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THE EAST AFRICAN SUB-REGIONAL PROJECT

DEVELOPMENT AND HARMONISATION OF
ENVIRONMENTAL LAWS

VOLUME 5

REPORT ON THE DEVELOPMENT AND HARMONISATION OF LAWS ON TOXIC AND HARZADOUS CHEMICALS

DECEMBER 1999

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PREFACE

Environmental law is an essential tool for the governance and management of the environment and natural resources. It is the foundation of national and regional policies and actions to ensure that the use of natural resources is done equitably and sustainably.

In the East African sub-regional countries of Kenya, Tanzania and Uganda have, since 1995, been developing and harmonizing various environmental laws in selected sectors within their region. The process of developing and harmonizing environmental laws is intended to lead to the enactment or amendment of the internal legislative, regulatory and administrative framework of each country. Such change has been harmonized at a sub-regional level where the three countries have agreed on legal principles, definitions and substantive legal provisions to govern a segment or matter of the environment or natural resource sector.

The volumes produced by the UNEP/UNDP/Joint Project on Environmental Law and Institutions in Africa, East African Sub-regional Project, are intended to build capacity in Kenya, Tanzania and Uganda in environmental law. The East African Sub-Regional Project is a component of the UNEP/UNDP Joint Project on Environmental Law and Institutions in Africa funded by the Dutch Government. The underlying presupposition is that the three countries share similar historical and legal heritage and that the physical and historical situation in East Africa offered an opportunity to initiate and encourage dealing with environmental issues according to problem-sheds. The historical facts are that (a) there is a history of regional cooperation among the countries from colonial times; and (b) there is shared legal tradition which derives from common law origins. These two historical facts were relied upon to support development and harmonization of legislation on selected themes in the commonly shared environment.

The UNEP/UNDP Joint Project on Environmental Law and Institutions in Africa is funded by The Royal Dutch Government, as a pilot project, to work with selected countries towards development of environmental law and institutions in Africa. The purpose is to enhance the capacity of the countries to develop and enforce laws relating to environment and natural resources. Phase I of the Project which commenced at the end of 1994, and is scheduled to end in December, 1999, involves seven countries, namely: Burkina Faso, Malawi, Mozambique, Sao Tome and Principe, Kenya, Tanzania and Uganda. While activities in the first four countries focus on entirely national activities, the work in the three East African countries are focused on issues which are essentially of sub-regional character. The management of the Joint Project is based at UNEP within its environmental law activities and is directed by a Task Manager, who works under guidance of a Steering Committee. Members of the Steering Committee are UNEP, UNDP, FAO, The World Bank, IUCN Environmental Law Centre and The Dutch Government.

The Process For Development and Harmonization Of The Laws

Representatives of the three governments met in February 1995 to work out general principles and modalities for their cooperation.

A second meeting was held in May, 1995, to discuss the general terrain of topics amenable to development and harmonization of laws. The final decision on six priority topics was taken at their third meeting in February 1996.

The six topics which were selected for the Project's activities are:

(I) Development and harmonization of EIA Regulations;
(ii) Development and harmonization of laws relating to transboundary movement of hazardous wastes;
(iii) Development and harmonization of the methodologies for the development of environmental standards;
(iv) Development and harmonization of forestry laws;
(v) Development and harmonization of wildlife laws; and
(vi) Recommendation for legal and institutional framework for the protection of the environment of Lake Victoria.
(vii) The seventh topic, development and harmonization of laws relating to toxic and hazardous chemicals was taken up in 1998 when the work on the first six was virtually complete. The three countries considered this as one of the critical issues in environmental protection in the sub-region.

For each of the six topics, the governments jointly worked out generic terms of reference. However, each national team subsequently worked out country-specific terms of reference to reflect national legal and institutional situations, existing initiatives on the same task as well as existing priorities. The respective national consultants were also selected by the National Coordinating Committees (NCC), working in consultation with an officer at the UNDP country office.

The national consultants have now completed their work. In each case, the reports have enjoyed reviews by the national

panels constituted under the aegis of the respective NCCs. Draft reports, as they evolved, were circulated to the consultants in the three countries. In many cases, the consultants were able to take the reports of their counterparts into account in finalizing their reports. Therefore, very high degree of harmonization of reports had been achieved before the consultants could meet together.

At the end, a workshop to finally harmonize the reports was held in 1998 in Kisumu, Kenya and was attended by the consultants for each topic for substantive discussions of their reports and to agree on recommendations to their governments. The objectives of the workshop were to; (a) ensure that recommendations for policies and law for the respective topics as far as possible, are in harmony; (b) promote the development of legal and institutional machineries which are comparable in all the three East African countries in the absence of an over-arching sub-regional framework; (c) harmonize the normative prescriptions and institutional machineries and therefore create an opportunity for harmonized enforcement procedures; and (d) create an opportunity for dealing with the respective environmental problems according to the problem-sheds, which are essentially sub-regional. The workshop was facilitated by Professor David Freestone, Legal Advisor, International and Environmental Law Unit of The World Bank and Mr. Jonathan Lindsay, a Legal Officer in Development Law Service at the United Nations Food and Agricultural Organization.

Thereafter, a meeting for Permanent Secretaries responsible for environment from the three countries was held and attended by the national coordinators. The Permanent Secretaries as accounting officers and policy leaders in their ministries were fully briefed on the aspirations and activities of the project; how the project had developed and the process of harmonization. They assumed ownership of the outcome of the reports. They also resolved that the stage was well-set for development of a sub-regional binding instrument on environmental management. Their debate recognized that a legally binding instrument in the form of a protocol within the framework of the Treaty of East African Cooperation would take time to evolve and could involve a broad cross-section of ministries. For these reasons, they resolved that as an interim measure, they would sign a memorandum of understanding.

Subsequently, a Memorandum of Understanding on Cooperation in Environmental Management was entered into by the three governments on 22 October 1998 covering all the themes of the project and also covering other aspects which had not been envisaged in the project. One of the main features of the Memorandum of Understanding is a commitment to develop a protocol on environment management under the auspices of the proposed East African Treaty.

The governments of Kenya, Tanzania and Uganda are expected to take up the recommendations and the Memorandum of Understanding and implement the recommendations. In fact, the Permanent Secretaries specifically requested UNEP and its cooperating agencies in the Joint Project to assist in the development of the Memorandum of Understanding.

Meanwhile, the Joint Project has undertaken to produce the reports on the seven topics as stand-alone publications and as bases for national legislation. In addition, a report on the review of national projects related to environmental law and institutions has been prepared as part of the publications. The national reports were prepared by the National Coordinators in the three countries. This report is intended to assist in avoiding duplication of efforts and create a coherent synergy in reviewing and developing environmental laws.

This Volume comprises three reports prepared by the national consultants, harmonized at technical levels. Its theme is the development and harmonisation of laws related to the management of toxic and hazardous chemicals and materials in the East African sub-region. The report identifies priority areas requiring harmonisation of management of toxic and hazardous chemicals and materials and proposes that regulations be make under framework legislation.

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OVERVIEW

INTRODUCTION

The increasing use of chemicals in various sectors of the economy of the East African countries is posing new challenges to both policy and law makers. Many chemicals that have been banned or whose use has been severely restricted in industrialized countries are still believed to be marketed and used in East Africa. It is true that the people of East Africa cannot do without chemicals. But it is also true that we should not allow the unregulated or indiscriminate use of hazardous chemicals. These chemicals pose serious risks to the health of workers, the general public and the environment. Like many countries and governments in the developing world, Kenya, Tanzania and Uganda are not adequately equipped to monitor and manage the many potentially dangerous chemicals and substances crossing into their borders.

When chemicals endanger the life on earth generally or on the lakes, the rivers, the people and the atmospheric mantle then the stakes are very high. Considering the large number of chemicals to which individuals are exposed and the different sources of exposure to chemicals in air, water, food and in the workplace the risks are very high. The chemicals are now a severe risk for many persons and ecosystems because they are highly stable and can persist in the environment for a long time before they break down, if at all.

In line with the above problems there is need to ensure sustainable development through sound management of toxic and hazardous chemicals, among other things. A number of programmes and activities on chemical safety have been initiated or are being implemented.

At the international level, the Intergovernmental Negotiating Committee for an international legally binding instrument for the application of the prior informed consent (PIC) procedure for certain hazardous chemicals and pesticides in International trade have resulted into a convention being agreed upon and adopted. The PIC Convention will establish a first line of defence for global chemical safety. The Convention represents a significant step towards protecting human beings and the environment from the dangers resulting from trade in highly dangerous chemicals.

But the PIC Convention is just one brick in the overall edifice of the possible global chemicals regulation. Building sustainability into the chemical industry and the sectors of society that process, use, trade in and dispose of chemicals is the ultimate challenge for the global community. The PIC Convention is also closely related to the Basel Convention which is aimed at stopping the movement of large quantities of hazardous wastes and expired stocks of pesticides across international boundaries and thus threaten the environment in the importing countries. Together, these two international legal instruments should lead to practical management and workable control of trade in such chemicals by encouraging reduction of wastes and shifting to alternatives that are less toxic or hazardous. Most importantly, the two instruments will assist developing countries to build the needed capacity for effective management of hazardous and toxic substances.

To prepare the three countries of East African to manage toxic and hazardous chemicals, a review of the existing laws and polices has been carried out at a national level. The consequence of the review was the development and harmonization of the regulations on such chemicals . The three national reports have been prepared and discussed at that level. The reports were distributed among the consultants and governments departments involved in their development with a view to harmonization of the laws and procedures.

This volume, therefore presents the country reports on the management of toxic and hazardous chemicals and materials.

KENYA COUNTRY REPORT

The Kenya country report reviews the state of national management of toxic and hazardous chemicals. This includes their production, use, distribution and disposal. The report reviews the national policies on toxic and hazardous chemicals. There is no over-arching national policy on toxic and hazardous chemicals. However, there are various laws that are meant to control use, disposal and handling of toxic chemicals. There are, however, shortcomings in the statutory and regulatory regime. The report says that the chemicals regulated through parliamentary enactment and subsidiary legislation, appears not to have been made on any objective criteria based on the universally known toxicity and hazardous nature of a particular chemical. Kenya statutes and regulation dealing with chemicals merely prohibit but fail to address the specific modes of application and management of chemicals.

The report presents a classification of the toxic and hazardous chemicals and wastes. For example, chemical classification of potentially toxic substances and register of hazardous wastes is provided. Chemicals are classified according to their

level of toxicity, for example, extremely toxic, highly toxic, moderately toxic or harmful.

In Kenya, the concern of regulating toxic and hazardous chemicals takes the form of legislation as well as administrative rule-making. Kenya's approach to chemical control is primarily concerned with the dominant phenomena in its largely agricultural economy rather than with the well-known toxic and hazardous chemicals associated with large scale mining and industrialization. These laws, however, essentially targets broad economic and social activity or utility and attempts to regulate the mode of application of chemicals in respect of the subject. The legislation can be grouped in ignitable or toxic chemical substances legislation; pest and vermin control chemicals; food and feed-related chemicals; pharmaceutical and health-related chemicals; and the radioactive chemicals legislation

The report makes recommendations including proposals for legislation on chemicals especially ways to improve on The Chemical Control Bill, 1995. The report also makes recommendations for the necessary capacity building activities for the management of chemical and wastes. Additional recommendations are provided on policy regarding industrialization.

COUNTRY REPORT FOR TANZANIA

The Tanzania country report reviews the international conventions, protocols, agreements and other instruments relevant to the management of toxic and hazardous chemicals. The Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal, 1989, the Bamako Convention on the Ban of the Import into Africa and control of transboundary movements of hazardous wastes within African are reviewed.

The participation of Tanzania in international agreements/ procedure related to chemicals management, for example, Inter-governmental Forum on Chemical Safety (IFCS), International Register of Potentially Toxic Chemical (IRPTC), Basel and Bamako Conventions are also reviewed. Further, the report reviews the problem of toxic and hazardous chemicals in Tanzania by description of problem areas, related to pesticides and industrial chemicals, priority concerns related to chemicals, related to pesticides and industrial chemicals.

The Tanzania country report further gives the classification of toxic and hazardous chemicals in accordance with their toxicity and hazardous, they present to the environment with special emphasis to human health. The analysis includes the classification of chemicals as hazardous based on the storage compatibility. Classification of pesticides as hazardous based on the LD_{50} for the acute oral and dermal toxicity to the rat, list of hazardous characteristics of the Nations Recommendations on Transport of Dangerous Goods (UNRTDG) are given.

Factors which impede better management of toxic and hazardous chemicals in Tanzania which include absence of specific provisions from National Environmental Policy, lack of specific provisions for chemical management, lack of relevant legislation, lack of properly trained personnel, lack of public awareness and participation.

The report reviews the existing environmental policy, laws, rules and regulations relating to the management of toxic and hazardous chemicals. The conclusion of the review is that there is no clear legislation on the management of toxic and hazardous chemicals in Tanzania. A recommendation is made that the management licensing toxic and hazardous chemicals should be provided for in the national laws.

The Tanzania report also recommends the necessary capacity building for the enforcement of regulations on toxic and hazardous chemical which should include technical infrastructure, public awareness, technical and chemical advisory committees, collection and dissemination of national/local chemical data, transportation of toxic and hazardous chemicals, a national information exchange system, establishment of a national emergency response unit, poison centres, and the establishment of a national register on toxic and hazardous chemicals.

UGANDA COUNTRY REPORT

The Uganda country report, like those of Kenya and Tanzania, reviews the global actions to control hazards associated with chemicals. The country report also reviews the importance of toxic chemicals in the socio-economic development of Uganda through crop protection, livestock protection, vectoral control, locust/army-worm control, weed control, seed dressing preservation of wood.

The report identifies the different national institutions involved in the use or management of such chemicals. The list includes the ministries of Agriculture, the Environment, Health, Trade and Industry, Labour, Customs and Transport, scientific agencies, universities, research Institutions, NGOs, trade unions, individual producers, distributors and handlers of chemicals.

The report also gives the background information on chemicals, to identify the sources of the chemical, uses of a chemical, hazardous characteristics. The World Health

Organisation classification of chemical by hazard, guidelines for LD_{50} values in relation to toxicity to humans, effect of chemical on ozone layer, spills, treatment of poisoning/ removal of chemical the classification of chemicals based on specific hazards are also reviewed.

The Uganda report also reviews the international law on toxic and hazardous chemicals; these are similar to the ones mentioned in the Tanzania report. There is a review of non-regulatory mechanisms through positive and negative economic incentives. In addition the report recommends adoption of voluntary international guidelines and codes of conduct relating to chemical management.

The Uganda country report also reviews the port of entry of toxic and hazardous chemicals. These include, Nimule, Malaba, Mutukula, Bwera, Katuna, Entebbe Airport, Bunagana and Busia all of which require regulation.

Uganda, having enacted a National Environment Statute, has basic provisions for the management of toxic and hazardous chemicals. These basic provisions provides for the making policies and the enabling institutional arrangements and the prohibition on importation of extremely hazardous waste and toxic waste. The Uganda country report therefore makes recommendations, through regulations made under the said Statute, to prevent effect of chemicals on environment and the public. Such regulations should also control chemicals suspected to be hazardous, and to impose a duty to prevent harmful chemicals and enabling the implementation of the Apolluter pays principle. In this context, the report also reviews the National Environment Management Authorities activities and mandates in relation to the management of chemicals in Uganda.

The report also provides for the control measures like classification of toxicity, import control, waste management and standards, whether health based scientific criteria or normative standards. The report also reviews the importance of legislation in the management of toxic and hazardous chemicals in Uganda. Methods of disposal of expired chemicals and chemical waste would also be provided for.

A Draft Toxic and Hazardous Chemicals and Substances (Management) Regulations, 1999 is provided in the report. It outlines regulation through classification of chemicals based on use, classification by source, by nature of hazard to human and environment, classification of chemicals by CAS Number is made. In addition, the draft regulations also provides the form for reporting on activities of lead agencies, list of exempted toxic and hazardous chemicals, the application for registration, manufacture, formulation, storage, sale, use of toxic and hazardous chemical. The application for licencing of premises, movement document for transboundary movement of toxic and hazardous chemicals are also provided.

The three reports have been prepared by national consultants from the respective countries. The Kenya report was prepared by S.O. Wandiga and J.B. Ojwang' while the Tanzania one was prepared by Phidel Mwindunda and Habibu Mkalanga. The Uganda report was by Jane Anywar. Their contributions to this important volume are acknowledged with gratitude.

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KENYA COUNTRY REPORT

EXECUTIVE SUMMARY

Toxic and hazardous chemicals are those substances which have adverse effects on human health and/or environment, especially during production, use, distribution or disposal. Such substances are found in most modern manufacturing, commercial or economic activities associated with the chemical industry. Both rich and poor countries produce, use or dispose of toxic and hazardous chemicals. It is for these reasons that there are global attempts to regulate the handling of such chemicals.

This Report reviews the state of toxic and hazardous chemicals in Kenya, their production, use, distribution and disposal. It starts by considering the relevant scientific issues. Chapter 1 provides a basis for action, as it points out that toxic chemicals, especially pharmaceuticals such as chloroquine, are widely abused by citizens, and are the cause of many deaths. Of most importance, however, is the danger posed to human health by pesticides such as organophosphates, which killed large numbers of people between 1991 and 1993. Some of these pesticides also affect the environment, and are the source of river, lake and ocean pollution.

Kenya currently has no over-arching policy or legislation on toxic and hazardous chemicals. An approved goal of the National Development Plan is to promote the recycling of industrial wastes; however, there is no specific mention of treatment of toxic and hazardous chemicals. Evidence of wildlife poisoning by some toxic chemicals as a result of unscientific disposal, in Lake Nakuru, is given in this Report.

Toxic chemicals are classified according to their level of toxicity. Oral lethal dose 50 (LD50) is the measure of the toxicity of a chemical that kills 50% of the animals with 95% degree of confidence under a controlled set of conditions. As such, toxic and hazardous chemicals are classified as extremely toxic, highly toxic, moderately toxic, or harmful.

Since toxic and hazardous chemicals are a product of human activity and often come as a by-product of industrial or home use, the above classification is not sufficient to cover the handling of such substances. In order to identify the toxic and hazardous chemicals it is necessary to know the manufacturing processes, and the types of waste produced from such activities. Therefore, classification of wastes according to the types of toxic and hazardous content provides a vehicle for regulating production, use, distribution and disposal of such substances. A global Convention that regulates the handling of toxic and hazardous wastes is the Basel Convention. Apart from setting out the listing of wastes under this Convention, it is pointed out that the Convention's register is not exhaustive of all wastes, and is not altogether sensitive to changes in technology. The Chapter concludes by recommending the adoption of the toxic and hazardous wastes coding classification developed by Austria, Germany and Slovenia. This classification has the advantage that its listing is comprehensive and is technology-sensitive. It can also be expanded as technology improves.

Chapter 2 discusses firstly, Kenya's domestic law dealing with chemicals. There are some ten Acts of Parliament which regulate the use of particular chemical substances.

It is noted that the scheme of control in these statutes is more of a customs-system and prohibitory type, rather than being concerned with effective management on the basis of prescribed standards. This misses the point that chemicals are, in fact, an important element in modern industrialisation and economic growth, and Kenya's approach to their management ought to be guided by the principle of ensuring quality and safe production, use, transportation, sale and disposal, rather than that of prohibition in gross.

Such an ineffective framework of chemical management is not helped by the fact that Kenya has not become Party to the main international laws dealing with toxic and hazardous chemicals. There is, in effect, an inadequate framework for the safe management of chemicals.

Recent attempts to improve the management of chemicals have taken the form of the Chemical Control Bill, 1995,but which lapsed and was not considered by the National Assembly. The Bill should be re-published for Parliament's attention, as it contains important improvements on the existing law relating to chemicals. It is recommended, however, that this Bill should exclude the proposed institutional arrangement, and be placed under the charge of the National Environment Management Authority that has been proposed under the forthcoming Environmental Management and Co-ordination Act.

Specific recommendations are made for the improved legal regulation of toxic and hazardous chemicals, and a set of Regulations in that behalf prepared (attached as Annex 4), dealing with general matters, as well as specific ones such as: (i) the licensing of premises associated with chemicals; (ii) registration of chemicals; (iii) labelling, advertising and packaging; (iv) importation and exportation; and, (v) disposal. It is proposed that these Regulations should be

within the framework of the National Environment Management Statute.

Chapter 3 reviews the policy issues, especially those related to capacity- building. It is stressed that as Kenya aspires to industrialize, it should put in place an enabling policy framework that would guide its initiatives. A science-based, high-technology economy needs an adequate, properly supervised, efficient and humane machinery to administer technological development and change.

In the field of toxic and hazardous chemicals it is stressed that there is need to build and strengthen institutions that would supervise and administer the chemical industry. Establishment of environmental standards for each toxic and hazardous substance is a first priority in the conduct of all industrial activities. Enforcement of standards is the next priority. Trained manpower to establish standards and monitor levels of toxic substances in the environment is an essential requirement of industrial policy. Specific examples of training needs for waste-water have also been given. Persons trained in monitoring waste-water can easily handle the air and soil components as well. Lastly, it is recommended that industry itself should play a major role in the implementation of approved policy guidelines.

CHAPTER ONE

SCIENTIFIC ISSUES IN THE REGULATION OF TOXIC AND HAZARDOUS CHEMICALS

1.1 INTRODUCTION

Toxic and hazardous chemicals and substances are those products or by-products of economic activities related to energy generation, mining, foundries, metal manufacturing and finishing, electronic industry, paint production and use, soap and detergent production, porcelain production, pulp and paper production, textile mills, rubber processing, pharmaceutical industry, among others. In essence, as a country industrialises, so does the quantity and diversity of toxic chemicals and substances increase.

Countries that are not highly industrialised, such as Kenya, also produce toxic chemicals and substances through agricultural activities, such as the use of pesticides (one of the most toxic group of substances) tanning of leather and finishing; small electro-plating processes; timber processing; processing of agricultural produce such as coffee; disposal of used batteries, hospital and pharmaceutical wastes. These activities pose problems for the environment; endanger the population, particularly children, and pollute water/air systems.

Generation of toxic and hazardous chemicals may vary according to the nature of synthesis or use, and may manifest itself after the chemical has been used. The following examples will illustrate the point.

(a) Smoking is a common practice. The main contents of the cigarette are tobacco, cellulose and paper wrapping. The natural constituent oil of tobacco is nicotine; and its side-effect is that it causes addiction; however, the process of lighting a cigarette and its burning under a smouldering fire, causes the formation of benzo(a) pyrene, which is highly toxic (LD50, 50mg/lg). This is the tumor-causing agent in cigarettes as well as a mutagen that may also affect the reproductive system.

(b) 1,1, (o,p-dichloro diphenyl)-2,2,2-trichloroethane (DDT) was used for several years as a pesticide. Its effects on the environment, especially on birds and fish, were not confirmed until the 1970s. It turned out that the DDT waste and its degradation products are the harmful substances.

(c) The drug thalidomide, is an effective sedative and readily causes sleep; but when taken during early pregnancy by mothers it leads to malformation of the foetus. Its harmful effect is not on the consumer but on her off-spring.

Many countries have made attempts to estimate existing toxic waste types, and to a lesser extent, their quantities. This has been done by taking inventory of who generates the toxic chemicals, and of their types. Such an inventory helps in prescribing remedial measures. Unfortunately, in Kenya attempts to generate such an inventory have not been successful.

A recent unpublished report[1] on the registration of chemical wastes indicates that the cement industry, the textile industry, the leather industry and the automobile and municipal domestic wastes, may already be affecting the health of humans and the environment. The concentration of heavy metals in the urine of workers in chemical laboratories, cement mills and packaging industries were found to be in some cases higher than in the case of non-employees. Effluents from textile industries were found to have high dye levels and suspended solids that affected the quality of water. Similarly, the leather industry effluents also caused concern in the high biological oxygen demand (BOD) and metal content generated and discharged into the receiving rivers. The continued use of leaded petrol poses great health hazards to the vulnerable groups (children, the sick and the old). Soil lead concentration was found to be very high at the 2.5m to 30m along a major highway. Similarly, an increase in heavy metals concentration was observed in Athi River, the receiving river water system after the Nairobi municipal waste treatment plant. These concerns have resulted in the promulgation of municipal waste-water standards by the Nairobi City Council Water Department.

Toxic substances and solid and hazardous wastes have potential adverse effects on human health, and ecological systems. In many instances, toxic effects can either be local, that is, chemicals produce moderate damage to skin, eyes, respiratory and digestive systems, or systemic, such as, chemicals absorbed by inhalation, ingestion or skin affect organs and tissues. Variations in periods of exposure to toxic chemicals have led to four classifications of testing, namely:

Acute local:	single exposure to chemicals, of various lengths of time; the most frequent occurrence is in the domestic environment.
Acute repetitive:	regular exposure to chemicals, which may last from a few days to several weeks, but less than 5% of the lifetime.
Sub-chronic:	everyday exposure, not exceeding 10-15% of the lifetime of an organism
Chronic:	permanent exposure over the whole life (for example, at working place).

From the above testing classifications it can be deduced that the effect of toxic chemicals can be immediate, delayed or unobserved during the life time. The effect, however, may be to alter the genes so as to manifest consequences only on the first or second generation of off- spring.

Some studies have been done in Kenya[2] on acute local toxicity exposures. **They provide parties** of human poisoning in nineteen hospitals in Kenya between 1991 and 1993. Specific ones show that organophosphate pesticides posed the most danger, with 258 poisoned persons; drugs, especially chloroquine, was abused by 196 persons and as a group poisoned 514 persons; the third danger to human health was caused by use of kerosene, 258 persons were poisoned through kerosine as the agent; toxic chemicals from energy sources poisoned 326 persons. The fourth most frequent source of poisoning was venom from various snakes, affecting 208 persons.

On the whole 30% of 1888 persons poisoned were infants aged between 0-5 years, 10% were children aged 6-14 years, 19% were teenagers (15-2 years), and 33.6% were adults (over 21 years old). It is apparent that children between 0 and 14 years of age were affected most by these toxic agents (40% of the population affected). Accidental poisoning, as a result of laxity in storage is a priority concern for education and policy formulation.

Records kept by the Government Chemist Department3, on poisoning, reveal that pharmaceuticals like chloroquine, designed to save lives, as anti-malarials, are often abused and used to terminate life. **The statistics** reveal that as with the case of reported hospital poisoning, pesticides form the second group of toxic chemicals that pose the most threat to life in Kenya. The high propensity to poisoning by the green pesticides, like organophosphates, requires immediate attention in regulating their handling, use and storage. The few cases of reported poisoning by organochlorine pesticides, however, may be as a result of the restrictions placed by the government on their import and use.

There is no reliable/accurate data available on other forms of toxicity. Nevertheless, research data done in other countries indicate that some of the toxic chemicals are endocrine-disrupters. Such chemicals as DDT and some polychlorinatal benzenes (PCBs) may cause hormone-related problems that include decreased fertility in humans, certain hormone-related cancers (such as breast cancer), as well as a decrease in the wildlife population. Other chemicals such as radioactive substance, dioxins and pharmaceuticals may cause birth deformities. Research is urgently needed at the national level to establish the extent of exposure to toxic chemicals, their impact on humans and the environment, as well as develop technologically-improved methods of exposure reduction, improved ecological risk characterization, and implement a national programme to verify performance in relation to innovative environmental technologies.

