

NATIONAL PROFILE TO ASSESS THE NATIONAL INFRASTRUCTURE FOR THE MANAGEMENT OF CHEMICALS IN ETHIOPIA

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EXECUTIVE SUMMARY

INTRODUCTION

The preparation of the National Profile is timely, especially considering the fact that no legal provision exists for the control of consumer and industrial chemicals. The experience gained and information gathered in the course of preparing this National Profile provided the opportunity to promote the establishment of a National Chemical Management Infrastructure. The Royal Netherlands Government sponsored the preparation of this National Profile.

The main purpose in preparing the National Profile is to identify all stakeholders and existing infrastructure related to chemical management in Ethiopia, to determine both the actual and potential problems, and to suggest actions needed to strengthen the process of chemical management. The National Profile, in particular, aims at:

- ◆ Serving as a basis for further efforts to strengthen the national system for the management of chemicals;
- ◆ Facilitating improvements in the efficiency of government operations;
- ◆ Assessing the trade in chemicals;
- ◆ Providing effective participation in international chemical management; and
- ◆ Incorporating chemical management in education and other training programmes.

The benefits to be derived from the National Profile are:

- ◆ Strengthening national decision-making capabilities and capacities related to the management of chemicals;
- ◆ Promoting the protection of workers, the general public and the environment;
- ◆ Improving awareness of chemical risk among workers and the public, and building a national safety culture;
- ◆ Enhancing policy dialogue, co-operation and co-ordination among government ministries and institutions outside of government;
- ◆ Addressing the question of integrating chemical management into economic planning;
- ◆ Easing compliance with and the setting-up of national registers on chemical trade;
- ◆ Facilitating the exchange of information among government ministries, industries, other government organizations and research institutions concerned with the sound management of chemicals; and
- ◆ Identifying areas requiring technical and financial assistance, and mobilizing funds that are available from international and bilateral sources.

The Environmental Protection Authority (EPA) co-ordinated the preparation of the National Profile and organized the National Chemical Review Committee (NCRC). This Committee consisted of members from relevant government institutions and professional associations.

The Royal Netherlands Government financed the preparation of the National Profile.

BACKGROUND INFORMATION

Ethiopia is located in the Horn of Africa between 3° N and 15°N latitude and 33°E and 48°E longitude. Ethiopia has a total area of 1,127,127 km². The Country's topographic diversity encompasses high and rugged mountains, flat-topped plateaux, deep gorges and rolling plains.

The Government has a federal structure and the Constitution enshrines the basic principles of human rights as enunciated in UN Conventions, granting basic democratic rights including self-determination.

According to the First Population Census, Ethiopia had a population of 40.7 million in 1984, of which the rural population was 88.7 percent. The population of Ethiopia grew at the rate of 2.9 percent per annum during the period 1984 to 1994.

Demographic indicators show that the crude birth rate is estimated at 40.5 per 1000. The average age of the population is 21.8 years and literacy rate 35.5 percent. Infant mortality rate was 110 per 1000 births, in 1984, but by 1994 this figure had increased to 171. In general, recent data on mortality show that Ethiopia has one of the lowest life expectancy at birth and the highest infant and child mortality rates in the world.

Widespread poverty, low educational level, and inadequate access to clean water, health services and poor sanitation characterize Ethiopia.

The country is currently faced with a number of environmental problems emanating, directly or indirectly, from human activities, and, in particular, by the rapid growth of the population and the ensuing increase in the exploitation of natural resources. These issues range from desertification or soil degradation due to deforestation and soil erosion, to environmental pollution arising from the misuse or abuse of a wide variety of chemicals in agriculture or when used for domestic purposes, or in manufacturing industrial products with residues having, at times, devastating effects on the environment and public health.

Ethiopia is one of the least developed countries in the world. Its economy rests mainly on agriculture, which contributes about 50 percent of GDP. Over 75 percent of the total export and over 85 percent of the total employment come from this sector.

The industrial sector, despite its small contribution to the GDP, supplies consumer goods both to the domestic and international markets. The main manufacturing products are textiles, foodstuffs, beverages, leather and wood products. Out of the total number of manufacturing establishments in the country, more than 60 percent belong to the four manufacturing sub-sectors: food, textiles, beverages and leather. Regarding their distribution, about 65 percent are located in Addis Ababa, the capital of Ethiopia.

CHEMICAL PRODUCTION, IMPORT, EXPORT AND USE

There are few chemical industries and these contribute little to the national economy. The existing chemical industries are mainly engaged in blending, mixing and packing of semi-processed chemical products and their capacity is low. Ethiopia does not export chemical products. The chemical needs of the country are met by imports from other countries. The main suppliers of chemicals to Ethiopia are the U.S.A., Italy, South Africa, Germany, England, Switzerland, Belgium, India, Japan and China.

Record keeping of chemical production, import and use is very poor. It will be necessary to undertake a countrywide survey to fill this information gap.

PRIORITY CONCERNS RELATED TO CHEMICALS

The priority concerns related to chemicals include air pollution, pollution of surface- and groundwater, soil pollution, pesticide residues in food, storage and disposal of chemicals, treatment of hazardous chemical wastes, control of chemical imports, emergency preparedness, and occupational safety and health in agriculture and industry.

LEGAL INSTRUMENTS AND REGULATORY MECHANISMS

Chemical management or stringent controls in the use of chemicals presupposes the promulgation of legislation. The dissemination and subsequent enforcement of these legal instruments by bodies responsible for their implementation is also indispensable.

Ethiopia has no policy on the management of chemicals. However, the Environmental Policy of Ethiopia treats the issue of chemical management in its broadest sense.

In Ethiopia, legal instruments pertaining to chemical management are non-existent, overlapping or fragmented. Some of these instruments deal directly with chemicals or class of chemicals, while others are indirect and only provide tangential reference to chemicals. The legal instruments include proclamations on explosives, drugs and psychotropic substances, pesticides, radioactive substances and fertilizers.

MINISTRIES, AGENCIES AND OTHER GOVERNMENT INSTITUTIONS MANAGING CHEMICALS

Several government organs (e.g. Ministry of Agriculture, Ministry of Health, Fertilizer Agency, Ministry of Labour and Social Affairs) are entrusted with the responsibility of ensuring that laws, regulations and other operational guidelines are in place to protect humans and the environment from adverse effects due to poor chemical management.

Overlaps in mandates in the management of chemicals for certain chemicals exist. Hence, there is a need to harmonize responsibilities of government institutions as far as chemical management is concerned.

RELEVANT ACTIVITIES OUTSIDE OF GOVERNMENT

The multi-sectoral nature of chemical management dictates that key players from all interested groups collaborate and their efforts co-ordinated in order to achieve satisfactory results. Non-governmental organizations (NGOs), including professional bodies and workers' and employers' organizations, supplement government efforts by providing expertise in matters related to chemical management.

INTER-MINISTERIAL COMMISSIONS AND CO-ORDINATING MECHANISMS

There are about six known inter-ministerial co-ordinating mechanisms in Ethiopia. These co-ordinating mechanisms are established in the form of standing national committees and boards to deliberate upon issues relevant to their members functional areas. These committees and boards facilitate co-operation and co-ordination among different government ministries, authorities, commissions, agencies, NGOs, and other relevant organizations. The existing co-ordination mechanisms cover various classes of chemicals including pesticides, ozone depleting chemicals, radioactive chemicals and those covered by the Chemical Weapons Convention (CWC). The participation of NGOs and professional associations in the existing co-ordinating mechanisms is minimal.

DATA ACCESS AND USE

In most national plans, it is acknowledged that the availability of reliable and up-to-date information is a necessary ingredient in decision making and that there is a need to provide adequate infrastructure for the effective collection, processing, storage and dissemination of information.

In Ethiopia, data/information related to chemicals and chemical safety are available in various governmental and non-governmental organizations. Among these, the major ones are the Ministry of Agriculture, Ministry of Trade and Industry, the Customs Authority, and the Ministry of Mines and Energy. Although these institutions have some data/information related to chemicals, they are not systematically stored or organized and cannot be easily accessed.

The Environmental Policy of Ethiopia requires the Environmental Protection Authority to develop Environmental Information System (EIS) for the country. The process of developing such a system has already been started. It is believed that data/information on chemical management would be one of the major components of the overall system.

At the moment, information pertaining to industrial and consumer chemicals is limited, perhaps with the exception of data regarding obsolete pesticides. The Food and Agricultural Organization (FAO) has recently carried out an inventory of obsolete Pesticides in Ethiopia. This inventory has generated substantial amount of data in this regard.

Information on chemicals is very limited and is found scattered in many institutions. Similarly, data on trade of chemicals is scarce. Moreover, the infrastructure for the exchange of data with international networks is not yet developed. The method of collecting and treatment of data is, in most cases, manual. Most institutions do not have a common system of formatting data. For example, the statistical data on chemical imports in the Costumes Authority are automated, while in the other institutions information is on hard copy.

TECHNICAL INFRASTRUCTURE

For the time being, there is no laboratory which is established for the purpose of chemical management but all major laboratories in Ethiopia have the capacity to undertake chemical and other residue analysis at one level or another.

In most of these laboratories, standard analytical tests can be performed as these can easily handle test manuals published by international organizations. There are also national programmes for improving the quality of laboratories and increasing their number. In addition, there is a plan for setting up a national environmental laboratory.

INTERNATIONAL LINKAGES

With regard to chemical management, Ethiopia has taken part in the negotiation of major environmental instruments. These include PIC, POPs Convention, the Bamako Convention, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, the Montreal Protocol on Substances that Deplete the Ozone Layer, and the UN Framework Convention on Climate Change.

AWARENESS OF WORKERS AND THE PUBLIC

The Department of Plant Protection and Technology Control under the Ministry of Agriculture carries out various awareness and training programmes in the safe use of chemical pesticides. Concerning occupational safety and health, the Labour Inspection Services under the Ministry of Labour and Social Affairs or bureaus are offering training programmes on the prevention of employment injuries and

diseases including those posed by chemicals. The Confederation of Ethiopian Trade Unions, through the Department for Occupational Safety and Health, conducts various awareness programmes meant to raise the safety and health consciousness of its members.

RESOURCES AVAILABLE AND NEEDED FOR CHEMICAL MANAGEMENT

In the absence of a sectoral policy that provides for integrated and co-ordinated chemical management in the country, the resources that are available at present or would be needed in the future are not easy to estimate. Many of the government agencies undertake chemical management related activities in order to fulfil their responsibilities, which, in most cases, are not directly intended to promote the sound management of chemicals.

INTRODUCTION

LINKAGE OF THE NATIONAL PROFILE TO THE INTERNATIONAL FRAMEWORK FOR THE SOUND MANAGEMENT OF CHEMICALS

The development of the National Profile for the management of chemicals was embarked upon following the recommendations of the Rio Conference on Environment and Development (UNCED) held in 1992 in Rio de Janeiro, Brazil. Heads of governments adopted Agenda 21, a document outlining responsibilities towards the achievement of sustainable development, at this conference.

Chapter 19 of Agenda 21 deals with the environmentally sound management of chemicals as well as the illegal international traffic in toxic and dangerous products. The six programme areas on which governments should base their actions and priorities are:

- ◆ Expanding and accelerating the international assessment of chemical risks;
- ◆ Harmonizing the classification and labelling of chemicals;
- ◆ Information exchange on toxic chemicals and chemical risks;
- ◆ Establishing risk reduction programmes;
- ◆ Strengthening national capabilities and capacities for the management of chemicals; and
- ◆ Preventing illegal international traffic in toxic and dangerous products.

Ethiopia participated in the Rio Conference. One of the items agreed upon was the goal of sound management of chemicals by the year 2000.

The International Conference on Chemical Safety held in Stockholm, Sweden, in 1994, was convened as a follow-up of Chapter 19 of Agenda 21. The Conference aimed at identifying priorities for action in implementing Chapter 19 of Agenda 21 and establishing mechanisms for its implementation.

The Stockholm Conference established the Inter-governmental Forum on Chemical Safety (IFCS). IFCS is an institutional arrangement whereby representatives of governments meet to provide advice and recommendations to governments and non-governmental organizations involved in the management of chemicals.

The Forum, furthermore, provides policy guidance in the management of chemicals with emphasis on regional and sub-regional co-operation. IFCS adopted a priority action plan to implement the recommendations of Chapter 19 of Agenda 21. One of the priority actions is the preparation of national profiles on the management of chemicals. National Profiles assess a country's infrastructure in relation to legal, institutional, administrative and technical aspects of the management of chemicals.

This National Profile was produced according to the "Guidance Document", which was prepared by the United Nations Institute for Training and Research (UNITAR).

PREPARATION OF THE NATIONAL PROFILE AND PARTICIPATION OF INSTITUTIONS

The preparation of the National Profile has been initiated and co-ordinated by the Environmental Protection Authority (EPA) of Ethiopia. The profile was prepared between November 1998 and September 1999.

A National Co-ordinating Team, also known as National Chemical Review Committee (NCRC), was established on November 6, 1998. This committee consisted of representatives of relevant government institutions and professional associations with the following duties and responsibilities:

- ◆ Formulate a work plan;
- ◆ Assess the adequacy and validity of the collected data; and
- ◆ Review the Draft National Profile Document.

The committee members were drawn from the following institutions:

Ministry of Foreign Affairs
Ministry of Industry and Trade
Ministry of Labour and Social Affairs
Ministry of Agriculture
Ministry of Health
Ministry of Transport and Communication
Ethiopian Science and Technology Commission
Ethiopian Investment Authority
Ethiopian Customs Authority
Ethiopian Agriculture Research Organization
Ethiopian Chemical Engineers Society
Ethiopian Private Industries Association
Ethiopian Chamber of Commerce
Ethiopian Health and Nutrition Research Institute
Chemical Society of Ethiopia
The Confederation of Ethiopian Trade Unions
Office of the Prime Minister, Economic Affairs Section
Quality and Standards Authority of Ethiopia
National Bank of Ethiopia, and
Environmental Protection Bureau of the City Government of Addis Ababa.

The names and fields of expertise of the committee members are given in Annex 6.

The Royal Netherlands Government through its Embassy in Ethiopia financed the preparation of the National Profile.

The Environmental Pollution and Hazardous Waste Management Team, under the Environmental Impact Studies and Control Department of the EPA, has made an attempt to collect relevant information from the Federal Government Offices as well as Regional States. While the information collected from the environment offices was satisfactory, information obtained from the regions was very meagre. During the data collection phase of the project, the team sent a 4-page questionnaire to the regions requesting them to send information pertinent to management of chemicals. However, only one region

responded to this request. This has created data gaps. It is hoped that these information gaps will be filled during the follow-up studies to be conducted in the future.

OBJECTIVES OF THE NATIONAL PROFILE

The preparation of the National Profile was done with the goal of developing an authoritative document identifying strengths and weaknesses in the present system for managing chemicals so that it can serve as a basis for action to improve the management of chemicals by involving all relevant parties. The preparation of the National Profile was necessary for the following reasons:

- ◆ To provide an authoritative document on the basis of which efforts to strengthen the national system for the management of chemicals could be effected;
- ◆ To facilitate improvements in the efficiency of government operations by:
 - providing practical information on on-going programmes and activities in the country which are concerned with the management of chemicals;
 - establishing a process which can facilitate exchange of information and dialogue among organs of state concerned with the sound management of chemicals and enhancing co-operation and co-ordination of same;
 - improving and strengthening national decision-making capabilities related to the management of chemicals; and
 - facilitating the exchange of information and dialogue among parties in and outside of government including industry, labour and other grassroots organizations.
- ◆ To determine what social impacts chemicals have and thereby:
 - provide knowledge and understanding of problems caused by chemicals to workers, the general public and the environment;
 - protect workers, the general public and the environment;
 - furnish a basis for improved knowledge and understanding of problems and alternative means for addressing them; and
 - improve awareness of chemical risks among workers and the public, and help to develop a national safety culture.
- ◆ To assess the trade in chemicals and thereby:
 - provide information on chemical traders;
 - supply information on whether chemicals produced, imported and exported are in keeping with economic goals and objectives and are not creating economic burdens by fomenting health and environmental problems;
 - improve awareness of pesticide residue problems and other toxic substances which could thwart agricultural development;
 - promote productivity of workers by enhancing their safety; and
 - enable safe transportation, handling and storage of chemicals.
- ◆ To provide effective participation in international activities and thereby:
 - ease compliance with international and regional reporting schemes (such as reporting to the Commission on Sustainable Development) and the preparation of background communication among countries (thus allowing the sharing of experience and increased co-operation); and

- provide a basis for identifying needs for technical and financial assistance and mobilize it from international and bilateral sources.
- ◆ To facilitate that sound chemical management is incorporated into educational and training programmes, and thereby:
 - improve access to information by research and development agencies; and
 - integrate information on sound management of chemicals into the curricula of learning institutions.

