an analytical laboratory mainly for monitoring purposes.

Most of the large-scale private sector manufacturers using chemical raw materials have a basic laboratory service mainly for quality assurance and technical staff to carry out the required functions. The Ceylon Petroleum Cooperation and other multinationals in the field of gas and lubricant oil have their own testing facility and personnel to carry out the functions necessary for them (Ex: boiling point measurements).

Technical resources of organizations such as the Government Analyst, Industrial Technology Institute (chemical and environment technology unit), Sri Lanka Standards Institute, National Building Research Organization, crop research institutes, are available to extend analytical, detection, and monitoring services to the industry. The services of most of these organizations are available to outside agencies both in the public and private sector. Sri Lanka Standards Institute is mainly geared towards the formulation of standards.

The list of Scientific Instruments and available organizations are given in Annex 7.

Chapter 10 : International Linkages

Under this chapter national participation and involvement in international organizations and agreements concerned with the management of chemicals are described and opportunities are identified for an integrated approach at the national level

Table 10.A: Membership in International Organizations, Programmes and Bodies

International Organization/Body/ Activity	National Focal Point (Ministry/Agency & Primary Contact Point)	Other Ministries/ Agencies Involved	Related National Activities
UNEP IRPTC - National Correspondent IE/PAC - Cleaner Production Center	Ministry of Enterprise Development	Ministry of Finance and Planning SMED of the FCCISL	To contribute to sustainable economic growth in Sri Lanka
WHO	Ministry of Health		
FAO	Ministry of Agriculture	Ministry of Health	Control of pesticides, Food safety
UNIDO	Ministry of Industrial Development		Industrial and Agricultural Chemical safety
ILO	Ministry of labour	Employer organizations and trade unions	Chemical safety in industry, worker education
World Bank	Ministry of Finance	Ministry of Environment	Preparation of National Environmental Action plan and implementation

Table 10.B: Participation in International Agreements/Procedures relating to Chemicals Management

International Agreements	Primary Responsible Agency	Relevant National Implementation Activities 2
Agenda 21 - Commission for Sustainable Development	Ministry of Environment	
UNEP London Guidelines (Voluntary procedure) 1	CEA	Control of industrial chemicals
FAO Code of Conduct (Voluntary procedure) 1	Department of Agriculture	
Montreal Protocol	Ministry of Environment	Phasing out CFCs; Licence for import of ODSs
Radiation Protection Convention, 1960 (No. 115)	Ministry of Labour	
UNFCC	Ministry of Environment	
UN Recommendation for the Transport of Dangerous Goods		
Basel Convention	Ministry of Environment CEA- Competent authority	Control of transboundary movement of hazardous waste
GATT/WTO agreements (Related to chemicals trade)	Ministry of Trade	
Chemicals Weapon Convention	Ministry of Defense	
Stockholm convention	Ministry of Environment	To phase out persistent organic pollutants Preparation of National implementation plan
Benzene convention	Department of Labour	

Table 10.C: Participation as Recipient in Relevant Technical Assistance Projects

Name of Project	International/Bilateral Donor Agency Involved	National Contact Point	Relevant Activities
EA1P	World Bank	Ministry of Environment	Preparation of National Environmental Action Plan
Preparation of National Implementation Plan for the for the control of POPs	UNEP	Ministry of Environment	Capacity building
Developing and Sustaining an Integrated National Programme for The Sound Management of Chemicals	UNITAR	CEA	• Preparing Industrial Chemical management Strategy • Monitoring Programme for Pesticides, including residues • Developing a system for chemical hazard communication • Financial resources mobilization strategy for the sound management of chemicals • Interministrial Information Exchange for the Sound management of Chemicals • Interministerial Co-ordination for the Sound management of chemicals • Updating of National Chemical Profile, Sri Lanka
Control of Transboundary Movements of Hazardous wastes and their disposal	UNEP(Secretariat of Basel)	Ministry of Environment Competent Authority – CEA	Controlling PCB
Sri Lanka National Cleaner production Center	UNIDO	Ministry of Industry	To increase the eco-efficiency of industry
RoP	Stockholm covention	Ministry of Environment CEA RoP	
PTS	Stockholm covention	Ministry of Environment CEA RoP	

Chapter 11 : Awareness/Understanding of Workers and the Public

To provide an overview of the mechanisms available to provide information to workers and to the public concerning the potential risks associated with chemical production, import, export, handling, use and disposal

In general the level of awareness among workers in the industries about hazards of chemicals and proper procedures of handling chemicals is low. Small and medium companies in the private sector give little attention to training and educating their workers in hazardous chemical handling.