1.2 NATIONAL POLICIES ON TOXIC AND HAZARDOUS CHEMICALS

There is no over-arching national policy on toxic and hazardous chemicals; however, there exist various statutes that are meant to control use, disposal and handling of toxic chemicals. These statutes will be reviewed in the next chapter; but it may be indicated here that these statutes provide no effect, coherent regulatory or institutional framework for the management of chemicals.

The National Development Plan 1997 - 2004, recognised the problem posed by municipal solid wastes. The plan calls for the

> *need to adopt a waste treatment and a sound management approach focusing on generating as little waste as possible, recycling waste to such an extent that appropriate technology is used to avoid environmental destruction and to maintain the economic feasibility of such technology.*

The plan identifies four types of wastes, namely, organic wastes and inorganic wastes, agricultural waste and other secondary wastes.

The policy on the first two types of waste is to utilise the wastes produced, to recycle the wastes, and to study methods of collection, and potential markets for recycled products. For agricultural wastes, the policy advocates briquetting, and the review and development of technologies that can reduce the current mass volumes of such wastes. Under other wastes the plan calls for use of such wastes as a source for raw

materials, especially for the metallurgical industries. The policy is therefore, not exhaustive enough to encompass all types of wastes identified as arising from economic activities. For example, the policy on waste disposal has in the recent times been shown to be either weak or non-existent.

The case of the dumping of hospital waste, and the burning of expired drugs at municipal disposal sites have pointed to a need for the enactment of stringent laws that would protect both humans and the environment. The pollution of water systems by both agricultural and municipal wastes is yet another example of the dearth of stringent regulations controlling toxic and hazardous substances. Recent evidence of the effects of heavy -metal poisoning of wildlife has been reported by Jumba *et. al*[5] in relation to Lake Nakuru National Park. The wildlife, especially water-bucks, which feed on forage in the lake, were found to have either essential trace metal deficiencies in the north-eastern section of the lake, or heavy metal poisoning along the lake entrance. Originally, 40 ha of the area to the left of the main park road entrance were used as a city dump. The water-bucks feeding on forages in this area were found to have elevated levels of molybdenum, cadmium, lead and zinc. However, the forages from the other sites deficiency in calcium, magnesium, phosphorous, potassium, copper and zinc. This is the first reported case of chronic poisoning by lead, cadmium and molybdenum, of wildlife in Kenya as a direct result of hazardous wastes disposal. Therefore, there is need to formulate policies toxic and hazardous waste, and regulations that will ensure their minimization; control disposal and exposure to such wastes; regulate their use, handling and transport; and encourage cleaner technologies, as well as introduce waste recycling.

1.3 CLASSIFICATION OF TOXIC AND HAZARDOUS CHEMICALS AND WASTES

1.3.1 CHEMICAL CLASSIFICATION OF POTENTIALLY TOXIC SUBSTANCES

Classification of toxic chemicals has been based on research done on rats. Rats have the same anatomical and physiological characteristics as for all other animals; however, caution should be taken against a literal interpretation of the results of such studies as applicable to higher animals including man. The classification of hazardous substances is based on Oral Lethal Dose 50 (LD_{50}) values for rats. LD_{50} is the calculated dose of a chemical substance which is expected to kill 50% of the animals exposed other than through respiration, with 95 percent degree of confidence under a controlled set of conditions. (Dose concentration is expressed in milligrams per kilogram of body weight). Four categories of hazardous substances have been defined as follows:

(a) Extremely toxic: LD_{50} values of 10mg/kg or less.
(b) Highly toxic: LD_{50} values of 11 to 50 mg/kg.
(c) Moderately toxic: LD_{50} values in excess of 50 mg/kg but less than 500 mg/kg.
(d) Harmful: LD_{50} values of 500 to 2000 mg/kg.

Apart from mercury (II) salt and arsenic (V) oxide which fall into category (a), the majority fall into category (c) except for antimony (III) and silver (I) salts which are in category (d). There are known very toxic compounds such as "nerve gases" (sarin, soman and tabun) all organophosphorous compounds with rat oral LD_{50} 0.098 mg/kg, 0.5mg/kg, and 3.7 mg/kg, respective.

LD_{50} is a function of element, type of salt formed and oxidation state of the element. The toxicity of each major toxic-substance class illustrated by one example of compound and its data, on acute rat oral toxicity.

In analytic context it is possible to provide some priority toxic substances, their chemical structure, toxicity, long term effects, and environmental data in terrestrial, aquatic and atmospheric compartments. In chemical classification of toxic substances it is also essential to take into account the following fate-determining parameters:

- volatilisation half-life
- biodegradation half-life
- reaction with hydroxyl radicals half-life
- photolysis half-life
- bioconcentration factor - BCF (synonym: bio-accumulation factor), that is, the ratio of the concentration of the test chemicals in the test animal or aquatic organisms to the concentration in the test environment (such as water);
- Log P oct, where P is the partition coefficient of a chemical content between octanol and water;
- soil absorption factor - Koc (the ratio of the concentration of the test chemicals in soil to the concentration in water);
- Henry's Law constant (in dilute solutions for solutes with measurable vapour pressure, the vapourpressure is proportional to the mole fraction of the solute; the proportionality constant k is known as the Henry's Law constant with units atm m^3/mol).

Tables of these constants are available in most data books as Crital Data Constant textbooks[7].

Chemical classification is further assisted by knowledge of toxicological parameters such as categories of toxicity testing, quantification of toxic effects, and identification of

toxicological effects such as inflammation, degeneration, neurosis, immune inhibition, neoplasm, mutations, enzyme inhibition, lethal synthesis, teratogenesis and caranogeonicity. Finally, the effect of such substances on the ecology helps to identify and classify them.

The effect of such substances need to be known for plants and animals, from algae to birds or higher mammals.

1.3.2 REGISTER OF HAZARDOUS WASTES

Classification of chemicals alone is not sufficient identification for wastes.

Toxic chemicals may be disposed of as effluents into the water system; they may be in solid form and dumped into a solid waste disposal system; or they may be emitted in gaseous form and washed down as dry or wet precipitates. Experience shows that knowledge of waste quantities, distribution and storage is very limited in many societies, but especially so in developing countries. In order to identify hazardous wastes it is essential to start with a register. A register of all industrial wastes should be catalogued in such a way that they give the waste category (type), according to the composition and degree of hazard. National legislation giving the classification of hazardous wastes should be in conformity with international agreements concerningtransport of wastes or waste processing, and import/export of secondary raw materials. The oft-quoted international agreement on hazardous wastes is the Basel Convention. It gives 45 groups (Y codes) of hazardous wastes, determines 14 properties of such wastes (H codes) and gives 13 types of hazardous waste management (R codes). A second valuable document on hazardous waste categorization is the European Union (EU) green list of secondary raw materials.

Both the Basel Convention and the EU green list have the short-coming in that they are not exhaustive. Secondly, there is a broad classification of each waste type that does not allow easy identification. In order to overcome these short-comings, the Austrian, German and Slovenian legislation has developed a most complete listing of hazardous waste. The industrial waste under such legislation is divided into three categories according to degree of hazard:

- non-hazardous industrial waste,
- hazardous waste (H),
- extremely hazardous waste (VH).

For ease of reference each industrial waste is coded and the code is used instead of the name. Each code is a five-digit number with the first two numbers defining the category, the third one the sub-category and the last two defining specific waste type within the sub-category. Code numbers are used in all transactions related to the hazardous waste. The coding system is advantageous in that it can easily accommodate changes in processing and technology.

CHAPTER TWO

THE LEGAL PROCESS, AND THE REGULATION OF TOXIC AND HAZARDOUS CHEMICALS

2.1 INTRODUCTION

One of the main areas of concern of environmental law is 'hazardous substances and activities'. In this category fall the following: (i) accident prevention, preparedness and response; (ii) the working environment; (iii) biotechnology; (iv) radioactive materials; and, (v) hazardous chemicals. This Chapter is mainly concerned with the last of the above-listed items, and to some extent with the fourth.

Agenda 21, adopted at the United Nations Conference on Environment and Development (1992), noted that there were at the time some 100,000 chemical substances on the market, and that many of them appeared as pollutants and contaminants in (i) food, (ii) commercial products, and (iii) the various environmental media. The use of many of these chemicals entailed certain risks, mainly arising from the fact that there is no sufficient scientific information for proper risk assessment.

Such a proliferation in the number of chemicals in circulation is largely attributed to the modern course of industrial development. Modern industrialisation is fuelled by large quantities of chemical, petroleum and other resources which generate toxic and hazardous wastes. Wastes of this kind have a potential for causing direct harm to human health an welfare, and for severely polluting and damaging the environment.

The term 'hazardous chemicals' therefore, for purposes of regulation, refers not just to the original chemical as manufactured, but also to chemical wastes that are being discarded. Hazardous chemicals may, furthermore, be regarded as incorporating yet other types of chemicals; those which occur naturally, as well as those which result from the interaction of other substances - whetehr they be in liquid or gaseous form or in form of metals or metalloids. Industrial, mining and manufacturing processes, hazardous spills and hazardous wastes can generate such 'incidental' hazardous chemicals.

Hazardous chemicals therefore, will arise in association not only with chemical industries but also with other activities such as petroleum industries, metal industries, mining activities, wood treatment industries, paper industries, auto and equipment repair shops, electro-plates, construction firms, launder-marts, dry-cleaners, pesticide applicators, handling and disposal of municipal wastes, among others.

UNEP's London Guidelines for the Exchange of Information on Chemicals in International Trade (1989) define the term *'chemical' as a:*

> *A chemical substance whether by itself or in a mixture or preparation, whether manufactured or obtained from nature and includes such substances used as industrial chemicals and pesticides. (Part I, para. 1(a)).*

This definition fits the broader scope in the identification of 'hazardous chemicals' adopted in this Report. The hazardous chemicals in question pose dangers to human life or health, and to the environment, on account of their properties; and some of them are ignitable, yet others are either corrosive, reactive, or toxic.

2.2 NATIONAL REGULATION OF TOXIC AND HAZARDOUS CHEMICALS

2.2.1 INTRODUCTION

In Kenya, the concern to regulate toxic and hazardous chemcials takes the form of legislatiion as well as administrative rule-making. The two schemes operate together, with parliamentary enactments laying down the control regime, and administrative regulations providing for the detailed management of chemicals.

Hazardous chemicals, in the regulatory scheme of Kenyan law, fall into five categories: (I) ignitable or toxic chemical substances (petroleum, industrial alcohol, methylated spirits); (ii) pest and vermin control chemicals; (iii) food and feed-related chemicals; (iv) pharmaceutical and health-related chemicals; and (v) radioactive chemicals .

It may be noted from the outset that, Kenya's approach to chemical control is primarily concerned with the dominant phenomena in its largely agricultural economy, rather than with the well-known toxic and hazardous chemicals associated with large-scale mining

and industrialisation, such as: heavy metals and metalloids (like, mercury, lead, arsenic, cadmium); or aromatic polychlorinated compounds. Rather than target a specific toxic or hazardous cheical, Kenyan legislation essentially targets some broad economic or social activity or utility (such as food and feed, livestock, health-care), and attempts to regulate the mode of application of chemicals in respect of the subject. (This approach, as will be remarked later, has its weaknesses as regards effectiveness in the legal regime for the management of chemicals).

2.2.2 IGNITABLE OR TOXIC CHEMICAL SUBSTANCES

Chemical control, with reference to ignitable or toxic substances, takes the form of four Acts of Parliament, namely: (i) the Petroleum Act (Cap. 116); (ii) the Petroleum (Exploration and Production) Act (Cap. 308); (iii) the Methylated Spirits Act (Cap. 120); and, (iv) the Industrial Alcohol (Possession) Act (Cap. 119).

The Petroleum Act, which has been in force for about four decades, is described in its long title preamble as 'An Act of Parliament to make provision for restricting and regulating the importation, transport and storage of petroleum'. "Petroleum" is defined (s.2) to include

> *any inflammable liquid made from petroleum, coal, schist, shale, peat or any other bituminous substance or from any product of petroleum.*

It is clear that the mischief sought to be controlled by the statute is the danger associated with flammability, which may occur depending on the degree of care taken in the course of importation, transportation, storage and other forms of handling. Section 3 of the Act provides that:

> *Petroleum shall not be imported, unloaded, landed, loaded, transshipped, transported or kept save in accordance with rules made under this Act.*

Section 4 empowers the Minister to give effect to the Act through detailed rules; and penalties imposed against any contraventions of the Act and the subsidiary legislation made under it.

A similar concern for safety is reflected in the Petroleum (Exploration and Production) Act. This Act is described as 'An Act of Parliament to regulate the negotiation and conclusion by the Government of petroleum agreements relating to the exploration for, development, production and transportation of, petroleum and for connected purposes'. The Act makes specific provisions in relation to crude oil, natural gas and petroleum.

The concern for safe use of chemicals of an ignitable or toxic character is apparent too in the Methylated Spirits Act. This Act is described as

> *An Act of Parliament to make provision for regulating the preparation, sale, supply, possession and use of mineralised methylated spirits, and for purposes incidental to and connected with the foregoing.*

Methylated spirits are defined (S.2) as:

> *spirits mixed with a substance so as to render the mixture unfit, and incapable of being readily converted so as to be fit, for human consumption as a beverage ....*

The Act empowers the Minister to make rules regulating the formula for methylated spirits (S.3). The Act prohibits the use of methylated spirits as a beverage or medicine (S.11), and restricts the quantity of methylated spirits that may be held (S.12); it also prescribes safety conditions for the holding of methylated spirits in wholesale stock-room. The Methylated Spirits Rules prescribe the formula to which all methylated spirits shall conform. These Rules have a Schedule prescribing the formula and specifying the denaturants that may be applied to methylated spirits. The formula is as follows:

> *To every ninety-four and one-half gallons of spirits add three and one-half gallons of wood naphtha, and one and one-half gallons of crude pyridine and one-half a gallon of light caoutchoucine and not less than one thirtieth of an ounce of a powdered aoiline dye (methyl violet)*

The denaturants are specified as: wood naphtha, crude pyridine, light caoutchoucine, and methyl violet dye (Colour Index No. 680).

The Industrial Alcohol (Possession) Act is 'An Act of Parliament to control the possession of industrial alcohols'. Industrial alcohol is defined (s.2) as:

> *methylated spirits, rectified spirits, power alcohol and any spirits with which any substance is mixed.*

No person may be in possession of industrial alcohol except under a permit issued by a District Commissioner (S.3). To any such permit the District Commissioner 'may impose such terms and conditions .... as he may deem fit' (S.3). The Act authorises searches and entry of premises to remove any industrial alcohol that may be held without authority. It

empowers the court to order confiscation of unlawfully held industrial alcohol, and imposes penalties for violations of the Act.

2.2.3 PEST AND VERMIN CONTROL CHEMICALS

The State's concern for safety in the use of chemicals is evident also with regard to those chemicals that are used in the control of pests and vermin, with reference to both fauna and flora. The relevant Statutes in this regard are: (i) the Cattle Cleansing Act (Cap. 358), and the Pest Control Products Act (Cap. 346).

The Cattle Cleansing Act authorises the use, for cleaning cattle, of an 'effective tick-destroying agent', a term which means 'any aqueous solution containing arsenious oxide or other ingredient in such percentage or proportion as may from time to time by notice in the Gazette be prescribed by the Director' (S.2). To control the ingredients of the tick-destroying agent, it is provided that:

> *It shall be unlawful for any person to sell or offer or expose for sale as an effective tick-destroying agent any article or fluid which does not conform to the standard prescribed under this Act (S.19).*

Subsidiary legislation is attached to the Act specifying the mode of preparation of the tick-destroying agent. The subsidiary legislation requires the use of arsenious oxide (AS2 03) in the following concentrations:

> *(a) Where cleaning by immersion or spraying is repeated at intervals of not more than seven or not less than five days, 0.16 per cent by weight;*
>
> *(b) Where cleaning by immersion or spraying is at intervals of three days, 0.08 per cent by weight ....*

Alternatively, the subsidiary legislation allows the use of a mixture containing benzene hexachloride, of which the gamma isomer concentration is not less than 0.02 per cent by weight (200 p.p.m. of water) in the case of benzene hexachloride powders and pastes; and not less than 0.01 per cent by weight (100 p.p.m. of water) in the case of benzene hexachloride emulsions.

A further alternative is an emulsion containing chlorinated camphene at concentrations of not less than 0.25 per cent toxaphene when the cleaning by immersion or spraying is repeated at intervals of not more than seven days; and not less than 0.5 per cent toxaphene when the cleaning by immersion or spraying is repeated at intervals of not more than seven days; and not less than 0.5 per cent toxaphene when the cleaning by immersion or spraying is repeated at intervals of not less than ten days.

Yet another alternative is an emulson containing dieldrin, at a concentration of not less than 0.05 per cent dieldrin when the cleaning by immersion or spraying is repeated at intervals of not more than seven days.

The Pest Control Products Act is described as 'An Act of Parliament to regulate the importation, exportation, manufacture, distribution and use of products used for the control of pests and of the organic function of plants and animals and for connected purposes'. The Act defines a pest as *'any injurious, noxious or troublesome organic function of a plant or animal'* (S.2). It defines a 'pest control product' as 'a product, device, organism, substance or thing that is manufactured, represented, sold or used as a means for directly or indirectly controlling, preventing, destroying, attracting or repelling any pest and includes:

> *(a) any compound or substance that enhances or modifies or is intended to enhance or modify the physical or chemical characteristics of a pest control product to which it is added; and,*
>
> *(b) any active ingredient used for the manufacture of a pest control product (s.2).*

The primary concern of the Act is to ensure the safety of pest control products; and to this end it makes specific provisions in respect of manufacture, packaging, storage, display, distribution, use or advertisement. It is provided that 'No person shall manufacture, package, store, display, distribute, use or advertise any pest control product except in accordance with conditions prescribed by regulations made under this Act' (S.3 (1)). It is provided further that 'No person shall package, label or advertise any pest control product in a manner that is false, misleading or deceptive or is likely to create an erroneous impression regarding its character, value, quality, composition, merit or safety' (S.3 (2)). It is provided too that 'No person shall import into, or sell in, Kenya any pest control product unless that product has been registered, packaged and labelled in accordance with regulations made under this Act and conforms to the standards specified in those regulations' (S.4(1)). It is provided also that 'No person shall export or re-export out of Kenya any pest control product unless he has complied with the requirements specified in regulations made under this Act' (S.4(2)).

The Pest Control Products Board is established (S.5) for the following functions: (i) to assess and evaluate pest control products in accordance with the provisions of the regulations

made under the Act (S.6 (a)) (ii); to consider applications for the registration of pest control products and to make necessary recommendations to the Minister (S.6 (b)); and, to advise the Minister on all matters relating to the enforcement of the provisions of the Act and the regulations made under the Act (S.6 (c)).

The Act provides for the appointment of inspectors and analysts (S.8), for the pertinent powers, and for the authority to seize and dispose of any pest control products held or handled contrary to the applicable regulations (SS. 9, 10). The Minister is empowered to make detailed regulations for giving effect to the requirements of the Act (S.15).

By virtue of these powers a number of regulations have been made, such as: (i) the Pest Control Products (Licensing of Premises) Regulations (L.N. 145/1984); the Pest Control Products (Registration) Regulations (L.N. 46/1984, 109/1984); the Pest Control Products (Labelling, Advertising and Packaging) Regulations (L.N. 89/1984); the Pest Control Products (Labelling, Advertising and Packaging) Regulations, for example, states that 'No pest control product shall be distributed without a label' (S.3(1)); and that 'No label shall be used on a pest control product unless it has been approved by the Board. ...'(S.3(2)).

2.2.4 FOOD AND FEED-RELATED CHEMICALS

Chemicals hve an important place in the food and feed industry, and in the agricultural and land-resource base of this industry. Kenya has two statutes in this category, dealing with the potential hazards of chemicals. These are: (i) the Food, Drugs and Chemical Substances Act (Cap.254); and, (ii) the Fertilizers and Animal Foodstuffs Act (Cap. 345).

The Food, Drugs and Chemical Substances Act declares itself to be 'An Act of Parliament to make provision for the prevention of adulteration of food, drugs and chemical substances and for matters incidental thereto and connected therewith'. The term 'chemical substance' is defined (S.2) as:

> *any substance or mixture of substances prepared, sold or represented for use as: (a) a germicide; (b) an antiseptic; (c) a disinfectant; (d) a pesticide; (e) an insecticide; (f) a rodenticide; (g) a vermicide; or (b) a detergent.*

The Act prohibits the sale of unwholesome, poisonous or adulterated food (S.3). It provides for the making of standards for food (S.5), cosmetics (S.14), and chemical substances (S.22). It provides for the analysis of food, drugs and chemical substances (SS.31, 37), and imposes penalties against unlawful modes of disposal of chemical substances (S.24), and against the sale, preparation, preservation, packaging, storage or conveyance for sale of any chemical substances under insanitary conditions (SS. 25, 26).

Several regulations have been made for the purpose of giving effect to the control and management provisions of the Act. These include: (i) the Food, Drugs and Chemical Substances (General) Regulations (L.N. 105/1978; 228/1978; 190/1988); (ii) the Food, Drugs and Chemical Substances (Food Hygiene) Regulations (L.N. 273/1990); and, (iii) the Food, Drugs and Chemical Substances (Food Labelling, Additives and Standards) Regulations (L.N. 189/1988).

The Fertilizers and Animal Foodstuffs Act is stated in its long title to be 'An Act of Parliament to regulate the importation, manufacture and sale of agricultural fertilizers and animal foodstuffs and substances of animal origin intended for the manufacture of such fertilizers and foodstuffs, and to provide for matters incidental to and connected with the foregoing.' 'Animal foodstuff', under the Act (S.2), means:

> *(a) any -*
>
> *(i) substance obtained by a process of crushing, gristing or grinding or by the addition to any substance or the removal therefrom of any ingredient; or,*
>
> *(ii) condimental foodstuffs or mineral substances which possesses or is alleged to possess nutritive properties; or,*
>
> *(iii) substances of animal origin, which is intended or offered for feeding of livestock, domestic animals or poultry; or,*
>
> *(b) any stock lick or substance which can be and is used as a stock lick, whether or not it possesses medicinal properties .....*

Fertilizer is defined (S.2) as:

> *any substance or mixture of substances which is intended or offered for improving or maintaining the growth of plants or the productivity of the soil .....*

The Act empowers the Minister to make rules for the due implementation of the Act, and in particular for the prescription of standards for animal foodstuffs and fertilizers, and for the regulation of the percentages of certain substances in the composition of fertilizers and animal foodstuffs. A number of rules have been made by virtue of the said power. TheFertilizers and Animal Foodstuffs (Approved Fertilizers) Rules (L.N. 209/

1972) bear a schedule which lists the approved fertilizers. These include among others: (i) sulphate of ammonia; (ii) nitrate of soda; (iii) calcium ammonium nitrate; (iv) ammonium sulphate nitrate; (v) urea; (vi) diammonium phosphate; (vii) superphosphate of supers; (viii) triple superphosphate; (ix) basic slag; (x) soda phosphate; (xi) rock phosphate; (xii) guano; (xiii) zinc oxide; (xiv) copper oxide; (ix) copper oxychloride.

Other rules made under the Act include: (i) the Fertilizers and Animal Foodstuffs (Packing of Approved Fertilizers) Rules (L.N. 210/1972); (ii) the Fertilizers and Animal Foodstuffs (Sterilization of Bones) Rules (L.N. 213/1972); (iii) the Fertilizers and Animal Foodstuffs (Sampling) Rules (L.N. 214/1972); (iv) the Fertilizers and Animal Foodstuffs (Analysis) Rules (L.N. 215/1972, L.N. 292/1994); (v) the Fertilizers and Animal Foodstuffs (Declaration and Warranty) Rules (L.N. 216/1972); and (vi) the Fertilizers and, Animal Foodstuffs (Records and Returns) Rules (L.N. 217/1972).

2.2.5 PHARMACEUTICAL AND HEALTH-RELATED CHEMICALS

The Government's chemical control objective is also manifested in the sphere of pharmaceuticals and health-related substances. In this context, two Statutes have been in force for several decades. These are: (i) the Use of Poisonous Substances Act (Cap. 247); and, (ii) the Pharmacy and Poisons Act (Cap. 244).

The Use of Poisonous Substances Act is described as 'An Act of Parliament to provide for the protection of persons against risks of poisoning by certain substances, and for matters incidental thereto and connected therewith'. 'Poisonous substance' is defined (S.2) as:

> *a substance or class of substances declared to be a poisonous substance under section 9 to which the provisions of this Act are directed to apply.*

Under Section 9, the Minister is empowered to declare a particular substance or class of substances to be a poisonous substance. The Minister is empowered to make regulations for the protection of persons against risks of poisoning (S.3); and, the Act imposes penalties against violations of its provisions and of any regulations made under it.

This Act may be said to be aimed at all poisonous materials, be they chemicals or not, that may cause damage through pharmaceuticals or other health-related substances.

Of more direct concern with pharmaceutical and health matters is the Pharmacy and Poisons Act, a statute that proclaims itself to be 'An Act of Parliament to make better provision for the control of the profession of pharmacy and the trade in drugs and poisons'. The Act defines (S.2) the term 'drug' to include 'any medicine'; medical preparation or therapeutic substance'; 'medicine' to mean 'any medicament or curative or preventive substance, whether proprietary or in the form of a preparation', and 'poison' to mean 'a poison included in the Poisons List referred to in Section 25'. Section 25 provides that the Pharmacy and Poisons Board shall prepare and submit to the Minister for his approval a list of the substances which are to be treated as poisons for the purposes of the Act. The Minister is empowered (S.43), acting on the recommendation of the Board, by order, to 'prohibit or control the manufacture, sale, advertisement or possession of any secret or patent, proprietary or homeopathic medicine, preparation or appliance'. The control measures under the Act include the regulation of the labelling of articles containing medicine, and the power of entry and search of premises to stop breaches of the requirement of the law.

The subsidiary legislation made under the Act includes: (i) the Poisons List Confirmation Order (L.N. 150/1968); (ii) the Pharmacy and Poisons (Prohibited Medicines) Order (L.N. 36/1963); (iii) the Pharmacy and Poisons Rules (L.N. 51/1985). Part I of the Poisons List contains such items as: (i) acetanilide; alkyl acetanilides; (ii) acetohexamide; (iii) acetylcarbromal; (iv) acetyldihydrocodeine; (v) acocanthera; (vi) adenium; (vii) antimony; (viii) apomorphine. (This Part contains a total of 249 substances). Part II includes items such as: (i) ammonia; (ii) barium carbonate; (iii) barium silicofluoride; (iv) barium sulphide; (v) formaldehyde; (vi) formic acid; (vii) hydrochloric acid (all in Group A, which contains 19 numbered items). Group B under this part contains items such as: (i) arconite; (ii) arsenic; (iii) belladona; (iv) chloral hydrate; (v) codeine; (vi) coniine (a total of 17 numbered items).

The Pharmacy and Poisons (Prohibited Medicines) Order prohibits the manufacture, sale, advertisement or possession of the proprietary medicine and the poison named in the Schedule; and the Schedule names: (i) Nu-cell; (ii) Part I poison known as Thalidomide which is marketed under the names Distaval or Contergan or Softenon and which is an ingredient of Asmaval, Tensival, Valgis and Valgraine.