CHAPTER 1: NATIONAL BACKGROUND INFORMATION

1.1 PHYSICAL AND DEMOGRAPHIC CONTEXT

Ethiopia lies in the north-eastern part of the Horn of Africa between 3⁰N and 15⁰N latitudes and 33⁰ E and 48⁰E longitudes. The country is landlocked and is surrounded by Djibouti to the east, Somalia to the southeast, Kenya to the south, Sudan to the west, and Eritrea to the north and northeast. It has a total area of 1,127,127 km². Its topographical diversity encompasses high and rugged mountains, flat-topped plateaux, and deep gorges with rivers and rolling plains.

The form of government is federal with elections held every five years. The new constitution enshrines the basic principles of human rights as enunciated in the UN conventions, and grants basic democratic rights, including self-determination.

Ethiopia is a melting pot of ancient Middle Eastern and African cultures and this is evident in the religious, ethnic and language composition of its Semitic, Cushtic, Omotic and Nilotic peoples. About 80 languages are spoken in the country (see Annex 3). Amharigna, Oromiffa and Tigrigna, the three major languages, are used by about two-thirds of the population. Amharigna is the official working language of the Federal Government.

According to the first Population and Housing Census, Ethiopia had a total human population of 40.07 million in 1984, of which the rural population was 88.7 percent. The second census of 1994 recorded a total population of 53.48 million, of which 86.3 percent were rural. This shows that the population of Ethiopia grew at the rate of 2.9 percent per annum during the period 1984-1994. An urban centre is generally defined as a locality with 2000 or more inhabitants with a predominance of non-agricultural activities.

The working-age population, defined as that portion of the entire population between the ages 15–65, increased from 47.4 percent (19 million) in 1984 to 52.5 per cent (27 million) in 1994. Demographic indicators show that the crude birth rate is estimated at 40.5 per 1000. The average age of the population is 21.8 years and the literacy rate 35.5 per cent. The unemployment rate is 2.91 per cent and the percentage of women employed outside the home 41.96%.

Life expectancy in Ethiopia did not improve from 1984 to 1994. In 1984, it was 52 years for both sexes. Ten years later, people were living an average 1.2 years less. The 1994 census showed that women had longer life expectancy, two years more, than men. The infant mortality rate was 110 per 1000 live births in 1984 but by 1994 it has increased to 116. Similarly, child mortality rate (under five) increased from 166 deaths per 1000 live births in 1984 to 171 in 1994. In general, data on mortality show that in 1994 Ethiopia had one of the lowest life expectancies at birth and the highest infant and child mortalities in the world.

Regarding health, Ethiopia's status is worse than even other low-income countries. This is largely attributable to potentially preventable infectious diseases and nutritional deficiencies fomented by a rather high rate of population growth. Widespread poverty characterized by the low income level of the vast majority of the population, low educational level especially among women, inadequate access to clean water and sanitation, and poor access to health services have contributed to the high incidence of ill-health.

The overall level of health service coverage is estimated, by different sources, to be approximately 48.5 percent. Among the major reasons for this poor performance are the limited physical access of the population to health facilities and staff, as illustrated by the facility to population ratio. Currently, the health facilities for a population of some 58 million people comprise only 89 hospitals, 242 health centres, 1175 health posts and 2515 health stations (MoH, 1998).

It is widely believed that Ethiopia is endowed with a substantial amount of both surface and groundwater resources. The surface water resource potential for irrigated agriculture and hydroelectric power generation is impressive but as yet little developed. The country possesses 12 major river basins with a total annual runoff of about 120 billion cubic metres of water per year. The total surface area of the 18 natural and artificial lakes in Ethiopia is about 7,500 km². Seven of the eight major natural lakes are found in the Rift Valley. Most Ethiopian lakes, except for Zeway, Tana, Langano, Abaya and Chamo, are terminal lakes. Lakes Shala and Abyata have high concentrations of chemicals that are now being used for the production of soda ash.

The groundwater potential of the country is not known with any certainty. A preliminary water resources master plan study of the various basins estimates it to be 2.9 billion cubic metres. So far, only a small fraction of this resource is in use, mainly for local water supply purposes (CSE, Volume 1, 1997).

Environmental problems in the country are rife. Ethiopia is currently faced with a number of environmental concerns resulting, directly or indirectly, from human activities and, in particular, prompted by the rapid growth of population and the consequent increase in the exploitation of natural resources. These concerns range from desertification or soil degradation, due to deforestation and soil erosion, to environmental pollution, ensuing from the unwise use of a wide variety of chemicals for agriculture, domestic purposes or for the manufacturing of industrial products with steadily growing devastating effects on the environment and public health.

1.2 POLITICAL/GEOGRAPHIC STRUCTURE OF THE COUNTRY

Administratively, the Country is subdivided into 9 Regional States, 2 City Administrations, 62 Zones, 2 Special Zones, 523 Weredas and 8 Special Weredas (see Table 1A).

Table 1A: Administrative Set-up of the Federal Democratic Republic of Ethiopia

Region	Zone	Wereda	Special Zone	Special Wereda
Tigray	4	35	1	–
Afar	5	29	–	–
Amhara	10	106	1	–
Oromia	12	180	–	–
Somali	9	42	–	–
Benishangul Gumuz	3	17	–	2
SNNPR	9	77	–	5
Gambella	4	8	–	–
Hareri	–	–	–	1
Dire Dawa (administrative council)	–	1	–	–
Addis Ababa (administrative council)	6	28	–	–
Total	62	523	2	8

Source: MoH, 1998

Local government entities consist of Regional States, Regional Bureaus, Zonal and Wereda Bureaus. The Federal Government is responsible for drawing up general policies pertaining to common interests and benefits while Regional Governments are usually implementers of these policies. Local

governments, on their part, facilitate project implementation and people's participation in implementing the policies.

1.3 INDUSTRIAL AND AGRICULTURAL SECTORS

OVERVIEW OF THE INDUSTRIAL AND AGRICULTURAL SECTORS

Ethiopia is one of the least developed countries in the world. Its economy rests mainly on agriculture, which contributes about 50 percent of the GDP, over 75 percent of total exports and over 85 percent of employment. Coffee alone accounts for over 87 percent of the total agricultural exports. Agriculture is supplemented with manufacturing, mining, trade, tourism, construction and social services.

Several seasonal crops are grown in different parts of the country. The main ones are cereals (teff, barley, maize, wheat, sorghum, oats and millet), pulses (horse beans, fenugreek, field peas, haricot beans, chickpeas, vetch and lentils), and oil crops (niger seed, linseed, rapeseed, groundnuts, sunflower and sesame). The main cash and industrial crops are coffee, oil seeds, pulses, cotton, sisal, tobacco, fruits and sugar cane.

The industrial sector, despite its small contribution to GDP, supplies important consumer goods both to the domestic and international markets. The main manufacturing products are textiles, foodstuffs, beverages, leather and non-metallic products.

Even though the mining sector presently contributes only about 2 per cent of the GDP, there are proven reserves of industrial minerals and precious metals such as gold, tantalum, marble, quartz, and various quarries.

Table 1B gives the relative contributions of industrial manufacturing, mining, service and agricultural sectors to the GDP.

Table 1B: An Overview of the Industrial and Agricultural Sectors

Sectors	Contribution of the Gross Domestic Product (%)	Number of employees	Major products in each sector
Industrial manufacturing	12	92,361	food, beverages, non-metallic mineral products, tanned leather and textiles
Mining and extraction	2	15,203	gold, tantalum, marble, quartz, quarrying
Agricultural	50	23,115,957	teff, barley, wheat, maize, sorghum, millet, oats, horse beans, field peas, lentils, vetch, niger seed, linseed, rapeseed, groundnuts, sunflower, sesame, fenugreek, tobacco, cotton, coffee and tea
Service	24	–	–

Data compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.

STRUCTURE OF THE MANUFACTURING/AGRICULTURAL SECTOR

The structure of the manufacturing/agricultural sector is shown in Table 1C. However, data on the structure of the agricultural sector, according to the classification indicated in the table, are not available.

Table 1C: Structure of the Manufacturing/Agricultural Sector

	Micro farms/facilities (%)	Small farms/facilities1 (%)	Medium farms facilities2 (%)	Big farms/facilities3 (%)
Industrial/Manufacturing Sector	–	–	24.9	34.4
Agricultural Sector	–	–	–	–

Source: CSA, 1996/97; 1: 10 to 19 employees; 2: 20 to 49 employees; 3: 50 and over employees.

Data gap: percentage share of micro farms, small farms, medium farms and big farms unavailable.

BREAKDOWN OF AGRICULTURAL PRODUCTION BY REGION

Nowadays in Ethiopia, the use of agrochemicals in peasant agriculture is fast increasing. This is in addition to the substantial use that agrochemicals usually find in large-scale farms. Table 1D lists the various crops that are harvested in the different regions probably using chemical fertilizers and pesticides. The misuse of pesticides and fertilizers is polluting the surrounding environment.

Table 1D: Breakdown of Agricultural Production by Regions

Region	Major crops	Total number of employees	Size of productive area (000 ha)		Total production (tons)	
			1995/96	1996/97	1995/96	1996/97
Tigray	teff, barley, wheat, maize , sorghum, millets, horse beans, field peas, haricot beans, chickpeas, lentils, vetch, niger seed, linseed	1,324,445	509.22	494.05	556,400	592,500
Afar	teff, maize , sorghum, haricot beans, chickpeas, sunflower, sesame	557,113	29.86	29.76	21,300	39,300
Amhara	teff, barley, wheat, maize , sorghum, millets, horse beans, field peas, haricot beans, chickpeas, lentils, vetch, niger seed, linseed, rapeseed, sunflower, fenugreek	7,108,910	3,081.16	3208.16	3,016,900	3,254,100
Oromia	teff, barley, wheat, maize , sorghum, millets, oats, horse beans, field peas, haricot beans, chickpeas, lentils, vetch, niger seed, linseed, rapeseed, groundnuts, fenugreek	8,574,518	4,145.30	4031.70	5,254,900	5,187,700
Somali	barley, wheat, maize , sorghum, haricot beans, chickpeas, lentils	1,298,115	105.84	73.04	72,800	55,400
Benishan gul-Gumuz	teff, maize, sorghum, sorghum, millets, horse beans, haricot beans, niger seed, linseed rape seed, sesame	243,027	107.95	128.33	112,300	122,300
Southern Nations Nationalities & Peoples	teff, barley, wheat, maize , sorghum, millets, horse beans, field peas, haricot beans, chickpeas, lentils, niger seed, linseed, sunflower, fenugreek	3,866,426	1054.78	939.78	1,244,900	1,150,000
Gambella	maize , sorghum, groundnuts	63,870	16.67	6.84	24,200	11,000

Region	Major crops	Total number of employees	Size of productive area (000 ha)		Total production (tons)	
			1995/96	1996/97	1995/96	1996/97
Harari	barley, wheat, maize , sorghum, haricot beans, groundnuts	25,689	5.05	6.29	4,600	5,800
Addis Ababa	teff, wheat, maize , sorghum, horse beans, field peas, chickpeas, lentils, vetch, fenugreek	16,602	9.91	9.72	14,700	11,600
Dire Dawa	maize, sorghum, haricot beans	37,242	7.88	6.00	4,500	6,700
	Total	23,115,957	9,073.62	8,933.67	10,327,500	10,436,400

Source: CSA, 1996/97

Breakdown of Industrial Production by Region

From the total number of manufacturing establishments in the country, more than 60 per cent belong to the four dominating manufacturing sub-sectors, namely, the food, textiles, beverages and leather sub-sectors. Regarding the regional distribution of manufacturing establishments, most of them are located in Addis Ababa, Oromiya, SNNP and Amhara Regions. Addis Ababa Region alone accounts for more than 65 per cent of the total number. The manufacturing sector employs more than 90,000 workers (Table 1E).

Table 1E: Breakdown of Industrial Production by Region

Region	Major Products	Gross Value of Production (000 birr)	Number of Industrial Facilities	Number of Persons Engaged
Tigray	textiles, medicine, marble, food	78,193	21	1,889
Afar	cotton milling, non-metallic mineral products	67,736	3	285
Amhara	food, beverage, textiles, non-metallic mineral products	261,125	44	8,107
Oromia	leather, cement, food, beverage marble, furniture and wood products, chemicals	1,894,373	101	15,992
SNNP	textiles, ceramics, food, furniture and wood products.	187,833	57	5,454
Gambella and Somali	wood products, non-metallic mineral products.	3,850	4	132
Harari	food, printing, non-metallic mineral products	91,766	6	1,000
Addis Ababa	leather, textiles, food beverage, printing, metal products, machinery & equipment , chemicals	3,233,762	484	54,284
Dire Dawa	textile, cement, food & beverage	177,561	21	6,023
	Total	5,996,199	741	93,166

Source: CSA, June 1998

MAJOR EMISSIONS BY THE INDUSTRIAL SECTOR

Major emissions from the industrial sector are shown in Table 1F but complete data on electric generation and dry-cleaning are not available. Employment is highest in textile/clothing and leather goods industries followed by food and mining. Major emissions indicated in the table are not properly inventoried and further assessment needs to be done in the future.

Table 1F: Major Emissions by the Industrial Sector

ISIC Code	Description	Number of facilities	Total employment	1997 Gross value of production per year (000 birr)	Major emission types
31	Food Products and Beverage	198	23,830	2,227,632	– Food preservatives – Cleansing chemicals, e.g. NaOH, detergents – Air pollution from dust and combustion of fuel
32	Textile, Clothing, Tanning and Leather Goods	121	39,941	1,375,834	– Waste waters from scouring, mercerising, bleaching, and dyeing process of textiles, containing NaOH, peroxides, aluminium compounds & dyestuffs – Waste water from tanning of skin & hides containing chrome, sulphides, ammonium salts, chlorides, etc. – Solid waste from dehairing, fleshing & trimming of hide & skin.
33	Wood and Wood Products, Furniture	133	5,458	148,072	– Sawdust – Wood preservatives – Paints – Varnishes
34	Paper and Paper Products, Printing	46	5,103	263,419	– Cleaning waste waters containing printing chemicals, lead in granule form – Trimmed papers and Inorganic chemical waste
35	Chemical, Rubber and Plastic Products	66	6,099	645,666	– Solid waste of scorched rubber, scraps of rubber & PVC plastics, dust – Organic and inorganic waste waters
36	Non-metallic mineral products	97	6,654	544,208	– Dust & particulate matter causing air pollution, air pollution from the combustion of fuels
37	Manufacturing of basic iron and steel tools	5	1,132	303,555	– Scrap metal, air pollution from combustion of fuels.
38	Fabrication of machinery and equipment	29	1,334	238,311	– Inorganic waste water, scrap metals
39	Other manufacturing industries	46	2,814	342,524	– Scrap metals, cigarette making & packing paper, wastes
	Mining and extraction	2,299	15,203	–	– Dust, inorganic waste waters, cyanide
	Electric generation	54	–	–	–
	Dry cleaning in A.A	134	–	–	– Detergents, laundry soap and solvents
	Total	3,228	107,568	6,089,211	–

Data compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.
Data gap: dry cleaning facilities and electric generation facilities.

Note: Chemical containers supposed to be properly disposed of are used for various domestic and other purposes consequently affecting the public health.

CHAPTER 2: CHEMICAL PRODUCTION, IMPORT, EXPORT AND USE

2.1 CHEMICAL PRODUCTION, IMPORT AND EXPORT

There are very few chemical industries in Ethiopia and these make only a small contribution to the national economy. The different establishments categorized under this sub-sector are mainly engaged in blending, mixing, packing and finishing of semi-processed chemical products. Moreover, the capacity of the sub-sector is very low.

The type of products obtained from this sub-sector are mainly pesticides, soaps, other detergents, paints, carbon dioxide, oxygen, foam, alkyd resin, caustic soda, aluminium sulphate, sulphuric acid, etc.

The chemical needs of the country are mostly satisfied through import; the main countries supplying these chemicals are the U.S.A., Italy, South Africa, Germany, England, Switzerland, Belgium, India, Japan and China. Major chemical importing establishments are given in Annex 7.

Record keeping on production of used and/or obsolete chemicals is rather poor. It is, therefore, necessary to undertake a countrywide survey in order to fill the gap. Besides, the information obtained will serve as the basis for a chemical register, which is a vital tool for the adequate management of chemicals.

The total picture of chemical production and trade is shown in Table 2A. However, data on imported consumer pesticides are not available.