The level of awareness among the workers of the Sri Lanka Ports Authority and Customs Department who are directly involved in the handling of chemical cargo is low. Safety precautions to avoid chemical mishandling are neglected mainly due to ignorance of the dangers involved. The Ports Authority arranges awareness programs for their workers. The focus is mainly on health and safety but also includes a module on dangerous chemical handling. Cases of fatalities have been reported where workers have consumed alcoholic chemicals not suitable for human consumption.

Awareness among drivers and their assistants about possible chemical hazards involved during transport and distribution is very poor, both in the public and the private sector. The Sri Lanka Transport Board has circulated general guidelines to the depots on transport of hazardous goods. Implementation of these guidelines is almost zero. Even department officials do not seem to be fully aware of these guidelines.

Some multi national companies conduct awareness programs to their workers as required by the parent company or to satisfy the client.

In general, the level of awareness of the public is very low. This is amply demonstrated by the statistics of cases of accidental and deliberate poisoning brought to the medical emergency services everyday. Public awareness also has special implications for people living in the vicinity of manufacturing, processing or mixing plants of chemicals that could be subjected to gradual poisoning over a long period of time. Not many organizations are actively creating public awareness as regards chemical hazards. However, the Poison Information Center of the Department of Health, which is open to the public, plays a vital role in disseminating information to the people and has carried out awareness campaigns in the past. It also provides information through seminars and workshops for professionals in the medical field on handling poison cases.

The Ministry of Labour conducts awareness programmes on occupational safety through training programmes, exhibitions, seminars, safety week etc. These programs are directed towards the industry and trade unions. Information services also provided through a fully equipped laboratory.

In the academic sector some professional organizations organizes seminars on chemical management. The audience here consists of mostly professionals and hence the information stays only with a small group of stakeholders.

Chapter 12 : Resources Available and Needed for Chemicals Management

This chapter provides an overview of resources available within government relating to various aspects of chemicals management (including human and financial resources) and to analyse resource needs

Number of stakeholders are involved in the management of chemicals at every stage of chemical life cycle. Personnel involved in the management of chemicals should have better knowledge of chemicals with respect to its life cycle. At the inception of import, the Department of Customs plays an important role. The following figure briefly explains the involvement of stakeholders at the different level of chemical life cycle in Sri Lanka. The stakeholders mentioned in the rectangles are directly involved and others indirectly.

Technical competency in terms of expertise as well as infrastructure makes up an important component within the framework for chemical management. Technical capacities in most of the organizations are affected by factors such as human resource deficiencies, lack of modern technology and lack of financial resources. These reasons are contributory to

- Lack of facilities for testing and verification of the chemicals
- Lack of monitoring network to identify the fate of chemicals (especially dangerous chemicals) once they are removed from the Customs
- Increase use of cheap substitutes in the various sectors
- Poorly managed information related to chemicals
- Poor developments in research areas such as environmental persistence, bioaccumulation and health impacts of chemicals.

At present chemical management activities in Sri Lanka are carried out by various stakeholders with limited financial and technical assets. The existing resources available for chemical management can be briefly classified as follows ;

- The existing legal instruments which makes up a comprehensive regulatory framework for chemical management
- Available information and statistics on chemical imports, use and disposal with different agencies
- The existing control over hazardous chemicals and monitoring (EPL system, EIA etc)
- Availability of standards for water effluent & air emission to control pollution
- Technical expertise and analytical capabilities of the R&D institutions
- Capacity and experience of institutions such as the CEA in pollution control

For a better management of chemicals, Sri Lanka needs both financial and technical assistance in order to strengthen and develop the existing framework in various stakeholders.