The Pharmacy and Poisons Rules sets out detailed rules on such matters as: (i) the importation of drugs and Part I poisons; (ii) restrictions on the importation or manufacture of specified drugs; (iii) exportation of drugs and poisons; (iv) labelling of containers; (v) indication of character of poison; (vi) safe custody of poisons; (vii) manufacture of drugs.

2.2.6 RADIOACTIVE CHEMICALS

The Government's concern about the potential harm of radioactive chemicals is reflected in the Radiation Protection Act (Cap 243). The object of control is radioactive material, defined in (S.2) as:

> *any material or substance emitting ionizing radiation'. 'Ionizing radiation' means (S.2) 'gamma rays, alpha and beta particles, high speed electrons, neutrons, protons and other particles capable of producing ions directly or indirectly in their passage through matter.*

The Statute describes itself as 'An Act of Parliament to provide for the protection of the public and radiation workers from the dangers arising from the use of devices or material capable of producing ionizing radiation and for connected purposes'.

A Radiation Protection Board is established in (S.7) to advise the Minister on the implementation of the Statute. It is the responsibility of the Board to: (i) advise the Minister on matters relating to radiation protection and radioactive waste disposal; (ii) to implement the provisions of the Act and the regulations made under the Act; (iii) to grant or refuse to grant, or to extend licences issued under the Act, and to impose any necessary conditions on a licence so granted; (iv) to keep a register of owners of irradiating devices, radioactive materials and other sources of ionizing radiation imported into or manufactured in Kenya, and of premises licensed to dispose of radioactive waste. The Act provides for the control of radiation sources. Except where an exemption has been granted, no person may (S.8):

(i) manufacture or otherwise produce any irradiating device or radioactive material;
(ii) possess or use such device or material;
(iii) sell, dispose of or lease, loan or deal with such device or material;
(iv) import or cause to b imported such device or material;
(v) export or cause to be exported such device or material.

Ionizing radiations may not be applied to any person for purposes of treatment, or of diagnosing a disease, 'unless the application is prescribed by a medical or dental practitioner registered under the Medical Practitioners and Dentists Act (S.9). Those who lawfully hold irradiating sources are placed under duty (S.12) to (i) store, transport or dispose of them in such a manner as to keep exposure levels to a minimum (and below the prescribed limits); (ii) provide protective accessories for workers; (iii) provide proper instructions on radiation safety for workers; (iv) exercise proper care for radioactive wastes; and (v) to maintain exposure records. The Act establishes the office of Chief Radiation Protection Officer (S.13), and empowers radiation protection officers to enter and inspect premises in the enforcement of the Statute, to require the production of licences by those in possession of irradiating devices, and generally to ensure compliance with the Act (s.14).

The Minister is empowered, acting in consultation with the Board, to make regulations for the better carrying out of the purposes and provisions of the Act (S.18). In particular, the Minister may establish precautionary measures to prevent injury caused by ionizing radiation; prescribe methods of disposing of radioactive waste products from any source; specify structural requirements for buildings , including among others, dark-rooms used in connection with x-ray photography; specify the method of packing irradiating devices.

2.3 STATUTES AND REGULATIONS IN THE REGIME OF CHEMICAL CONTROL

The use of chemicals in Kenya's economic, social and scientific activities is a matter of considerable public interest, given, on the one hand, the positive contribution of these chemicals, and on the other hand, the danger of abuse of chemicals and the serious threat to life, health and environmental safety which they pose. It is thus, unavoidable that Parliament should intervene through law-making, to lay the parameters within which chemicals should be imported or manufactured, traded, transported, stored, used or disposed of.

Given the complex, technical constitution of chemicals, and the intricacies of their impact upon humanity and the environment, however, it is hardly to be expected that the laws relating to them will be fully detailed; as it is not at the time of legislation that it is possible to have a clear view of all the issues associated with the application of these chemicals. Scientific knowledge about chemicals and their advantages or disadvantages, keep on unfolding in the course of time. Legislation thus, can take place only on the basis of the existing state of knowledge; and later developments must be left to be accommodated in more flexible ministerial regulations.

In the course of time, as Kenya's industrial sector has strengthened, the use of chemicals in the economy has gradually increased. Thus, the hazards to which chemicals expose the people have increased gradually over the years. Such a trend justifies flexibility in the development of the legal and administrative regime for the control of chemicals. It thus, makes good sense that, each of the several statutes dealing with the control of chemicals, has left open doors for ministerial rule-making to fill gaps in the Acts, with the object of giving effect to the spirit and effect of the legislation.

Thus, the Methylated Spirits Act, for instance, leaves it to ministerial regulations to specify the detailed scientific formula to which all methylated spiris shall conform, and the specification with which all denaturants shall comply. Similarly, the Cattle Cleansing Act, after imposing the obligation to cleanse cattle with an effective tick-destroying agent, leaves it to the Minister to prescribe the scientific ingredients of effective tick-destroying agents. The Pest Control Products Act entrusts the Minister with responsibility for regulating the mode of labelling for pest control products. Similarly, the Pharmacy and Poisons Act leaves to the Minister the task of prescribing a Poisons List, and for naming the prohibited medicines. The Fertilizers and Animal Foodstuffs Act leaves to the Minister the technical function of naming the approved fertilizers.

There is, in effect, no administrative regime separate from the statutory one, for the management and control of chemicals. There is a fundamental functional integration between the statutory and the administrative scheme. The statutes are essentially skeletal, leaving the reality of control and management to rest squarely with the administrative agencies, and *via* the more detailed regulations that are made by the Minister, in consultation with technical bodies established by statute. Considerations of legislative effectiveness therefore, resolve into basic questions about the effectiveness of the administrative agencies. (This matter is discussed in the next section of this Chapter).

2.4 SHORTCOMINGS IN THE CURRENT STATUTORY AND REGULATORY REGIME FOR THE MANAGEMENT OF TOXIC AND HAZARDOUS CHEMICALS

As already noted, the selection of those chemicals to be regulated through parliamentary enactment and subsidiary legislation, appears not to have been made on any objective criteria based on the universally known toxicity and hazardous nature of a particular chemical. The selection appears to have taken place essentially as a matter of course, given the prevailing economic practices which include, among others, arable farming, animal husbandry, the production of food and feed, health-care activities. This range of activities is rather too basic to accommodate all the critical chemical substances that must be the subject of regulation and control. Within the framework of such activities, little progress has been made towards addressing the large number of toxic and hazardous chemicals. The Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal (1989) sets out the categories of wastes that require control, and chemicals form an important part of such wastes. The wastes in question include the following:

(i) wastes from the production and preparation of pharmaceutical products;
(ii) waste pharmaceuticals, drugs and medicines;
(iii) wastes from the production, formulation and use of biocides and phytopharmaceuticals;
(iv) wastes from the manufacture, formulation and use of wood preserving chemicals;
(v) wastes from the production, formulation and use of organic solvents;
(vi) wastes from heat treatment and tempering operations containing cyanides;
(vii) waste mineral oils unfit for their originally intended use;
(viii) waste oils/water, hydrocarbons/water mixtures, emulsions;
(ix) waste substances and articles containing or contaminated with polychlorinated biphenyls and/or polychlorinated triphenyls and/or polybrominated biphenyls;
(x) waste chemical substances arising from research;
(xi) wastes from the production, formulatio and use of photographic chemicals and processing materials;
(xii) wastes resulting from surface treatment of metals and plastics.

While such wastes have toxic and hazardous ingredients, they do not, for the most part, feature in Kenya's legislative and administrative structure for the control of chemicals. In this respect it may be stated that Kenya's regime for the control of chemicals is largely inadequate to address the real magnitude of the toxicity and hazardous nature of chemicals.

The inadequacy of the national chemical control regime is partly attributed to the prevailing economic conditions, which have rested mainly on the agricultural sector. Such an economy has not created the best opportunity for the highest degree of scientific and technological attainment, of the kind associated with the industrialised countries. Consequently, the level of use of chemicals, and that of scientific competence in the management and regulation of chemicals, have been relatively low.

Kenya's industrial sector, however, has expanded steadily over the years; and in consequence, chemicals have been brought into circulation with increasing frequency, and have presented considerable risks to human life and health, to water bodies, to the soil, to vegetation and to the environment as a whole. Such risks have been greater still, with the modern trends in the application of pesticides in agriculture.

In this context, the existing legal and administrative structure for dealing with chemicals has lagged behind the pace of growth in the use of chemicals.

Kenyan statutes and regulations dealing with chemicals have another major short-coming. Their control strategy is founded on certain transactions: (i) manufacture, (ii) uses, (iii) possession, and (iv) sale, in gross, rather than in specific, regulated steps. Such a control strategy is merely prohibitory, but fails to address the specific modes of application and management of chemicals. The prohibitory approach seems to be guided by the notion that chemicals are hazardous and mostly not in the public interest, and those who manufacture, keep, use or sell them must bear the burden of preventing harm occasioned by such chemicals. A more enlightened approach would be that chemicals are important for the various activities of national development, and the law's concern should be only to facilitate the safe manufacture, use and disposal of them; this facilitative role would require the prescription of clear standards, and the strict application of these standards in the production, transportation, use, sale or disposal of chemicals.

The legal and administrative regime relating to chemicals should impose: (i) requirements that define the mode of handling chemicals; (ii) restrictions on the use of chemicals; (iii) directions on the mode of production of chemicals; (iv) safety measures attached to the use, distribution, release and disposal of chemicals; and,(v) mitigation measures in respect of chemical damage. Since chemicals remain a vital ingredient in the industrialization process (and indeed in relation to many economic and social activities), it is retrogressive to adopt the simple prohibitory approach. It is important that the regulatory regime should be based on scientific criteria, and should be designed to ensure safe manufacture, use, transportation and disposal, as well as mitigatory arrangements where damage has occurred.

Such an approach to the regulation of chemicals reqires the establishment of a reliable agency for the prescription of standards, as well as an effective enforcement procedure. It may not be economical to establish such an agency for every type of chemical; it is better to have one agency responsible for environmental standards, and such an agency should be able to call on expertise from specialised agencies concerned with particular chemical substances.

In the case of the Pest Control Products Act, the strategy is to regulate the sale, distribution and use of chemicals. There is little concern about the effect of chemicals on important resources such as drinking water, irrigation water, soils, vegetation, animals, besides others. The Act contains no standards as to responsibility towards the item in question, and has no provision with regard to mitigation measures where human beings, animals, plants, or the environment may have been negatively affected by the use of pesticides. The Act seems to be concerned only with agricultural uses, and pays hardly any attention to the implications of such uses for the safety of humans beings, animals or plants. This is clearly an unsatisfactory aspect of the statute.

The Pharmacy and Poisons Act, similarly, essentially controls only sale, distribution and use; that is to say, the control scheme of this Act primarily addresses the finished product, rather than various processes in the production, use or disposal of chemicals. The Act barely pays heed to the impacts of chemicals on the environment during the manufacturing stage. It imposes no control over fumes emanating from the manufacturing process. It has no provision in relation to human safety during the manufacturing process. This gives the Act an essentially economic outlook, having hardly any regard to important social and environmental considerations.

The Radiation Protection Act provides a similar example. It controls the amounts of radiation to which persons are exposed, and regulates the acquisition and ownership of irradiating sources. No provision, however, is made as regards laboratories or equipment for the disposal of irradiating sources.

The Methylated Spirits Act is essentially a customs and excise statute, rather than a science-oriented law concerned with the quality of methylated spirits or with their process of production, use or disposal. It makes no provision for the disposal of methylated spirits that do not meet any of the set quality standards. A standards body is itself lacking and hence, the statute's approach is merely prohibitive. Such is also the general character of the Petroleum Act, and the Industrial Alcohol (Possession) Act.

The Use of Poisonous Substances Act, too, merely prohibits certain substances, but gives no specific attention to the hazardous aspects of these substances. It provides no standards for assessing hazardous aspect or toxicity, and pays no attention to an important issue such as the release of poisonous chemicals in the course of manufacture.

It should be noted that, an important statute in relation to medical care institutions, namely, the Public Health Act (Cap. 242), makes no provision for hospital chemicals and wastes, and on the mode of disposal of the same. This exposes people and the environment to harm from toxic and hazardous chemicals.

A general short-coming of the various statutes relating to toxic and hazardous chemicals, is the rather *nominal character of the penalties* imposed for breaches of the law. Another such short-coming is in relation to te *scattered scheme of administrative arrangements, under which*

unco-cordinated agencies are established for separate substances under the respective enactments.

The Methylated Spirits Act imposes a penalty in respect of sale without the required licence, of a fine not exceeding five thousand shillings, or imprisonment for a term not exceeding six months, or both (S.4). The penalty for being unlawfully in possession of industrial alcohol, under the Industrial Alcohol (Possession) Act (S.5), is a fine not exceeding five thousand shillings or imprisonment for a term not exceeding two years, or both. The Radiation Protection Act provides that a person who: (i) wilfully obstructs the Chief Radiation Officer or any other radiation protection officer in the exercise of his duties; or (ii) without reasonable excuse fails to produce a register, licence, notice or document which he is required to produce; or (iii) wilfully withholds any information as to who is the owner or responsible for the management of a radiation source, 'shall be guilty of an offence and be liable to a fine not exceeding twenty thousand shillings or imprisonment for a term not exceeding one year or both' (S.16(1)). The Pest Control Products Act, in its offences and penalties section (S.12), states that:

> *Any person who contravenes the provisions of Section 3 or 4 shall be guilty of an offence and shall be liable to imprisonment for a term not exceeding two years (S.12(1)).*

It further states that:

> *'Any person guilty of an offence under this Act other than an offence referred to in Sub-Section (1) shall be liable to a fine not exceeding ten thousand shillings or to imprisonment for a term not exceeding six months or both' (S.12(2)).*

The Food, Drugs and Chemical Substances Act (s.36) carries the general penal provision that,:

> *A person who is guilty of an offence under this Act... shall be liable ... (a) in the case of a first offence, to a fine not exceeding two thousand shillings or to imprisonment for a term not exceeding three months, or to both such fine and imprisonment; (b) in the case of a subsequent offence, to a fine not exceeding four thousand shillings or to imprisonment for a term not exceeding six months, or to both such fine and imprisonment.*

These are exceedingly lenient penalties, and their very enactment may be a further reflection of the fact that the relevant statutes have not addressed the fundamental problem of the hazards entailed in careless or inappropriate manufacture, transportation, sale, use or disposal of chemicals. With necessary reforms to the law relating to chemicals, that squarely address the issues of toxicity and hazardous aspects, it will be necessary to raise the levels of the penal provisions.

The problem of toxicity and hazardous nature of in chemicals has a bearing on human health and safety, and on the integrity of the environment. These are, in a way, essentially environmental problems. On this account there should be established one broad scheme of environmental management, that establishes *a centralised procedure for standard setting and for the implementation of health and environmental safety measures. This would amalgamate the many chemical control regimes established under the different statutes, and provide them with a more efficacious machinery of standard-setting and enforcement of the governing law.*

Kenya is likely in the near future to enact the Environmental Management and Co-ordination Bill, as a framework environmental statute. *It is recommended that the scheme of standard setting, environmental impact assessment, and enforcement of the law, for the process of chemical management, be lodged within the provisions of that proposed law.*

2.5 GOVERNMENT'S PROPOSED LEGISLATION ON CHEMICALS: THE CHEMICAL CONTROL BILL, 1995

2.5.1 INTRODUCTION

On February 17, 1995, the Government of Kenya published in the *Kenya Gazette Supplement* (No.9 (Bills No. 2)) the Chemical Control Bill. This essential step to the introduction of the Bill before the National Assembly for debate was, however, not followed up. In the course of time Parliament was prorogued, and the Bill thus, lapsed. This means that a republication of the Bill in the *Gazette* will be required, whenever the Government will feel prepared to submit it to the parliamentary process.

This interlude gives an opportunity for re-appraising the Chemical Control Bill, with the expectation that the Bill, when next brought before the National Assembly, will incorporate all relevant considerations.

2.5.2 ASSESSMENT OF THE CHEMICAL CONTROL BILL, 1995

A factual account on the Chemical Control Bill, 1995 may be set out in point form as follows:

(a) It seeks to consolidate the chemical control regime, and describes itself in the long title as:

An Act of Parliament to provide for the supervision, management and control of [the] use of chemical substances and for connected purposes.

(b) The Bill falls into four Parts of, namely: (i) the Preliminary Part; (ii) Establishment of a Chemical Control Board; (iii) the Licensing Provisions; and, (iv) Miscellaneous Provisions.

(c) The Preliminary Part is concerned with the definition of the critical terms, namely: (i) 'Board', which means the Chemical Control Board; (ii) 'chemical industry', which means 'the facility where chemical substances are produced, manufactured, processed and packaged'; (iii) 'chemical substance', which means 'a substance or a mixture of substances occurring naturally or made by a manufacturing process but which has characteristic physical and chemical properties in their pure form and which may be used in chemical processes, formulations and the manufacture of chemical products, or any other substance or mixture of substances which the Minister may after consultation with the Board declare to be a chemical substance'; (iv) 'chemical shop', which means 'premises licensed under this Act to deal generally with chemical substances and in particular the sale, distribution, manufacture and marketing of chemical substances, but does not include a dispensing chemist licensed under the Pharmacy and Poisons Act'; (v) 'facility', which means 'facility where chemical substances are stored, processed, packaged, transported, used, emitted or discharged'; (vi) 'laboratory', which means a facility where chemical substances are scientifically and technically used, analysed and evaluated'.

(d) Part II establishes an institutional structure for chemical control, and this takes the form of a Chemical Control Board. The Board is mainly made up of Government officials (8), but also includes three professionals: the Government Chemist, and two persons having special knowledge in the manufacture, production, use and disposal of chemicals (appointed by the Minister). The functions of the Board are as follows: (i) to advise the Minister on all matters relating to chemical substances, the control, use, manufacture, storage, transportation and disposal of chemical substances or related by-products; (ii) to grant licences under the Act; (iii) to establish and maintain a national register for all chemical substances imported into or manufactured in Kenya, premises licensed to manufacture, use or store chemical substances and to dipose of related wastes including chemist shops; (iv) to establish and direct a chemical substances inspectorate to control the use, storage, transportation, exportation and management of chemical substances under the Act; (v) to carry out research on chemical substances generally for the benefit of public health; (vi) to regulate the use, manufacture, importation, exportation, control, possession, storage, or disposal of chemical substances under the Act; (vii) to perform other acts which are connected with, or incidental to, the above.

(e) The Board, in the discharge of its functions, may establish committees to deal with specific issues (S.9), and shall comply with such directions as the Minister may give (S.10).

(f) The Board is required to appoint public officers in the capacity of analysts, to serve as chemical control inspectors (S.12). Every such inspector shall carry a certificate of appointment to facilitate his work.

(g) The inspectors' specified tasks reflect the technical aspect of the whole function of chemical control (S.13). A chemical control inspector is empowered to: (i) enter, inspect, take samples, examine any premises, booth, motor vehicle, vessel, aircraft or any other vessel in which he has reasonable cause to believe that any chemical substance is stored, manufactured, used, transported or disposed of; (ii) require the production of a licence authorising the owner or occupier of a chemical facility to carry on the activities with chemical substances, or a register kept under the Act, and inspect, examine or take copies thereof; (iii) seize, remove and detain any chemical substances and any other articles which may appear to him to contain or comprise substances or materials in connection with which he has evidence of an offence having been committed, and for like cause seize, remove, detain or take charge of any premises, facilities, containers, receptacles and any other books of account or other documents; (iv) require the owner or occupier of a premises or facility to explain and give information relating to the presence in the premises or facility of any chemical substance; and, (v) make such examinations and enquiries as may be necessary for carrying out the provisions of the Act or regulations made under it.

(h) Part III of the Bill is concerned with licensing for persons who intend to use, purchase, deal in, manufacture, dispose of, import or export chemical substances or operate a chemist shop. Licence may be refused, or granted, or given with conditions attached, or cancelled

or suspended (S.14), as may be necessitated by the requirement of proper chemical control.

A person who holds a licence under the proposed law is placed under duty to 'ensure that no contamination of the environment is caused by the chemical substances resulting directly or indirectly from his chemical facility during the manufacturing operation, storage or disposal of waste' (S.16). Owners of a licensed facility are required to appoint, as a safety officer, a person experienced in handling chemical substances. The safety officer is to ensure the following: (i) that all persons using or working in the facility are supplied with protective accessories necessary while handling chemical substances; (ii) that all workers employed in the facility are given proper instructions on safety measures; (iii) that all the workers employed in the facility receive such periodic medical check-ups as the Board may direct; (iv) that the code of practice for handlers and users of chemical substances is strictly adhered to; (v) that proper care is taken to dispose of chemical waste in accordance with the terms and conditions of the licence; (vi) that any instructions issued by the Board are properly implemented.

(i) Part IV contains miscellaneous provisions such as: (i) the provision of chemical, biochemical and biological laboratory services; (ii) offences and penalties; (iii) the making of regulations.

As regards offences and penalties, Section 19 provides that '(1) Any person who, being the holder of a licence issued under this Act, contravenes any of the conditions of such licence shall be guilty of an offence and liable to a fine not exceeding two hundred thousand shillings or to imprisonment for a term not exceeding five years or both'; and (2) any person who wilfully obstructs an authorised officer in the exercise of his duties, or, without reasonable excuse, fails to produce a register, licence, notice or document which he is required to produce, or, wilfully withholds any information as to who is the owner, user, manufacturer, possessor of, or as to who is responsible for the disposal of, any chemical substances, or wilfully prevents or attempts to prevent any person from appearing before or being examined by an authorised officer, 'shall be guilty of an offence and liable to a fine not exceeding twenty thousand shillings or imprisonment for a term not exceeding six months or to both'.

The Bill would empower the Minister (S.20), acting in consultation with the Board, to make regulations with regard to - (i) the precautions to be taken to prevent injury being caused by chemical substances to the health of persons likely to be exposed to the harmful effects of those circumstances; (ii) methods of disposal of chemical substances of any kind; (iii) the structural requirements for buildings or premises used in connection with the manufacture, production, treatment, use, storage or disposal of chemical substances; (iv) the registration of chemists; (v) the precautions to be taken for the safe transportation of chemical substances; (vi) the method of packaging or labelling of chemical substances; (vii) the method of treatment or disposal of any vessel, vehicle, package or container that has been used to convey hold or store any chemical substances; (viii) any exemptions of any chemical substances from the provisions of the Act; (ix) the use, manufacture, production, possession, importation, storage, transportation, packaging and labelling of any specified chemical substances exempted from the licensing requirements of the Act; (x) the fees payable in respect of any licence; (xi) the classification of licences; (xii) the intervals at which inspections of chemical facilities may be made, and the fees to be paid in respect of such inspection; (xiii) chemical, analytical, biochemical, biological and forensic services payable, or waiver of fees payable for such services; (xiv) the measures to be taken to prevent chemical poisoning.

From the foregoing account, the following observations may be made about the Chemical Control Bill,1995:

(i) This Bill contains provisions that bear a significant improvement over the existing law on chemicals. It would thus be necessary to realign the law on chemicals, by adjusting or repealing some of the existing statutes.

(ii) The intent of the Bill, namely 'to provide supervision, management and control of [the] use of chemical substances', suggests that the Bill is more concerned with activities involving chemicals, rather than with ensuring quality in the chemicals themselves. This is one of the main short-comings of the existing legislation.

(iii) Although it is entirely rational that the Bill should provide for a Chemicals Control Board, as the professional and administrative agency responsible for chemicals management, such an agency co-existing with other similar agencies established by the various chemical control statutes, merely proliferates the nmber of bodies carrying broadly similar mandates, bodies that operate without much co-ordination among themselves. Such a welter of overlapping chemical control institutions is undesirable. They involve unnecessary administrative costs, and are in any case ineffective as they lead to conflicts in the chemical control function. One would have expected that such an agency in the Bill would take over the institutional arrangements currently found under existing statutes. It should be recommended,

however, that it is not necessary that a Chemical Control Board be established under the Bill. Instead, the professional control function should be legislated within the framework of the forthcoming Environment Management and Co-ordination Act. Accordingly, the whole of Part II of the Chemicals Control Bill should be compressed and incorporated into the framework of the environmental statute with its regulations.

(iv) It is to be noted that the Bill's definition of the term 'chemical substance' is sufficiently wide to incorporate all kinds of chemicals. This is in keeping with the spirit of the definition in UNEP's London Guidelines for the Exchange of Information on Chemicals in International Trade, and has much to commend it.

(v) The Bill's provision for chemical, biochemical and biological laboratory services is to be commended, as it establishes a clear mechanism for conducting analysis on chemical substances.

(vi) The failure of the Bill to provide for regulation of the *quality* of chemicals, through the setting of standards and the provision for their enforcement in relation to issues of safety and health, as well as environmental considerations, is regretable. This function, however, rightly belongs to the machinery of the forth-coming Environmental Management and Co-ordination Act, rather than the chemical control legislation. It is desirable that the Chemical Control Bill should be enacted only after the passing of the framework environmental statute;

and the issue of chemical standards, as well as any necessary environmental impact assessment in respect of the establishment of chemical industries, should be provided for within the framework of the Environmental Management and Co-ordination Act.

(vii) The various functions of the Chemical Control Board should be provided for within the Environmental Management and Co-ordination Act, either in the substantive provisions or in subsidiary legislation.

(viii) In the inspection process for chemicals, the appointed inspectors should work under the authority of the National Environment Management Authority to be established under the Environment Management and Co-ordination Act.

(ix) Although Section 16 of the Bill provides that:

> *the holder of a licence ... shall ensure that no contamination of the environment is caused by chemical substances resulting directly or indirectly from his chemical facility during the manufacturing operation, storage or disposal of waste,*

the Bill does not specify what environmental standards are to apply. It is recommended that a link should be drawn here between the Chemical Control Bill and the Environment Management and Co-ordination Act, and it should be provided that the applicable standards are those prescribed under the Act.

(x) The Bill's provisions on offences and penalties are a clear improvement on the position under the current statutes on chemicals. The penalties provided for in the Bill are much more stringent and more clearly deterrent in character.

With the adoption of such new penalties, it is necessary that the other chemical-related statutes, where they are retained, should be amended in their provisions relating to penalties. Suchstatutes should reflect the pattern of penalties found in the Chemical Control Bill, or should be more stringent.

(xi) The Bill's provisions for ministerial regulations (S.20) should provide for consultation with the National Environment Management Authority established under the Environment Management and Co-ordination Act (forth-coming).

(xii) The responsible authority for the management of the chemical control legislation should be the National Environmental Management Authority established under the forth-coming Environmental Management and Co-ordination Act.

(xiii) The Chemical Control Bill should not restrict itself to the ordinary chemicals that are mostly utilised in Kenya's current social and economic activities, but should specifically provide for the better known chemical pollutants that are normally associated with large-scale industrialisation, such as heavy metals and metalloids, and aromatic polychlorinated compounds.

The Bill should provide for the various toxic and hazardous chemicals listed in the national registers of the developed countries, and shown in records of various international organisations (see Chapter 1 of this Report).