Table 2A: Chemical Production and Trade

Chemical Type	Production manufacturing per year and value	Import per year and value	Formulation/packing per year and value	Export per year and value
Pesticides –Agricultural –Public Health –Consumer Use	No. Production	3,122,000 kg(lt.) 78,050,000 birr 454,000 kg	300,000 kg (lt.) 7,500.000 birr Products packed in 1, 5, 60 and 200 litres and 0.5, 1, 5 and 20 kg (agricultural only)	No Export
Fertilizers	No Production	297,162 tons 76,187, 666 Birr	Packed in 25 and 50 kg bags No formulation	No Export
Industrial Use (for manufacturing/ processing facilities)	Caustic soda: 874.51 tons (151,104.00 Birr) Oxygen: 175,000 m ³ CO ₂ : 1,094,770 tons Aluminium sulphate, sulphuric acid / oleum (conc. sulphuric acid) 18,600 tons Soda ash– 20,000 tons (production capacity) Alkyd resin: 36,966 tons (*13, 717, 452 Birr)	36, 966 tons	No formulation	No Export
Petroleum Products	No Production	904, 329 tons 1,061,359,690 birr	No formulation	No Export
Consumer / household	Sodium hypochlorite: 247–500 lt.	4,929 tons** (229,307,400 Birr)	wall painting, antirust and enamel paint, synthetic	No Export

Chemical Type	Production manufacturing per year and value	Import per year and value	Formulation/packing per year and value	Export per year and value
chemicals	Floor wax: 93,750 pcs Shoe polish: 312,500 pcs		enamel paint, plastic, emulsion, and acrylic varnish, zinc, chromate primer, aluminium paints and carton glue. (1.7 million litres)	
Other Chemicals	See above	65, 051 tons (183,846,200 Birr)	–	No Export

Data compiled by Environmental Pollution and Hazardous Waste Management Team, EPA.

* value indicated for alkyd resin only

** for drugs and pharmaceuticals only

Data gap:

- Value of production except alkyd resin and caustic soda,
- Consumer pesticide, and
- Value of import for public health pesticide and industrially used for manufacturing processing facilities.

2.2 CHEMICAL USE BY CATEGORIES

Table 2B shows the amount of chemicals used per year in the country. However, data on pesticide for public health use and on consumer chemicals are not available. This shows that record keeping regarding the amount and type of chemicals used is not adequately instituted in the country.

Table 2B: Chemical Use by Categories

Chemical type	Number of tons used per year in the country
Pesticides – Agricultural	1,100
– Public Health	–
– Consumer Use	–
Fertilizers	235,535
Petroleum Products	
– LPG	5,006
– Motor gas oil	140,987
– Jet – A1	51,603
– Kerosene	182,695
– Automotive diesel oil	507,210
– Industrial Fuel Oil	142,715
– Asphalt	29,667
Industrial Chemicals (used in manufacturing/processing facilities)	59,484
Consumer Chemicals	–

Data Compiled by Environmental Pollution and Hazardous waste management Team, EPA.

Data gap: Number of tons used per year in the country for:

Public Health,

Consumer/ household use, and

Consumer Chemicals.

2.3 CHEMICAL WASTE GENERATION AND TRADE

Chemical wastes have not been imported into or exported from the country for processing or disposal purposes.

In accordance with the definition employed here, Ethiopia has a substantial amount of obsolete chemicals, especially pesticides, which need to be disposed of. Currently, there are no legislation, guidelines or facilities for the purpose of chemical waste management. The list of wastes shown in Annex I does not give the total picture of obsolete chemicals in the country. The table only indicates reported cases. The actual characteristics and amount of obsolete chemicals in the country requires further investigation.

CHAPTER 3: ENVIRONMENTAL PRIORITY CONCERNS RELATED TO CHEMICAL PRODUCTION, IMPORT, EXPORT AND USE

3.1 PRIORITY CONCERNS RELATED TO CHEMICAL PRODUCTION, IMPORT, EXPORT AND USE

Most of the problems indicated here are those found in the use and handling of chemicals in the different sectors. A description of problem areas and chemical pollutant(s) is given in Table 3A.

Table 3A: Description of Problem Areas

Nature of problem	City/Region	Brief description of problem	Chemical(s) / pollutant(s)
Air pollution	National	Uncontrolled emission of dust, toxic gases and hazardous chemical effluents from industrial processes, from vehicles and open air incineration of solid wastes	Dust particles, carbon dioxide, carbon monoxide, heavy metals, polyaromatic hydrocarbons
Pollution of inland waterways	National	Uncontrolled dumping of untreated industrial effluent and domestic waste from urban centres	Dyes, heavy metals, phosphates, nitrates, pesticides
Contamination of drinking water	National	Percolation of chemical pollutants into water distribution networks, insufficient removal of heavy metals in treatment plants, inadequate treatment facilities	Phosphates, heavy metals, pesticide residues, nitrates
Soil contamination	Local	Uncontrolled disposal of industrial and municipal solid and liquid wastes	Heavy metals, dyes, crude oil, pesticide residues
Storage and disposal of obsolete chemicals	National	Uncontrolled storage and disposal of industrial and agricultural chemicals and clinical solid and liquid wastes	POPs, industrial chemicals, obsolete pharmaceuticals
Groundwater pollution	National	Infiltration of contaminated water	Nitrates, phosphates, pesticide residues, metallic and inorganic salt
Chemical residue in food	National	Misuse of pesticide and food contamination	Heavy metals, pesticide residue
Hazardous waste treatment / disposal	National	Lack of proper disposal facilities and awareness	PCBs, heavy metals, industrial waste, medical waste, radioactive waste, pesticides.
Occupational health: in agriculture	National	Lack of safety equipment, lack of awareness	Fungicide, insecticide, herbicide
Occupational health: industry	Local	Lack of knowledge of proper storage, use and disposal, lack of awareness	Acids, ammonia, alkalis, chlorine, acetylene
Public health	National	Contamination of drinking water and food	DDT, clinical wastes
Chemical accidents: industry	Local	Lack of guidance in appropriate use and safety equipment	Acids, ammonia, alkalis, chlorine, acetylene
Unknown chemical imports	National	Poor laboratory capability to determine quality and act on it	Industrial chemicals, pesticides, hazardous wastes

Nature of problem	City/Region	Brief description of problem	Chemical(s) / pollutant(s)
Chemical poisoning / suicides	Local	Poor storage and handling of chemicals hence easy access	Pesticides, hypochlorous acid
Persistent organic pollutants (POPs)	National	Inadequate regulation and control of restricted chemicals	All POPs
Chemical accidents: Transport	National	Poor road infrastructure and traffic regulation	Petroleum fuel, pesticides, acids/alkyls

Data compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.

PRIORITY CONCERNS RELATED TO CHEMICALS

A list of potential problem areas that may serve as a starting point is provided in the left-hand column of Table 3B while potential problem priority ranking for the specific problem is indicated in the right hand column. The numbers 1,2 and 3 in the latter column explain the degree of the problem being faced by the country. The priority concerns related to chemicals include pollution of inland waters, chemical residues in food, hazardous waste treatment/disposal, occupational health in agriculture, storage/disposal of obsolete chemicals and chemical poisoning/suicide.

Table 3B: Priority Concerns Related to Chemicals

Nature of problem	Scale of problem	Level of concern	Ability to control problems	Availability of statistical data	Specific chemicals creating concern	Priority ranking
Air pollution	National	Medium	Low	Insufficient	CFCs, dust particles, oxides of nitrogen, oxides of carbon, sulphur tetraethyl lead	2
Pollution of inland waters	National	High	Low	Insufficient	Detergents, dyes, pesticides, nitrates, phosphates, cyanides, inorganic salts, mercury, organic pollutant	1
Marine pollution	-	-	-	-	-	-
Ground water pollution	Local	Medium	Low	Insufficient	Nitrates, phosphates, pesticide residues, metallic, inorganic salts	3
Soil contamination	Local	Medium	Low	Insufficient	Heavy metals, chlorides, arsenates, chromium, lead	3
Chemical residue in food	National	Medium	Low	Insufficient	Heavy metals, pesticide residues	1
Drinking water contamination	National	High	Low	Insufficient	Heavy metals, pesticides residues	3
Hazardous waste treatment disposal	National	High	Low	Insufficient	PCBs, heavy metals, industrial waste, medical waste, radioactive waste, pesticides.	1
Occupational health in agriculture	National	High	Low	No data	Pesticides	1
Occupational health in industry	Local	Medium	Low	No data	Acids, explosives, alkyls, inflammable chemicals, cadmium, lead, mercury	2
Public health	National	High	Medium	Insufficient	DDT, clinical wastes	3
Chemical accidents: industrial	Local	Medium	Low	No data	Acids, ammonia, alkalis, chlorine, acetylene	3
Chemical accidents: transport	National	Medium	Low	Insufficient	Petroleum fuel, pesticides, acids/alkyls	3

Nature of problem	Scale of problem	Level of concern	Ability to control problems	Availability of statistical data	Specific chemicals creating concern	Priority ranking
Unknown chemical imports	National	Medium	Low	Insufficient	Industrial chemicals, pesticides, hazardous wastes	3
Storage disposal of obsolete chemicals	National	High	Low	Insufficient	Agricultural chemicals, industrial chemicals, expired drugs	1
Chemical poisoning /suicides	local	High	Low	Insufficient	Pesticides, hypochlorous acid	1
Persistent Organic Pollutants	National	Medium	Low	Insufficient	All POPs	2

Data compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.

3.2 COMMENTS AND ANALYSIS

The data indicated in the above two tables are not sufficient to establish relative priorities regarding national problems of chemical management in Ethiopia. The gaps in the data are ascribed to the absence of:

- ◆ Assessment and impact of chemicals on soil, water and human beings;
- ◆ Statistics of chemical production and use;
- ◆ Adequate record keeping in chemical poisoning;
- ◆ Register of toxic chemicals;
- ◆ Register of importers and producers;
- ◆ Material safety data sheets for use of chemicals in industry and others;
- ◆ Emissions inventory; and
- ◆ Laboratory facilities in the country to support programmes and policies for the management of chemicals.

To enable problems that relate to chemical trade to be prioritized, there is a need to monitor chemicals regularly throughout their life cycle and strengthen laboratory facilities in the country.

Urban centres are prone to industrial chemical pollution. Likewise, agricultural chemicals such as pesticides are concentrated in rural regions.

CHAPTER 4: LEGAL INSTRUMENTS AND NON-REGULATORY MECHANISMS FOR MANAGING CHEMICALS

Chemical management or stringent controls in the use of chemicals presupposes the promulgation of the due legislation, be it proclamation, regulation, or decree, in all areas of chemical risk. The dissemination and subsequent enforcement of these legal instruments by a body or bodies responsible for their implementation or enforcement is also indispensable. Deficiencies in this regard take various forms, of which the most frequently encountered are the absence of legislation due to sheer legislative vacuum, inadequate or poor legislation, and lax or weak enforcement.

4.1 OVERVIEW OF NATIONAL INSTRUMENTS WHICH ADDRESS THE MANAGEMENT OF CHEMICALS

Legal instruments pertaining to chemicals in Ethiopia are promulgated in such a way that they are either dispersed in terms of time of enactment (or ratification) or in the concerns that they address themselves to. This state of affairs, in particular, has given rise to a situation where legislation on chemical management is neither holistic in designation nor comprehensive in approach. This has resulted in gaps, overlaps or even lack of coherence. Moreover, some of these instruments deal directly and pointedly with specific chemicals or classes of chemicals, while others are indirect or diffuse by dint of the wide coverage they provide or the tangential reference they make (Table 4A).

Table 4A: Existing Legal Instruments Which Address the Management of Chemicals

Legal instruments (type, reference, years)	Responsible ministries or bodies	Chemical use categories covered	Objective of legislation	Relevant articles/provisions	Resources allocated	Enforcement ranking
Pesticide Registration and Control Council of State Special Decree No. 20/1990	Ministry of Agriculture	Pesticides	To minimize the adverse effects of pesticides on human beings, animals, plants and the environment	Articles 4–10	Not available	2
Fertilizer Manufacturing and Trade Proclamation No. 137/1998	National Fertilizer Industry Agency	Fertilizers	To increase fertilizer use to improve agricultural productivity on sustainable basis	Articles 13–23	648,600 Birr	2
Dangerous Drugs Proclamation, 1942	Ministry of Commerce and Industry	Dangerous drugs like opium, coca, cannabis, heroin, indica or datura or any of their derivatives	To restrict and control the import and sale of dangerous drugs	Articles 2–4	Not available	2
The Constitution of the Federal Democratic Republic of Ethiopia Proclamation 1/1995	The pertinent ministries and state bodies	All chemicals which may affect the environment	To guarantee citizens clean and healthy environment To provide that the design and implementation of programmes and projects of dev't shall not damage or destroy the environment	Articles 44 & 92	Not available	3
Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction Ratification Proclamation No. 30/1996	Ministry of Commerce and Industry	Schedules I, II and III of the Convention	To undertake all acts necessary for the implementation of the Convention on the prohibition of the development, production, stockpiling, and use of chemical weapons and their destruction	All articles in the convention	Not available	2
Ethiopian petroleum enterprise establishment regulation no. 210/1995	Ethiopian Petroleum Enterprise	Petroleum and its products	To import and arrange the sell and processing of crude oil as well as refined petroleum and its products	Article 5 sub-articles 1 & 2	Not available	3

Legal instruments (type, reference, years)	Responsible ministries or bodies	Chemical use categories covered	Objective of legislation	Relevant articles/provisions	Resources allocated	Enforcement ranking
Mining Operations Council of Ministers Regulation No. 182/1994	Ministry of Mines and Energy	Chemicals employed in mining	To regulate mining operations	Article 29 sub-articles 1 & 2	Not available	3
The Re-establishment and Modernization of Customs Authority Proclamation No. 60/1997	Customs Authority	All goods including chemicals	To control the import and export of prohibited or restricted goods	Part 2 articles 1 & 2	Not available	2
Road transport regulation proclamation no. 14/1992	Ministry of Transport	Vehicle exhaust	To prevent or mitigate vehicular pollution	Article 21	Not available	3
Radiation Protection Proclamation No. 79/1993	National Radiation Protection Authority	Radionuclides and radiation sources	To regulate, control, and supervise radiological and all activities relating to acquisition, use, transportation and disposal of radioactive substances	Articles 3, 7, and 13-15	Not available	2
Pharmacy Regulation No. 288/1964	Ministry of Health	Drugs and psychotropic substances	To control production, import, sale and disposal of drugs and psychotropic substances	Articles 34 & 39ff	20 professionals 116,000 USD, 400,000 Birr(not including salary)	2
Convention on the Elicit Trafficking & Abuse of Narcotic and Psychotropic Substances	Ministry of Health	Narcotic and Psychotropic Substances	To control elicit trafficking and abuse of narcotic and psychotropic substances	All articles of the Convention	Not available	2
Ethiopian Health and Nutrition Research Institute Establishment: Council of Ministers Regulation No. 4/1996	Ethiopian Health & Nutrition Research Institute	Diagnostic, Prophylactic and therapeutic substances	To conduct research on traditional medicines, modern drugs and improvement of health	Article 5/2	10 scientific and 13 technical staff; budget not available	2
Framework Convention on Climate Change: Ratification Proclamation No. 97/1994	National Meteorology Service Agency	Greenhouse gases and/or their precursors	To Reduce the emission of greenhouse gases	Articles 1-6	Not available	3

Legal instruments (type, reference, years)	Responsible ministries or bodies	Chemical use categories covered	Objective of legislation	Relevant articles/provisions	Resources allocated	Enforcement ranking
Vienna Convention for the Protection of the Ozone Layer (Ratified on 11/10/1994)	Environmental Protection Authority (for policy matters) & National Meteorology Service Agency (for technical matters)	Ozone layer depleting chemicals and chemical processes	To protect human health and the environment against adverse effects resulting or likely to result from human activities which modify or are likely to modify the ozone layer	Articles 1–5	Not available	3
Definition of Powers and Duties of the Executive Organs of the FDRE: Proclamation No. 4/1995	Ministry of Water Resources	chemicals polluting water	To protect and utilization of water To prescribe the quality standard for water to be used for various purposes	Article 17 sub-articles 2 & 9	Not available	3
Labour Proclamation No. 42/1993	Ministry of Labour and Social Affairs	All hazardous substances including chemicals so long as they figure in the working environment	To handle and use hazardous substances safely (including chemicals)	Articles 92 & 93		3
International Labour Organization Conventions: Ratification Council of State Decree No. 37/1990	Ministry of Labour and Social Affairs	All hazardous substances including chemicals so long as they figure in the working environment	To handle and use hazardous substances safely (including chemicals)	Article 2/4 of the Decree and 12ff of the Convention 155/1981	Not available	3
The 1957 Penal Code of Ethiopia	Ministry of Justice	Prohibited chemicals (poisonous, narcotic substances or injurious products)	To prosecute those dealing in prohibited chemicals	Articles 510, 511, 784 and 786	Not available	2
Environmental Protection Authority Establishment Proclamation No. 9/1995	Environmental Protection Authority	Hazardous chemicals, chemical pollutants and wastes	To ensure that dev't activities are carried out in a manner that protects the welfare of humans and sustainably protect, develop, and utilize the resource base	Article 6	Birr 1,800,000	3
Industrial License Proclamation, 1971	Ministry of Trade and Industry	The pertinent chemicals	To ensure that development projects are non-polluting	Article 11	Not available	3

Legal instruments (type, reference, years)	Responsible ministries or bodies	Chemical use categories covered	Objective of legislation	Relevant articles/provisions	Resources allocated	Enforcement ranking
Proclamation No. /1998	Quality and Standard Authority of Ethiopia	Chemical products and processes	To standardize products and processes and ensure compliance	Articles	Not available	3
Ethiopian Standards Regulations No. 12/1990	Quality and Standard Authority of Ethiopia	Chemical constituents contained in potable water	To specify physical and bacteriological requirements of piped supplies of water for drinking and domestic use	Articles 4/2	Not available	3
Convention on the Elicit Trafficking and Abuse of Narcotic and Psychotropic Substances	Ministry of Health	Drugs and Psychotropic Substances	To control the elicit trafficking and abuse of narcotics and psychotropic substance	All articles of the Convention	Not available	2
The 1960 Civil Code of Ethiopia	civil courts (at the initiative of plaintiff)	Chemical nuisances	Cessation of nuisance and the industrial pollution of water	Articles 1225, 1242/2 and 1243/1	Not available	2
Investment Proclamation No. 37/1996	Ethiopian Investment Authority	Chemical pollutants and wastes	To protect the environment	Article 14/1	Not available	3
Explosive Proclamation, 1942	Security, Immigration and Refugee Affairs Authority	Explosives	To restrict and control sale, possession and use of explosives	Articles 1–4	Not available	1

Compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.