Table 12.A: Available Technical Specialties at Universities & Research Institutions in Sri Lanka

University / Research Institutions	***Department / Division***	***Specialty (ies)***
Coconut Research Institute (CRI)	Agronomy	Weed Management
		Soil, Water
		Chemical Synthesis
	Crop Protection	Chemical Synthesis
		Chemical Synthesis Insect Breeding
		Insect Pathological Technique Insect Breeding
		Insect Breeding Baculovirus Breeding
		Nematological/Pathological Techniques
		Pathological Techniques Insect Breeding
	Genetics & Plant Breeding	Pollen Processing & Pollination of Coconut Palms
		Plant DNA Extraction & Carrying out PRC
		Collection & Collation of Data
		Establishment & Management of Coconut Field Experiments
		Pollen Processing & Pollination of Coconut Palms
		Establishment & Management of Coconut Field Experiments
		Management of Coconut Nurseries
		Pollen Processing & Pollination of Coconut Palms
		Management of Coconut Nurseries
	Plant Physiology	Anatomical Studies of Coconut Leaves &
		Bio Chemical Analysis of Coconut Leaves and toddy
		Water related Studies of Coconut
		Coconut Based Intercropping
		Handling of Radio Isotopes
		Column & Thin Layer Chromatography
		Electrophorosis Analysis
		Carrying out the Experiments to Determine the Activity of ABA in Coconut
		Plant Water Relations
		Water Relations Studies of Coconut
		Bio Chemical Analysis of Coconut Leaves and Toddy
	Plant Tissue Culture	Plant Tissue Culture Techniques
		Plant Tissue Culture Techniques
		Plant Microtechniques
	Soils & Plant Nutrition	Chemical Analysis
		Chemical & Microbiological Analysis
		Pertaining to leaf & Soils
		Irrigation Chemical Analysis
		Analysis of Physical properties

University / Research Institutions	***Department / Division***	***Specialty (ies)***
Department of export agriculture		Tissue Culture
		Soil Science
		Agronomy
		Post Harvest Technology
		Agronomy & Post Harvest Tech
		Plant Pathology
		Entomology
		Plant Breeding
Field Crop Research & Development Institute - Mahailluppallama		Agriculture
Horticulture Research & Development Institute		Tissue Culture
		Analysis of Agriculture Materials
	Agricultural Chemistry	Soil, Plant & Water Analysis
	Hort, Res. Farm	Fruit Crop Production
		Extension
		Lab Experiment Work
		Tomato Breeding Work
	Plant Pathology & Mushroom	Bacteriology
		Plant pathology
		Virology
Industrial Technology Institute	Agro & Food Technology	Techniques in Microbiology
		Techniques in Post Harvest Technology
		Physico Chemical Analysis
		Techniques in pathology
		Cereal Processing
		Essential Oils
		Development of & Food Based Products
		Analysis of Food & Agro Based Products
		Food Science & Technology
		Fertilizer Animal Feed Soil Science
	Metrology Instrumentation Unit	Metrology, Noise measurement, Instrument repair
	Chemical & Environmental Technology	Chemical Analysis & waste Disposal
	Material Technology	Bamboo Preservation
University / Research Institutions	*Department / Division*	*Specialty (ies)*
		Latex Testing
		Adhesives wood Component Products
		Non-Destructive Testing
		Building Materials
		Rubber Technology
		Plastics
		Minerals
Medical Research	Animal Centre	Rabies Research Quality Control of Vaccines

Institute		
		Animal Experimental Technique
	Bacteriology	Medical Laboratory Technology
		Clinical Biochemistry
		Routine Clinical Chemistry
		Quality Control Techniques is Clinical Chemistry
	Entomology	Entomology
	Natural Products	Clinical Laboratory Investigations
	Chemistry	Chromatography Techniques
National Building Research Organization	Building Materials	Testing of Building Materials
		Non Destructive Testing of Concrete Structures
		Testing of Building Materials
	Environmental	Air Quality
		Water Quality
	Geotechnical	Geotechnical work
National Engineering Research & Development Centre	Renewable Energy	Bio Gas Technology
Plant Genetic Resources Centre	Exploration	Genetic Resources Conservation
	Tissue Culture & Biotechnology	Germplasm Conservation
		Tissue Culture
		Gene Transformation
		Gene Cloning
		Isozyme Analysis
		DNA Fingerprinting
		Microsatellite
Regional Agricultural Research & Development Centres	Soil & Plant Analysis	Spectrophotometer
		Flame Analyser
	Entomology	General Laboratory Equipment
		Soil Science
		Agriculture
	Agronomy	Rice Activity
		Root & Tuber Crops Activity
		Field Crops
		Agronomy
		Meteorology
University / Research Institutions	*Department / Division*	*Specialty (ies)*
		Rice Activity
		Vegetable Activity
	Horticulture	Fruits
		Rice Activity
	Soil Science	Soil Science
		Laboratory Technology
Rice Processing Research & Development Centre		Laboratory Technology