2.6 THE INTERNATIONAL LEGAL REGIME FOR THE MANAGEMENT OF TOXIC AND HAZARDOUS CHEMICALS

2.6.1 INTRODUCTION

The present rules of international law dealing with the subject of toxic and hazardous chemicals are varied, in an organisational and a geographical sense. Some of these rules are binding and others non-binding, and applying sometimes at the global level and sometimes at the regional or sub-regional level. These rules have not been developed or applied on the basis of a co-ordinated strategy. Consequently the rules exist largely in patchwork form, their applicability depending on the characteristics of a particular substance, or the location of the source of such a substance. It was noted in Agenda 21 (UNCED, 1992) that, there exist as yet no globally harmonised hazard-classification and labelling systems. In the same way, there are no globally harmonised rules governing the manufacture and use of hazardous substances. At the regional level, the industrialised countries have established extensive bodies of binding legal obligations.

The current international framework for the control of toxic and hazardous substances should be understood in the context of certain landmarks. One of these is the Stockholm Declaration of 1972; Principle 6 of this instrument declared that the:

> *discharge of toxic substances or other substances and the release of heat, in such quantities or concentrations as to exceed the capacity of the environment to render them harmless, must be halted in order to ensure that serious or irreversible damage is not inflicted upon ecosystems.*

A similar concern was expressed in the Rio Declaration (UNCED, 1992), Principle 14 of which stated that:

> *States should effectively co-operate to discourage or prevent the re-location and transfer to other states of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.*

A number of international agreements have been adopted relating to toxic and hazardous substances, and some of them are expressly concerned with chemicals. An analysis of such agreements shows that they have taken one of four different approaches. The most common of these approaches defines hazardous substances by reference to such inherent characteristics as: toxicity, inflammability, explosiveness, and oxidisaion. The second approach characterises substances as hazardous by reference to a mode of listing, which categorises such substances on the basis of their likelihood to have significant effects on the environment. The third approach defines hazardous substances by reference to national laws' provisions in relation to them. The fourth approach takes the form of a practical way of dealing with specific substances.

The main body of international law relating to chemicals is in the form of treaties. Some of these treaties are expressly concerned with chemicals, while others are concerned with other matters of international interest, but which involve the safe use of chemicals.

The importance of this body of treaty law is that it underlines the significance of chemicals control, and provides a lead for national chemicals management initiatives. Where a particular country has adhered to a treaty on chemicals, a clear framework exists for national chemicals control initiatives, at the level of legislation and that of implementation.

2.6.2 TREATY LAW EXPRESSLY CONCERNED WITH CHEMICALS

The following global treaties are expressly concerned with chemicals:

(i) Convention Concerning the Use of White Lead in Painting (Geneva, 1921);
(ii) Convention Concerning Protection Against Hazards of Poisoning Arising from Benzene (Geneva, 1971);
(iii) Convention Concerning Prevention and Control of Occupational Hazards Caused by Carcinogenic Substances and Agents (Geneva, 1974);
(iv) Convention Concerning Safety in the Use of Asbestos (Geneva, 1986);
(v) Convention Concerning Safety in the Use of Chemicals at Work (Geneva, 1990);
(vi) Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction (Paris, 1993).
(vii) Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides, in International Trade (Rotterdam, 1998).

The subject of the Convention Concerning the Use of White Lead in Painting is to protect workers from exposure to white lead and sulphate of lead and from all products containing these pigments. States Parties are required to prohibit the use of white lead and sulphate of lead and of all products containing these pigments in the internal painting of buildings. States Parties are required to prohibit the employment of

males under the age of eighteen years and of all females, in any painting work of an industrial nature involving the use of white lead or sulphate of lead.

The Convention is part of worker-protection conventions adopted under the auspices of the International Labour Organisation (ILO). It underlines the fact that lead and its compounds is a health hazard from which human beings should be safe-guarded.

Although the Lead Convention was adopted nearly two generations ago, a number of States Parties have adhered to it in relativel recent times (such as Azerbaijan (1992); Comoros (1978); Djibouti (1978); Malta (1988); Slovakia (1993); Russian Federation (1991); Slovenia (1992)).

Kenya has never become a party to the Lead Convention. On the country's statute books there is no discernible provision for the protection of workers from the hazards of white lead. There is therefore, a gap in the law, both at the national and the international level.

Another ILO-sponsored treaty is the Convention Concerning Protection Against Hazards of Poisoning Arising from Benzene. The object of this Convention is to protect workers from hazards arising from the production, handling or use of benzene. It applies to all activities involving the exposure of workers to benzene (the aromatic hydrocarbon benzene (C_6H_6)) and products containing benzene. States Parties are required to use less harmful substitute products instead of benzene or products containing benzene, whenever such substitution is possible. National laws and regulations are required to be made prohibiting the use of benzene or of products containing benzene in certain work processes. States Parties are required to ensure that, in premises where benzene or products containing benzene are manufactured, handled or used, all necessary measures are taken to prevent the escape of benzene vapour into the air of places of employment, and to ensure that in no case does benzene concentration in such places exceed 25 ppm. Workers who may be exposed to benzene or products containing benzene are required to be provided with adequate means of personal protection.

Kenya is not a Party to the Benzene Convention; and it has no legislation or regulation that seeks to protect workers against the hazards of benzene. This is an omission in Kenya's law relating to chemicals.

Yet another ILO-sponsored agreement is the Convention concerning Prevention and Control of Occupational Hazards Caused by Carcinogenic Substances and Agents. This Convention aims to protect workers against hazards arising from occupational exposure to carcinogenic substances and agents. States Parties are required to determine from time to time those carcinogenic substances and agents to which occupational exposure shall be prohibited or made subject to authorisation or control. Parties are required to endeavour to replace such carcinogenic substances and agents as may afflict the health of workers, with non-carcinogenic substances or agents. They are required to enact laws and make regulations giving effect to the provisions of the Convention; and to establish appropriate bodies and inspection services, for the implementation of the provisions of the Convention.

With the exception of Egypt and Guinea, no African country has become a Party to the Carcinogenic Substances Convention. For Kenya, this is a gap in the legal system, as no other scheme has been provided expressly to deal with the problem of carcinogenic substances.

Another ILO-sponsored Convention is the Convention Concerning Safety in the Use of Asbestos. This agreement seeks to prevent and control the exposure of workers to asbestos, and to protect them against health hazards due to occupational exposure to asbestos. States Parties are required to make laws and regulations prescribing measures to be taken for the prevention and control of, ad protection of workers against health hazards due to occupational exposure. The enforcement of such laws and regulations is required to be secured by an adequate and appropriate system of inspection.

Although Kenya uses asbestos in some of its economic activities including the construction industry, it is not a Party to the Asbestos Convention. Neither does Kenya have any internal laws bearing directly on the hazards of asbestos.

This must be regarded as an omission in Kenya's regime of law pertaining to chemicals.

The Convention Concerning Safety in the Use of Chemicals at Work is yet another ILO-sponsored agreement. Its object is the enhancement of the existing legal framework for occupational safety, by regulating the management of chemicals in the workplace, with the broad purpose of protecting the environment and the public, and the specific objective of protecting workers from the harmful effects of chemicals. It requires Parties to make appropriate provisions for the classification of chemicals, their labelling and marking; for the imposition of specific obligations on suppliers of chemicals, and on employers whose employees have to handle chemicals; and for the rights of workers who are employed in establishments where chemicals are used.

No African country has become a party to the Convention. For Kenya, this must be regarded as yet another gap in the regime of law relating to chemicals.

There is, also, the Convention on the Prohibition of the Development, Production, Stock-piling and Use of Chemical Weapons and on Their Destruction. The object of this agreement is to prohibit the development, production, stock-piling and use of chemical weapons, to destruct the existing chemical weapons and related facilities, and to provide for verification measures for those purposes.

Kenya signed this Convention on January 15, 1993, but has not yet ratified it.

Lastly, Kenya was one of the signatories to the Prior Informed Consent Convention on Certain Hazardous Chemicals and Pesticides, which was adopted in September, 1998. This Convention seeks to reduce the environmental and health hazards posed by chemicals and pesticides. The Convention provides a framework for helping governments to prevent the importation into their countries of chemicals that cannot be safely managed. It is hoped that Kenya will soon ratify this Convention.

2.6.3 TREATY LAW CONCERNED WITH OTHER MATTERS, BUT WITH A BEARING ON CHEMICALS

Two treaties concerned with hazardous wastes, namely, the Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and Their Disposal (Basel, 1989), and the Bamako Convention on the Ban on the Import into Africa and the Control of Trans-boundary Movement and Management of Hazardous Wastes in Africa (Bamako, 1991), have a clear bearing on chemicals, in the term's broad definition.

The object of the Basel Convention is to create obligations for States Parties with a view to: (i) reducing trans-boundary movements of hazardous wastes to a minimum consistent with the environmentally sound and efficient management of such wastes; and, (ii) minimising the amount and toxicity of hazardous wastes generated, and ensuring their environmentally sound management. Kenya did not sign this Convention and has not become a Party.

The Bamako Convention seeks to create a framework of obligations to strictly regulate the trans-boundary movement of hazardous wastes within Africa. Kenya did not sign this Covention and has not become a Party.

There are two other international agreements which are of relevance of chemicals management, these are: (I) the Convention on the Physical Protection of Nuclear Material (Vienna, New York, 1980); and (ii) the Convention on Nuclear Safety (Vienna, 1994). The first of these aims to facilitate the safe transfer of nuclear material, and to establish effective measures for its physical protection. The second has the object of achieving and maintaining a high level of nuclear safety world-wide, through the enhancement of national measures and international co-operation, including safety-related technical co-operation; establishing and maintaining effective defences in nuclear installations; preventing accidents with radiological consequences, among others.

Kenya is not a Party to either of these conventions. This is puzzling, in view of the fact that Kenya has sought to protect human health and the environment from ionising radiations through its Radiations Protection Act (Cap. 243). It is recommended that Kenya should accede to the two Conventions, as they carry the prevailing international principles on protection from radition.

It is to be noticed that Kenya's largely incomplete scheme of chemical management legislation is hardly mitigated by its absence from the scene of relevant international legal arrangements. This is particularly true as regards the international legal arrangements for the protection of human health and the environment against hazardous chemicals such as lead, benzene, carcinogenic substances, asbestos, and radioactive chemicals.

It should, however, be noted that Kenya is Party to two marine pollution treaties: (I) the International Convention for the Prevention of Pollution of the Sea by Oil (as amended) (London, 1954); and, (ii) the International Convention on Civil Liability for Oil Pollution Damage (as amended) (Brussels, 1969). The first Convention seeks to provide a framework for action to prevent pollution of the sea by oil discharged from ships. The second has the object of ensuring that adequate compensation is availed to persons who suffer damage as a result of the escape or discharge of oil fro ships.

Considering that Kenya shares important water bodies with neigbouring countries (Lake Victoria with Tanzania and Uganda; Lake Turkana with Ethiopia; the Indian Ocena with Somalia and Tanzania, and certain rivers with Tanzania and Uganda), it should have engaged in joint effort with these countries to secure the safety of the joint water bodies from chemical poisoning and pollution. Unless such joint initiatives are undertaken, the fresh-water bodies will be severely polluted and rendered unfit for human man and animal use.

Such a deterioration in the water bodies would affect food chains and cause major harm to human health and environment.

Useful lessons may be drawn from similar contexts of sub-regional environmental sharing, in the countries of Europe. An example is the European Agreement on the Restriction of the Use of Certain Detergents in Washing and Cleaning Products (Strasbourg, 1968). The States Parties are Belgium, Denmark, France, Germany, Italy, Luxembourg, The Netherlands, Spain, Switzerland and the UK. The object of the Agreement is to protect the supply of water for the population, industry, agriculture and other business occupations, and the national aquatic fauna and flora.

Better examples still are those afforded by two agreements concerning the shared waters of the Rhine. The Convention for the Protection of the Rhine Against Chemical Pollution (Bonn, 1976) brings together France, Germany, Luxemburg, The Netherlands, Switzerland and the European Union in initiative to protect the Rhine against chemical pollution, with the purpose of ameliorating the standards of water for potable and industrial use, navigation, and other uses. Under this Convention, the discharge of substances into the Rhine is strictly regulated, and government authorisation is required for the discharge of certain substances listed in an (annex 1). Under the Convention Concerning the Protection of the Rhine Against Pollution by Chlorides (Bonn, 1976), the neighbouring states of France, Germany, Luxembourg, The Netherlands and Switzerland have come together to protect the Rhine against chloride pollution. The Convention requires that the discharge of chlorides into the Rhine be reduced by an annual average of at least 60kg. The Parties are required to take the necessary steps to avoid a rise in the amount of chloride ions discharged into the catchment area of the Rhine. Each party is to provide the International Commission for the Protection of the Rhine Against Pollution with an annual report on the concentration of chloride in the Rhine water.

The lesson from the Rhine States is that, the neighbouring states of East Africa need to undertake scientific studies of the nature of the discharges running along their rivers and through non-point sources, into the principal lakes, and to employ both sub-regional international law and national law to ensure safe levels of adulteration.

2.6.4 SOFT LAW RELATING TO CHEMICALS MANAGEMENT

Below the level of treaty law, various international bodies have conceived a variety of guidelines for the control of chemicals. Such guidelines include: (i) UNEP's International Register of Potentially Toxic Chemicals (IRPTC); (ii) UNEP's London Guidelines for the Exchange of Information on Chemicals in International Trade (amended 1989); UNEP's Code of Ethics on International Trade in Chemicals (1994); UNEPS's guidelines on Banned and Severely Restricted Chemicals (1984); FAO's International Code of Conduct on the Distribution and Use of Pesticides.

Although such guidelines are not binding on any state, they show the positive legislative direction that could be followed in any given country. Kenya could benefit from such guidelines, as it attempts to update its present chemical management regime.

CHAPTER 3

POLICY ASPECTS

3.1 INDUSTRIALIZATION INITIATIVES

As Kenya aspires to industrialise by the year 2020, it is expected that there will be substantial changes in the main drivers of economy, from agriculture to industry. A science-based, high technology economy needs an adequate, properly supervised, efficient and user-friendly machinery to administer technological development and change.

The way a country handles changes brought by industrialisation speaks volumes on the policy adopted at the outset of technological change. It is possible that a country may choose the policy of pollute-now-and-clean-up-later. The result of such a policy has been amply demonstrated in many countries of the industrialised North, the economies in transition, and some developing countries.

Industrialization, however, can be achieved with less cost to human health and the environment. A policy of green industrialisation requires that there be instituted adequate standards and regulations to protect both human health and the environment. A foundation of such a policy is knowledge of the technology used by every industry, and the establishment of adequate guideline parameters for all inputs into and outputs from industry. The policy should place the responsibility for policing upon industry, with sufficient public checks and enforcement regulations. Use of the best available green technology is essential for the success of such a policy. Furthermore, gradual improvement of existing technologies, within a specified period, is a major component of such policy.

Assuming that the industrialization policy briefly described above is acceptable to Kenya, then the remaining section describes the needed capacity-building aspects for its implementation.

3.2 NECESSARY CAPACITY-BUILDING ACTIVITIES

Figure 3.2 shows the entity-relationship and the necessary database points for water pollution as an example. Each rectangular box represents an entity set that has to be understood. In addition, mastery of skills to operate and manage the required activities within the set is essential. A circle represents attributes whose contribution may positively or negatively affect the entity set. The triangle represents the key attributes that must be known if a conclusion is to be derived from the process operation. A description of capacity-building activity is confined to each entity set and is described below:

(a) It is essential that the types of industrial technology for each industry whose waste is treated be known. Improvement of the technology used greatly improves the efficiency of the waste treatment plant. Therefore, industry must train its workers to optimise the use of every technology installed.

(b) The waste-water treatment technology chosen should be effective and efficient. It should be operated at maximum efficiency

The operators of such plants must be trained in the operations, maintenance and repair of the plant. Quality assessment of the efficiency of the plant to remove certain waste should be a routine procedure, with daily records of waste removed logged.

(c) Each industrial-discharge point should be known and the amount of waste passing through it routinely monitored. Similarly, the discharge point of a waste-water treatment plant should be similarly monitored. Training of staff within each industry to monitor the waste discharge point is necessary.

(d) The environmental impact of a waste in an aquatic environment should be assessed. Some of the parameters that need quantification are the amount that escapes in the vapour phase, the amount degraded biologically, and the non-degradable substances. The names of waste undegraded or the degraded by-products should be known. Training is therefore, necessary for staff who will be able to undertake these tasks.

(e) Classification of waste is an essential step to finding its environmental treatment. In the classification, the chemical group of waste is determined, its molecular formula is found, its chemical sub-group is determined. The name of the compound is established, to enable the characterisation of the physical and chemical parameters of the substance.

(f) The physical and chemical parameters, if not known from existing data banks, have to be established. Such parameters include, among others, water solubility, relative molecular mass, log P oct, Henry's constant.

Training of chemists who will handle entity sets (e and f) is necessary.

(g) Ecotoxicological parameters like acute toxicity of daphnides and fish, as well as chronic toxicity of the same species or higher, is an essential knowledge in the conservation of the environment. It is essential that trained staff who can undertake these activities be available, both within the industry and the enforcing agency.

(h) Establishment of approved analytical methods is possibly the most expensive exercise, if one is to develop it; however, today, there exist several approved analytical methods in the literature. The enforcing agency may indicate the methods it will accept, but it must certify every laboratory that analyses toxic chemicals and waste substances for it. Quality assessment and certification of private as well as public laboratories, is a task that must be learned. Training in these tasks is essential.

It would be cost-effective to liberalise the chemical analyses. This would save the state from heavy investment in instrumentation, personnel and laboratory space. Payment of such analyses should be shouldered by the industry.

(i) Although risk assessment and policy formulation is not always obvious, the two entity-sets form the final activity in the process. Data obtained from each entity-set should be evaluated and correlated to data from other sets. Thereafter, risks to human health and environment should be assigned. Lastly, a policy should be made on each toxic and hazardous chemical. Once made, the policy should be enforced.

Training is needed for staff who will do risk assessment, legislators who will understand and undertake policy formulation, and the police, judges and lawyers who will enforce the policy. It is paramount to know that data is needed at each entity-set, if the policy is to be enforced. Establishment ofdata -bases for each entity-set is mandatory. Training in large data handling is required.

The above capacity-building activities illustrate the steps needed for waste-water monitoring and treatment. Similar steps are needed for air or soil standards; however, individuals trained in waste-water quality assessment and assurance will be able to handle air or soil standards, and there is no need for repeating the activities separately.

CHAPTER FOUR

CONSOLIDATED LIST OF RECOMMENDATIONS

4.1 INTRODUCTION

This study of the scientific and the legal dimensions of chemicals, and more specifically of toxic and hazardous chemicals, leads to a variety of recommendations which, in consolidated form, may be set out as detailed below.

4.2 BASIC SCIENTIFIC ISSUES

The responsible management agency should:

(a) institutionalise a research undertaking on levels of human and environmental exposure to toxic chemicals, and on the impact of such chemicals;

(b) endeavour to develop new technologies for the reduction of exposure to toxic chemicals, and for improved ecological risk categorisation;

(c) prescribe essential mitigation measures for such injurious impacts upon human health or the environment that may emanate from toxic and hazardous chemicals;

(d) develop identification and tracing methods for chemicals gaining access into the terrestrial, aquatic and aerial environment, and for the neutralisation of the deleterious impacts of such chemicals;

(e) formulate appropriate policies for the management of toxic and hazardous wastes in their complete cycle of occurrence, from cradle to grave;

(f) put in place and implement a comprehensive national programme for verifying the performance of innovative environmental technologies;

(g) establish and administer strict regulations for the control and management of toxic and hazardous chemicals and wastes, involving requirements of minimisation, safe disposal, regulation of use, handling and transport;

(h) encourage the adoption of cleaner chemical technologies, as well as the recycling of wastes;

(i) establish effective systems of research on the toxicological effects of toxic and hazardous chemicals and wastes, on human health and the environment;

(j) establish classification systems for toxic and hazardous chemicals and wastes, and in this regard adopt suitable coding systems to facilitate automated application in the production sectors.

4.3 POLICY REGARDING INDUSTRIALISATION

Owners of industries should:

(a) bear the primary responsibility for ensuring the safe management of toxic and hazardous chemicals and wastes, with sufficient public checks and controls;

(b) take responsibility for using, and should be encouraged to utilise the best green technology in the production, handling, use, transportation and disposal of chemicals;

(c) undertake constantly to make improvements on existing chemical technologies.

4.4 POLICY REGARDING CAPACITY FOR THE MANAGEMENT OF CHEMICALS AND WASTES

(a) Industrial training for workers should be constantly undertaken, in the course of optimal use of improved technologies; such training is essential also for those who manage the process of waste-water treatment plants.

(b) Effective training should be availed to workers to enable them to understand the industrial discharge points, as well as waste-water discharge points; to monitor the discharges and to give effective treatment in accordance with the approved directions.

(c) Training of staff by the private and public sectors should be initiated for personnel, in the assessment of industrial technology and the quantification of wastes generated. Such staff should then be able to maximise the efficiency of the plants, and should have the know-how for repairing and maintaining industrial plants.

(d) A system should be established for daily logging of amounts of waste discharged by all industrial processes. Such details should be supplied to the enforcement agency on a monthly basis.

(e) Stake-holders should train their staff in the classification and characterisation of wastes, in accordance with their physical and chemical properties.

(f) Training in ecotoxicology should be provided, to enable staff to start developing essential data in this field.

(g) The responsible authority should designate laboratories to conduct the required chemical analysis, and should formulate appropriate procedures to guide such analysis.

(h) It is necessary to train staff on trans-disciplinary, multi-sectoral risk assessment, mitigation and policy formulation. Such training should include the areas of law-enforcement, dispute settlement and customs matters. Participants in such capacity development should include chemists, botanists, biochemists, physiologists, anatomists, ecologists, sociologists, economists, political scientists, mathematicians and lawyers.

(i) Public education should be provided on the handling, use and disposal of toxic and hazardous chemicals. There should be put in place a project for the training of trainers for public education.

(j) It is necessary to assemble data bases on toxic and hazardous chemicals. Staff should be trained to handle such data bases.

4.5 LEGAL ISSUES RELATING TO THE MANAGEMENT OF TOXIC AND HAZARDOUS CHEMICALS

(a) Kenya's legislation on chemicals should establish clear machinery for the setting of standards, and for the strict enforcement of these standards.

(b) The legislation should ensure the application of safety standards for chemicals at the stages of production, transportation, storage, use, sale and disposal.

(c) Such legislation should impose requirements that define the mode of handling chemicals; restrictions on the use of chemicals; directions in the manner of producing chemicals; and mitigation measures in respect of any damage occasioned by chemicals.

(d) All legislation with a bearing on chemical safety should be harmonised, and its standard-setting machinery, as well as its machinery of administration, entrusted to one agency with a broad, national environmental mandate. The National Environmental Management Authority under the forthcoming Environmental Management and Co-ordination Act is recommended as the standard-setting and enforcement body for the law relating to chemical safety.

(e) The present statutes relating to chemicals should be substantially amended, or in certain cases merged, and they should provide for more stringent penalties for violations of the law. The level of penalties provided for in the Chemicals Control Bill, 1995, should give a guideline on the specification of penalties; and in principle, the level of penalties should be such as to make a violation unduly expensive and onerous.

(f) While the Chemicals Control Bill should be enacted, it should first be modified . Its administrative machinery should be transferred to the Environmental Management and Co-ordination Act, and the administrative agency for the chemical control legislation should be the National Environmental Management Authority under the forth-coming framework environmental legislation.

(g) The Chemicals Control Bill, in its new form, should pay specific attention to certain toxic and hazardous chemicals; these include lead, benzene, carcinogenic substances, asbestos, chlorides, toxic and hazardous wastes, and nuclear material.

(h) Kenya should become Party to the several global treaties on chemicals (as detailed in Chapter 2 of this Report).

(i) The enactment of the Chemicals Control Bill in an improved form should be preceded by the enactment of the Environmental Management and Co-ordination Bill; for it is this latter that will provide the institutional machinery for implementing the Chemicals Control statute.

(j) Appointed chemical inspectors under the Chemicals Control legislation should work under the National Environmental Management Authority.

(k) The provision for ministerial regulations under the Chemicals Control legislation, should provide for consultation with the National Environment Management Authority.

(l) The Chemicals Control Bill should not restrict itself to the ordinary chemicals that are in general use in Kenya's

current state of economic development; rather it should specifically provide for well known chemical pollutants normally associated with large-scale industrialisation, such as heavy metals and metalloids, and aromatic polychlorinated compounds. The Bill should provide for the various toxic and hazardous chemicals listed in the national registers of some of the developed countries and their regional integration organisatins, and also shown in records of various international organisations.

(m) Kenya should make institutional arrangements for co-operation with its neighbouring East African countries, in initiatives for the control of chemical discharges into water bodies, soils and the atmosphere.

(n) Kenya should co-operate with other countries of the Sub-Region in scientific studies on the nature and extent of water, soil and atmospheric pollution, on the impacts of such pollution, and on appropriate mitigation measures.

(o) Kenya should work towards a harmonisation of legal and institutional arrangements for the management of chemicals, with the neighbouring countries of the Sub-Region.

(p) In its scheme of legislation, Kenya should be guided by lessons learnt and recorded in the authoritative documents of international organisations, as well as the regional integration organisations of the industrial nations.

(q) Kenya's legislation on chemicals should be accompanied by detailed Regulations as exemplified by the Regulations attached as **Annex 4** to this Report. Such Regulations should deal with pertinent issues such as: (i) the licensing of premises associated with chemicals; (ii) the registration of chemicals; (iii) labelling, advertising and packaging for chemicals; and, (iv) importation, exportation and use of chemicals; etc.

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ANNEX I

THE CHEMICALS CONTROL BILL, 1995

ARRANGEMENT OF CLAUSES

PART I - PRELIMINARY

Clause

PART II - THE CHEMICALS CONTROL BOARD

PART III - LICENSING PROVISIONS

PART IV - MISCELLANEOUS PROVISIONS

A Bill for

An Act of Parliament to provide for the supervision, management and control of use of chemicals substances and for connected purposes.

ENACTED by the Parliament of Kenya as follows:

PART I - PRELIMINARY

1. This Act may be cited as the Chemical Control Act, 1995.

2. In this Act, unless the context otherwise requires:

"authorized officer" means a public officer appointed to perform any duties under this Act;

"Board" means the Chemicals Control Board established under section 3;

"chemical industry" means the facility where chemical substances are produced, manufactured, processed and packaged;

"chemical substance" means a substance or a mixture of substances occurring naturally or made by a manufacturing process but which has characteristic physical and chemical properties in their pure form and which may be used in chemical processes, formulations and the manufacture of chemical products, or any other substance or mixture of substances which the Minister may after consultation with the Board declare to be a chemical substance;

"chemical shop" means premises licensed under this Act to deal generally with chemical substances and in particular the sale, distribution, manufacture and marketing of chemical substances, but does not include a dispensing chemist licensed under the Pharmacy and Poisons Act;

" facility" means a facility where chemical substances are stored, processed, packaged, transported, used, emitted or discharged;

"inspector" means an officer appointed under section 12;

"laboratory" means a facility where chemical substances are scientifically and technically used, analysed and evaluated.

PART II - THE CHEMICALS CONTROL BOARD

3. There is hereby established a Board to be known as the Chemical Control Board (in this Act referred to as "the Board").