4.2 SUMMARY DESCRIPTION OF KEY LEGAL INSTRUMENTS RELATING TO CHEMICALS

The making of chemical regulatory instruments in Ethiopia has been an accretion of piecemeal promulgation enacted across a period of some half a century — a process that has continued uninterrupted to date. All these legal instruments become publicly known through the official bilingual gazette meant for this purpose, the *Negarit Gazeta*.

Following are extracts from key legislation governing the management of chemicals, which has been enacted between 1942 and 1998. It provides the essentials in format and content of these legal instruments; e.g. responsible bodies, administrative procedures, management schemes, implementation mechanisms, actions against infringements, etc.

EXPLOSIVES

Title of promulgation: Explosive Proclamation, 1942

Date of promulgation: 28th July 1942

The promulgating body: Parliament

Repeal/augmentation: Proclamation No. 6/1995

Major provisions:

- ◆ Defines explosives as gunpowder, nitroglycerin, dynamite, guncotton, blasting powders, fulminate of mercury or other metals, and every other substance related, whether to those already mentioned or not, as well as bombs; and prohibits the possession of explosives without permit from the relevant body;
- ◆ Stipulates a form to be filled in by would-be users of explosives when applying for permit; and
- ◆ States that contravention of the proclamation is punishable in accordance with the provisions of the Penal Code.

Proclamation No. 6/1995 provides that the public body responsible for the enforcement of this legislative piece from 1995 onwards is the Security, Immigration and Refugee Affairs Authority.

DRUGS AND PSYCHOTROPIC SUBSTANCES

Title of promulgation: Pharmacy Regulation, 1964

Date of promulgation: 17th June 1964

The promulgating body: The Minister of Public Health

Repeal/augmentation: Dangerous Drugs Proclamation, 1942

Major provisions:

- ◆ The relevant department in the MoH maintains separate registers of pharmacists, druggists, pharmacy technicians, retail and hospital pharmacies, druggist shops and manufacturing laboratories, and issues registration licenses and permits;
- ◆ Permits are required to establish, operate or maintain a pharmacy or in any way prepare, sell or distribute to the public medicinal preparations, narcotics or poisons or other dangerous

drugs listed. Permits are also required to establish, operate or maintain manufacturing laboratory or any medicinal supply;

- ◆ Medicinal preparation manufactured, prepared, compounded, dispensed or sold shall bear a distinctive label on its container;
- ◆ Any substance not authorized in the pharmacopoeia in use is deemed to make a medicinal preparation adulterated;
- ◆ The Ministry has the right to examine any medicinal preparation and forbid, when the preparation fails to conform with standard quality, its sale or distribution;
- ◆ For the purpose of enforcing the regulation, the Minister shall appoint duly qualified persons to carry out inspections of pharmacies, druggist shops, manufacturing laboratories and all other establishments in any way auxiliary to the ultimate sale or distribution of medicinal supplies; and
- ◆ Penal sanctions or suspension and revocation of licenses and permits may be doled out when infringements are apprehended.

PESTICIDES

***Title of promulgation: Pesticides Registration and Control
Council of State Special Decree No. 20/1990***

Date of promulgation: 1st September 1990

The promulgating body: Council of State

Repeal/augmentation: none

Major provisions:

The decree rules that:

- ◆ The manufacture, import, sale or use of an unregistered pesticide is prohibited;
- ◆ A pesticide, which is not duly packed or labelled, cannot be imported, stored, transported or offered for sale;
- ◆ A package shall be designed and made in such a way that it contains the pesticide safely during transportation, storage, marketing, distribution and use including reuse where applicable;
- ◆ Accidents in connection with the transportation, storage, marketing, use or treatment otherwise of pesticides shall forthwith be reported;
- ◆ Directives shall determine the storage and manner of disposal of pesticides and their packages; and
- ◆ Contravention of the decree as enumerated shall be met with the cancellation of registration while other violations shall be punished according to the Penal Code.

RADIOACTIVE SUBSTANCES

Title of promulgation: Radiation Protection Proclamation No. 79/1993

Date of promulgation: 22nd December 1993

The promulgating body: Council of Representatives

Repeal/augmentation: none

Major provisions:

- ◆ Its provisions are applicable to ionizing radiation, excluding radioactive substances occurring in nature, uranium and thorium or compounds thereof in laboratories, and analysis institutions for demonstration and teaching purposes, and sealed sources;
- ◆ The national radiation authority is responsible for formulating radiation protection policies, guidelines, rules and directives, the issuing, removal, suspension, or revocation of licences, the carrying out of inspections and the taking of appropriate measures to ensure compliance, the prescription of criteria and the issuing of permits for the importation of radioactive materials and radiation emitting equipment and the setting up of an emergency squad; and
- ◆ The import, export, manufacture, possession, sale, use, storage, transportation or disposal of radioactive materials or devices emitting ionizing radiation is prohibited except under licence.

FERTILIZERS

***Title of promulgation: Fertilizer Manufacturing and Trade
Proclamation No. 137/1998***

Date of promulgation: 24th November 1998

The promulgating body: Council of Representatives

Repeal/augmentation: none

Major provisions:

- ◆ Persons wanting to engage in fertilizer business shall possess competence assurance certificates from the agency;
- ◆ Fertilizer manufactured locally or imported and stocked shall conform to the requirements of Ethiopian Standards and be registered by the agency for use in the country as fertilizer;
- ◆ Packaging materials for bags and labels affixed shall comply with the relevant Ethiopian Standards;
- ◆ Adulterated fertilizer shall be disposed of in accordance with directives of the Agency;
- ◆ Inspectors shall be assigned by the Agency to see to it that the proclamation is duly complied with by manufacturers, importers, wholesalers or retail traders; and
- ◆ Contravention as enumerated shall entail suspension or cancellation of certificate of competence while other infringements may fetch fines in addition to imprisonment depending on gravity of fault as listed in the Proclamation.

4.3 EXISTING LEGISLATION BY USE CATEGORY

Speaking of legal instruments, there remain prominent gaps yet to be filled. The management of hazardous chemicals, chemical wastes and pollutants is one example. Not all categories of chemicals (e.g. industrial and consumer product chemicals) are covered and even when found covered, the coverage may not span all stages of the chemical life cycle. Table 4B provides the different legislative pieces that provide for the management of different categories of chemicals in one or another stage of their life cycle in this country.

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

Category of Chemical	Import	Production	Storage	Transport	Distribution/ Marketing	Use/ Handling	Disposal
Pesticides (agricultural, public health and consumer use)	X	X	X	—	X	X	X
Fertilizers	X	X	X	X	X	X	X
Industrial Chemicals (used in manufacturing/ processing facilities)	—	—	—	—	—	X	—
Petroleum products	X		X	X	X	X	—
Consumer chemicals (drugs and pharmaceuticals)	X	X	X	X	X	X	X
Chemical waste	—	—	—	—	—	—	—
Explosives (in civil industrial use)	X	X	X	X	X	X	X
Radionuclides	X	X	X	X	X	X	X
Chemicals (used in mining)	—	—	X	X	—	X	—

Data compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.

4.4 SUMMARY OF KEY APPROACHES AND PROCEDURES FOR THE CONTROL OF CHEMICALS

Perhaps the most strictly enforced legislation we have is the Explosive Proclamation of 1942. This Proclamation, however, did not provide for a public body to be responsible for its implementation and such essentials as the system of inspection to be put in place for the service of adequate enforcement. This apparent flaw, however, is overcome by another legislation, Proclamation 6/1995, which bestows upon the Security, Immigration and Refugee Affairs Authority the responsibility of implementation. The Authority, by means of directives, has instituted an elaborate system of controls complete with the necessary manpower (including inspectors) and procedures. The latter requires, among others:

- Permits from the relevant government body establishing the need for the explosive in question;
- The contract document of the work requiring the use of the explosive;
- Certificate of competence of the expert that is to handle the explosive;
- The availability of an adequately guarded and constructed explosive magazine; and
- Others, concerning the type, quantity and make of the explosive(s), route of transport and port of arrival in Ethiopia, and schedule of consumption.

The Pharmacy Regulation of 1964, the Pesticide Registration and Control Council of State Special Decree No. 20/1990, the Radiation Protection Proclamation No. 79/1993 and the Fertilizer Manufacturing and Trade Proclamation No. 137/1998 each, in its own peculiar fashion, provides for the requirements of its respective implementing body to be met by users, the various procedures to be resorted to, a system of inspection, and punitive measures (fines and/or imprisonment). The legislative adequacy that is more or less discerned here is, however, compromised when it comes to enforcement. This is attributed to the lack of sufficient resources manifested in the shortage of manpower and facilities, and financial constraints. A good example, in this regard, is the accumulation of some 1500

tons of obsolete pesticide over a period of 40 years¹. The same goes for the other legal instruments partially or indirectly dealing with chemicals. Proclamation No. 42/1995, the Labour Law, is a case in point. In spite of being a fairly good law, the state of occupational safety and health in the country is very weak, ensuing from lack of enforcement due to weak or inadequate commitment expressed, *inter alia*, by an inadequate budget.

Until now, no non-governmental organization is known to have taken part in monitoring and enforcement, or in education and public awareness pertaining to chemicals. However, the FAO Project on the Removal and Destruction of Obsolete Pesticides includes an international NGO, the Pesticides Trust, as an independent monitor with the mandate to involve local NGOs in this process.

Restrictions and bans in the use of exceptionally harmful chemicals are not well developed; except in connection with the Vienna Convention (on ozone layer), no schedule of banned or restricted chemicals exists that even remotely resembles the PIC (prior informed consent) procedure. The following, emanating more from administrative fiat than anything else, constitute a list of banned and severely restricted chemicals in this country (Table 4C).

**Table 4C: Banned or Severely Restricted Chemicals
Ban (B) or Severe Restriction (SR)**

Name of chemicals	Level of restriction	Details of restriction (e.g. reasons for control action, remaining allowed uses, etc.)
Public Health		
DDT	SR	Persistent in the environment, Restricted use for malaria eradication
Agriculture		
Aldrin	B	Persistent in the environment
Chlordane	B	Persistent in the environment
Dieldrin	B	Persistent in the environment
Heptachlor	B	Persistent in the environment
Mirex	B	Persistent in the environment
Toxaphene	B	Persistent in the environment
Consumer Chemical		
Opium	SR	Restricted use for medical purposes
Coca	SR	Restricted use for medical purposes
Cannabis	SR	Restricted use for medical purposes
Indica	SR	Restricted use for medical purposes
Datura	SR	Restricted use for medical purposes
Industry		
Gunpowder	SR	Restricted use for civil industrial purposes
Nitroglycerin	SR	Restricted use for civil industrial purposes
Dynamite	SR	Restricted use for civil industrial purposes
Guncotton	SR	Restricted use for civil industrial purposes
Blasting powders	SR	Restricted use for civil industrial purposes
Fulminate of mercury and other metals	SR	Restricted use for civil industrial purposes
Chemical Weapons		
All the chemicals in Schedule 1 of the Convention	SR	Prohibited for the production of weapons
Miscellaneous		
Tetraethyl lead in gasoline	SR	Dangerous to the environment

¹ Removal and destruction of these stocks of obsolete pesticides has now been started in a project being managed by the Ministry of Agriculture and the FAO entitled "Prevention and Disposal of Obsolete Stocks in Ethiopia": M/AW = 10/98, GCP/INT/650/NET, FAO, Rome, December 1998.

Name of chemicals	Level of restriction	Details of restriction (e.g. reasons for control action, remaining allowed uses, etc.)
Sulphur in gasoline, gas oil and industrial fuel oil	SR	Dangerous to the environment, to reduce sulphur content in petroleum products.
Aniline	SR	Restricted use for non-edible purposes
Radio active substance	SR	Toxic effect, Restricted use for medical purposes
CFCs	SR	Greenhouse effect, Restricted use in the year 2010
Radioactive substances	SR	Toxic effect, restricted use for medical purposes

Compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.

4.5 NON-REGULATORY MECHANISMS FOR MANAGING CHEMICALS

Although non-regulatory instruments may bolster and enhance the overall adequacy of national chemical management, say through arrangements in the form of incentive systems or voluntary programmes, these, as we shall see, are far from well developed in this country.

Not one non-regulatory mechanism for the management of chemicals appears to be evident in this country. The only arrangement in this direction is an environmental management system in the spirit of 14000 and even this is at too elementary a stage to merit any applause. The Quality and Standard Authority has been conducting a number awareness programmes meant to promote the diffusion of ISO 14000, however, with no or limited degree of success so far. Another voluntary mechanism with a modicum of success is the one attained through implementing the two waste minimization projects conducted under NACIPPE I and II. Quite a number of undertakings have, in their services, safety officers/committees or even full-fledged departments catering for improved occupational safety and health performance and, at times, addressing wider environmental concerns.

4.6 COMMENTS AND ANALYSIS

The Federal Constitution, now in force, provides that citizens are entitled to a clean and healthy environment. The actualization of this right, however, requires various activities to be accomplished. Some of these activities are the enactment of the due legal instruments and the allocation of sufficient resource to effect enforcement. The national chemical management scenario, in this respect, radiates a rather mixed achievement. Focusing on areas needing immediate improvement, what come to the fore are the twin issues of gaps and overlaps, on the one hand, and lax enforcement, on the other.

Even if the actual control of drugs as a whole is presently seen to be by the Ministry of Health, technically, by virtue of the Dangerous Drugs Proclamation of 1942, the Ministry of Trade and Industry has an equivalent mandate of control when it comes to dangerous drugs. Another area of overlap is the one pertaining to occupational safety and health. The Ministry of Labour and Social Affairs and the Ministry of Health are seen to put up competing claims as the sole guardians of this concern.

Prominent gaps are discerned in the area of environmental standards, both occupational and general. For example, the country is so far bereft of pollution standards pertaining to clean air, water or soil. There exist no laws governing the manufacture/import, use, handling, transport, storage and disposal of consumer, industrial or otherwise hazardous chemicals.

Except for the management of explosives, the control of the rest, namely, pesticides, fertilizers, radioactive substances, drugs and pharmaceuticals and chemicals posing occupational harm, leaves a lot to be desired. Contraband, adulteration and shortage of inspectors and vehicles for monitoring purposes

bedevil the adequate control of drugs and other pharmaceuticals. The enforcement of legislation on fertilizers and radioactive substances only started very recently and for this reason the service level of the respective public agencies is far from well developed in terms of manpower, facilities and even budget.