Rubber Research Institute	Biotechnology & Physiology	Waste Water Treatment
		Biochemistry
		Environmental Engineering
	Biometry	Rubber Technology
		Computer Science
	Polymer Chemistry	Rubber Technology
		Latex & Dry Rubber Technology Polymer Chemistry
	Raw Rubber & Chemical Analytical	Analytical
	Rubber Technology & Development	Latex & Dry Rubber Technology
	Soils & Plant Nutrition	Analysis
		Agronomy
		Soil Chemistry
		Agriculture
Sugarcane Research Institute	Chemistry	Soil & plant Science
	Engineering	Agro-Meteorology
		Soil Physical Proportion
	Microbiology	Microbiology
Tea Research Institute (TRI)	Biochemistry	Analytical Chemistry
		Molecular Biology
	Biochemistry	Analytical Chemistry
		Gas Chromotography
	Biochemistry	Chemistry
	Plant Propagation & Breeding	Development of Clones
		Identification of Clones
		Tissue culture
	Soil & Pant Nutrition Technology	Analytical Chemistry
		Chemistry Technology
Veterinary Research Institute (VRI)	-	Agriculture & Poultry
	Animal Breeding	Laboratory Technology
	Animal Nutrition	Feed Tissues & Blood Sample Analysis
	Bacteriology	New Castle Disease Vaccine Production
	Pathology	Histopathology
University / Research Institutions	*Department / Division*	*Specialty (ies)*
University of Colombo (UOC)		
Faculty of Medicine	Biochemistry	Radio Immune Assay
		Gene Cloning
	Biochemistry	Biochemistry
		Molecular Biology
	Forensic Medicine	Photography
		Histopathology
		Museum Techniques
	Microbiology	Microbiology
	Parasitology	Parasitology

	Physiology	Laboratory Management
Faculty of Science	Chemistry	Laboratory Technology Work
		Instrumental Methods in Chemical Analysis
		Chemical Instrumentation
		Chemical & Biochemical Instrumentation
Gampaha Wickramarachchi Ayurveda institute (GWARI)		Medical Laboratory Investigation
		Photography
University of Jaffna (UOJ)	Pathology	Genetic Engineering
University of Kelaniya (UOK)	Biochemistry	Biochemistry
		Pathology
		Anatomy
	Botany	Laboratory Management
	Botany	Plant Tissue Culture Techniques
	Botany	Laboratory Management
	Microbiology	Applied Microbiology
	Pyhsics	General Laboratory Instrumentation
	Zoology	Rubber Technology
	Zoology	Histopathology
		Photomicrography
Open University of Sri Lanka (OUSL)		
Faculty of Engineering Technology	Textile & Apparel	Textile Testing
	Technology	Screen Printing
		VHS Video Filming and Editing
		Electronics & Electrical Technology
University of Peradeniya (UOP)	Animal Science	Dairy Science
		Aquaculture
		Animal Physiology
		Radio Isotope
		Animal Nutrition
Faculty of Medicine	Biochemistry	Medical Laboratory Technology
	Parasitology	Entomology
University / Research Institutions	*Department / Division*	*Specialty (ies)*
		Serological Techniques
Faculty of Science	Botany	Microbiology
		Botanical Illustration
		Tissue Culture
		Plant Microtechniques
		Plant Identification & Herbarium Techniques
		Plant Tissue Culture
	Chemistry	Instrumentation
		Water Analysis
		Water Quality Management
		Water Analysis
	Zoology	Molecular Biology
		Bioplastic Taxidermy
		Parasitology

		Immunology
		Molecular Biology
Faculty of Veterinary Science	Vet. Clinical Studies	Radiology
University of Ruhuna (UOR)		
Faculty of Agriculture	Agricultural Engineering	Agriculture
Faculty of Science	Botany	Microscopy
		Slide Preparation
		Microscopy
	Chemistry	General Laboratory Instrumentation
Rajarata University of Sri Lanka (RUSL)		
Faculty of Applied Sciences	Physical Sciences	Chemistry
		Physical & Vet Science
Faculty of Medicine	Biochemistry	General Laboratory Instrumentation
Sabaragamuwa University of Sri Lanka (SUSL)		
Faculty of Agricultural Sciences	Livestock Production	Animal Nutrition
CEA Laboratory		Hazardous Waste Management
		Waste water characteristics

Source: Directory of Technical Personnel in Sri Lanka (Universities and research Institutions) September 2000