4. The Board shall consist of:

(a) a chairman appointed by the President;
(b) one official of the Ministry for the time being responsible for provincial administration and internal security appointed by the Minister responsible for that Ministry;
(c) one official of the Ministry for the time being responsible for health appointed by the Minister responsible for that Ministry;
(d) one official of the Ministry for the time being responsible for water development appointed by the Minister responsible for that Ministry;
(e) one official of the Ministry for the time being responsible for environment appointed by the Minister responsible for that Ministry;
(f) one official of the Ministry for the time being responsible for agriculture and livestock development and marketing appointed by the Minister responsible for that Ministry;
(g) one official of the Ministry for the time being responsible for labour appointed by the Minister responsible for that Ministry;
(h) one official of the Ministry for the time being responsible for commerce and industry appointed by the Minister responsible for that Ministry;
(i) two persons having special knowledge in the manufacture, production, use and disposal of chemicals appointed by the Minister; and
(j) the Government Chemist;

5. (1) Every appointment under section 4 (a) and (i) shall be by name and by notice in the Gazette and shall be for a renewable period of three yeas or for such period as may be specified in the notice, but shall cease if the appointee-

(a) serves the Minister with written notice of resignation; or

(b) is absent, without the permission of the Minister notified to the Board, from three consecutive meetings; or

(c) is convicted of an offence and sentenced to imprisonment for a term exceeding six months or to a fine exceeding two thousand shillings; or

(d) is incapacitated by prolonged physical or mental illness from performing his duties as a member of the Board; or

(e) conducts himself in a manner deemed by the Minister in consultation with the Board to be inconsistent with his membership of the Board.

(2) Any person whose membership of the Board has ceased in accordance with paragraph *(b), (c) or (e)* of sub section (1) shall not be eligible for appointment to the Board.

(3) The Minister may, in consultation with the Board, appoint one or more duly qualified persons to be alternate members; and every such alternate member shall, when attending a meeting, be deemed for all purposes to be a member of the Board.

6. (1) The chairman and members of the Board, other than the chief executive and public officers in receipt of a salary, shall be paid out of the funds of the Board such sitting allowances or other remuneration as the Board may approve within the scales of remuneration from time to time determined by the Board.

(2) The Board may, within the approved scales of remuneration, refund travelling and other expenses incurred by the chairman or members of the Board referred to in sub-section (1) in the performance of their duties.

7. (1) The functions of the Board are -

(a) to advise the Minister on all matters relating to chemical substances, the control, use, manufacture, storage, transportation and disposal of chemical substances or related by-products;

(b) to grant licences under this Act;

(c) to establish and maintain a national register for all Chemical Substances Imported into or manufactured in Kenya, premises licensed to manufacture, use or store chemical substances and to dispose of related wastes including chemist shops;

(d) to establish and direct a chemical substances inspectorate to control the use, storage, transportation, exportation and management of chemical substances under this Act;

(e) to carry out research on chemical substances generally for the benefit of public health;

(f) to regulate the use, manufacture, importation, exportation, control possession, storage, or disposal of chemical substances under this Act; and

(g) to perform other acts which are connected with, or incidental to, the foregoing.

(2) The Board shall have all the powers necessary for the performance of its functions under this Act.

8. (1) The Board shall meet not less than four times in every year and not more than four months shall elapse between the date of one meeting and the date of the next meeting.

(2) A meeting of the Board shall be held on such date and at such time as the Board shall decide or in the absence of such a decision or if the chairman decides that a meeting is necessary, on a date and at a time determined by the chairman.

(3) No meeting of the Board shall be held at any place other than the headquarters of the Board except with the prior written approval of the Minister.

(4) Unless otherwise decided by three-quarters of the members of the Board, at least fourteen days' written notice of every meeting of the Board shall be given to every member of the Board.

(5) The quorum for the conduct of business at a meeting of the Board shall be two-thirds of the total number of members of the Board or the number nearest to but not less than two-thirds.

(6) The chairman of the Board shall preside at all meetings of the Board but in the absence of the chairman the members present shall appoint one of their number to preside at the meeting.

(7) Unless a unanimous decision is reached, a decision on any matter before the Board shall be by a majority of votes of the members present and voting and in the case of an equality of votes, the chairman or the person presiding shall have a casting vote.

(8) Every member of the Board who is likely to be interested, otherwise than as a member of the Board or who participates or becomes entitled to participate directly or indirectly, in the profits from any contract with or proposed to be entered into by the Board, shall on the matter coming before a meeting of the Board for consideration immediately declare his interest therein and shall, unless the meeting otherwise agrees, retire from the meeting and shall in any case not be entitled to vote on the matter.

9. The Board may establish committees consisting of members of the Board to deal with such matters as the Board may determine.

10. The Board shall, in performance of its duties, comply with any general or special directions which the Minister may give.

11. (1) There shall be a Secretary to the Board who shall be the chief executive of the Board.

(2) The Secretary, who must be a person with knowledge in the management of chemicals, shall be appointed by the Minister and shall be a public officer.

12. (1) The Board shall appoint public officers to be chemical control inspectors.

(2) Every inspector appointed under subsection (1) shall be issued with a certificate of appointment signed by the Minister which he shall produce to the occupier of, or any other person holding a responsible position of management or control of facility at, the premises in which chemical substances are believed to be present and where an inspection is to be carried out by him.

13. (1) Subject to this Act, the inspector may:

(a) enter, inspect, take samples, examine any premises or any part thereof, booth, motor vehicle, vessel, aircraft or any other vessel in or upon which he has reasonable cause to believe that any chemical substance is stored, manufactured, used, transported or disposed of;
(b) require the production of a licence authorizing such owner or occupier of the chemical facility to carry on the activities with chemical substances, or a register kept under this Act, and inspect, examine or take copies thereof;
(c) seize, remove and detain any chemical substances and any other articles which may appear to him to contain or comprise substances or materials in connection with which he has evidence of an offence having being committed under this Act or regulations made thereunder, and for like cause seize, remove, detain or take charge of any premises, facilities, containers, receptacles and any books of account or other documents;
(d) require the owner or occupier of the premises or facility to explain and give information relating to the presence in the premises or facility of any chemical substances; and
(e) make such examinations and enquiries as may be necessary for carrying out the provisions of this Act or regulations made thereunder.

(2) An inspector appointed under this Act shall be deemed to be a government analyst for purpose of the Criminal Procedure Code, Evidence Act and the Food, Drugs and Chemical Substances Act.

(3) The inspector may act without a warrant whenever it appears to him that the delay which may be occasioned in obtaining a warrant would seriously hinder him in the performance of his duties or tend to defeat the purpose of this section.

(4) Every seizure under this section shall be reported to the nearest magistrate without undue delay.

PART III - LICENSING PROVISIONS

14. (1) Every person intending to use, purchase, deal in, manufacture, transport, dispose of, import or export chemical substances or operate a chemist shop shall apply for a licence under this Act.

(2) An application under subsection (1) shall be made to the Board in the prescribed form.

(3) Upon receipt of an application made under subsection (2) the Board shall, on examination, issue or refuse to issue the licence to the applicant.

(4) A licence issued under this section shall be subject to such conditions as may be prescribed by the Board.

(5) The Board shall have powers to cancel or suspend a licence when it determines -

(a) that such cancellation or suspension is necessary or expedient for the proper control of the particular chemical substances; or
(b) that the licence has been used in contravention of any regulations or any conditions therein.

15. (1) Any applicant or licensee aggrieved by the decision of the Board under this Act may appeal in writing to the Minister within one month of the communication to him of the written decision of the Board stating the grounds of his appeal.

(2) The Minister's decision which shall be made after consideration of the grounds of the appeal lodged under subsection (1) shall be final.

16. (1) The holder of a licence issued under this Act shall ensure that no contamination of the environment is caused by chemical substances resulting directly or indirectly from his chemical facility during the manufacturing operation, storage or disposal of waste.

(2) Every owner of a licensed facility shall appoint a person experienced in handling chemical substances as a safety officer within the facility.

(3) The appointment under subsection (2) shall be communicated in writing to the Board, and the safety officer shall ensure -

(a) that all persons using or working in the facility are supplied with protective accessories necessary while handling chemical substances;
(b) that all workers employed in the facility are given proper instructions on safety measures;
(c) that all the workers employed in the facility receive such periodic medical check-ups as the Board may direct;
(d) that the code of practice for handlers and users of chemical substances is strictly adhered to;
(e) that proper care is taken to dispose of chemical waste only in accordance with the terms and conditions of the licence; and
(f) that any instructions issued by the Board are properly implemented.

PART IV - MISCELLANEOUS PROVISIONS

17. The Government Chemist shall provide such chemical, biochemical and biological laboratory services as the Board may require.

18. No action shall be brought against the Chairman, or a member or an officer, employee or agent of the Board for any act done in good faith in the discharge of his functions under this Act.

19. (1) Any person who, being the holder of a licence issued under this Act, contravenes any of the conditions of such licence shall be guilty of an offence and liable to a fine not exceeding to hundred thousand shillings or to imprisonment for a term not exceeding five years or both.

(2) Any person who:

(a) wilfully obstructs an authorized officer in the exercise of his duties under this Act; or
(b) without reasonable excuse, fails to produce a register, licence, notice or document which he is required under this Act to produce; or
(c) wilfully withholds any information as to who is the owner, user, manufacturer, possessor of, or as to who is responsible for the disposal of, any chemical substances; or
(d) wilfully prevents or attempts to prevent any person from appearing before or being examined by an authorized officer;

shall be guilty of an offence and liable to a fine not exceeding twenty thousand shillings or imprisonment for a term not exceeding six months or to both.

20. The Minister, in consultation with the Board, shall have powers to make regulations prescribing -

(a) the precautions to be taken to prevent injury being caused by chemical substances to the health of persons likely to be exposed to the harmful effects of those substances;
(b) methods of disposal of chemical substances of any kind;
(c) the structural requirements for building or premises used inconnection with the manufacture, production, treatment, use, storage or disposal of chemical substances;
(d) the registration of chemists and authorized persons under this Act;
(e) the precautions to be taken for safe transportation of chemical substances;
(f) the method of packaging or labelling of chemical substances;
(g) the method of treatment or disposal of any vessel, vehicle, package or container that has been used to convey, hold or store any chemical substances;
(h) any exemptions of any chemical substances from the provisions of this Act;
(i) the fees payable in respect of any licence;
(k) the classification of licences;
(l) the intervals at which inspections of chemical facilities may be made, and the fees to be paid in respect of such inspection;
(m) chemical, analytical, biochemical, biological and forensic services and payable or waiver of fees payable for such services; and
(n) the measures to be taken to prevent chemical poisoning.

MEMORANDUM OF OBJECTS AND REASONS

The object of this Bill is to provide for the establishment of a statutory body to be known as the Chemical Control Board. The Board will, *inter alia*:

(a) regulate the importation, exportation, manufacture, distribution and use of chemical substances;

(b) maintain a national register of all chemical substances imported into or manufactured in the country as well as premises licensed for the manufacture, use or storage of chemical substances;

(c) license all persons who handle chemical substances such as manufacturers, dealers, users or distributors;

(d) advise the Government on matters relating to the handling of chemical substances.

The Bill provides for the composition of the Board and for the terms and conditions of the members of the Board as well as for the conduct of its business. For the discharge of its functions the Board will appoint chemical control inspectors whose duty will be to enter and inspect premises licensed for the manufacture, use, distribution or storage of chemical substances, and to seize, remove or detain any chemical substances in respect of which an offence is committed.

The Bill also provides for the issue by the Board of licences to persons who use, manufacture, export, import or distribute chemical substances, as well as for appeals to the Minister against decisions of the Board with respect to the issue of such licences. The remaining provisions of the Bill are self-explanatory.

The enactment of this Bill will involve additional expenditure of public funds and the amount thereof will be provided through the annual estimates.

ANNEX 2

THE NATIONAL ENVIRONMENTAL AUTHORITY UNDER THE PROPOSED ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION BILL, 1999 (CL.7)

[Functions of the Authority (S.9(1))]

9. (1) The Authority shall:

(a) Co-ordinate the various environmental management activities being undertaken by the lead agencies and promote the integration of environmental considerations into development policies, plans, programmes and projects with a view to ensuring the proper management and rational utilization of environmental resources on a sustainable yield basis for the improvement of the quality of human life in Kenya;

(b) take stock of the natural resources in Kenya and their utilisation and conservation;

(c) establish and review land use guidelines, in consultation with the relevant lead agencies.

(d) carry out surveys which will assist in the proper management and conservation of the environment;

(e) examine land use patterns to determine their impact on the quality and quantity of natural resources;

(f) initiate legislative proposals and submit such proposals to the Attorney-General who, if satisfied with the proposals, shall take the action required to formulate laws on the basis of such proposals for the management of the environment or the implementation of relevant international conventions on the environment, as the case may be;

(g) undertake and co-ordinate research, investigation and surveys in the field of environment and collect, collate and disseminate information about the findings of such research, investigation or survey;

(h) mobilise and monitor the use of financial and human resources for environmental management;

(i) identify projects and programmes or types of projects and programmes, plans and policies for which environmental audit or environmental monitoring must be conducted under this Act;

(j) initiate and evolve procedures and safeguards for the prevention of accidents which may cause environmental degradation and evolve remedial measures where accidents occur;

(k) monitor and assess activities, including activities being carried out by relevant lead agencies, in order to ensure that the environment is not degraded by such activities, environmental management objectives are adhered to and adequate early warning on impending environmental emergencies is given;

(l) undertake, in co-operation with lead agencies, programmes intended to enhance environmental education and public awareness about the need for sound environmental management as well as for enlisting public support and encouraging the effort made by other entities in that regard;

(m) publish and disseminate manuals, codes or guidelines relating to environmental management and prevention or abatement of environmental degradation;

(n) render advice and technical support, where possible, to entities engaged in natural resource management and environmental protection so as to enable them to carry out their responsibilities satisfactoriy;

(o) advise the Government on regional and international environmental agreements to which Kenya should be a party and follow up the implementation of such agreements where Kenya is a party;

(p) prepare and issue an annual report on the state of the environment in Kenya and in this regard may direct any lead agency to prepare and submit to it a report on the state of the sector of the environment under the administration of that lead agency;

(q) perform such other functions as the Government may assign to the Authority or as are incidental or conducive to the exercise by the Authority or any or all of the functions provided under this Act.

[PART VIII - ENVIRONMENTAL QUALITY STANDARDS]

Cl.55 - [Establishment of a Standards and Enforcement Review Committee]

S.10 - [Water Quality Standards]

(1) The Standards and Enforcement Review Committee shall, in consultation with the relevant agencies:

(a) prepare and submit to the Director-General [of the National Environmental Management Authority] procedures for the measurement of water quality;
(b) submit to the Director-General the recommended minimum water quality standards for all the waters of Kenya and for different uses, including -
  (i) drinking water;
  (ii) water for industrial purposes;
  (iii) water for agricultural purposes;
  (iv) water for recreational purposes;
  (v) water for fisheries and wildlife;
  (vi) and any other prescribed water use;
(c) analyse and submit to the Director-General conditions for discharge of effluents into the environment;
(d) prepare and recommend to the Director-General guidelines or regulations for the preservation of fishing areas, aquatic areas, water sources and reservoirs and other areas where water may need special protection;
(e) identify and recommend to the Authority areas of research on the effects of water pollution on the environment, human beings and fauna;
(f) advise the Authority to carry out investigation of actual or suspected water pollution including the collection of data;
(g) advise the Authority to take steps or authorise any works to be carried out which appear to be necessary to prevent or abate water pollution from natural causes or from abandoned works or undertakings;
(h) document the analytical methods by which water quality and pollution control standards can be determined and appoint laboratories for the analytical services required or request the Director-General to establish such laboratories;
(i) collect, maintain and interpret data from industries and local authorities on the pre-treatment nature and levels of effluents;
(j) recommend to the Director-General measures necessary for the treatment of effluents before being discharged into the sewerage system;
(k) recommend to the Director-General works necessary for the treatment of effluents before being discharged into the water;
(l) submit to the Director-General all such recommendations as may appear necessary for the monitoring and control of water pollution.

S.11 [Air Quality Standards]

(1) The Standards and Enforcement Review Committee shall, in consultation with the relevant lead agencies -

(a) advise the Authority on how to establish criteria and procedures for the measurement of air quality;
(b) recommend to the Authority -
  (i) ambient air quality standards;
  (ii) occupational air quality standards;
  (iii) emission standards for various sources;
  (iv) criteria and guidelines for air pollution control for both mobile and stationery sources;
  (v) any other air quality standards;
(c) advise the Authority on measures necessary to reduce existing sources of air pollution by requiring the redesign of plants or the installation of new technology or both, to meet the requirements of standards established under this section;
(d) recommend to the Authority guidelines to minimise emissions of greenhouse gases and identify suitable technologies to minimise their pollution;
(e) advise the Authority on emissions concentration and nature of pollutants emitted;
(f) recommend to the Authority the best practical technology available in controlling pollutants during the emission process;
(g) determine for consideration by the Authority the analytical methods for monitoring air con-taminants and recommend to the Director-General the establishment of such number of laboratories for analytical services as may be needed;
(h) request the Authority to carry out investigations of actual or suspected air pollution produced by aircraft and other self-propelled vehicles and by factories and power-generating stations;
(i) request the Authority to order any industry or other source of air pollution to file such returns and provide such information as it may require; and
(j) do all such things as appear necessary for the monitoring and controlling of air pollution.

S.12 [Hazardous Wastes]

(1) The Standards and Enforcement Review Committee shall, in consultation with the relevant lead agencies, recommend to the Authority standard criteria for the classification of hazardous wastes with regard to determining -

(a) hazardous waste;
(b) corrosive waste;
(c) carcinogenic waste;
(d) flammable waste;
(e) persistent waste;
(f) toxic waste;
(g) explosive waste;
(h) radioactive waste;
(i) wastes, reactive otherwise than as described in the foregoing paragraphs of this sub-section;
(j) any other category of waste the Authority may consider necessary.

(2) The Authority shall, on the recommendation of the Standards and Enforcement Review Committee issue guidelines and regulations for the management of each category of hazardous wastes determined under sub-section (1).

S.13. [Regulations]

(1) The Minister, in consultation with the relevant lead agencies, shall make regulations prescribing the procedure and criteria for:

(a) classification of toxic and hazardous chemicals and materials in accordance with their toxicity and the hazard they present to human health and to the environment;
(b) registration of chemicals and materials;
(c) labelling of chemicals and materials;
(d) packaging for chemicals and materials;
(e) advertising of chemicals and materials;
(f) control of imports and exports of toxic and hazardous chemicals and materials permitted to be so imported or exported;
(g) distribution, storage, transportation and handling of chemicals and materials;
(h) monitoring of the effect of chemicals and their residue on human health and the environment;
(i) disposal of expired and surplus chemicals and materials; and
(j) restriction and banning of toxic and hazardous substances and energy.

S.14 [Standards of Pesticides and Toxic Substances]

The Standards and Enforcement Review Committee, in consultation with the relevant lead agencies shall -

(a) prepare and submit to the Authority draft standards for the concentration of pesticide residues in raw agricultural commodities, processed foods and animal feed;
(b) establish, revisit, modify and submit to the Authority draft standards to regulate the importation, exportation, manufacture, storage, distribution, sale, use, packaging, transportation, disposal and advertisement of pesticides and toxic substances with the relevant organisations;
(c) establish and submit to the Authority draft procedures for the registration of pesticides and toxic substances;
(d) establish and submit to the Authority draft measures to ensure proper labelling and packaging of pesticides and toxic substances.
(e) constantly review the use and efficacy of pesticides and toxic substances and submit the findings of such review to the Authority;
(f) recommend to the Authority measures for monitoring the effects of pesticides and toxic substances on the environment;
(g) recommend to the Authority measures for the establishment and maintenance of laboratories for pesticides and toxic substances;
(h) recommend to the Authority measures for the establishment of enforcement procedures and regulations for the storage, packaging and transportation of pesticides and toxic substances;
(i) constantly collect data from industries on the production, use and health effects of pesticides and toxic substances and avail such data to the Authority;
(j) keep up-to-date records and reports necessary for the proper regulation of the administration of pesticides and toxic substances;
(k) do all other things as appear necessary for the monitoring and control of pesticides and toxic substances.

[**Special Note**: *Annex 3 demonstrates the integral linkage between the forthcoming Environmental Management and Co-ordination Act and the scheme of management of chemicals; and underlines the justification in entrusting the implementation of the Chemical Control Act (forthcoming) to the National Environmental Management Authority established under the Environmental Management and Co-ordination Act]*

ANNEX 3

DRAFT REGULATIONS FOR THE MANAGEMENT OF TOXIC AND HAZARDOUS CHEMICALS

This Report has recommended that the institutional arrangements provided for under the Chemical Control Bill, 1995 should be made part of the forthcoming framework environmental management legislation. The remainder of the Bill should be separately enacted, in the light of the specific recommendations made in this Report. In order to present an up-to-date scheme for the management of chemicals, and in compliance with the terms of reference (TOR) for this project, we set out at this stage our model Regulations. We further recommend that these Regulations be made and published within the framework of the Environmental Management and Co-ordination Act whih is expected to be passed soon.

THE CHEMICALS CONTROL (TOXIC AND HAZARDOUS CHEMICALS)

REGULATIONS

ARRANGEMENT OF PARTS

PART I - PRELIMINARY

1. These Regulations may be cited as the Chemical Control (Toxic and Hazardous Chemicals) Regulations.

2. In these Regulations, unless the context otherwise requires -

'chemical' means a chemical substance whether by itself or in a mixture or preparation, whether manufactured

or obtained from nature and includes such substances used as industrial chemicals or pesticides;

'chemical industry' means the facility where chemical substances are produced, manufactured, processed and packaged and used;

'laboratory' means a facility where chemical substances are scientifically and technically used, analysed and evaluated;

'management' means the handling, supply, transport, storage, treatment, application, or other use of a chemical subsequent to its initial manufacture or formulation;

'National Environmental Management Authority' means the principle management agency for the environment, established under the Environment Management and Co-ordination Act;

'prior informed consent' means the consent that must be given by the Minister acting on the advice of the Environment Management Authority, for any international shipment to Kenya to take place, of a banned or severely restricted chemical;

'restricted chemical' means a chemical for which, for health or environmental reasons, most uses have been prohibitedby the Minister acting on the advice of the Environment Management Authority;

'toxic and hazardous chemical' means a chemical which, by its properties, represents a threat to human or animal health or to the environment.

'wastes', in these Regulations, refers to chemical wastes, as well as any other wastes which by themselves, or when acted upon by other substances or energy coming into contact with them, or when affected by weather or other natural conditions, generate chemicals that are toxic or hazardous.

PART II - PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT AGAINST TOXIC AND HAZARDOUS CHEMICALS

1. In every chemical industry, any other industry or manufacturing establishment, and owners the managers shall ensure that exposure to chemicals shall be regulated on the basis of the exposure classification set out in the First Schedule.

2. Every health-care institution or any other institution shall regulate the quantities of the substances listed in the Second Schedule that a patient or anyone else under its charge may use or come into contact with, to the intent that no injury to health may result, and, in the event that any such injury may occur, shall take all appropriate medical measures to restore the health of the person concerned.

3. (1) Every chemical industry, and every person or organisation engaged in any economic activity that involves the use or generation of chemicals, shall keep a register of the chemicals so produced and used and shall set each of these chemicals, by name, against a specific category in the order of toxicity, in accordance with the classification set out in the Third Schedule.

(2) Every industry, organisation or person referred to under this Regulation shall apply the appropriate measures of control in relation to all chemicals thus classified, and shall ensure that they do not cause harm to human or animal health or to the environment.

(3) The register kept in accordance with this Regulation shall be open to inspection and rectification by the National Environment Management Authority.

(4) Every mining, chemical or other industry, or any other activity involving the use of chemicals, shall conduct its operations on the basis of sound environmental technology and shall secure that no heavy metals or metalloids of the kind listed in the Fourth Schedule, shall find its way into the natural resources and into the food chains and ultimately into the human body.

5. (1) The National Environment Management Authority shall keep an up-to-date register of toxic and hazardous chemicals and wastes, and shall use the same in the course of inspections to be conducted in respect of the importation, manufacture, storage, use, transportation, sale and disposal of such substances by all industries, enterprises, organisations or individuals.

(2) The National Environment Management Authority shall use the register kept by virtue of this Regulation to assess all chemicals and wastes originating from other countries, and shall not approve such importation unless the Authority's prescribed standards are fully complied with.

PART III - ESTABLISHMENT OF CAPACITY FOR THE MANAGEMENT OF TOXIC AND HAZARDOUS CHEMICALS AND WASTES

6. The National Environment Management Authority shall, on the basis of scientific research, assess current levels of exposure to toxic and hazardous chemicals and wastes

in the various places of social and economic activity and shall prescribe safe levels of such exposure, to be maintained by all persons or organisations who or which are involved in the importation or production or storage or use or transportation or sale or disposal of such chemicals and wastes.

7. The National Environment Management Authority shall prescribe procedures, in respect of any cases where safe levels of exposure to toxic and hazardous chemicals and wastes have not been complied with, to regulate the carrying out of effective remedial action, entailing special medical treatment for the persons affected, as well as the restoration of the condition of the working or other environment affected to standards approved by the Authority.

8. The National Environment Management Authority shall conduct researches either by itself or in collaboration with other research and academic institutions for the development of new technologies, for the reduction of exposure to toxic and hazardous chemicals and wastes, and shall to this end develop models for improved ecological risk characterisation.

9. The National Environment Management Authority shall formulate appropriate policies for the achievement of safe production, handling, use and disposal of toxic and hazardous chemicals and wastes, and shall ensure the effective functioning of such policies in the management of such chemicals and wastes in all operations involving chemicals and wastes.

10. The National Environment Management Authority shall put in place mechanisms for the regular enforcement of control and the minimisation of harmful impacts, in relation to the production, storage, use, handling, transport, sale or disposal of toxic and hazardous chemicals and wastes.

11. The National Environment Management Authority shall ensure the conduct of research into the best ways of ameliorating impacts of toxic and hazardous chemicals and wastes, and shall provide a formula for the promotion of recycling and other environmentally safe modes of dealing with such chemicals and wastes.

12. The National Environment Management Authority shall establish a hazardous waste classification system accompanied with appropriate codes to facilitate mechanical responses in industrial activity to accommodate the prescribed environmental standards.

PART IV - CONDUCT OF CHEMICAL SAFETY INSPECTIONS

13. (1) The National Environment Management Authority shall appoint public officers of professional competence to be chemical control inspectors.

(2) Every inspector appointed under sub-section (1) shall be issued with a certificate of appointment signed by the Director-General of the Authority which he shall produce to the occupier of, or any other person holding a responsible position of management or control of the facility at, the premises in which chemical substances are believed to be present and where an inspection is to be carried out by him.

14. (1) The inspector appointed by virtue of Regulation 13 may -

(a) enter, inspect, take samples, examine any premises or any part thereof, booth, motor vehicle, vessel, aircraft or any other vessel upon which he has reasonable cause to believe that any chemical substance is stored, manufactured, used, transported or disposed of;
(b) require the production of a licence authorising such owner or occupier of the chemical facility to carry on the activities with chemical substances, or an authorised register, and inspect, examine or take copies thereof;
(c) seize, remove and detain any chemical substances and any other articles which may appear to him to contain or comprise substances or materials in connection with which he has evidence of an offence having been committed, and for like cause seize, remove, detain or take charge of any premises, facilities, containers, receptacles and any books of account or other documents;
(d) require the owner or occupier of the premises or facility to explain and give information relating to the presence in the premises or facility of any chemical substances; and
(e) make such examinations and enquiries as may be necessary for carrying out the provisions of these Regulations.