Occupational health and safety monitoring is hampered in various ways:

- ◆ The lack of occupational environmental standards;
- ◆ Weak inspection service ensuing from lack of adequate budget, staff, facility (such as vehicles, monitoring equipment, laboratory) and, in general, inadequate commitment;
- ◆ Bad historical record, i.e. virtually not one prosecution or punitive action has been effected in nearly four decades of the Inspection Services' history; and
- ◆ The absence of a strong and organized labour.

Some legal instruments are in the making or pending adoption. These consist of a Framework Environmental Proclamation, now tabled at the Environmental Protection Council, and the ratification of the Basel Convention on the transboundary movement of hazardous wastes necessitated by the grave need to dispose of some 3,000 tons of obsolete pesticides accumulated in the country. The legislation and ultimate enforcement of these legal instruments is contemplated to pave the way for an improved environmental performance with regard to chemical management. The following two provisions give the flavour of the draft environmental proclamation:

“The collection, recycling, treatment and disposal of hazardous wastes or other hazardous substances without licence from the Authority or Regional Agencies shall be prohibited.” (Article 33/ 3)

“The transit, import, distribution, storage, transportation or, in general, the handling of hazardous chemicals shall be subject to a permit from the Authority or Regional Agencies.” (Article 33/ 4)

CHAPTER 5: MINISTRIES, AGENCIES AND OTHER INSTITUTIONS MANAGING CHEMICALS

This chapter gives the description and analysis of the mandates and programmes of different ministries, agencies and other governmental institutions responsible for, and concerned with, various aspects of chemical management.

5.1 RESPONSIBILITIES OF DIFFERENT GOVERNMENT MINISTRIES, AGENCIES AND OTHER INSTITUTIONS

Tables 5A–5D provide a general overview of responsibilities and activities of the various organs of state concerned with chemical management for each stage of chemical life cycle from production/import to disposal. Each table focuses on a particular chemical category, i.e. petroleum products, industrial chemicals, consumer chemicals, and fertilizer and pesticides.

Table 5A: Responsibility of Government Ministries, Agencies and Other Institutions in the Management of Petroleum Products

Stage of life-cycle / Ministry concerned	Importation	Production	Storage	Transport	Distribution marketing	Use/handling	Disposal
Environmental Protection Authority	X	X	X	X	X	X	X
Ministry of Health	—	—	—	—	—	—	—
Ministry of Agriculture	—	—	—	—	—	—	—
Ministry of Labour and Social Affairs	—	—	—	—	—	—	—
Ministry of Trade and Industry	—	—	—	—	—	—	—
Ministry of Finance	—	—	—	—	—	—	—
Ministry of Transport and Communication	—	—	X	X	X	X	—
Security, Immigration and Refugee Affairs Authority	—	—	—	—	—	—	—
Ministry of Justice	—	—	—	—	—	—	—
Customs	X	—	—	—	—	—	—
Ministry of Foreign Affairs	—	—	—	—	—	—	—
Petroleum Enterprise	X	—	X	X	X	X	—

Compiled by the Environmental Pollution and Hazardous Management Team, EPA.

¹ For each positive response, an “x” is filled in.

Table 5B: Responsibility of Government Ministries, Agencies and Other Institutions in the Management of Industrial Chemicals

Stage of life-cycle /Ministry Concerned	Importation	Production	Storage	Transport	Distribution Marketing	Use/ Handling	Disposal
Environmental Protection Authority	X	X	X	X	X	X	X
Ministry of Health	X	—	—	—	—	—	—
Ministry of Agriculture	—	—	—	—	—	—	—
Ministry of Labour & Social Affairs	—	—	—	—	—	X	—
Ministry of Trade and Industry †	X	—	—	—	—	—	—
Ministry of Finance	—	—	—	—	—	—	—
Ministry of Transport	—	—	—	—	—	—	—
Security Emigration and Refugee Authority ††	X	X	X	X	X	X	X
Ministry of Justice	—	—	—	—	—	—	—
Customs Authority	X	X	X	X	X	X	X
Ministry of Foreign Affairs	—	—	—	—	—	—	—
Radiation Authority	X	X	X	X	X	X	X

Compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.

† for radioactive substances only †† for explosives only

X – indicates the existence of some responsibility on the part of the government institution.

Table 5C: Responsibility of Government Ministries, Agencies and Other Institutions in the Management of Consumer Chemicals

Stage of life-cycle /Ministry concerned	Importation	Production	Storage	Transport	Distribution/ Marketing	Use/ Handling	Disposal
Environmental Protection Authority	X	X	X	X	X	X	X
Ministry of Health	X	X	—	—	—	—	—
Ministry of Agriculture (consumer pesticide)	X	X	X	—	X	X	X
Ministry of Labour & Social Affairs	—	—	—	—	—	X	—
Ministry of Trade and Industry	—	—	—	—	—	—	—
Ministry of Finance	—	—	—	—	—	—	—
Ministry of Transport	—	—	—	—	—	—	—
Security, Immigration and Refugee Affairs Authority	—	—	—	—	—	—	—
Ministry of Justice *	X	X	—	—	X	X	—
Customs Authority	X	—	—	—	—	—	—
Ministry of Foreign Affairs	—	—	—	—	—	—	—
Quality and Standards Authority	X	X	—	—	—	—	—

Compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.

* for drugs only

X – indicates the existence of some responsibility on the part of the government institution in reference.

Table 5D: Responsibility of Government Ministries, Agencies and Other Institutions in the Management of Fertilizers and Pesticides

Stage of life-cycle /Ministry concerned	Importation	Production	Storage	Transport	Distribution/ Marketing	Use/ Handling	Disposal
Environmental Protection Authority	X	X	X	X	X	X	X
Ministry of Health	—	—	—	—	—	—	—
Ministry of Agriculture (pesticide)	X	X	X	—	X	X	X
Ministry of Labour & Social Affairs	—	—	—	—	—	X	—
Ministry of Trade and Industry	X	X	—	—	—	X	—
Ministry of Finance	—	—	—	—	—	—	—
Ministry of Transport	—	—	—	—	—	—	—
Security, Immigration and Refugee Affairs Authority	—	—	—	—	—	—	—
Ministry of Justice	—	—	—	—	—	—	—
Customs Authority	X	—	—	—	—	—	—
Ministry of Foreign Affairs	—	—	—	—	—	—	—
Quality and Standards Authority (fertilizer)	X	X	—	X	X	—	—
Fertilizer Agency	X	X	X	X	X	X	X

Compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.

X – indicates the existence of some responsibility on the part of the government institution in reference.

5.2 DESCRIPTION OF MINISTERIAL AUTHORITIES AND MANDATES

This section provides brief descriptions of the main responsibilities of public bodies and their involvement in specific aspects of chemical management listed in the previous section.

I. THE MINISTRY OF HEALTH

- ◆ Registers and controls pharmaceuticals, medical appliances, and pesticides for public health that may be put to use in the country; and
- ◆ Controls malaria and other vector-borne diseases.

II. THE MINISTRY OF JUSTICE

- ◆ Represents the Federal Government in criminal cases falling under the jurisdiction of the Federal Courts including offences committed against legal instruments on chemical management; and
- ◆ As the superior authority, directs and supervises the Federal Police Force which is the responsible body for the control of illicit traffic in drugs.

III. THE MINISTRY OF FOREIGN AFFAIRS

- ◆ In consultation with the concerned organs, negotiates and signs treaties and agreements Ethiopia enters into with other states and international organizations which are approved by the Government and effects all formalities of ratification of treaties and agreements; this, of course, includes treaties and agreements on various classes of chemicals;
- ◆ Co-ordinates all relations of other government organs with foreign states and international organizations; and
- ◆ Ensures that good relations with neighbouring countries are strengthened including environmental protection and chemical management.

IV. THE MINISTRY OF TRANSPORT AND COMMUNICATIONS

- ◆ Prepares draft laws concerning the regulation of transport such as the transportation of hazardous chemicals;
- ◆ Prepares and submits and, upon approval, implements standards relating to the smoke, gas, vapour and the like emitted from the exhaust pipes of vehicles with a view to preventing pollution; and
- ◆ Supervises the use of waterways

V. THE MINISTRY OF LABOUR AND SOCIAL AFFAIRS

- ◆ Determines standards and measures for the safety and health of workers and follows up their implementation;
- ◆ Supervises and ensures that where undertakings are constructed, expanded, renovated or their appliances installed, they are not dangerous to the safety and health of workers;
- ◆ Prepares a list of occupational diseases and schedules or degrees of disablement; and
- ◆ Classifies dangerous trades or undertakings.

VI. THE MINISTRY OF AGRICULTURE

- ◆ Registers and Controls pesticides in use in the country; and
- ◆ Control of migratory pest.

VII. THE MINISTRY OF TRADE AND INDUSTRY

- ◆ Conducts studies that help to control unfair trade practices on chemicals and follows up their implementation; and
- ◆ Implements the Chemicals Weapons Convention.

VIII. THE MINISTRY OF MINES AND ENERGY

- ◆ Makes sure that licence holders undertake measures that ensure health, safety and environmental protection.

IX. THE MINISTRY OF WATER RESOURCES

- ◆ Prepares draft laws concerning the protection and utilization of water resources; and
- ◆ In co-operation with the appropriate organs, prescribes the quality standard for waters to be used for various purposes.

X. ENVIRONMENTAL PROTECTION AUTHORITY

- ◆ Prepares environmental protection policy and laws and, upon approval, follows up their implementation;
- ◆ Prepares directives and systems necessary for evaluating the impact of social and economic development projects on the environment and follows up and supervises their implementation;
- ◆ Prepares standards that help in the protection of soil, water and air as well as the biological systems they support and follows up their implementation; and
- ◆ Follows up the implementation of international treaties on environmental protection to which the country is a party.

XI. NATIONAL FERTILIZER INDUSTRY AGENCY

- ◆ Gives a competence assurance certificate to any person who wants to engage in fertilizer business after making sure that enabling conditions are satisfied;
- ◆ Makes sure that any fertilizer locally manufactured or imported and stocked and ready for distribution and sale conforms to the requirements of Ethiopian Standard and is registered for use in the country as fertilizer; and
- ◆ Ensures that the disposal of any adulterated fertilizer is done according to the agency's directives.

XII. SECURITY, IMMIGRATION AND REFUGEE AFFAIRS AUTHORITY

- ◆ Issues licence for the possession or use of arms, firearms and explosives;
- ◆ Prescribes conditions under which explosives may be sold; and,
- ◆ Issues permits to persons who deal with explosives and to persons who repair arms and firearms.

XIII. ETHIOPIAN SCIENCE AND TECHNOLOGY COMMISSION

- ◆ Develops the capability and establish the system for searching, selecting, negotiating, procuring and importing technologies that are appropriate to the Ethiopian socio-economic conditions;
- ◆ Encourages and ensures the application of studies, research and development activities that are carried out to improve and develop indigenous technologies; and
- ◆ Initiates a patent law that encourages and supports technology transfer, enhances the practical application of inventions and encourages the development of inventions and innovations.

XIV. ETHIOPIAN HEALTH AND NUTRITION RESEARCH INSTITUTE

- ◆ Conducts research on traditional medicine, modern drugs and improvement of health;
- ◆ Carries out research in matters relating to food and nutrition; and
- ◆ Offers chemical, microbiological and medico-legal analysis of samples governing public health, criminal and, at times, environmental investigations.

XV. QUALITY AND STANDARDS AUTHORITY OF ETHIOPIA

- ◆ Provides standards of quality of products including chemicals (e.g. fertilizers, soaps and detergents); and

- ◆ Enforces these standards and works to strengthen the voluntary adherence to ISO 14000.

XVI. NATIONAL RADIATION PROTECTION AUTHORITY

- ◆ Monitors the import, use and disposal of radioactive substances and radiological equipment.

XVII. CUSTOMS AUTHORITY

- ◆ Checks out and controls all merchandises, including chemicals, imported into the country.

5.3 COMMENTS AND ANALYSIS

Overlaps in mandates are not significant; the only occurrence in this regard is the claim put by the Ministry of Health with regard to occupational safety and health vis-à-vis the Ministry of Labour and Social Affairs.

The absence of a comprehensive law governing the management of chemicals is very evident such that the control of consumer and industrial chemicals and chemical wastes is not assigned to a particular governmental control organ. Legally and institutionally, EPA appears to be the organ that is fit to assume the mandate. This clearly comes out in the Draft Framework Environmental Proclamation now in the pipeline.

There are national institutions that can easily be made to take part and contribute significantly to chemical management in this Country. A good example is the National Bank of Ethiopia. As the Bank issues letters of credit (LC) for all imports acquired by purchase, it can facilitate the management of chemicals by refusing or restricting the provision of LC to classified (banned or otherwise restricted) chemicals.

When it comes to performance and the current degree of implementation of the various institutional mandates, the general observation is that it is weak or inadequate. This is attributed to a rather weak commitment on the part of the State expressing itself in:

- ◆ Insufficient resources (funds, staff, equipment, etc.) allocated;
- ◆ Most proclamations not being amplified by regulations and directives to make them facile in terms of enforcement; and
- ◆ Some of the legal instruments and the organs emanating from them being too recent to have acquired the momentum to make them acceptably efficient.

The weakness on the part of the civil society (businesses, consumer groups, and other community-based organizations) has its contribution in this regard. For example, court actions against environmental nuisances are either absent or very rare.

CHAPTER 6: RELEVANT ACTIVITIES OF INDUSTRY, PUBLIC INTEREST GROUPS AND THE RESEARCH SECTOR

Ethiopia embarked, in 1992, on a Structural Adjustment Program (SAP) whereby a large number of reform measures were instituted. The main aim of SAP was to bring about macro-economic stability, socio-economic recovery and create conducive environment for a heightened participation of the private sector so that it becomes the principal actor in the economy while the public sector concentrates only on social sector and the development of infrastructure. As a result, the country is experiencing a rapid development of the private sector. Medium and large-scale industries, which were formerly public owned, are being privatized.

A large majority of Ethiopian industries import chemicals from abroad independently based on their needs. Local production of industrial chemicals is limited both in kind and quantity. Only a few factories in the chemical sector produce raw chemicals that are used in the processing and manufacturing industries. These factories are Zeway Caustic Soda Plant, Awash Melkassa Aluminium Sulphate and Sulphuric Acid Factory and Alkyd Resin Factory. All these factories are still under the public sector.

The production, import, distribution and transport of chemicals are not regulated as far as the management of chemicals in this country is concerned. The transport of chemicals, like all other goods, from the port of Djibouti to Ethiopia is mainly by road. The Ethio-Djibouti Railway S. Co. is an important means of transport from the port of Djibouti to Ethiopia. It is very much evident that chemicals are not receiving proper attention and care during haulage by road or rail. Chemical storage facilities for goods, both in transit and in storage depots, are poor. There often occurs the repackaging of chemicals in unsuitable containers or packets. Consequently, the handling of these chemicals is poorly managed and for this reason not only is the public at risk but also the environment gets polluted.

However, there are some encouraging activities being conducted to alter this state of affairs. For instance, the Ethiopian Private Industries Association in collaboration with the Chemical Society of Ethiopia (CSE) and a German based non-governmental organization, Heinerich Boll Foundation, have been conducting a two-cycled project by the name NACIPPE. NACIPPE (National Cleaner Industrial Production Project of Ethiopia) is an example of a timely response by non-governmental organizations to the ever-worsening environmental pollution caused by industrial wastes or chemicals. In so doing, the project played a vital role in creating awareness among participating industries on the need for industrial waste management in general and the proper use and management of chemicals in particular.

NACIPPE consisted of designing and implementing training modules and waste auditing techniques. It trained the requisite skilled manpower for executing factory audits, improving economic profitability and effecting environmental soundness of existing industries, both in the public and private sectors. So far, more than 38 factories have taken part in the two-cycled projects, NACIPPE I & II, with one or more waste minimization projects prepared for each factory by their respective audit experts at the end of the day.

In general, quiet a number of NGOs are doing considerable work in natural resources conservation and development activities in the country. Some of these NGOs are indigenous and others foreign-based. The numbers of NGOs that deal with environmental issues are also increasing. The majority of them are, however, young, inadequately staffed and with little or no experience. For this reason, their contribution to the management of chemicals is little and indirect. However, such difficulties did not stop them from being effective in creating environmental awareness among the public.

Research and development organizations/departments are generally weak or non-existent in the private sector. Their weakness is due to lack of trained personnel, equipment, organizational capacity and adequate investment. Research organizations, having well-organized and established facility for adequately addressing issues of management of chemicals, are mainly found in government institutions.