(2) An inspector appointed by virtue of these Regulations shall be deemed to be a government analyst for the purpose of the Criminal Procedure Code [Cap. 75], the Evidence Act [Cap.80] and the Food, Drugs and Chemical Substances Act [Cap. 245].

(3) The inspector may act without a warrant whenever it appears to him that the delay which may be occasioned in obtaining a warrant would seriously hinder him in the performance of his duties or tend to defeat the purpose of this Regulation.

(4) Every seizure under this section shall be reported to the nearest magistrate without undue delay.

PART V - GENERAL MATTERS

15. Where any chemical has more than one name, whether common or proper, a reference to that chemical by any of its names shall be deemed to be a reference to it by all its names.

16. Any information appearing on a label of any chemical substance shall be -

    (a) clearly and prominently displayed on the label; and
    (b) readily discernible to the purchaser or consumer under the customary conditions of purchase and use.

17. (1) No person shall import into Kenya any chemical substance where an authorised officer is satisfied, after the examination or analysis of a sample thereof, that the sale, use or storage of such a chemical in Kenya would be a violation of the Act or any regulations made thereunder.

    (2) Where an authorised officer finds, as a result of an examination or analysis, that any chemical substance should not be admitted into Kenya, he shall forthwith send a copy of the report of the analysis or examination to the Commissioner of Customs and Excise and to the importer of the chemical substance.

18. (1) Where an authorised officer takes a sample pursuant to these Regulations, he shall notify the owner thereof or the person from whom the sample was obtained of his intention to submit the sample to the public analyst for analysis or examination; and -

    (a) where, in his opinion, divsion of the procured quantity of the sample would not interfere with the analysis or examination he shall -
        (i) divide the quantity into two parts;
        (ii) identify the two parts as the owner's portion and the sample and where only one part bears the label, that part shall be identified as the sample;
        (iii) seal each part in such a manner that it cannot be opened without breaking the seal; and
        (iv) deliver the part identified as the owner's portion to the owner or the person from whom the sample was obtained and forward the sample to the public analyst for analysis or examination; or
    (b) where, in his opinion, division of the procured quantity of the sample would interfere with analysis or examination he shall:
        (i) identify the entire quantity as the sample;
        (ii) seal the sample in such a manner that it cannot be opened without breaking the seal; and
        (iii) forward the sample to the public analyst for analysis or examination.

    (2) The public analyst's certificate specifying the result of his analysis or examination of a sample sent to him by an authorised officer shall be in the form set out in the Fifth Schedule.

PART VI - CONTROL OF PREMISES USED IN ACTIVITIES INVOLVING CHEMICALS

19. (1) No person shall use any premises, or being the owner or occupier thereof, permit or allow the premises to be used, for the purposes of manufacturing, formulating, packaging, selling or storing chemical substances unless that person is in possession of a licence issued under these Regulations in respect of those premises.

    (2) No licence shall be issued under these Regulations unless the National Environmental Management Authority is satisfied that the provisions of these Regulation have been complied with.

20. (1) An application for a licence under these Regulations shall be in Form A in the Sixth Schedule.

    (2) An applicant for a licence shall, on the request of the National Environmental Management Authority, supply any information that may be required for the purposes of these Regulations.

21. (1) Every licence issued under these Regulations shall be in Form B in the Sixth Schedule, and shall expire on the 31st December next following the date of issue.

    (2) No person to whom a licence has been issued under these Regulations shall lend, hire, sell, transfer or otherwise dispose of that licence without the approval

of the National Environment Management Authority, which approval shall be endorsed on the licence.

(3) No licence shall be transferred from the premises in respect of which it was issued.

22. All premises used for the manufacturing, formulating and using of chemical products shall-

(a) be of a suitable design, layout and construction to ensure the health of workers and to avoid contamination of the environment;
(b) have sufficient space for the placement of equipment and storage of materials which is necessary for the health of workers and operators;
(c) have separate areas, either by partition, location or other effective means, for those operations which do not require workers to be exposed to chemicals.

23. Every person who owns operates or is in charge of premises used for the manufacturing, formulating and packaging of chemical substances shall ensure that:

(a) during the operation:
(i) the persons working in the premises wear adequate protective clothing;
(ii) the premises are well supplied with first-aid facilities to the satisfaction of the National Environment Management Authority to cater for accidental poisoning;
(iii) the general health of the persons working on the premises is adequately catered for; and
(b) the quality of the products are within the prescribed limits.

24. Every person who owns, operates or is in charge of:

(a) premises in which the manufacturing, formulating and packaging of a chemical substance is undertaken shall have adequate knowledge of the chemistry, toxicology, efficacy and general use of the products being dealt with to the satisfaction of the National Environment Management Authority;
(b) chemical stores and other dispensing premises shall have adequate knowledge of the efficacy, uses and handling precautions for all chemical substances within the premises.

PART VII - REGISTRATION OF CHEMICALS

25. A chemical shall be exempt from registration if -

(a) it is for use by a person for research purposes if that use has been approved by the National Environment Management Authority.
(b) it is a type or kind set out in the Seventh Schedule and meets the conditions relevant to that substance as set out in that schedule.
(c) The Minister may from time to time add to or subtract from the green list of chemicals exempt from registration, as set out in the Seventh Schedule

26. (1) Every person desiring to register a chemical substance shall make application to the National Environment Management Authority in Form A set out in the Eighth Schedule and shall, on request, supply any further information which may be required by the Authority.

(2) An applicant who is not resident in Kenya shall appoint an agent permanently resident in Kenya to whom any notice or correspondence may be sent.

(3) An application for the registration of a chemical substance shall be accompanied by five copies of the proposed label for the chemical or reasonable facsimiles thereof.

27. An applicant shall, when requested to do so by the National Environment Management Authority, provide:

(a) a sample of the chemical substance;
(b) a sample of the technical grade of its active ingredient;
(c) a sample of the laboratory standard of its active ingredient; and
(d) any other sample as may be required by the Authority.

28. The fees payable by an applicant for the registration of a chemical substance shall be six thousand shillings where a chemical is a device or it contains an active ingredient that has been previously assessed or evaluated for the purpose of the National Environment Management and Coordination Act and these Reulations.

29. (1) If the National Environment Management Authority is satisfied about the safety, efficacy, quality and economic value of the chemical, it shall register the same and issue a certificate of registration which shall be in Form B set out in the Eighth Schedule.

(2) If the Authority is not satisfied as to the safety, efficacy, quality and economic value of the chemical substance

it may, after providing an opportunity for the applicant to be heard, reject the application for the registration of the chemical and inform the applicant of the reasons for the rejection in writing.

(3) No person to whom a certificate of registration has been issued under this Regulation shall lend, hire, sell, transfer or otherwise dispose of the certificate to any other person without the approval of the National Environment Management Authority, which approval shall be endorsed on the certificate of registration.

30. (1) A certificate of registration issued under these Regulations shall, unless earlier suspended or revoked, be valid for a period three years from the date of issue and may thereafter be renewed for periods not exceeding two years at any one time.

(2) The fee for the renewal of a certificate of registration shall be five thousand shillings, and an application for renewal shall be accompanied by five copies of the current label for the chemical substance.

31. (1) The National Environment Management Authority may upon such terms and conditions as it may specify, on payment of a fee of three thousand shillings, register a chemical substance for a period not exceeding one year where:

(a) the applicant agrees to produce additional scientific or technical information in relation to the use for which the chemical substance is to be sold; or
(b) the chemical substance is to be sold only for the emergency control of infestations that are seriously detrimental to public health, domestic animals, crops or natural resources.

(2) Any terms and conditions specified by the National Environment Management Authority under paragraph (1) shall be contained in the temporary certificate of registration.

32. The National Environment Management Authority may refuse to register a chemical substance if in its opinion

(a) the applicant for registration or the label for the chemical substance does not comply with the provisions of the National Environment Management and Co-ordination Act and these Regulations;
(b) the information provided to the Authority by the applicant is insufficient to enable the chemical substance to be assessed and evaluated;
(c) the applicant fails to establish that the chemical substance has merit or value for the purpose claimed when the chemical is used in accordance with its label directions; or
(d) the use of the chemical sustance would lead to an unacceptable risk or harm to-
(i) things on or in relation to which the chemical is intended to be used; or
(ii) public health, plants, animals or the environment

33. (1) The National Environment Management Authority may suspend or revoke a certificate of registration issued under these Regulations for such time as the Authority may determine.

(2) The powers conferred by paragraph (1) shall not be exercised by the Authority except on one or more of the following grounds:

(a) that the matters stated in the application on which the certificate of registration was granted were false or incomplete in a material particular;
(b) that new information has become available to the Authority which renders the chemical substance unsafe or dangerous;
(c) that the premises on which, or on part of which, the chemical is manufactured, assembled or stored by or on behalf of the holder of the certificate of registration are unsuitable for the manufacturing, assembly or storage of chemicals.

34. Where the National Environment Management Authority:

(a) refuses to register a chemical; or
(b) suspends or revokes the certificate of registration, it shall send to the applicant or the holder of a certificate of registration, as the case may be, a notice by registered post notifying him of the refusal, suspension or revocation.

35. An applicant or holder of a certificate of registration who has received a notice under Regulation 34 may within thirty days from the date on which the notice is received by him appeal to the Minister, who may amend or vary the decision as he thinks fit and whose decision shall be final.

36. A holder of a certificate of registration issued under these Regulations shall keep a record of all the quantities of

chemical substances stored, manufactured or sold by him and the record shall -

(a) be maintained five years from the time it is made; and
(b) be made available to the National Environmental Management Authority at such times and in such manner as the Authority may require.

PART VIII - REGULATION OF CHEMICAL LABELLING, ADVERTISING AND

PACKAGING

37. (1) No chemical substance shall be distributed or sold or used without a label.

(2) No label shall be used on a chemical substance unless it has been approved by the National Environment Management Authority and, unless the Authority otherwise directs, every label shall show -

(a) the name of a chemical substance, which shall be descriptive of the physical form and the purpose of the chemical and shall include the common name of its active ingredients and may include a distinctive brand or trade mark;
(b) the class designation of th chemical substance in capital letters and shall be classified as set out in the Ninth Schedule;
(c) information detailing the nature and degree of hazard inherent in the chemical substance and the nature and degree of hazard shall be identified by the appropriate precautionary symbol and signal words selected from the Tenth Schedule together with a statement respecting the nature of the primary hazard to which the symbol relates;
(d) a statement directing the user to read the label which statement shall be in the following form **'READ THE LABEL BEFORE USING'**;
(e) a guarantee statement in the following manner:
    (i) the word in capital letters 'GUARANTEE', followed by,
    (ii) a colon, followed by:
    (iii) the common name of the active ingredient of the chemical substance or, where a common name has not been designated, the chemical or other name of the active ingredient; followed by:
    (iv) the contents of the active ingredient expressed:
(A) in the case of a liquid chemical substance, as a percentage by mass, or mass per unit volume, or both, as may be required by the National Environment Management Authority;
(B) in the case of dust, wettable powder or other dry formulations, as a percent-age by mass; or
(C) where sub-paragraphs (A) and (B) do not apply, in terms acceptable to the National Environment Management Authority;

and the active ingredient shall include the viscosity, specific gravity, particle size or such other property or specifications determined by the Authority to be necessary for guarantee purposes;

(f) the registration number of the chemical substance which shall be set out in the following manner - **'REGISTRATION NO.'**;
(g) a statement of the net contents of the package for the chemical substance, which shall be expressed
    (i) in the case of a liquid chemical substance of a volume less than one litre, in terms of millilitres;
    (ii) in the case of a liquid chemical substance of a volume of one litre or more, in terms of litres;
    (iii) in the case of a pressure - packed chemical substance in terms of weight, in grams if less than one kilogram;
    (iv) in the case of a pressure - packed chemical substance which weighs one kilogram or more, in terms of kilograms;
    (v) in the case of a dry formulation chemical which weighs less than a kilogram, in terms of grams;
    (vi) in the case of a dry formulation chemical substance which weighs one kilogram or more, in terms of kilograms;
    (vii) in the case of a chemical substance, that is semi-solid or viscous in terms of either weight or volume in accordance with this paragraph; or
    (viii) in the case of a chemical substance the nature of which does not lend itself to net content statements prescribed in this paragraph, in terms acceptable to the National Environment Management Authority;
(h) the name and postal address of the registrant and the name and postal address of the resident agent, if any;
(i) the directions for use of the chemical substance, which directions shall include dosage rates, timing of application and use limitations;
(j) information identifying any significant hazards respecting the handling, storage, display,

distribution and disposal of the chemical substance which information shall include instructions respecting procedures to alleviate the hazard and when required by the National Environment Management Authority, instructions respecting decontamination procedures and disposal of the chemical substance and the empty package;

(k) information identifying any significant hazard to -
  (i) things on or in relation to which the chemical substance is intended to be used; or
  (ii) public health, plants, animals or the environment, which information shall include instructions respecting the procedures to alleviate any hazard;

(l) instructions for first-aid, which instructions shall be under the heading in capital letters '**FIRST AID INSTRUCTIONS**' and shall set out the practical measures to be taken in the event of poisoning or other injury caused by the chemical substance;

(m) the toxicological information essential to the treatment of a person poisoned or otherwise injured by the chemical, which information shall be under the heading in capital. letters '**TOXICOLOGICAL INFORMATION**' and shall:
  (i) state antidotes and remedial measures;
  (ii) describe the symptoms of poisoning;
  (iii) state the ingredient that may affect the treatment;

(n) a notice to the user of the chemical substance which notice shall be in the following manner:

NOTICE TO USER

This chemical is to be used only in accordance with the directions on this label. It is an offence under the Chemicals Control Act to use or store a chemical substance under unsafe conditions.

(3) The label for a chemical substance shall contain the information referred to in sub-paragraphs (f), (h), (i), (j), and (k) of paragraph (2).

38. (1) The display panel shall consist of one principal display panel and at least one secondary display panel.

(2) Where the primary purpose of a chemical substance is not to control, prevent, destroy, mitigate, attract or repel a pest, but it has these properties, the chemical substance shall have a display panel with -

(a) the information referred to in sub-paragraphs (a), (b), (c), (d), (g) and (h) of Regulation 37 (2) on the principal display panel; and

(b) the information referred to in sub-paragraphs (e), (f), (i), (l) and (m) of Regulation 37 (2) on the secondry display panel.

(3) Where the primary purpose of a chemical substance is to control, prevent, destroy, mitigate, attract or repel a pest, the chemical shall have a display panel with the information referred to in sub-paragraphs (a), (b), (c), (d), (e), (f), (g), and (h) of Regulation 37 (2) on the principal display panel.

39. (1) Where the principal display panel shows the chemical substance as '**RESTRICTED**', the notice referred to in Regulation 39(2) (n) shall appear prominently at the top of the secondary display panel followed by the heading in capital letters '**RESTRICTED USE**', followed by the directions for use, dosage, timing of application and use limitations to which the restrictions relate all of which shall be circumscribed by a line to set the information apart from all other information required to be shown on the secondary display panel.

(2) Notwithstanding paragraph (1), where the principal display panel shows the chemical substance as '**RESTRICTED**' the directions for use, dosage rates, timing of application and use limitations to which the restriction relates, together with the information referred to in sub-paragraphs (a), (b), (c), (d), (e), (f), (g), (h) and (i) of Regulation 37 (2) may, with the approval of the National Environment Management Authority, appear in a brochure or leaflet that will accompany the package for the chemical substance.

(3) Where the information required to be shown on the label is not included in the display panel, the display panel shall contain the words in capital letters '**READ ATTACHED BROCHURE BEFORE USE**' prominently displayed thereon.

40. (1) Subject to the approval of the National Environmental Management Authority, additional information relating to the chemical substance and any graphic design or symbol may be shown on the label if it does not unreasonably detract from or obscure the information required to be shown on the label under these Regulations.

(2) A registrant may include on the label the following liability limitation warranty:

'Seller's guarantee is limited to the terms set out on the label and subject thereto, the buyer assumes

the risk to persons or property arising from the use or handling of this product and accepts the product on that condition'.

41. Where a chemical substance is distributed in a bulk container, the information referred to in sub-paragraphs (a), (b), (e), (f), (g), (h), (i) and (m) of Regulation 37 (2) shall be shown:

(a) on the bulk container; and
(b) on the document respecting the chemical substance or on a statement accompanying the consignment.

42. (1) The information on every label shall be printed in both English and Kiswahili languages.

(2) All units of measures shown on the label shall be expressed in accordance with the requirements of the Weights and Measures Act [Cap. 513].

(3) All information shown on the label shall be printed in a manner that is conspicous, legible and indelible.

Where the physical properties of a chemical substance are such that the presence of the chemical may not be recognised when it is used, and it is likely to expose a person or domestic animal to a severe health risk, the chemical substance shall be denatured by means of colour, odour or such other means as the National Environment Management Authority may approve to provide signal or warning of its presence.

43. A chemical substance shall be stored and displayed in accordance with the conditions shown on the label.

44. Notwithstanding the provisions of the Pharmacy and Poisons Act [Cap. 244], a chemical substance shall be distributed in accordance with such conditions as the National Environmental Management Authority may specify.

45. No person shall use a chemical substance in a manner that is inconsistent with the directions or limitations respecting its use as shown on the label.

46. (1) Every package for a chemical substance shall, unless the National Environment Management Authority otherwise directs, be approved by the Authority.

(2) The package for every chemical substance shall be sufficiently durable and be designed and manufactured to contain the chemical substance safely under practical conditions of storage, display and distribution.

(3) Every package shall be designed and manufactured to permit:

(a) the withdrawal of any or all of the contents in a manner that is safe to the user; and,
(b) the closing of the package in a manner that will contain the chemical satisfactorily under practical conditions.

(4) Every package shall be constructed in such a manner as to minimise the degradation or change of its contents resulting from interaction or from the effects of radiation or other means.

47. (1) A label shall not contain any information respecting any organism or causative agent of a disease that is required to be reported under any Act.

(2) Information that is required under these Regulations to be shown on a label shall not appear at the bottom of the package.

(3) Words stating, implying or inferring that a chemical substance is approved, accepted or recommended by the government or by any department or agency thereof shall not appear on a package or label or in any advertisement respecting a chemical substance.

PART IX - REGULATION OF IMPORTATION AND EXPORTATION OF CHEMICALS

48. (1) No person shall import or export a chemical substance for commercial purposes unless that person is in possession of a licence issued under these Regulations.

(2) No licence shall be issued for the importation of a chemical substance unless the chemical substance is registered in accordance with these Regulations.

(3) No licence shall be issued under these Regulations unless the National Environment Management Authority is satisfied that the provisions of the Environment Management and Co-ordination Act have been complied with.

49. (1) For the purpose of paragraph (1) of Regulation 46, a chemical substance shall be considered to be for commercial purposes if it is for a use other than scientific research or testing and products imported for resale, manufacture, formulation, owner's use or community aid shall be deemed to be imported for commercial purposes.

(2) For the purpose of paragraph (1) of Regulation 46, a chemical substance shall be deemed to have been exported when it is placed on any ship, aircraft, train or vehicle within Kenya for the purpose of export.

50. (1) Any person desiring a licence in respect of importation or exportation of a chemical substance for commercial purposes shall apply to the National Environment Management Authority for a licence in Form CS1 set out in the Eleventh Schedule which form shall be signed by the importer or exporter, as the case may be, who shall state the purpose of the importation or exportation of the chemical substance in the following manner:

(a) **'FOR SALE'**, where the product is being imported or exported for the purpose of resale whether in the original pack or after repacking; or
(b) **'FOR MANUFACTURING PURPOSES'**, where the chemical substance is being imported or exported for use in the manufacture or formulation of a registered chemical substance; or
(c) **'FOR IMPORTER'S OWN USE'**, where the chemical substance is being imported into Kenya or exported to another country for the sole use of the importer, together with information respecting where the chemical substance shall be used and the nature of that use.

(2) The National Environment Management Authority shall from time to time determine the fee to be paid in respect of an application for a licence.

51. (1) The National Environment Management Authority may approve an application made under Regulation 48 if it is satisfied that:

(a) the application contains the information required under that Regulation;
(b) the chemical substance contains ingredients that have been previously assessed or evaluated for the purpose of the Act and these Regulations and which have been accepted for registration under these Regulations, for the use stated in the application, and issue a licence in Form CS1 set out under the Eleventh Schedule.

(2) Where the Authority does not approve an application it shall not be obliged to give any reason therefor.

(3) No person to whom a licence has been issued under these Regulations shall lend, hire, sell, transfer or otherwise dispose of that licence to any other person without the approval of the Authority, which approval shall be endorsed on the licence.

(4) The Authority may attach to a licence such conditions as it deems fit to impose and in particular any such condition may restrict the importation and exportation of a chemical substance from a specified source or for specified usage and the Authority may, from time to time, vary, add to or revoke any of the conditions attached to a licence.

52. Where for any reason a customs officer at any port of entry withholds the release of any chemical substance he shall forthwith advise the National Environment Management Authority of that action.

53. (1) The National Environment Management Authority may cancel or, for such period as it thinks fit, suspend a licence issued under these Regulations if the Authority is satisfied that:

(a) the licensee or his servant or agent has been convicted of an offence under the Act; or
(b) the licensee or his servant or agent has committed a breach of any of the terms or conditions of the licence; or
(c) for any other reason, it is in the public interest so to do.

(2) Before cancelling or suspending a licence under this Regulation the Authority shall give the licensee twenty-eight days' notice to show cause why the licence should not be cancelled or suspended and the Authority's decision in the matter shall be final.

PART X - REGULATION OF THE DISPOSAL OF TOXIC AND HAZARDOUS CHEMICALS AND WASTES

54. (1) No person shall dispose of toxic and hazardous chemicals and wastes except in accordance with the terms of licence issued by the National Environment Management Authority.

(2) A licence for the disposal of toxic and hazardous chemicals and wastes may be issued by the National Environment Management Authority subject to such conditions as may be imposed by virtue of the Act or Regulations made under it.

(3) A licence for the disposal of toxic and hazardous chemicals and wastes shall specify the disposal site or sites, and shall indicate the kind of vehicle to be used in

the disposal process, the routes to be used by such disposal vehicles, the mode of packaging for disposal, and the manner of disposal at the disposal sites.

(4) Before issuing the licence for disposal of hazardous chemicals and wastes, the National Environment Management Authority shall ensure that appropriate impact assessments have been done regarding the proposed disposal sites, that arrangements have been made with any interested persons or agencies regarding the disposal site, that the applicant has made adequate arrangements for the safe use, and for the maintenance of the disposal site.

(5) The National Environment Management Authority may require a holder of a licence for the disposal of toxic and hazardous wastes to execute a bond of such value as the Authority shall determine, for ensuring adequate mitigation action in relation to any harm to health or the environment that may be occasioned from the disposal site, or by the process of transportation and disposal.

FIRST SCHEDULE

CLASSIFICATION OF SITUATIONS OF EXPOSURE TO CHEMICALS

TYPE OF EXPOSURE	DESCRIPTION	PROPOSED REQUIREMENT
acute local	Single exposure to toxic and hazardous chemicals	laboratory test; medical treatment
acute repetitive	regular exposure to chemicals (may last from a few days to several weeks-but less than 5% of lifetime)	laboratory test every year, medical treatment
sub-chronic	daily exposure to toxic and hazardous chemicals (but not exceeding 10-15% of lifetime)	half-yearly laboratory test, followed by medical treatment
chronic	permanent exposure over whole lifetime (e.g. at place of work)	quarterly laboratory test, followed by medical treatment, work-transfer where appropriate

SECOND SCHEDULE

CHEMICALS TO BE STRICTLY REGULATED BY THE RELEVANT INSTITUTIONS

CHEMICAL	GENERAL CATEGORY	RELEVANT INSTITUTIONS
chloroquine	drugs	chemists, hospitals, clinics, pharmaceutical companies
kerosine hydrocarbon	domestic fuels	hydrocarbon fuel dealers, hydrocarbon fuel transporters
organophosphates organochlorines carbonates rat poisons fungicides herbicides	pesticides	statutory boards, chemists, pharmacies
cyanide quaban methanol heroin amonophylline carcinogens mutagens teratogens all chemicals with LD_{50} = 10mg/kg	others	statutory boards, chemists, specialised R&D institutes

THIRD SCHEDULE

CLASSIFICATION OF CHEMICAL TOXICITY

CHARACTERISATION OF TOXICITY	QUANTIFICATION (ORAL LETHAL DOSE)
A. Extremely toxic	LD_{50} values of 10 mg/kg or less
B. Highly toxic	LD_{50} values of 11-50 mg/kg
C. Moderately toxic	LD_{50} values in excees of 50 mg/kg but less than 500 mg/kg
D. Harmful	LD_{50} values of 500-2000 mg/kg

FOURTH SCHEDULE

TOXIC HEAVY METALS AND METALLOIDS

NAME OF HEAVY METAL OR METALLOID		
actinium		mercury
antimony		molybdenum
astatine	neptunium	
arsenic	palladium	
bismuth		polonium
cadmium		radium
cobalt	radon	
copper	thalium	
francium		thorium
lead		tritium
uranium		

FIFTH SCHEDULE

CERTIFICATE OF ANALYSIS OR EXAMINATION

I, ..., an analyst/reference analyst appointed under the Environmental Management and Co-ordination Act (Cap....), hereby certify that the seal on the sample of .....received by me on the ..... was unbroken.

I further certify that the sample has been analysed by me or under my direction, and the methods and result of the analysis are as follows -

.....
.....
.....
.....
.....

and I am of the opinion that .....
.....
.....
.....
.....
.....

Given under my hand this ..... day of ....., 19

.....

ANALYST/REFENCE ANALYST

Address .....

SIXTH SCHEDULE

FORM A

LICENSING OF PREMISES USED IN ACTIVITIES INVOLVING CHEMICALS

APPLICATION FOR A LICENCE

The Director-General
National Environment Management Authority
P.O. Box .....
NAIROBI

1. Name of applicant(s) .....

2. Name and address of person, firm or company to be issued with licence .....

.....

3. Full names of partners and/or directors (where applicable) .....

.....

.....

4. Nature of occupation for which a licence is required. .....

5. Owner of premises .....

6. Plot No. ..... L.R.No .....

7. Location ..... Road .....

8. Town ..... District .....

9. General business postal address .....

.....

10. Name and qualifications of the person under whom processing/trading will be .....

.....

Date ....

Signature and designation of applicant

FORM B

LICENCE

This licence is granted to .....

.....

to sell/store/package/manufacture/formulate/use/display chemical substances at plot

No .....

8. Town ..... District .....

L.R. No ..... situated .....

..... Date .....

Director -General of the National Environment Management Authority

This licence is not transferable to any other person, formally or through the transfer of shares as otherwise, without the approval of the National Environment Management Authority.

This licence is not transferable to any other premises.

SEVENTH SCHEDULE

ITEMS EXEMPTED FROM REGISTRATION

1. The green list of chemicals exempt from registration shall include the following chemicals: (a) activated carbon; (b) alumina (Al2 O3/Al2 (SO4)3; (c) ascorbic acid; (d) baking soda (CaCO3); (e) calcium chloride; (f) citric acids; (g) fertilizers; (h) food preservatives (i) petroleum products; (j) sodium/potassium/calcium sulphates; (k) sodium carbonate/bicarbonate; (l) starch; (m) sugar and sugar products; (n) sulphur; (o) table salt; (p) yeast.

2. Electronic apparatus that is manufactured, represented or sold as a means to attract or destroy flying insects.

3. Devices of products that are manufactured, represented or sold to repel birds and other pests causing physical discomfort by means of sound or touch.

4. Devices of attachment to garden watering hoses that are manufactured, represented or sold as means to dispense or apply a chemical substance.

5. Devices that are manufactured, represented or sold as a means of providing the automatic or unattended application of a chemical substance.

6. Devices that are used with chemical products as means to control animal pests.

EIGHTH SCHEDULE

FORM A

APPLICATION FOR THE REGISTRATION OF A CHEMICAL SUBSTANCE

The Director-General
National Environment Management Authority
P.O. Box .....
NAIROBI

PART I

1. Name of applicant .....

2. Business address .....

..... Tel.No. .....

3. Status of applicant (manufacturer, agent, etc) .....

.....

4. Name and address of manufacturer (where applicable) .....

5. Name and address of formulator .....

.....

PART II

1. Approved common name(s) .....

.....

2. Chemical name(s) and structural formula(e) of the major active ingredient(s)

Chemical name(s)	Structural formula(e)

3. Chemical name(s) and structural formula(e) of the minor active ingredient(s) (where applicable)

Chemical name(s)	Structural formula(e)

4. Trade name(s), code number(s) and local name(s) of the product

Trade names and code(s)	Kenyan name(s)

5. Formulation wettable powder (W.P.), emulsifiable concentrate (E.C.), dust, etc .....

.....

6. Concentration (of all active ingredient(s)) .....

.....

7. Description of inert material. .....

.....

8. Intended use (veterinary, health, agricultural, forestry, fishery, etc.) .....

.....

.....

9. Method, rate and frequency of application .....

.....

10. Target pest(s), disease(s), and host(s) .....

.....

PART III

1. Toxicity of formulated products to test animals (oral, dermal and inhalation LD50 and LC50)

.....

2. Effects of the products on the environment -

   (a) toxicity to bees .....

   (b) toxicity to fish .....

   (c) toxicity to birds .....

   (d) toxicity to soil micro-organisms .....

   (e) persistence in the environment .....

3. Antidote(s) .....

4. Expected shelf life .....

5. Registration numbers and references of the product in the country of origin and three other countries where it is marketed .....

.....

6. Is the product authorised to be on the market in the country of origin? If yes, attach evidence .....

.....

.....

PART IV

1. Package description(s)

The information contained herein is correct to the best of my knowledge and belief.

Package size (wt., vol.)	Pack material (plastic, etc)	Lined (Yes/No)

....

Date of application Signature of applicant

2. Indicate whether the packaging materials are approved by the Kenya Bureau of Standards .....

.....

.....

PART V

Name(s) and address(es) of distributor(s) in Kenya

1 .....

.....

2 .....

.....

3. .....

.....

4. .....

.....

.....

Designation (if company) (Chairman, Secretary, 95, etc)

NOTE:

1. A separate application is required for each product.
2. Submit five sample labels to be used on the packages at the time of application.
3. If the space provided is not sufficient, attach a separate sheet.

FORM B

CERTIFICATE OF REGISTRATION OF A CHEMICAL SUBSTANCE

Number .....

It is hereby certified that the chemical substance described herein has been registered under the National Environment Management and Co-ordination Act and is subject to the conditions indicated -

1. Approved common name .....

2. Trade name under which marketed in Kenya .....

3. Active ingredient(s) .....

.....

4. Formulation .....

5. Condition(s) under which chemical substance is registered .....

.....

.....

6. Registration No .....

7. Registered in the name of .....

.....

Address ..... Tel. No. .....

8. Date of registration .....

9. Date of registration expires .....

.....

Director-General
National Environment Management Authority

NINTH SCHEDULE

CLASSIFICATION OF CHEMICAL SUBSTANCES

C. Restricted Class

1. Where the National Environmental Management Authority has set fourth additional essential conditions to be shown on the label respecting the display, distribution, use, limitations or qualifications of persons who may use the chemical substance, the chemical shall have the following properties -

   (a) acute oral LD_{50} is less than 50 mg/kg body weight;
   (b) acute dermal LD_{50} is less than 100 mg/kg body weight;
   (c) environmental risks are significant and will be judged accordingly;
   (d) chemical substances used in aquatic and forestry situations are classified restricted.

C. Commercial ad Agricultural Class

2. Where the chemical substance is to be displayed and distributed for general use in commercial activities specified on the label it shall have the following properties -

   (a) acute oral LD_{50} is less than 50 mg/kg body weight;
   (b) acute dermal LD_{50} is less than 100 mg/kg body weight;
   (c) environmental effects possible in limited regions

C. Domestic Class

3. Where the chemical substance is to be displayed and distributed for use in and around a dwelling it shall have the following properties -

   (a) acute oral LD_{50} is over 500 mg/kg body weight;
   (b) acute dermal LD_{50} is over 1000 mg/kg body weight;
   (c) no special precautions or equipment required for inhalation hazard;
   (d) no irreversible effects from repeated exposures;
   (e) disposal of content and containers can safely be done by placing in garbage;
   (f) package sizes limited to amount that can be safely used and stored by consumers.

TENTH SCHEDULE

CAUTIONARY SYMBOLS AND WORDS

	SIGNAL WORD	SYMBOL
1.	POISON/DANGER (SUMMA/HATARI)	[diagrammatic symbol]
2.	CORROSIVE/ACID (KINAWEZA KUCHOMA)	[diagrammatic symbol]
3.	INFLAMMABLE (KINAWEZA KUPATA MOTO)	[diagrammatic symbol]
4.	EXPLOSIVE (KINAWEZA KULIPUKA)	[diagrammatic symbol]

ELEVENTH SCHEDULE

FORM CS1

APPLICATION FOR THE IMPORT/EXPORT OF A CHEMICAL SUBSTANCE FOR COMMERCIAL PURPOSE

To: THE DIRECTOR-GENERAL
NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY
P.O. BOX .....
NAIROBI

Applicant's full name/address .....

Company Name and Name of Responsible Officer (with designation) (PIN) .....

Tel. No. .....

Full name and address of the exporter (if import to Kenya) or importer (if export from Kenya) .....

..... Company Name and Name of Responsible Officer

.....

PRODUCT INFORMATION

..... FOR OFFICIAL USE ONLYStamp of the National Environmental

Management Authority. ..... Director-Geneal .....

Date .....

1. Registration number ..... Date of expiry .....
2. Country of origin (if being imported) .....

   .....
3. Country of destination (if being exported or re-exported) .....
4. Approved common name .....
5. Chemical name.....
6. Trade name .....
7. Formulation .....
8. Concentration.....

9. State of product (technical or formulated) .....

PURPOSE OF IMPORT/EXPORT

FOR RESALE

FOR MANUFACTURING PURPOSES

FOR IMPORTER'S OWN USE

11. Quantity applied for ..... Total cost (Freight charges included) .....

12. Estimated annual usage .....

13. Previous imports (give dates, quantity and registration number of product) .....

.....

CS1/DATE

14. Quantity in stock .....

I/We certify that the information contained herein is correct to the best of my/our knowledge.

Importer's/Exporter's Signature .....

Designation (Chairman, Secretary, Director, etc) .....

Date: .....

FOR OFFICIAL USE ONLY

Stamp of the National Environment Management Authority

....

Director-General Date

TANZANIA COUNTRY REPORT

ABBREVIATIONS

UN	United Nations
UNEP	United Nations Environment Programme
WHO	World Health Organization
UNCED	United Nations Conference on Environment and Development
WCED	World Commission on Environment and Development
IARC	International Agency for Research on Cancer
IRPTC	International Register of Potentially Toxic Chemicals
IPCS	International Programme on Chemical Safety
ILO	International Labour Organization
OECD	Organisation for Economic Co-operation and Development
CSD	United Nations Commission on Sustainable Development
ICCS	International Conference on Chemical Safety
IFCS	Intergovernmental Forum on Chemical Safety
IOMC	Inter-Organization Programme for Sound Management of Chemicals
PIC	Prior Informed Consent
OAU	Organisation of African Unity

EXECUTIVE SUMMARY

Since the 1960s, there has been growing international concern about the adverse effect of chemicals to the human and the environment. Consequently, the international community has addressed the issues of health and environmental effects of toxic and hazardous chemicals in a number of fora.

Through Chapter 19 of Agenda 21, all countries present at the United Nations Conference on Environment and Development 1992 (the 'Earth Summit'), agreed to the goal of achieving the sound management of chemicals by the year 2000. In this regard, countries around the world have recognized, through the endorsement of Agenda 21 Chapter 19, and in the context of various international fora, the importance of the sound management of chemicals as a key component of sustainable development.

Achieving sound chemicals management entails a comprehensive approach aimed at reducing risks and preventing adverse impacts throughout all stages of the chemical 'life-cycle' from production or import through processing, storage, transportation, distribution, use and disposal.

In this Report, the Consultants have attempted to identify the strengths and weaknesses in the present legal regime in Tanzania for regulation and management of toxic and hazardous chemicals. The Report is divided into six Sections with two Appendices: Appendix-I is the Draft Bill - The Toxic and Hazardous Chemicals Control and Management Act, 1998, and the Licensing Regulations, that is, The Toxic and Hazardous Chemicals Control and Management (Licensing) Regulations, 1998; and, Appendix-II is a list of Legislation Relating to Environment in Tanzania. There are Tables.

SECTION I

Review of International Conventions, Protocols, Agreements and Declarations relevant to the management of toxic and hazardous chemicals.

SECTION II

Review the problem of toxic and hazardous chemicals in Tanzania

SECTION III

Provides a classification of toxic and hazardous chemicals in accordance with their toxicity and hazards they present to the environment with special emphasis on human health.

SECTION IV

Review of existing environmental policy laws, rules and regulations and practices governing the management of toxic and hazardous chemicals in Tanzania. There are very few statutes in Tanzania having some bearing on toxic and hazardous chemicals but most are out of date, lack coherence, with non-existent or weak enforcement mechanisms. Since Tanzania has no comprehensive legislation on environmental protection appropriate amendments are recommended to the legal regime.

SECTION V

Identifies the factors which impede better management of toxic and hazardous chemicals in Tanzania. Recommendations are accordingly made for sound chemicals management in Tanzania.

SECTION VI

Review the present institutional capacity in the management of toxic and hazardous chemicals in Tanzania. Further in this section, recommendations are made for the necessary capacity-building requirements for the enforcement of Regulations and measures. The consultants recommend that.

(i) The East African countries under the existing East African Co-operation should co-operate develop appropriate regulatory mechanisms in order to effectively, on the regional basis, control the management of toxic and hazardous chemicals.

(ii) Toxic and Hazardous chemicals are not explicitly regulated under any legislation in Tanzania unless they happen to be radioactive or pesticidal, (regulated under Protection From Radiation Act and the Tropical Pesticides Research Institute Act or Plant Protect Act respectively).

In this regard, it is recommended that Tanzania should first enact a comprehensive umbrella environmental law. For better management of toxic and hazardous chemicals, it is further recommended that Tanzania should enact a comprehensive sectoral legislation on chemicals control and management. Hence, it is recommended that a legislation in the form of 'Toxic and Hazardous Chemicals Control and Management Act' should be enacted in Tanzania. Further it is recommended that, establishing a licensing and registration

process with adequate standards for importers, manufactures, transporters and disposal of toxic and hazardous chemicals, is critical at this time of increasing industrialisation and market liberalisation.

Appendix-I is the Draft Bill of Toxic and Hazardous Chemicals Control and Management Act and the proposed regulations made thereunder. Appendix-2 is the Legislation relating to Environment.

CHAPTER ONE

REVIEW OF INTERNATIONAL CONVENTIONS, INSTRUMENTS AND DECLARATION

1.1 BRIEF HISTORY OF INTERNATIONAL ENVIRONMENTAL LAW

Public international law as opposed to 'Private' or 'conflict of laws' has been described as an "indispensable body of rules regulating the relations between states without which it would be virtually impossible for them to have steady and frequent intercourse".[1]

The spruces of international law are customs general principles recognised by civilised states, decisions of international arbitral and judicial bodies, the views of international public lawyers of high renown and, most importantly, treaties, both general and particular establishing rules accepted by states[2].

Prior to the 1950s, efforts aimed at global management of the environment were sporadic and largely ineffective. Most of the international agreement entered during this period dealt with migratory birds, whales and fur seals in the Bering Sea[3].

A significant development in international environmental law was the outcome of the *trail smelter arbitration* in which the international tribunal established under the provision of 1909 Boundary Treaty between the United States and Canada, was asked to determine the damages to the United States caused by the fumes from a privately owned Canadian smelter. The tribunal explicitly recognised state responsibility for activities that cause significant injuries in or to the territory of another state[4].

Support for this principle may be found in the *corfu channel case* in which the United Kingdom sought recovery of damages to British war-ships caused by Albania mines. The International Court of Justice recognised "every state's obligation not to allow knowingly its territory to be used contrary to the rights of another state" as a general and well recognised principle[5].

By the early 1970s increasing global environmental concern was evidenced by a host of international conferences and agreements covering environmental issues such as natural resources, international waterways, conservation, nuclear waste marine oil pollution and activities of states in outer space.

These international efforts culminated into the 1972 United Nations Conference on the Human Environment in Stockholm. The aim of the conference was to harmonise economic growth and environmental objectives. The Declaration of the Human Environment was adopted. The Declaration comprises seven proclamations, 26 principles and an action plan containing recommendations for environmental assessment and management. In addition, the Conference established the framework for creation of the United Nations Environment Programme (UNEP). UNEP was subsequently founded in December, 1972, by the General Assembly of the United Nations. The main purpose of this organization was to promote international environmental co-operation.

Negotiations during the conference highlighted differing ideological perspective on environmental issues. Developed nations were of the opinion that the conference should deal primarily with pollution control and the management of natural resources. Developing countries, however, considered the purpose of the conference to be social and economic development. They were concerned about the issues of national sovereignity particularly with regard to control of the exploitation of their natural resources. Ultimately, there was a general consensus that environmental protection was essential to social and economic development and compromises were reached (L.K. Caldwell, Supra).

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1 STARKE : *Introduction to International Law*. 10th edn. pg.15.

2 Article 38 of the Statute of the International Court of Justice.

3 L.K. Caldwell: *International Environmental Policy, Emercence and Dimensions*, Duke University Press (1984)

4 Trail Smelter Arbitration (US v Canada) 3R International Arbitration Wards 1905, 1965 (1938 and 1941.

5 Corfu Channel Case (U.K. v Albania 1949 1C.J. 4, 22].

During the 1970s and early 1980s the conflicting views of the developing and developed countries made it difficult to reach agreement on environmental matters and this impeded the development of environmental law at the international level. Awareness of the global dimension of environmental problems increased during the 1980s. It became apparent that truly international solutions were needed. This awareness is reflected in the current unprecedented degree of international co-operation concerning the environment and the declaration on the human environment, nature and development.

1.2 WORLD DECLARATION ON THE HUMAN ENVIRONMENT AND DEVELOPMENT

States have established international obligations through treaties and other less formal agreements for many centuries. While written treaties are the predominant form of international agreements, it is not a prerequisite to the creation of international obligations. State practice still include less formal means for establishing binding obligations under international law. Some of examples are oral agreement, declarations and communiqués. Declarations are mainly resolution by a diplomatic conference enunciating or confirming some principles or desideratum for observance by all states. It is part of soft law. These include:

1. Declaration of the United Nations on the Human Environment, Stockholm, 1972.
2. World Charter for Nature, Nairobi, 1982.
3. Nairobi Declaration, 1982.
4. Rio Declaration on Environment and Development, Rio de Janeiro, 1992.
5. Washington Declaration on the Protection of the Marine Environment from Land-based Activities, 1995.

1.2.1 DECLARATION OF THE UNITED NATIONS CONFERENCE ON THE HUMAN ENVIRONMENT, STOCKHOLM 1972

The World Community of States proclaimed that man is both creature and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. It further proclaimed that the protection and improvement of the human environment is a major issue which affects the well-being of peoples and economic development throughout the world, and that it is the urgent desire of the peoples of the whole world and the duty of all Governments.

1.2.2 WORLD CHARTER FOR NATURE, 1982

The United Nations General Assembly in its Resolutions No.37/7, adopted the World Charter For Nature, 1982, which proclaims the principles for conservation by which all human conduct affecting nature is to be guided and judged.

1. Nature shall be respected and its essential processes shall not be impaired.

2. The genetic viability on the earth shall not be compromised, the population levels of all life forms, wild and domesticated, must at least be sufficient for their survival, and to this end necessary habitat shall be safe-guarded.

3. All areas of the earth, both land and sea, shall be subject to these principles of conservation, special protection shall be given to unique areas, to representative samples of all the different types of ecosystems and to the habitat of rare or endangered species.

4. Ecosystems and organisms, as well as land, marine and atmospheric resources that are utilized by man, shall be managed to achieve and maintain optimum sustainable productivity, but not in such a way as to endanger the integrity of those other ecosystems or species with which they co-exist.

5. Nature shall be secured against degradation caused by warfare or other hostile activities.

1.2.3 NAIROBI DECLARATION, 1982

The World Community of States assembled in Nairobi, Kenya, from 10th to 18th May, 1982, to commemorate the tenth anniversary of the United Nations Conference on the Human Environment, held in Stockholm in 1972, solemnly re-affirmed its commitment to the Stockholm Declaration and Action Plan. It urged all governments and peoples of the World to discharge their historical responsibility, collectively and individually, to ensure that our planet is passed over to future generations in a condition which guarantee a life in human dignity for all.

1.2.4 RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT, RIO DE JANEIRO 1992

The United Nations Conference on Environment and Development re-affirmed the Declaration of the United Nations Conference on the Human Environment adopted at Stockholm on 16 June, 1972, and sought to build up on it the goal of establishing a new and equitable global partnership through the creation of new levels of co-operation among states, key sectors of societies and the people working towards protecting the integrity of the global environmental and developmental system. The Rio Declaration

proclaims 27 principles on Environment and Development. Relevant to this work is Chapter 19 of Agenda 21 which deals with Sound Management of Toxic Chemicals.

1.2.5 WASHINGTON DECLARATION ON PROTECTION OF THE MARINE ENVIRONMENT FROM LAND BASED ACTIVITIES

The representatives of Governments and the European Commission participating in the Conference held in Washington from 23rd October to 3rd November, 1995:

(a) affirmed the need and will to protect and preserve the marine environment for present and future generations;

(b) re-affirmed the relevant provisions of Chapter 17, 33 and 34 of Agenda 21 and the Rio Declaration on Environment and Development;

(c) recognized the inter-dependence of human populations and the coastal and marine environment, and the growing and serious threat from land-based activities to both human health and well-being and the integrity of coastal and marine eco systems and bio-diversity;

(d) declared their commitment to protect and preserve the marine environment from the impacts of land-based activities.

1.3 DEVELOPMENT AND AGREEMENTS RELEVANT TO THE MANAGEMENT OF TOXIC AND HAZARDOUS CHEMICALS

Since the 1960s, there has been growing international concern about the adverse effects of chemicals at a work-place and as pollutants in the human environment. Consequently, the international community has addressed the issues of health and environmental effects of toxic and hazardous chemicals in a number of fora. A variety of inter-governmental organisations and initiatives has been established to provide assistance to countries with respect to the establishment and implementation of chemicals management schemes and to facilitate international co-operation.

1.3.1 THE 1972 CONFERENCE ON THE HUMAN ENVIRONMENT

The United Nations Conference on the Human Environment, which convened in 1972 in Stockholm, Sweden, provided a major input for international organisations and governments to start developing chemicals management and safety programmes. One important outcome of the conference was the establishment of the United Nations Environment Programme (UNEP) which received the mandate to catalyse and co-ordinate work of the United Nations in the field of the environment. As far as chemicals management is concerned, the Stockholm Conference highlighted the need and importance of assessing the potential risks of chemicals to human health and the environment and recommended that programmes, to be guided by the World Health Organization (WHO), should be undertaken for early-warning and prevention of the harmful effects of environmental contaminants. In the wake of the conference, the WHO accelerated its Environmental Health Criteria Programme and the International Agency for Research on Cancer (IARC) and launched its monograph programme on the evaluation of carcinogenic risks of chemicals in Man.

The Stockholm Conference also highlighted the need for availability of information on chemicals in a form useful to policy makers at the national level. As a result, the International Register of Potentially Toxic Chemicals of UNEP (IRPTC) was established. The IRPTC which is now called UNEP chemicals is the focus for activities undertaken by UNEP to ensure the global sound management of hazardous chemicals. At its inception, IRPTC was requested by governments to facilitate access to existing data on production, distribution, release, disposal and adverse effects of chemicals as well as to provide information about relevant national, regional and global ethics, controls and recommendations.

In 1977, The World Health Organisation Assembly decided that long-term strategies to control and limit the impact of chemicals be addressed at the international level. In order to address challenges related to chemical risks in a more comprehensive way, the International Programme on Chemical Safety (IPCS) was established jointly by UNEP, the International Labour Organisation (ILO) and World Health Organisation (WHO). IPCS was set up to provide international assessment of the risks of chemicals to health and environment and to strengthen capabilities in countries for sound management of chemicals. The majority of IPCS activities are implemented through a central unit, the WHO Programme for the Promotion of Chemical Safety, which is located at WHO Headquarters.

The Swedish Government in 1978 hosted an International Meeting on the control of substances with special regard to Environmental Chemicals. The meeting identifies a few priority areas where work needed to be completed as soon as possible, including the development of consistent data requirements, testing methods and good laboratory practice standards. It was agreed that the Organisation for Economic Co-operation and Development (OECD) was well positioned to carry out many of these tasks, which led to the substantial

expansion of the OECD work on chemicals testing, assessment and management.

As part of development of international environmental law, in 1982, the United Nations set up the Intergovernmental Committee on the Development and Utilization of New and Renewable Sources of Energy.

This was followed in 1983 by the Creation of the World Commission on Environment and Development (Brundtland Commission) by the United Nations. In its work "Our Common Future", (1987), it was argued that sustainable development means global economic development sufficient to meet current needs while allowing future generations to achieve their needs.

1.3.2 THE 1992 CONFERENCE ON ENVIRONMENT AND DEVELOPMENT

In 1992, the United Nations Conference on Environment and Development (UNCED or the Earth Summit) marked an important event towards the goal of achieving sustainable economic development which meets the needs of the present without compromising the needs of future generations. Heads of States or Government from more than 150 member countries of the United Nations adopted AGENDA 21, a comprehensive document outlining responsibilities of States towards the achievement of sustainable development. Agenda 21 recognized the responsibility of different sectors of society to contribute towards the goal of sustainable development including government, industry and the commercial sector, public interest groups, professional bodies, unions, academics and communities. When the recommendations of the Earth summit were adopted by UN General Assembly, a UN Commission on Sustainable Development (CSD) was established to monitor the implementation Agenda 21. In 1977, a special session of the UN General Assembly on the implementation of Agenda 21 was held.

1.3.3 AGENDA 21 AND SOUND MANAGEMENT OF TOXIC AND HAZARDOUS CHEMICALS

Chapter 19 of Agenda 21 is entitled "Environmentally Sound Management of Toxic Chemicals including Prevention of Illegal International Traffic in Toxic and Dangerous Products". It recognises the need for chemicals to meet the social and economic goals of the World Community, and, at the same time, calls for a significant strengthening of both national and international efforts to improve chemical safety. Through Chapter 19 of Agenda 21, all countries present at the "Earth Summit" agreed to the goal of achieving the sound management of chemicals by the year 2000. Chapter 19 called upon the international organisations co-operating in the IPCS to organize an inter-governmental meeting to enhance co-ordination and strengthening of international work on environmentally sound management of chemicals, with the collaboration of chemical safety between UNEP, ILO, and WHO in the IPCS as the nucleus.

Chapter 19 of Agenda 21 includes six programme areas one of which is Programme Area E, which addresses strengthening of national capabilities and capacities for management of chemicals. Specific elements of national programmes for the sound management of chemicals mentioned in Programme Area E include: adequate legislation, information gathering and dissemination; capacity for risk assessment and interpretation, establishment of risk management policy, capacity for implementation and enforcement, capacity for rehabilitation of contaminated sites and poisoned persons, effective education programmes and capacity to respond to emergencies.

1.3.4 ESTABLISHMENT OF THE INTERGOVERNMENTAL FORUM ON CHEMICAL SAFETY (IFCS)

After the "°Earth Summit" the next major step was the organisation of the International Conference on Chemical Safety (ICCS) held in Stockholm in April, 1994. ICCS established the Inter-governmental Forum on Chemical Safety (IFCS) through which countries regularly discuss their activities and priorities for the sound management of chemicals.

In this regard, countries all over the world have recognized, through their endorsement of Agenda 21 Chapter 19 and in the context of various international fora, the importance of the sound management of chemicals as a key component for sustainable development. Achieving sound chemicals management entails a comprehensive approach aimed at reducing risks and preventing adverse impacts throughout all stages of the chemical life cycle from production or import through processing, storage, transportation, distribution, use and disposal. With chemicals touching nearly every aspect of lives, achieving the sound management of chemicals is a process which must involve a wide range of actors including government, industry, public interest groups and individuals. This is because sound management of chemicals aims to protect human health and avoid adverse impacts on the environment. To carry out its work between sessions, IFCS established an Inter-Sessional Group (ISG).

In 1994 Stockholm Conference, as the first meeting of the IFCS, adopted "Priorities for Action" plan to implement the

recommendations for Chapter 19 of Agenda 21. The IFCS priorities for action were endorsed in May, 1994, by the UN Commission on Sustainable Development.

1.3.5 ESTABLISHMENT OF THE INTER-ORGANISATION PROGRAMME FOR THE SOUND MANAGEMENT OF CHEMICALS (IOMC)

At the level of International Organisations, FAO, ILO, UNEP, UNIDO, WHO and OECD established in 1995, the Inter-Organization Programme for Sound Management of Chemicals (IOMC), a co-operative agreement to co-ordinated activities of international organisations in the area of chemicals management. Taking into consideration guidance provided through the IFCS, international organisations will increasingly co-operate towards co-ordinating their programmes in the area of chemicals management and safety. Strengthening of national capabilities and capacities for the sound management of chemicals is one of the priority areas addressed through the IOMC.

1.4 INSTRUMENTS AND CONVENTIONS ON TOXIC AND HAZARDOUS CHEMICALS

The world-wide production and use of certain toxic and hazardous chemicals and international trade in such chemicals involving both North-South and South-South trade, has led to the development of principles, declarations, guidelines, codes international as well as regional instruments to safeguard the global environment that satisfies the present and future needs based on shared responsibilities.