6.1 DESCRIPTION OF ORGANIZATIONS/PROGRAMMES

NGOs operating in the country are required to go through the legal formality in order to get registered and obtain permits. Though a separate list of organizations working on the environment and chemical management related activities is not yet available, a list of NGOs operating in all areas with brief statements describing their activities is found in the Disaster Prevention and Preparedness Commission (DPPC) with the address:

DPPC, P.O. Box: 5686, Addis Ababa, Ethiopia. Tel: 513011

6.2 SUMMARY OF EXPERTISE AVAILABLE OUTSIDE OF GOVERNMENT

The fields of expertise available are so interdependent and interrelated in supporting national programmes and policies related to chemical management that it suffices to summarize them in a single table for all classes of chemicals addressed in this profile (see Table 6A).

Table 6A: Summary of Expertise Available Outside of Government

Field of expertise	Research Institutes	Universities	Private Industrial Associations	Environmental Groups	Labour Unions	Professional Organization	Others (Specify)
Data Collection	X	–	X	–	–	X	–
Testing of Chemicals	X	–	X	–	–	–	–
Risk Assessment	X	–	X	X	–	X	–
Risk Reduction	X	–	X	X	–	X	–
Policy Analysis	–	–	–	X	–	X	–
Training and Education	X	–	–	X	X	X	–
Research on Alternatives	X	–	–	X	–	X	–
Monitoring	X	–	X	–	–	–	–
Enforcement	–	–	–	–	–	–	–
Information to Workers	X	–	X	–	X	X	–
Information to Public	X	–	–	X	–	X	–
Others (Specify)	–	–	–	–	–	–	–

X = availability of expertise. – = unavailability of expertise.

6.3 COMMENTS AND ANALYSIS

In Ethiopia, there is a provision for the exchange of information between government bodies and NGOs. NGOs, registered and having legal permits, are considered entities entitled to work in various degrees of cooperation with different governmental bodies. As mentioned earlier, the number of NGOs operating in the area of chemical management is not many and their role in influencing government decision does not exceed that of ordinary pressure groups. However, their contributions in informing the public about chemical risks are more effective.

The voluntary initiatives taken by Ethiopian Private Industries Association (EPIA) and the professional association, the Chemical Society of Ethiopia, in conducting a two-cycled project, NACIPPE, proved successful resulting in a meaningful effect in supplementing chemical management activities both in the public and private sector industries. Moreover, the contribution made in terms of increased awareness on the need to a more integrated approach towards chemical management in both the relevant public authorities and various other organizations is exemplary.

CHAPTER 7: INTER-MINISTERIAL COMMISSIONS AND CO-ORDINATING MECHANISMS

In this chapter an attempt is made to provide a brief description of the existing inter-ministerial co-ordinating mechanisms in the area of chemical management. There are about six of them in Ethiopia and are established in the form of standing national committees and boards to deliberate upon issues relevant to their functional areas. These committees and boards facilitate co-operation and co-ordination among different government ministries, authorities, commissions, NGOs and other relevant organizations. The existing co-ordination mechanisms cover various classes of chemicals including pesticides, ozone depleting chemicals, radioactive chemicals and those covered by the Chemical Weapons Convention. The participation of NGOs and professional associations in the existing co-ordinating mechanisms is minimal limited to such organizations as Lem Ethiopia, Chemical Society of Ethiopia, Christian Relief Development Association and the Ethiopian Chamber of Commerce through their involvement in a few committees.

7.1 DESCRIPTION OF INTER-MINISTERIAL COMMISSIONS AND CO-ORDINATING MECHANISMS

THE ENVIRONMENTAL PROTECTION COUNCIL

The Environmental Protection Authority was established in 1995 by Proclamation No. 9/1995. As a complementing body, the Environmental Protection Council was established by the same proclamation. The Council has powers and duties to deliberate upon policy matters concerning environmental protection and submit its recommendation thereon. It is also within its powers to evaluate and approve directives and standards that would be issued by the Authority. The chairperson of the Council is a higher official designated by the Federal Government, which currently is the Minister of Agriculture. The secretary of the Council is the general manager of the EPA. The other member institutions in the council are represented by their respective ministers or commissioners.

The Council holds biennial regular meeting. However, it may at any time hold an extraordinary meeting whenever deemed necessary. Decisions of the council are passed by a majority vote. In general, the Environmental Protection council is a kind of standing inter-ministerial co-ordinating mechanism that could deliberate not only on issues related to chemical management, but in its wider sense, in all matters essential to protect the environment from degradation. Thus, the Council would not be limited to concentrate on particular classes of chemicals, but have the opportunity and mandate to deliberate on policy issues and regulations that would contribute to the overall management of chemical as the case may be.

PESTICIDES ADVISORY COMMITTEE

The utilization of pesticides for different purposes, particularly for raising agricultural output, has grown steadily in Ethiopia. As a result, it was found necessary to minimize, to a realizable extent, the adverse effects that utilization of pesticides might cause to humans, animals, plants and the environment. To this end, a special decree for the registration and control of pesticides was issued in 1990. The Decree provides the necessary rules and guidelines for registration, packaging, labelling, storage and disposal of pesticides. The enforcement of the Decree is the responsibility of the Ministry of Agriculture.

The Decree also provides for a Pesticide Advisory Committee to facilitate its implementation. Responsibilities of the Advisory Committee consist of preparing a list that would expedite registration by collecting and evaluating data relating to pesticides recognized to be efficacious through domestic research, past use or otherwise. It is also among its responsibilities to consider pesticides submitted for registration and advise the Minister as to compliance with the requirements specified in the Decree. The Minister of Agriculture appoints the chairman of the Committee. The vice-chairperson is, by decree, the representative from the Ministry of Health. Members of the Committee are all representatives of government institutions that have close relations with the management of pesticides (See Table 19). The Committee is scheduled to meet at any time at the request of the chairperson. In all its deliberations the Committee makes decisions on the basis of majority vote.

CHEMICAL WEAPONS CONVENTION ADVISORY BOARD

Ethiopia is a signatory of the convention on the prohibition of the development, production, stockpiling and use of chemical weapons and their destruction. Proclamation No.30/1996 empowers the Ministry of Trade and Industry to undertake, in cooperation with the appropriate government organs, all acts necessary for the implementation of the Convention. To promote the cooperation between the relevant government ministries and assist on the smooth implementation of the Convention, an inter-ministerial committee in the form of consultative board was established. The Board consists of five ministries and two authorities chaired by the representative from the Ministry of Trade and Industry. The chairperson summons meetings of the board whenever the need arises.

The Convention defines chemical weapons as involving toxic chemicals and their precursors except where intended for purposes not prohibited under the Convention and as long as the types and quantities are consistent with the designated purposes. Toxic chemical, according to the Convention, means any chemical action on life processes that can cause death, temporary incapacitation or permanent harm to humans and/or animals. This includes all such chemicals regardless of their origin or their method of production or whether they are produced in facilities, in munitions or elsewhere. Any chemical reactant, which takes part at any stage in the production, by whatever method, of a toxic chemical is considered a precursor. The range of chemicals that is covered by the Convention is listed in Schedules I, II and III of the Convention. The Convention also provides guidelines and procedures for the declaration, verification, transfer and destruction of toxic chemicals. The Advisory Board consults the Minister on the thorough implementation of these guidelines and procedures.

OZONE NATIONAL COMMITTEE

Ethiopia ratified the Vienna Convention For The Protection Of The Ozone Layer and the Montreal Protocol On Substances That Deplete The Ozone Layer in September 1994. It became a party to the Convention and the Protocol in 1995. The Montreal Protocol mainly controls the production and consumption of commercially and environmentally significant ozone depleting substances, i.e. all forms of Chlorofluorocarbons and halons.

A national workshop was held in September 1995 to establish a National Ozone Committee. The major tasks of the Committee were to assess and co-ordinate activities related to Ozone depleting substances and investigate whether such activities are in conformity with the Vienna Convention and the Montreal Protocol. An Ozone Unit was also established under the NMSA to perform the day-to-day activities and report to the National Committee. The secretariat of the Committee is NMSA and has members from about a dozen governmental and non-governmental organizations. The Committee is scheduled to meet once every three months with a possibility to call urgent meetings as the case may require. Currently, a draft legislation for Ozone depleting substances is being prepared and the legal status of the Committee will be determined by it.

NATIONAL COMMITTEE ON CLIMATE CHANGE

Ethiopia has taken a number of steps with regard to Climate Change Convention at the national level. These include attending the Rio Earth Summit and signing the United Nations Framework Convention on Climate Change (UNFCCC) on 10 June 1992 and ratifying it on 5 April 1994. Moreover, as a party to the Convention, Ethiopia has a continuing long-term commitment to implement the agreements ensuing from the Convention, of which the immediate one was preparing and submitting a National Communication to the Conference of Parties of the UNFCCC. To achieve this, a project was formulated and a National Ad Hoc Committee on Climate Change formed. The Committee was composed of senior representatives from various ministries, institutions of higher learning, research institutions and NGOs as listed in Table 7A.

The main duties and responsibilities of the National Committee include overseeing the development of the National Climate Change Action Plan and preparation of the National Communication of Ethiopia to the UNFCCC. Undertaking an inventory of greenhouse gases (GHG), following the guidelines adopted by the Conference of Parties, and conducting an assessment of potential impacts of climate change in Ethiopia (together with an analysis of potential measures to abate the increase in GHG emissions in the country) are some of the project's components to be performed by the National Committee. The Committee, besides, has a working technical sub-committee composed of experts with various disciplines. It holds quarterly meetings chaired by the general manager of National Meteorological Service Agency (NMSA).

NATIONAL RADIATION PROTECTION BOARD

The National Radiation Protection Authority was established in 1993 with the aim to regulate, control and supervise radiological work and all activities related to the acquisition, use, transportation and disposal of radioactive substances, x-ray equipment and other machines capable of emitting ionizing radiation. Rendering radiation protection services and encouraging research and development in radiation protection are also the tasks of the organization.

Together with the establishment of the Authority, a National Radiation Protection Board was formed. The Board has responsibilities to formulate policies, concerning radiation protection, and issue guidelines, rules and directives for their implementation. It also prescribes application and license forms, fees and fines upon the recommendations of the general manager.

Various relevant government bodies constitute the Board. Chairperson of the Board is the Commissioner of the Ethiopian Science and Technology Commission. The Board is scheduled to meet at least once in six months and on such occasions as the chairperson may decide. As usual, in decision making, the Board adheres to majority vote.

7.2 DESCRIPTION OF MECHANISMS FOR OBTAINING INPUTS FROM NGOS

Many of the NGOs operating in the country involved themselves, at least initially, in relief and rehabilitation activities following the 1983/84 drought and subsequent ones. As time went by, NGOs changed their attention and orientation in the direction of promoting development and natural resources conservation. It was partly in this vein that environmental NGOs started to emerge. These environmental NGOs, both indigenous and foreign-based, are, more often than not, young, understaffed and inadequately financed. Bigger and experienced NGOs, like the CRDA, have developed a mechanism by which they work in close collaboration with other similar NGOs found in the country. The information flow from NGOs to the Government and vice versa is good. However, a formally established mechanism that facilitates direct dialogue between NGOs themselves and the government is absent. This of course limits the participation and influence of NGOs in decision-making and planning processes.

7.3 COMMENTS AND ANALYSIS

All the existing inter-ministerial co-ordinating mechanisms are charged with responsibilities covering the management of a limited class of chemicals in each case. The Pesticides Advisory Committee is working, to some degree of effectiveness, to implement the rules and regulations stated in the Decree. In so doing, the Decree makes valuable contribution to the overall management of pesticides in the country. The management of radioactive substances, another class of chemicals, is seen to be by the Radiation Board. Although the handling and use of various forms of radioactive substances is not widespread in the country, the Board is still making important moves to protect the public from the hazards these may pose. The Environmental Protection Council, on its part, is responsible for deliberating on policy matters and the creation of effective co-ordination mechanism necessary to bring about the safe management of all classes of chemicals. In this respect, the Council is not observed to discharge its responsibilities effectively. The aforementioned three inter-ministerial mechanisms were established by proclamations with their constituting members stated. Therefore, the opportunity to include additional members outside of government is not possible. However, the representation of relevant government agencies in these mechanisms is appropriate for the purpose. For instance, this arrangement makes possible the exchange of essential information between different agencies charged with chemical management to various degrees.

The remaining three inter-ministerial mechanisms were mainly established to implement international conventions that were ratified by the Government. The Ozone and Climate Change Conventions cover only very limited classes of chemicals while the Chemical Weapons Convention covers a relatively wider range of chemicals. Nonetheless, all three are undertaking the implementation of the respective conventions adequately. The participation of non-governmental organizations is observed here, and there is further room to involve more such parties in these mechanisms.

It is evident, however, that the co-ordinating mechanisms, as we have them here, don't cover all classes of chemicals. Industrial, consumer and hazardous chemicals are examples of chemicals that are not covered by the existing mechanisms. Moreover, the six mechanisms identified here are not linked to each other and they function separately. This, among others, leaves them without a system of co-ordination between them.

Table 7A: Overview of Inter-Ministerial Commissions and Co-ordination Mechanism

Name of Mechanisms	Responsibilities	Secretariat	Members	Legislative Mandate/Objective	Information Provide in Section 7.1	Effectiveness
Environmental Protection Council	<ul style="list-style-type: none"> - Suggest to the government improvement in environmental policy - Approve directives and standards 	Environmental Protection Authority	Ministry of Agriculture Ministry of Health Ministry of Trade and Industry Ministry of Mines and Energy Ministry of Water Resources Ethiopian Science and Technology Commission	<ul style="list-style-type: none"> - Deliberate upon policy matters concerning environmental protection and submit recommendations thereon - Evaluate and approve directives & standards issued by the Authority 	Yes	Poor
Pesticides Advisory Committee	<ul style="list-style-type: none"> - Registration of pesticides 	Ministry of Agriculture	Ministry of Health Quality and Standards Authority of Ethiopia Environment Protection Authority Ethiopian Agricultural Research Organization	<ul style="list-style-type: none"> - Prepare a list that would help facilitate registration by collecting & evaluating data relating to pesticides recognized to be efficacious through research, past use or otherwise - Consider pesticides submitted for registration & advise the Minister as to their compliance with the requirements specified under Sub-articles 1, 2&3 of Article 5. 	Yes	adequate
Chemical Weapons Convention Advisory Board	Follow up the implementation of the Convention	Ministry of Trade and Industry	Ministry of Defence Ministry of Foreign Affairs Ministry of Agriculture Ministry of Health Customs Authority Environmental Protection Authority Public Enterprise Administration Office (in the Prime Ministers Office)	Facilitate implementation of the Convention ratified by Proclamation No.30/1988	Yes	adequate

Name of Mechanisms	Responsibilities	Secretariat	Members	Legislative Mandate/Objective	Information Provide in Section 7.1	Effectiveness
Ozone National Committee	Follow up the implementation of the Convention	National Meteorology Service Agency	Ministry of Agriculture, Ministry of Trade and Industry, Ministry of Labour and Social Affairs, Ministry of Culture and Information, Ministry of Health Customs Authority Environmental Protection Authority Ethiopian Civil Aviation Authority, Addis Ababa University Lem Ethiopia, Chemical Society of Ethiopia Ethiopian Chamber of Commerce	Integrate Convention related activities in various institutions	Yes	Adequate
National Committee on Climate Change	Facilitates the implementation of the Convention	National Meteorology Service Agency	Ministry of Health Ministry of Mines and Energy Ministry of Agriculture Ministry of Economic Development and Cooperation Environmental Protection Authority Ethiopian Science and Technology Commission Addis Ababa University Ethiopian Agricultural Research Organization Christian Relief and Development Association	<ul style="list-style-type: none"> - Integrate activities related to the Convention - Oversee the development of the National Climate Change Action Plan and the preparation of the National Communication of Ethiopia to the UFGCC - Recommend to the Government needed legislative and policy changes to climate change 	Yes	Adequate

Name of Mechanisms	Responsibilities	Secretariat	Members	Legislative Mandate/Objective	Information Provide in Section 7.1	Effectiveness
Radiation Authority Board	Controls the importation and safety of radioactive substances and equipment	Ethiopian Science and Technology Commission	Ministry of Health Ministry of Mines and Energy Ministry of Agriculture Ethiopian Science and Technology Commission Ministry of Labour and Social Affairs Ministry of Trade and Industry Ministry of Education Ministry of Works and Urban Development Environmental Protection Authority Senior scientists	Ensure the safe management of radioactive substances and equipment	Yes	Adequate

Data compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.

CHAPTER 8: DATA ACCESS AND USE

This chapter provides an overview of the availability of data for chemical management and the related infrastructure and analyses on how information is used for national and local chemical risk reduction.

8.1 AVAILABILITY OF DATA FOR NATIONAL CHEMICAL MANAGEMENT

Information plays a key role in sustainable development and this includes the reduction of chemical risk both at national and local levels. This makes the availability of chemical data decisive for chemical management. The quantity and quality of data collected, besides, depends on the provision of adequate resources.

In Ethiopia, different data/information related to chemical safety are supposed to be available in various governmental and non-governmental organizations. Among these, the major ones are the Ministry of Agriculture, Ministry of Trade and Industry, the Customs Authority and the Ministry of Mines and Energy. Although these sources have some data/information related to chemicals, these data, however, are not systematically stored or organised. For this reason, they cannot be easily accessed whenever required to install proper chemical management practices.

The Environmental Protection Authority, which was established in 1995, has managed to formulate the country's environmental policy. The Environmental Policy of Ethiopia, which was sanctioned by the Government on 2 April 1997, provides, among others, for the development of Environmental Information System (EIS) in the country. The process of developing an EIS has already been launched by the Authority and is past its initial stage. In this system, obviously, the place allotted to data /information related to chemical management will be considerable. For the time being, however, the state of data/information related to chemical management is very poor and access, whenever possible, is very time consuming.

Table 8A provides available data at the national level. At present, the information available pertaining to industrial and consumer chemicals and chemical wastes in the country is insufficient. This situation arose due to the fact that very few data of this nature is handled by the relevant organisations. Perhaps the only two exceptions in this regard are data regarding obsolete pesticides and the use of pesticide in the country. FAO recently carried out an inventory of obsolete pesticides accumulating in different regions in the country. According to this inventory, there are over 1500 tons of obsolete pesticides in this country in various stages of disuse and risk. Furthermore, there is substantial amount of data/information collected on pesticides, thanks to the pesticide registration that is being carried out by the Ministry of Agriculture.

Table 8A: Quality and Quantity of Available Information at a National Level

Data needed for/to:	Pesticides (agricultural, public health and consumer use)	Industrial chemicals	Consumer chemicals	Chemical wastes
Priority Setting	Fair	Poor	Poor	Poor
Assess Chemicals Impact under Local Conditions	Poor	Poor	Poor	Poor
Risk Assessment (environment/health)	Poor	Poor	Poor	Poor
Classification/Labeling	Good	Poor	Poor	Fair
Registration	Good	Poor	Poor	Poor
Licensing	Good	Poor	Poor	Poor
Permitting	Good	Poor	Poor	Poor
Risk Reduction Decisions	Fair	Poor	Poor	Poor
Accident Preparedness/Response	Poor	Poor	Poor	Poor
Poising Control	Poor	Poor	Poor	Poor
Emissions Inventories	Poor	Poor	Poor	Poor
Inspections and Audits (environment/health)	Poor	Poor	Poor	Poor
Information to workers	Fair	Fair	Poor	Poor
Information to the public	Poor	Poor	Poor	Poor
Others	—	—	—	—

Data compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.

8.2 LOCATION OF NATIONAL DATA

Different types of data are located in different organisation and agencies at the national level that can be used for chemical management as shown in Table 8B. These data are stored in different formats. The statistical data on imports and exports located in the Customs Authority are automated databases while the rest are not. Means of access to both the automated and non-automated data files is through direct request.

Table 8B: Location of National Data

Type of Data	Location(s)	Data Source	Who has access?	How to gain access ?	Format
Production Statistics	—	—	—	—	—
Import Statistics	Customs Authority	Declaration	Public	By request	Automated Database
Export Statistics	Customs Authority	Declaration	Public	By request	Automated Database
Chemical Use Statistics	—	—	—	—	—
Industrial Accident Reports	Ministry of Labour and Social Affairs	Firms	Public	By request	File Database
Transport Accident Reports	—	—	—	—	—
Occupational Health Data (industrial)	—	—	—	—	—
Poisoning Statistics	Ethiopian Health and Nutrition Research Institute	Various	Institutions	By request	Mimeograph
Pollutant Release and Transfer Register	—	—	—	—	—

Type of Data	Location(s)	Data Source	Who has access?	How to gain access ?	Format
Hazardous Waste Data	–	–	–	–	–
Register of Pesticides	Ministry of Agriculture	Plant production & Protection Department	Public	By request	File Database
Register of Toxic Chemicals	–	–	–	–	–
Inventory of Existing Chemicals	–	–	–	–	–
Register of Imports	–	–	–	–	–
Register of Producers	–	–	–	–	–
PIC Decisions	–	–	–	–	–
Others	–	–	–	–	–

Data compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.
Data gap: (–) in the table stands for data gap.

8.3 PROCEDURE FOR COLLECTING AND DISSEMINATING NATIONAL/LOCAL DATA

The collection of data/information is carried out using various methods. These include direct methods for primary data and indirect methods to obtain secondary data. Data collection is done by means of direct interviews, questionnaires, registration forms and by carrying out field visits. At present a standardised format for chemical data collection is not available at the national level. For this reason, different organisations employ their own different formats and criteria for undertaking data collection. For example, the Ministry of Agriculture, as the responsible body for the registration of pesticides in the country, has developed its own registration criteria for pesticides that are being used at the national level. The National Fertiliser Agency also uses its own format for the purpose of registering the manufacture, trade, storage and transport of fertilisers. In general, the procedures for the collection and dissemination of chemical data in the country depend mainly on the internal policies or purposes of the different organisations and agencies.

8.4 AVAILABILITY OF INTERNATIONAL LITERATURE

It is obvious that international literature play crucial role in the transfer of ideas, knowledge, new findings, etc. International literature that focus specifically on chemical management are introduced into the country in different ways and manners. Some are sent in from abroad by mail or other means to institutions or individuals while others are brought in by individuals after taking part in training, workshops and the like. Furthermore, some of these end up in libraries and similar institutions where the public has a relatively easy access while others are kept individually as exclusive private property.

Generally speaking, the location and availability of international literature is not systematised and users cannot easily access them. Table 8C shows the availability of international literature, their locations, those who may use them and the means of access.

Table 8C: Availability of International Literature

Literature	Location	Who has access?	How to gain access?
Environmental Health Criteria Documents	Environmental Protection Authority	Public	By Request
Health and Safety Guides (WHO)	Environmental Protection Authority	Public	By Request
International Chemical Safety Data Cards (IPCS/EC)	Environmental Protection Authority	Public	By Request
Decision Guidance Documents for PIC Chemicals (FAO/UNEP)	Environmental Protection Authority	Public	By Request
FAO/WHO Pesticides Safety Data Sheets	Ministry of Agriculture	Public	By Request
Documents from FAO/WHO Joint Meeting on Pesticide Residue	Quality and Standards Authority of Ethiopia	Public	By Request
Materials Safety Data Sheets (industry)	–	–	–
OECD Guidelines for the Testing of Chemicals	–	–	–
Good Laboratory Practice Principles	–	–	–
Good Manufacturing Practice Principles	–	–	–
WHO/UNEP Global Environmental Library Network	–	–	–
Codex Alimentarius	Quality and Standards Authority of Ethiopia	Public	By Request

Data compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.
Data gap: (–) in the table stands for data gap.

8.5 AVAILABILITY OF INTERNATIONAL DATABASES

The international databases for the purpose of chemical management in display in Table 8D can be located in the institutions indicated.

Table 8D: Availability of International Databases

Database	Location(s)	Who has access?	How to gain access?
IRPTC	Environmental Protection Authority	Public	By Request
ILO CIS	Ministry of Labour and Social Affairs	Public	By Request
IPCS INTOX	–	–	–
Chemical Abstract Services Database	–	–	–
Global Information Network on Chemicals (GINC)	–	–	–
STN Database	–	–	–
Relevant Databases from other countries	–	–	–
Codex Alimentarius	Quality and Standards Authority of Ethiopia	Public	By Request
Chemical Safety CD-ROM	Environmental Protection Authority	Public	By Request

Data compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.
Data gap: (–) in the table stands for data gap.

Although these international databases are available in the institutions indicated there is, however, difficulty in the exchange of information between the different organizations dealing with chemical management.

8.6 NATIONAL INFORMATION EXCHANGE SYSTEMS

At present, manual system for the exchange of information between institution or individuals prevail and these mostly involve long and exhaustive processes.

8.7 COMMENT AND ANALYSIS

There are serious gaps in the literature and information base pertaining to the management of chemicals. There are considerable number of farmers that use agro-chemicals indicating the high demand for literature and information for the appropriate management of chemicals. The different institutions that deal with chemicals, i.e. trade, transport, storage, etc. are also required to be able to know or provide as much detail as possible about each chemical they are concerned with. As stated previously, the inefficiency reigning in the exchange of information is both the cause and the result of the gap prevailing between the demand and the possibility of accessing literature on chemicals of both domestic and foreign origins. Furthermore, the general public has the need to be made aware of such issues that promote or enhance chemical management at the grassroots level. However, the rather low awareness raising campaigns made available to the public by the concerned institutions in the field of chemical management has made this far from adequate but this has to improve in the near future if this state of affairs is to change for the better.

Although there are plentiful international data that are available on the management of chemicals, adequate access to these data, however, has much to be desired. Lack of technical know-how, poor communication infrastructure and low publicity, for instance, are some of the problems restricting access to international data.

As it is clearly stated in the country's environmental policy, the Environmental Protection Authority has to work hard to ensure the people's right to access environmental information. In order to implement this, in particular, and the policy, in general, the Environmental Protection Authority needs to acquire the relevant data/information related to chemicals. It is hoped that good relationships that are to be developed among the pertinent international and local organizations in the area of the exchange of data/information on chemical management will facilitate this further.

In the future, the following have to be done if the state of chemical management in this country is to acquire a sense of adequacy: (1) systematize all available information related to chemical management; (2) collect enough international literature and master database that could be accessed easily by users; and, (3) create awareness by different means including networking and other exchanges of data or information.

CHAPTER 9: TECHNICAL INFRASTRUCTURE

9.1 OVERVIEW OF LABORATORY INFRASTRUCTURE

No government laboratory is accredited or certified as to meet Good Laboratory Practice (GLP). However, there are laboratories with good working laboratory infrastructures and facilities in different government institutions such as the Ministry of Agriculture, the Ministry of Mines and Energy, the Quality and Standard Authority of Ethiopia and Addis Ababa University. These laboratories are established for different purposes. For the time being, there is no laboratory which is established for the purpose of chemical management but almost all the major laboratories in Ethiopia have the capacity to undertake chemical and other residue analysis at one level or another.

Some of the major problems facing laboratories are lack or shortage of equipment, inadequate maintenance capability of instruments and lack of spare parts. The problems are further compounded by unreliable overseas supplies. The location of the laboratories is another problem; almost all the major laboratories are located in Addis Ababa and this makes it difficult to carry out analysis at the regions (Table 9A).

Standardized analytical tests can easily be performed in most of these laboratories as these can easily handle standard test manuals published by international organizations. There are also national programmes for improving the quality of laboratories and increase their number. In addition, there is a plan for setting up a national environmental laboratory.

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

Name/Description of Laboratory	Location	Equipment/Analytical Capabilities Available	Accreditation (if yes, by whom?)	Certified GLP (yes/no)	Purpose
Ethiopian Health & Nutrition Research Institute	Addis Ababa	AA, HPLC, GLC, GC	–	–	Conducts water analysis, trains laboratory technicians for bacteriological studies
Institute of Pathobiology	Addis Ababa	AA	–	–	Monitors environmental radiation, water plus human diseases; analyzes water for disease vectors
Ministry of Water Resource	Addis Ababa	SE, SP	–	–	Three good laboratories currently underutilized but could conduct all of sample
Water Supply and Sewerage Authority	Addis Ababa	SE	–	–	Research interest only
Ethiopian Institute of Geological Survey (EIGS)	Addis Ababa	X, AA, EM, GC	–	–	Available to carry out all external soil and water analyses; has maintenance capability for electronic equipment.
Quality and Standard Authority of Ethiopia	Addis Ababa	AA GC	–	–	Available to carry out some external analyses, particularly, useful as an external auditing laboratory

Name/Description of Laboratory	Location	Equipment/ Analytical Capabilities Available	Accreditation (if yes, by whom?)	Certified GLP (yes/no)	Purpose
National Soil Laboratory (Ethiopian Agricultural Research Organization)	Addis Ababa	AA, X, SE	–	–	Available and eager to carry out all plant, soil and water analysis; mandated to supply soil testing facilities for Ethiopia
Plant Protection Laboratory (Ministry of Agriculture)	Addis Ababa	GC HPLC	–	–	To check pesticide residue and quality assurance
Plant Genetic Resources Centre	Addis Ababa	PA	–	–	Has a peripheral interest in pesticide residues
International Livestock Research Institute	Addis Ababa	AA, GC, PA, LC, SE	–	–	Available to carry out specific soil, plant or water samples, good laboratory for auditing
Desert Locust Control Organization for East Africa (DLCO-EA)	Addis Ababa	GC	–	–	Underutilized, capable of analyzing pesticide residues
Arba Minch Water Technology Institute	Arba Minch	SE	–	–	Very good regional centre, eager to carry out both analyses and research, with some maintenance facilities
Addis Ababa University Faculty of Technology, Addis Ababa University Faculty of Science	Addis Ababa	SE, EM, HPLC, PO, EA, SP, GC	–	–	Currently carries out specialized soil, water testing for physical, biological and chemical parameters
EARO	Holeta, Debre Zeit, Ambo PPRC	SP, EM	–	–	Runs laboratory service
Alemaya University of Agriculture	Alemaya	SE, AA	–	–	Capable of carrying out soil, plant and water analyses, co-operates in regional research programmes

Data compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.
 LC = Liquid Chromatography SE = Soil Engineering GC = Gas Chromatography
 PA = Protein Analyzer X = x-ray Diffraction EM = Electron Microscope
 AA = Atomic Absorption SP = Spectrophotometer GLC = Gas Liquid Chromatography
 HPLC = High Performance Liquid Chromatography EA = Electro chemical Analyzer
 Data Gap - Accreditation or Certified GLP PO = polarograph

9.2 OVERVIEW OF GOVERNMENT INFORMATION SYSTEMS AND COMPUTER CAPABILITIES

Although a detailed survey regarding computer systems available in the country has not been carried out so far, it appears that there are quite a number of computer systems in use in the country such that the chance of encountering incompatibility between them is quite significant.

At present, most of the computer systems owned by different organizations have good processing capacity. This indicates that the computer systems available in the country are e-mail and internet compatible that they enable communication with other systems in different parts of the world. (See Table 9B).

Table 9B: Computer Database Systems in the Country

Location	Equipment Available		Current Use
Ethiopian News Agency	Router/Modern/Hub/etc. Server Workstation (PC)	4 4 63	Word Processing Database Management and Statistical Analysis
Geological Survey of Ethiopia	Router/Modern/Hub/etc. Server Workstation (PC)	1 1 55	"
Institute for Curriculum Development & Research	Workstation (PC)	30	"
Ministry of Economic Development and Cooperation	Router/Modern/Hub/etc. Server Workstation (PC)	1 1 86	"
Ministry of Education	Mini-Computer Router/Modern/Hub/etc. Server Workstation (PC)	7 1 1 100	"
Ministry of Foreign Affairs	Router/Modern/Hub/etc. Server Workstation (PC)	1 1 31	"
Ministry of Information and Culture	Workstation (PC)	41	"
Ministry of Labour and Social Affairs	Workstation (PC)	27	"
Ministry of Mines and Energy	Workstation (PC)	38	"
Ministry of Trade and Industry	Mini-Computer Router/Modern/Hub/etc. Server Workstation (PC)	6 1 1 37	"
Addis Ababa Administration	Workstation (PC)	45	"
Central Statistical Authority	Mini-Computer Workstation (PC)	1 154	"
Disaster Prevention and Preparedness Commission	Min-Computer Router / Modern / Hub / etc. Server Workstation (PC)	2 6 6 244	"
Energy Studies Centre	Workstation (PC)	23	"
Ethiopian Mapping Authority	Router/Modern/Hub/etc. Server Workstation (PC)	2 2 44	"
Ethiopian Investment Authority	Router/Modern/Hub/etc. Server Workstation (PC)	1 1 18	"
National Meteorological Services Agency	Mainframe Mini-Computer Workstation (PC)	1 1 9	"
National Petroleum Reserve Depots Administration	Workstation (PC)	3	"
National Scientific Equipment Centre	Router/Modern/Hub/etc. Server Workstation (PC)	1 1 4	"
Office of the Federal Auditor General	Router/Modern/Hub/etc. Server Workstation (PC)	1 1 29	"
Regional Affairs Sector (PMO)	Workstation (PC)	56	"
Coffee and Tea Authority	Mini-Computer	11	"

Source: Ethiopian Science and Technology Commission
Data gap – computer systems/database

9.3 OVERVIEW OF TECHNICAL TRAINING AND EDUCATION PROGRAMMES

At present, there are no specific training institutions established for or specific training programmes meant for chemical management in Ethiopia. Since most of the technicians and analysts, in most of the laboratories, got their training locally and abroad, the likelihood of their acquiring training in one or another area of chemical management is high. On the other hand, specific courses such as environmental science and economics are finding their way, however gradually, into some of the syllabus offered by some of the learning/training institutions in the country.

9.4 COMMENT AND ANALYSIS

The overall technical infrastructure with regard to chemical management within the country is very weak. There are, however, a number of laboratories with adequate facilities and trained staff that will only need a minimum of specialized training to improve their understanding and skills in chemical management. There is no laboratory with a clear mandate pertaining to chemical management; lack of basic legislation and subsidiary laws and the absence of a centralized organ with clear behest on chemical management are the main gaps or problems evident in this regard in the country.

CHAPTER 10: INTERNATIONAL LINKAGES

Ethiopia's foreign policy among others is based on conflict prevention and resolution. This policy has been instrumental in the Country's contribution to negotiations of international environmental instruments. Ethiopia has also managed to register good record in global response to international environmental questions. For instance, Ethiopia participated in the Rio Conference and approved Agenda 21. With regard to chemical management, Ethiopia took part in key fora that dealt with the elaboration of major environmental instruments, whether voluntary or mandatory. Some of these are PIC, POPs Convention, the Bamako Convention, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the Montreal Protocol on Substances that Deplete the Ozone Layer and the UN Framework Convention on Climate Change.

In the service of improved and sustainable consumption pattern and the protection of human health, Ethiopia has drawn inspiration from voluntary instruments. Some of these are FAO Code of Conduct on the Use and Distribution of Pesticides and ILO Conventions 170 and 174, in the area of crop protection and of occupational safety and health, respectively.

10.1 CO-OPERATION AND AGREEMENTS WITH INTERNATIONAL ORGANIZATIONS AND BODIES

The Country's linkages with international organizations especially in the area of chemical management are as follows:

- ◆ Receives support to address concerns relating to chemicals from or via UN organs such as FAO, UNEP, UNIDO, WHO and ILO;
- ◆ Acquires information on legislation and technologies used to reduce risks at the local level through documentation from US - EPA and other countries; and
- ◆ Obtains international information/literature from other countries relating to chemical management including measures taken with respect to specific chemicals such as those in the PIC procedure.

With regard to international agreements, Ethiopia has so far participated in the negotiations of major instruments such as PIC and POPs but has not yet signed or ratified them. Ethiopia is, however, a signatory of international environmental instruments such as the Vienna Convention on the Protection of the Ozone Layer, Convention on the Elicit Trafficking and Abuse of Narcotic and Psychotropic Substances, Convention on Climate Change and the Convention on Biological Diversity.

10.2 PARTICIPATION IN RELEVANT TECHNICAL ASSISTANCE PROJECTS

Concerning chemical management, only a few projects have been implemented or are in progress in Ethiopia. These projects have generated limited impact with respect to reducing chemical risks (see Table 10A).

Table 10B provides information on Ethiopia's membership in international organizations and programmes while Table 10C provides information on Ethiopia's involvement in international activities and agreements.

Table 10A: Participation as Recipient in Relevant Technical Assistance Projects

Name of Project	International/Bilateral Donor Agency Involved	National Contact Point	Relevant Activities
Implementation of the Montreal Protocol on Ozone Depleting Substances	UNEP	EPA	Phasing of ozone depleting substances
Pesticide Inventory in Ethiopia	FAO	MoA	Inventory of obsolete pesticides

Table 10B: Membership in International Organizations, Programmes and Bodies

International Organization/ Body/Activity	National Focal Point (Ministry/Agency and Primary Contact Points) ¹	Other Ministries Agencies Involved	Related National Activities
International Forum on Chemical Safety (IFCS)	EPA	Ministry of Agriculture	Inventory of obsolete pesticides and their disposal systems
UNEP	General Manager, EPA	National Meteorology Service Agency, Institute of Biodiversity, Research and Conservation	Implementation of Montreal Protocol, Climate Change Convention, Participation in international POPs and PIC negotiations
UNIDO	General Manager , EPA	Ministry of Industry and Trade,	Environmentally Sustainable Industrial Policy Project
	Commissioner, Science and Technology Commission (STC)	EPA	Establishment of cleaner Production Centre
WHO	WHO representative	–	AIDS and malaria control project activities
FAO	Head, Plant Protection, MoA	–	Inventory of obsolete pesticides
ILO	Ministry of Labour and Social Affairs	Confederation of Ethiopian Trade Unions	Workers safety and working environment Participation in international meetings

Table 10C: Participation in International Agreements with Particular Reference to Procedures Related to Chemical Management

International Agreements	Primary Responsible Agency	Relevant National Implementation Activities
Agenda 21: Commission for Sustainable Development	Environmental Protection Authority	Co-ordination roles in the implementation of the Programme
UNEP London Guidelines (voluntary procedure)	Environmental Protection Authority	Participate in International Decision on PIC Procedures
FAO Code of Conduct (voluntary procedure)	Ministry of Agriculture	Implementation of PIC Procedures
Vienna Convention/Montreal Protocol	National Meteorological Service Agency	Implementation of the Vienna Convention
Basel Convention	Environmental Protection Authority	Under the process of ratification
WTO Agreement	Ministry of Trade and Industry	Co-ordination of Trade Related Property Rights (TRIPs)
Convention on Climate Change	National Meteorological Service Agency	Inventory of greenhouse gases
Biodiversity Convention	Environmental Protection Authority, Institute of Biodiversity Conservation & Research	Negotiations on Biosafety Protocol

10.3 COMMENTS AND ANALYSIS

The implementation of international activities at the national level is carried out through the formation of inter-sectoral committees or task forces. These committees meet on a regular basis to give direction and to monitor progress. Secretariats are usually based in the institutions identified as focal points and have the responsibility of gathering and transmitting the relevant information to concerned parties.

The Environmental Protection Authority co-ordinates national programmes with respect to international activities and agreements in the area of chemical management. Follow-up of agreements is sometimes marked with problems due to the lack of activities related to displacement of personnel. This may result in the agreements being ignored or overlooked during the formulation of new plans, policies and programmes. The Environmental Protection Authority should ensure that all stakeholders and interested parties are aware of the contents of these agreements.

The public is also, by and large, unaware of the part the country has in international agreements due to inadequate funds to sensitize the population and promote related activities. The mass media should be used to enlighten the public on the contents of these international agreements and environmental issues so as to facilitate their implementation.

There is no effective mechanism for disseminating data in the country. It is necessary that a system to access data related to chemical management is available for use by interested parties. Furthermore, Improvements in the accessibility of e-mail and World Wide Web would facilitate communication with international bodies and the access to information. However, the lack of hardware in most of the institutions concerned makes this option only possible, at best, in the near future.

CHAPTER 11: AWARENESS OF WORKERS AND THE PUBLIC

This chapter provides 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.

The place awareness occupies in chemical risk reduction cannot be underemphasized. Seminars, panel discussions, workshops, colloquia, symposia, exhibitions, posters, pamphlets, leaflets, brochures, radio and television programmes, footings and ads, drama and musical presentations, classroom and induction training programmes, various write-ups (e.g. books and articles), programmes on designated international days (e.g. June 5 World Environment Day and June 17 World Desertification Day) are some of the media in which awareness may be effected or ferried across. Consequently, all such undertakings require various efforts including the legal and institutional arrangements and the corresponding resource allocation.

Regarding occupational safety and health, the Labour Inspection Services, either under the aegis of the Ministry of Labour and Social Affairs (on the level of the Federal Government) or regional Labour and Social Affairs bureaus, are charged with, as per Proclamation 42/95 Section 2, to educate (Article 177/2) and prepare training programmes (Article 177/6) on the prevention of employment injuries and diseases including those posed by chemicals. Accordingly, various training programmes of this nature are conducted by the respective bureaus in co-operation with the Ministry and occasionally with such international organizations as the ILO. The Confederation of Ethiopian Trade Unions, through its department for occupational safety and health, conducts, although not as frequently as needed, various awareness programmes tailored to raise the safety consciousness of its members and this, of course, includes chemicals. The Ministry of Health, under its environmental health programme, prepares reading materials in the same vein. But the scarcity of resource makes the effort and, consequently, the desired result far from optimum.

The Department of Plant Protection and Control Technology under the Ministry of Agriculture carries out various awareness and training programmes in the area of the safe use of chemical pesticides. One area of responsibility of extension workers, in the service of the Ministry of Agriculture, is also awareness raising in the safe use of agro-chemicals. Although EPA has a department that is charged with the task of providing environmental education, so far nothing has been done in the area of chemical risk awareness.

There are no NGOs with meaningful participation or output in promoting chemical awareness. Perhaps, the only minor exceptions in this regard are the Chemical Society of Ethiopia, the Ethiopian Private Industry Association and Forum for Environment. For instance, the first two organizations, in collaboration, have been undertaking an extensive project on cleaner production involving nearly 40 industrial firms in the country. Besides, the CSE, through its regular publication of a newsletter and bulletin, publishes articles on various topics including chemicals as they relate to the environment. One of the meetings held on 28 July 1999 under the title Pesticides and Alternatives in Ethiopia, by Forum for Environment, for example, was exclusively devoted to the use of pesticides in this country, including their safe use and disposal.

It can safely be said that both printed and electronic mass media are far from properly utilized to provide information to the public concerning the various risks posed by chemicals to the environment, health or safety.

In general, besides the improper allocation of resources (funds, manpower, transport, teaching aids, protective devices, etc.), the promotion of chemical awareness is hampered by the virtual absence of chemical safety instructions in junior and senior high schools and in some institutions of higher learning. The lack of labelling and other requirements such as the accompaniment of the import and sale of hazardous chemicals with Material Safety Data Sheets (MSDS) exacerbate the situation even more. Furthermore, there is a significant prevalence of negative awareness evidenced by the deliberate abuse of chemicals. A good example of such practices is the number of crimes involving the use of chemicals for such purposes as to induce abortion, commit suicide or perpetrate homicide.

CHAPTER 12: RESOURCES AVAILABLE AND NEEDED FOR CHEMICAL MANAGEMENT

This chapter provides an overview of resources available within government related to various aspects of chemical management (including human and financial resources) and also analyzes resource needs.

In the absence of a national policy that provides for integrated and co-ordinated chemical management in the country, the resources that are available at present or would be needed in the future are not easy to estimate. Many of the government agencies undertake chemical management related activities in order to fulfil their major responsibilities which, in most cases, are not directly intended to promote the sound management of chemicals. Moreover, the different departments, sections or teams in these agencies that see to these activities, are responsible for other duties related to the major objectives of the agencies. This makes the situation difficult to determine or review the human and financial resources available for chemical management in most of the government agencies here. Nevertheless, Tables 12A and 12B provide the information available in this respect.

12.1 RESOURCES AVAILABLE IN GOVERNMENT MINISTRIES/INSTITUTIONS

Table 12A addresses the existing resources available within the different government ministries, agencies and other institutions in the country that are responsible for the management of chemicals in one way or another. The information contained is limited to the type of professional personnel, with their respective skills, and the financial resources at their disposal. For reasons already pointed out, the information provided in the table is not complete.

Table 12A: Resources Available in Government Ministries/Institutions

Ministry/Agency Concerned	Number of Professional Staff Involved	Type of Expertise Available	Financial Resource Available
Environment Protection Authority	4	Sanitary engineers, chemists	Not separately worked out for the Team
Ministry of Health (Drug Administration and Control Department)	20	Pharmacists	116,000 USD 400,000 birr 471,000 USD
Ministry of Health (Malaria and Other Vector-borne Diseases Control Team)	7	2 biologists, 1 medical entomologist, 1 medical parasitologist, 2 medical doctors, 1 MD, MPH	
Ministry of Agriculture	7	Entomologists, Chemists, etc.	18,760 USD
Ministry of Labour and Social Affairs and Regional Bureaus	90	Biologists, Chemists, Physicists	Not separately worked out.

Ministry/Agency Concerned	Number of Professional Staff Involved	Type of Expertise Available	Financial Resource Available
Ministry of Trade and Industry (Chemical Weapons Convention Implementation Department)	5	Chemical engineers, statisticians, chemists	380,000 birr
Ethiopian Health and Nutrition Research Institute	23	10 professionals, 7 semi-professionals, 6 laboratory assistants	Not worked out separately.
Ethiopian Petroleum Enterprise	3	Chemist and petroleum Engineers	Not worked out separately.
Customs Authority	None	None	None

Compiled by Environmental Pollution and Hazardous Waste Management Team, EPA.

It is worthwhile to note that government institutions that can play vital roles at important stages in the life cycle of chemicals have very few or no proper human resources (professionals) available. Some of these institutions are the Customs Authority, Ministry of Trade and Industry, and Ethiopian Petroleum Enterprise. The available human resources indicated for each institution are largely inadequate even to achieve the routine activities they have to handle by way of the management of chemicals. The table indicates the attempt made to assess available resource used to manage Chemicals. The information obtained in this respect is far from satisfactory and further assessment is needed in the future. The lack of a national chemical management policy that would help erect a co-ordination mechanism and/or foster or, at least, indicate clearly the responsibilities of each institution has contributed much to the low level of chemical management one presently finds enthroned in this country.

12.2 RESOURCES NEEDED BY GOVERNMENT INSTITUTIONS TO FULFIL RESPONSIBILITIES RELATED TO CHEMICAL MANAGEMENT

As it was stated earlier, the responsibilities to be carried out by each institution at different stages of the life cycle of chemicals have to be clearly set out and reinforced by legislative and policy props. This would help, among other things, to work out separately for each institution the actual resources required for executing its responsibilities. Table 12B shows only the human resource need of the institutions that were able to provide the information. However, it is apparent that many other government institutions still need more resources than what is at their disposal in order for each to contribute effectively to the sound management of chemicals in the country.

Table 12B: Human Resources needed by Government Institutions to Fulfil Responsibilities Related to Chemical management

Ministry/Agency Concerned	Number/Type of Professional Staff needed	Training Requirements
Environmental Protection Authority	4 Professionals	Short and long-term training
Ministry of Mines and Energy	Chemists, Mining Engineer	"
Ethiopian Petroleum Enterprise	Safety Engineer	"
Customs Authority	Chemists, Laboratory Technicians	"
Ministry of Trade and Industry (Chemical Weapons Convention Implementation Department)	4 Professional Chemists and Chemical Engineers	Training on implementation of the Convention Training on formulation of legislation Training on deceleration network Training on National Protection Programme
Ministry of Agriculture	2 pesticide chemists	Long-term training

Compiled by the Environmental Pollution and Hazardous Waste Management Team, EPA.

12.3 COMMENTS AND DIAGNOSIS

As indicated in Tables 12A and 12B, it is evident that government ministries and institutions are constrained by the lack or shortage of facilities, human and financial resources that are needed to run the limited activities related to chemical management in their respective areas. The number of available professionals in many institutions is inadequate and requires further capacity-building in this direction. The resource requirement to properly manage Chemicals in Ethiopia is very low and totally below the actual needs. Action for further investigation is, therefore, required in this respect in the future. In general, capacity-building and, in particular, manpower training is essential to most of the national ministries and institutions in the country. The specific areas requiring improvement and the strategy that may be followed to their attainment could be worked out once a national policy and strategy for sound management of chemicals is put in place.

Preliminary Action Plan And Follow-Up Activities For The Sound Management Of Chemicals In Ethiopia

- 1) Formulate comprehensive chemicals management policy and strategy.
- 2) Undertake national inventory of expired chemicals and stockpiles.
- 3) Establish database for registration of production, import & export of chemicals.
- 4) Establish a system for registration of new chemicals.
- 5) Carry out preparatory work to endorse and implement chemical related international conventions like the Basel, PIC and POP Conventions.
- 6) Put in place voluntary instruments, such as FAO Code of Conduct and ISO 14000 for the management of chemicals.
- 7) Carry out capacity building programmes for the management of chemicals.
- 8) Conduct research and studies on the safe disposal of expired chemicals.
- 9) Promote awareness raising programmes on the safe use, transport and disposal of chemicals.
- 10) Enact national legislation on industrial and consumer chemicals and hazardous wastes.
- 11) Establish environmental standards related to chemical management.
- 12) Establish and strengthen co-ordinating mechanisms to effect the sound management of chemicals in the Country.
- 13) Collect, systematically arrange and disseminate various data on chemical management.
- 14) Build capacity for providing training and facilities.