1.4.1 LONDON GUIDELINES FOR THE EXCHANGE OF INFORMATION ON CHEMICALS IN INTERNATIONAL TRADE

International trade in chemicals is constantly expanding. The London Guidelines for the Exchange of Information on Chemicals in International Trade are intended to assist states by enhancing the sound management of chemicals through the exchange of scientific, technical, economic and legal information. They provide a framework for procedures for the effective use of information on chemicals particularly in the developing countries. There are special provisions for exchange of information on banned or severely restricted chemicals in international trade, which call for co-operation between exporting and importing states in the light of their joint responsibility for the protection of human health and environment at the global level. The guidelines encourage future national legislation and bilateral regional and multi-lateral instruments for the exchange of information on chemicals.

Implementation of the Guidelines are highly recommended to all States, for they help States to avoid serious and costly health and environmental problems due to ignorance about the risks associated with the use of chemicals, particularly those that have been banned or severely restricted by other states.

The Guidelines are based on the following principles:

- Prior informed consent (PIC) refers to the principle that international shipment of a chemical that is banned or severely restricted in order to protect human health or the environment, should not proceed without the agreement or contrary to the decision of the designated national authority in the importing country.

- Importing and exporting states should protect human health and the environment against potential harm by exchanging information on chemicals in international trade.

- States relating chemicals to protect human and animal health, plant life, or the environment, should ensure that regulations and standards do not create unnecessary obstacles to international trade, and the control measures or actions are not more restrictive than those applied to the same chemical produced for domestic use or imported from other states.

- States with more advanced systems for the safe management of chemicals should share their experience with those states in need of improved systems.

- States should, as appropriate, strengthen infrastructures and institutions by establishing and strengthening legislative and regulatory systems and other mechanisms for improving control and management of chemicals, creating national register of toxic chemicals, including industrial chemicals and pesticides, and preparing and up-dating manuals, directories and documentation for better utilisation of facilities.

1.4.2 UNITED NATIONS FOOD AND AGRICULTURE ORGANIZATION (FAO INTERNATIONAL CODE OF CONDUCT ON THE DISTRIBUTION AND USE OF PESTICIDES

This instrument was adopted in 1985, and was amended to include Prior Informed Consent in 1989.

1.4.3 CODE OF ETHICS ON THE INTERNATIONAL TRADE IN CHEMICALS, UNEP, MAY 1987

To ensure the full attainment of the objectives set out in the London Guidelines as amended, UNEP prepared a **Code of Ethics on the International Trade in Chemicals** (Adopted by the Governing Council of UNEP in May 1987) to complement the London Guidelines.

- The code is targeted for Governments to guide the industry and private sector in enhancing safety in international trade in chemicals, setting out principles and guidance for governing standards of conduct for the promotion of environmentally sound management of chemicals in international trade.

- The Code takes into account the entire life cycle of chemical production, transport, use and disposal and has been developed for the purpose of reducing health and environmental risks.

The code is intended to:

- encourage responsible and generally accepted trade practices;

- assist countries which have not yet established regulation of the quality and suitability of pesticides products for their safe handling and use;

- promote practices which encourage the safe and efficient use of pesticides, including minimizing adverse effects on humans and environment and preventing accidental poisoning from improper handling;

- ensure that pesticides are used effectively for the improvement of agricultural production and of human, animal and plant health. The code also provides for management of pesticides, pesticide testing, reduction of health hazards, distribution and trade.

1.4.4 INTERNATIONAL LABOUR ORGANIZATION CONVENTION CONCERNING SAFETY IN THE USE OF CHEMICALS AT WORK, 1990

The majority of chemicals, synthetic and natural, have the potential to cause adverse effects on human health, on organisms in the environment, and on ecosystems. Many chemicals are produced and used and formulated by industry. Application of chemical safety at source in the work-place is extremely important.

This Convention is intended to protect workers from the harmful effects of chemicals and enhance the protection of the general public and the environment.

The Convention applies to all branches of economic activity in which chemicals are used, but not to articles which will not expose workers to hazardous chemicals under normal condition of use, nor to organisms, although it does apply to chemicals derived from organisms.

The Convention deals with classification, labelling and marking, chemical safety data sheet, responsibilities of suppliers and employers and responsibility of exporting states.

1.4.5 INTERNATIONAL LABOUR ORGANIZATION CONVENTION CONCERNING PREVENTION OF MAJOR INDUSTRIAL ACCIDENTS, 1993

The Convention applies to major hazard installations but not to nuclear and radioactive substance processing plants, military installations, or transport other than by pipe-line.

The Convention is based on general principles that:

- States in consultation with representative organization of employers, workers and other interested parties, must formulate, implement and periodically review a coherent policy for the protection of workers, the public and the environment against the risk of major accidents.

- Implementation of policies is through preventive and protective measures and promotion of the best available technologies.

- Competent authorities should establish a system for identification of major hazard installations.

1.4.6 THE 1985 VIENNA CONVENTION FOR THE PROTECTION OF THE OZONE LAYER AND THE 1987 MONTREAL PROTOCOL ON SUBSTANCES THAT DEPLETE THE OZONE LAYER

The ozone layer is a belt of ozone 30-50 km above the earth's surface. The layer is normally thickest above the north and south poles and thinnest over the equator, but it has decreased in density in recent years and holes have appeared above the poles. The layer is biologically important because it filters solar ultra-violet radiation which is harmful to living organisms.

The ozone layer results from photolytic dissociation of oxygen O_2 into O radicals with subsequent combination of oxygen and radical to form O_3 - that is, $O_2 + O \rightarrow O_3$); however O_3 can be broken down again by other molecules, particularly those containing halogens. World-wide emission of certain substances significantly deplete and modify the ozone layer. It is on the basis of this scientific fact that the Convention is based on the following principles:

- Appropriate measures are needed to protect the human health and the environment against adverse effects resulting from human activities which modify the ozone layer.

- The measures taken to protect the ozone layer from depletion must be based on a relevant scientific knowledge, and must be equitable, taking into account technical and economic considerations.

1.4.7 *BASEL CONVENTION ON THE CONTROL OF TRANSBOUNDARY MOVEMENTS OF HAZARDOUS WASTES AND THEIR DISPOSAL, 1989*

In response to the growing concern regarding international hazardous wastes trade, the UN adopted the Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal (Adopted on 11 March, 1989, and came into force on 5 May, 1992) which comprises measures to reduce and strictly control the movements of hazardous wastes, reduce generation, ensure that such wastes are disposed of in an environmentally sound manner, and protect the global environment from the possible harmful effects on movements and disposal of hazardous wastes.

The objectives of the Convention are as follows:

- A reduction of quantity and hazard potential of wastes generated.

- The disposal of wastes at the *locus* of generation should be environmentally sound.

- The use of clean production technologies and sound wastes management practices.

- The evaluation elimination of hazardous wastes

- The safe transportation of wastes where such transportation is necessary.

- Place responsibility for the disposal and consequences thereof upon the generator.

- Preserve the sovereignty of states to completely ban the import of wastes

The Convention does not address radio-active wastes; excludes from its scope wastes derived from the normal operation of ships (Article 1 Para 4). The Convention include the concept of Prior Informed Consent (PIC) whereby a generator or exporter must notify the state of import of any proposed consignment of waste prior to commencement of the shipment (Article 6 Para 1-3).

1.4.8 *THE BAMAKO CONVENTION ON THE BAN OF THE IMPORT INTO AFRICA AND THE CONTROL OF TRANSBOUNDARY MOVEMENTS OF HAZARDOUS WASTES WITHIN AFRICA*

Developing countries, the Organization of African Unity (OAU) in particular, expressed concern that the Basel Convention does not in principle ban the Trans-boundary movements of hazardous and other wastes and that, although the Convention provided for waste movement control mechanism, a total ban was necessary, since such controls could be circumvented due to lack of competent administrators and administrative agencies to make use of the control system and thus illegal practices will continue.

In consequence thereof, the OAU adopted the Bamako Convention which creates a total ban on the importation of all hazardous wastes in Africa.

The Convention provides for a complete prohibition on the import of hazardous waste in that if a waste appears on the list of categories of wastes to be regulated in Annex-I or has hazardous characteristics listed in Annex-II an import permit would not be issued under the Convention (Article 2 para 1(a)).

The Convention eliminates the need for a special category of waste (Article 2) by creating a much broader scope of wastes to be regulated and a broader definition of hazardous wastes, which is defined as any waste or substance that has been banned, cancelled, refused registration, or voluntarily withdrawn from registration in the country of manufacture [Article 2 Para 1(d)].

The Convention addresses radio-active waste (Article 2 Para 2) and excludes from its scope waste derived from normal operation of ships (Article 2 Para 3). It, however, prohibits vessels flying the flag or aircraft registered in the territory of a party from carrying out activities such as dumping on the High Seas that are in contravention of the Convention (Article 11, para 3).

The Convention creates a total ban on the import of hazardous wastes into Africa for any reason from non-Parties (Article 4, para 1) and enacts a limited ban on the Intra-Africa transfer and export of wastes (Article 4, para 1, 3(n)(i)(ii).

The Convention requires the Parties to implement the Convention by enacting relevant national laws, regulations and administrative procedures Article 4, para 4(o) and impose additional requirements that serve to further protect human health and the environment if they are consistent with the provisions of the Convention and International Law (Article 3, para 1).

The Convention includes the concept of the Prior Informed Consent (PIC) procedure, whereby a generator or exporter must notify the State of import of any shipment of waste prior to commencement of the shipment. (Article 6 Para 1-3).

The Convention requires the Parties to adopt the appropriate national legislation to prevent and punish illegal traffic (Article 9, para 2) and makes illegal traffic a criminal offence and requires penalties to be sufficiently high so as to deter and punish conduct resulting in illegal traffic.

1.5 PARTICIPATION OF TANZANIA IN INTERNATIONAL AGREEMENTS/ PROCEDURE RELATED TO CHEMICALS MANAGEMENT

Tanzania imports Agro-chemicals, industrial and consumer chemicals, but the present infrastructure for controlling the import or export, for transporting, storing, distribution, use and disposal of chemicals is not adequate, therefore, the threat to human health and the environment is real.

In a move to give the concept of sustainable development the highest priority, [the third phase] Government decided to strengthen the Department of Environment and place it under the Office of the Vice President. This is a deliberate move intended to strengthen national capabilities to implement both national and international policies/agreements.

Tanzania is a member of various international organisations on the environment including UNEP, WHO, FAO, IMO, ILO, among others, and it is a Party to and Member of several international instruments and conventions.

1.5.1 INTERGOVERNMENTAL FORUM ON CHEMICAL SAFETY (IFCS)

This is under the agency and National Focal Point of the Chief Inspector, Factories Inspectorate Ministry of Labour and Youth Development.

1.5.2 INTERNATIONAL REGISTER OF POTENTIALLY TOXIC CHEMICAL (IRPTC)

This is under the agency and Primary Contact of the Chief Government Chemist - Ministry of Health and other Ministries such as Ministry of Agriculture (TPRI), Vice President's Office, Ministry of Energy and Minerals and the National Environment Management Council. Activities which are related to this include: implementation of the London Guidelines on the Exchange of Information on International Trade in Chemicals - information exchange on chemicals management, and provision of reference materials which include:

- implementation of the PIC programme;
- establishment of a National Register of Potentially Toxic Chemicals; and,
- capacity-building in chemicals management programmes in cleaner production practices.

1.5.3 INTERNATIONAL PROGRAMME ON CHEMICAL SAFETY (IPCS)

This is under the Permanent Secretary, Ministry of Health as the primary contact. The Ministry of Labour and Youth Development, the Vice President's Office and the National Environment Management Council are also concerned with IPCS.

1.5.4 UNEP LONDON GUIDELINES FOR THE EXCHANGE OF INFORMATION ON CHEMICALS IN INTERNATIONAL TRADE

This is under the Chief Government Chemist (the Designated National Authority (DNA), Ministry of Health.

Relevant national implementation activities include establishment of PIC procedure in Tanzania and development of National Import Policy on some PIC chemicals (Industrial and Consumer Chemicals).

1.5.5 MONTREAL PROTOCOL

This is under the Vice President's Office, Division of Environment, Other responsible institutions are the National Environment Management Council, Ministry of Industries and Commerce and Ministry of Agriculture and Co-operatives.

The relevant national implementation activities include the following:

(i) Provide policy advice on any necessary administrative or legislative action in support of the country programme

to phase out ODS and assist in its formulation, compile and disseminate information to the public on ozone related issues and development and implementation of public awareness programmes.

(ii) Formulate and support the detailed phase out actions identified in the country programme.

1.5.6 ILO CONVENTIONS

These are generally under the Factories Inspectorate of the Ministry of Labour and Youth Development. The national implementation activities include awareness raising and education during routine inspection of workplaces, labelling of dangerous substances for public safety, among others.

1.5.7 BASEL AND BAMAKO CONVENTIONS

The two conventions are under the Office of the Vice President, Division of Environment. Other relevant institutions or Ministries are the National Environment Management Council, Ministry of Health, Industry and Commerce, Lands and Urban Settlements, and Local Government.

Relevant national implementation activities include: to undertake inventory of hazardous wastes, promote integration of cleaner production approaches and hazardous waste minimization in all planning and adoption of specific goals, encourage industries to treat waste, recycle, re-use and dispose of wastes at the source of generation and promote responsible entrepreneurship.

1.5.8 IMO CONVENTIONS

These are primarily under the Ministry of Communications and Transport and the National Environment Management Council. Relevant national implementation activities includes establishment of marine contingency plans, among other related activities.

CHAPTER TWO

THE PROBLEM OF TOXIC AND HAZARDOUS CHEMICALS IN TANZANIA

The majority of chemicals, synthetic and natural, have the potential to cause adverse effects on human health and on ecosystems. Table 2.1 shows the nature of the problem and related areas. Table 2.2 illustrates concerns related to these chemicals.

TABLE 2.1: DESCRIPTION OF PROBLEM AREAS, RELATED TO PESTICIDES AND INDUSTRIAL CHEMICALS

2.1 (a) Pesticides

Nature of Problem	City/Region	Brief Description of Problem	Chemicals(s) Pollutants(s)
Pollution of inland water-ways and water bodies	Country-wide	- Use and excess use of pesticides. - Use of restricted chemicals. - Loss during formulation. - Use of pesticide in illegal fishing. - Direct discharge of chemicals and chemical wastes into water bodies.	1. Cymbush 2.5 ULV (Cypermethrin). 2. Dusban 2E (Cyhalthrin). 3. Karate 2ED (Lambda Cyhalothrin). 4. Ripcord 1.8 ULV (Cypemethrin). 5. Salafrotin 50 EC (Propetanphos). 6. Sumicidin 3% ULV (Fenvalerate). 7. Thiodan (Endosulfan). 8. Restricted chemicals such as Dieldrin, Ethylene Dibromide and DDT and Disbromide are still in use. 9. Others which are used in small quantities. 10. Organophosphates. 11. Amine. 12. Poisonous metal all chemicals used in research and laboratories.
Marine Pollution	Country-wide	- Major water-ways discharge in ocean. - Use of pesticides in illegal fishing	same as above
Soil contamination	Country-wide	- During formulation/production. - During transportation. - During application. - Disposal of excess and/or obsolete chemicals. - Pesticide residues. - Purification and Processing.	same as above plus mercury in small mining areas
Ground pollution	Country-wide	Infiltration of contaminated water.	same as above
Drinking water	Country-wide	- Most waterways and water bodies are sources of drinking water. - No water treatment in villages where the majority live and inadequate treatment in towns. - Extent of drinking water pollution is not known.	same as above

Nature of Problem	City/Region	Brief Description of Problem	Chemicals(s) Pollutants(s)
Occupational Health: Agriculture	Country-wide	- Lack of awareness of the potential dangers of chemicals. - Lack of knowledge on proper storage facilities, handling, use and disposal of chemicals. - Lack of storage facilities. - Lack of information. - Lack of safety gear.	same as above
Air Pollution	Regions growing wheat and rice	- Aerial spraying of pesticides. - Formulation/production	same as above
Pesticide residue in food	Country-wide	- Improper post harvest handling. - Extent of food contamination not known. - Illegal fishing.	same as above
Hazardous waste treatment/disposal	Country-wide	- Lack of proper disposal facilities. - Lack of policy/guidelines/legislation on hazardous waste disposal. - Lack of awareness	same as above
Storage disposal of obsolete pesticides	Country-wide	- Importation of more pesticides than needed. - Importation of cheap, sometimes expired chemicals. - Obsolete and/or expired gifts. - Inadequate logistics on distribution of pesticides. - Lack of statistics on demand. - Lack of proper authorisation of dealers in pesticides. - Improper storage facilities. - Lack of guidelines on chemical storage.	same as above plus DNOC
Unknown pesticides	Country-wide	- Pesticides varieties are too many and thus, difficult to monitor/ control. - Pesticides of unknown composition/properties. - Locally re-packed pesticides. - Lack of quality control/ guidelines on packaging. - Trade names disguising the health and environmental impact of the chemical. - Weak monitoring.	same as above
Pesticide poisoning	Country-wide	- Poor storage and handling of chemicals hence easy access. - Use of pesticides in illegal fishing. - Lack of guidance on appropriate concentrations for application. - Non-availability/use of safety gear. - Use of pesticides containers to store foods and drinks. - Ignorance and lack of awareness.	same as above
Use of persistent organic pesticides	Country-wide	- Inadequate control of restricted products. - Use of restricted and banned pesticides.	(1) Dieldrin (2) Ethlene Dibromide (3) DDT

Nature of Problem	City/Region	Brief Description of Problem	Chemicals(s) Pollutants(s)
Threat to public health	Country-wide	- Through ground water pollution. - Through drinking water contamination. - Through food contamination. - Through soil contamination. - Through air pollution. - Through occupation.	all chemicals listed above plus lead and mercury.

TABLE 2.1: DESCRIPTION OF PROBLEM AREAS, RELATED TO PESTICIDES AND INDUSTRIAL CHEMICALS

2.1 (b) Industrial Chemicals

Nature of Problem	City/Region	Brief Description of Problem	Chemicals(s) Pollutants(s)
Pollution of inland water-ways and water bodies	Most urban centres such as Dar es Salaam, Arusha, Mwanza, Mbeya, Morogoro and Moshi	- Discharge of untreated or semi-treated effluents. - Spillage of chemicals. - Use of dynamite in illegal fishing. - Poor storage. - Improper disposal of chemicals. - Improper discharge of wastes oils from vehicles.	1. Acid and acid substances. 2. Alkaline and alkaline substances. 3. Solvents 4. Petroleum products 5. Non-metallic inorganic solution. 6. Explosives 7. Metallic inorganic salts and solutions. 8. Pharmaceuticals. 9. Food additives 10. Radioactive substances. 11. Heavy metals. 12. PCBs.
Marine pollution	same as above	- Major waterways and water bodies discharge into ocean. - Improper discharge of oily waters from vehicles. - Use of dynamite in fishing.	same as above
Soil contamination	same as above	- During formulation - During production, distribution and use. - Disposal of excess and/or obsolete chemicals. - Contaminated waste waters. - Particulate matters (contaminated with noxious substances such as lead) from vehicles.	same as above
Ground water pollution	same as above	- Infiltration of contaminated water.	same as above
Drinking water	same as above	- Most water-ways and water bodies are the sources of drinking water. - No waste water treatment facilities in most industries. - Poor location of industries (i.e., not following master plans, not separating industries). - Extent of drinking water pollution is not known.	same as above

Nature of Problem	City/Region	Brief Description of Problem	Chemicals(s) Pollutants(s)
Occupational health: Industrial	same as above	- Lack of awareness among shopfloor workers on the potential dangers of chemicals. - Lack of knowledge on proper handling, use and disposal of chemicals. - Inadequate safety gear. - Non-enforcement of safe operation by management.	same as above
Air pollution	same as above	- Through smoke stacks - Car exhaust - Refrigeration and air conditioning servicing workshops - Dumpsites - Garage spraying paint - Cleaning facilities - Exhaust from production processes. - Recovery of gold from amalgam-mercury.	Lead, phosphorous, particulate, CFCs, Cox, Sox, disinfectants, detergents chemicals.
Chemical residue in food	same as above	- Contamination of vegetables by car exhaust. - Use of waste-water for irrigating. - Urban agriculture in general. - Veterinary medicaments to animals. - Unknown extent of contamination.	Lead, Nitrates, ammonium, veterinary drugs.
Hazardous waste treatment/disposal	same as above	- Lack of disposal facilities. - Lack of policy/ guidelines/ legislation on hazardous waste disposal. - Lack of awareness.	All chemicals and chemical wastes.
Storage disposal of obsolete chemicals	same as above	- Importation of more chemicals than needed. - Importation of banned chemicals. - Importation of cheap sometimes expired chemicals. - Importation of low quality chemicals.	Industrial and consumer chemicals.
Unknown chemicals	same as above	- Lack of competent personnel. - Lack of knowledge on environmental impacts of particular chemicals.	same as above
Chemical poisoning	same as above	- Poor storage and handling of chemicals therefore easy access. - Lack of guidance on appropriate use. - Non-availability/use of safety gear.	same as above
Use of persistent organic pollutant	same as above	- Inadequate regulations/control of restricted products.	Solvents, PCBs and petroleum lead.
Public Health	Country-wide	Through ground-water pollution. Through drinking water contamination. Through food contamination. Through soil contamination. Through air pollution.	same as above.

TABLE 2.2: PRIORITY CONCERNS RELATED TO CHEMICALS, RELATED TO PESTICIDES AND INDUSTRIAL CHEMICALS

2.2 (a) Pesticides

Nature of Problem	Scale of Problem	Level of Concern	Ability to Control Problem	Availability of Statistical Data	Specific Chemicals Creating Concerns	Priority Ranking
Air Pollution	National	Medium	Low	Insufficient	-	3
Pollution of Inland Water-ways and water bodies	National	High	Low	Insufficient	Aerosols as above	1
Marine Pollution	Regional	Medium	Low	Insufficient	Chemicals listed under Table 3.s	3
Ground-water Pollution	National	High	Low	Insufficient	same as above	1
Soil Contamination	National	High	Low	Insufficient	same as above	1
Pesticides residues in Food	National	High	Low	Insufficient	same as above	1
Drinking Water Contamination	National	High	Low	Insufficient	same as above	1
Hazardous Waste Treatment/Disposal	Regional	High	Low	Insufficient	same as above	1
Occupational Health: Agriculture	National	High	Low	Insufficient	same as above	1
Public Health	National	High	Low	Insufficient	same as above	1
Pesticides Accidents: Transport	National	Medium	Medium	Insufficient	same as above	3
Unknown Pesticides Imports	National	Low	Medium	Insufficient	same as above	4
Storage/Disposal of Obsolete Pesticides	National	High	Low	Insufficient	same as above	1
Pesticides Poisoning/Suicide	National	High	Low	Insufficient	same as above	1
Persistent Organic Pesticides	National	High	Medium	Insufficient	same as above	1
Others						

Industrial Chemicals

Nature of Problem	Scale of Problem	Level of Concern	Ability to Control Problem	Availability of Statistical Data	Specific Chemicals Creating Concerns	Priority Ranking
Air Pollution	Regional	Medium	Medium	Insufficient	Chemicals listed under Table 3.a	3

Nature of Problem	Scale of Problem	Level of Concern	Ability to Control Problem	Availability of Statistical Data	Specific Chemicals Creating Concerns	Priority Ranking
Pollution of Inland Water-ways	Regional	Medium	Medium	Insufficient	same as above	3
Marine Pollution	Regional	Medium	Medium	Insufficient	same as above	3
Ground-water Pollution	Regional	Medium	Medium	Insufficient	same as above	3
Soil Contamination	Local	Medium	Medium	Insufficient	same as above	3
Chemical Residues in Food	National	Medium	Medium	Insufficient	same as above	3
Drinking Water Contamination	National	Medium	Medium	Insufficient	same as above	2
Hazardous Waste Treatment/Disposal	Regional	High	Low	Insufficient	same as above	1
Occupational Health: Industrial	Local	High	Low	Insufficient	same as above	1
Public Health	Regional	Medium	Low	Insufficient	same as above	3
Chemical Accidents: Transport	Local	Medium	Low	Insufficient	same as above	3
Unknown Chemical Imports	National	Medium	Medium	Insufficient	same as above	4
Storage/ Disposal of Obsolete Chemicals	National	Medium	Medium	Insufficient	same as above	3
Chemical Poisoning/Suicides	Local	Medium	Low	Insufficient	same as above	3
Persistent Organic Pollutants	Regional	Medium	Medium	Insufficient	same as above	3
Others						

OBSERVATIONS:

It can generally be observed that the available information is not sufficient to accurately assess the magnitude of the problem of chemicals management in Tanzania. This is because:

(i) there is no data on actual needs and actual supply;
(ii) there is no inventory of chemicals;
(iii) there is no information on stocks levels;
(iv) there is no information on disposal of chemicals wastes; and,
(v) There is no register of importers and distributors of chemicals.

CHAPTER THREE

CLASSIFICATION OF TOXIC AND HAZARDOUS CHEMICALS IN ACCORDANCE WITH THEIR TOXICITY AND HAZARDOUS THEY PRESENT TO THE ENVIRONMENT WITH SPECIAL EMPHASIS ON HUMAN HEALTH

3.1 CLASSIFICATION OF CHEMICALS

Once a chemical or mixture has been evaluated with regard to its hazard, it can be classified with similar chemicals for easier management. Creation of a classification scheme requires government action and begins with the designation of specific hazards. These include explosive, oxidizing, extremely flammable, highly flammable, very toxic, harmful, corrosive, irritant, dangerous to the environment, carcinogenic, teratogenic and mutagenic. Other hazards that could be included are: persistence, bio-accumulation and non-biodegradability. (Legislating Chemicals: An Overview, UNEP, 1995; pg.44).

The criteria for classifying chemicals is based on the intrinsic health and physical hazards that a chemical would have to human beings.

Tanzania's chemical needs are met through import, and this requires manufactures to provide chemicals identities, properties assessment and classification of chemicals they produce. In order to conform to the International Standards, chemicals classification in Tanzania is based on an internationally set standards as hereunder provided.

(i) Hazards Classifications based on the storage compatibility of chemicals in order to minimize storage dangers (Table IIIA).

(ii) Classification system limited to pesticides only. Tanzania has adopted a classification system based on the WHO Recommended Classification of Pesticides by hazards which classifies pesticides by degree of toxicity depending on how a pesticide pose acute risks to health. (Table IIIB).

(iii) Classification based on the International Transport Rules like the United Nations Recommendations on the Transport for Dangerous Goods (Table IIIC).

TABLE 3.1(A): HAZARDOUS CLASSIFICATION OF CHEMICALS BASED ON THE STORAGE COMPATIBILITY

HAZARD	POTENTIAL HAZARD	HAZARD TO HUMAN HEALTH
01 Dangerous	Contains Hazardous Materials	
05 Irritant		Gas very irritating if inhaled. May cause extreme burning of the eyes resulting in a copious flow of tears. May also cause coughing, difficulty in breathing, and nausea. Effect may be serious if exposed to product in an enclosed/unventilated area.
11 Explosives C	Fire: May burn very rapidly. Explosion: Individual items may explode when subjected to heat or fire.	Fire may produce irritating gases.
15 Explosives B	Fire: May burn very rapidly. Fire very difficult to extinquish by conventional methods.	

HAZARD	POTENTIAL HAZARD	HAZARD TO HUMAN HEALTH
19 Explosives A	Explosion: May detonate violently if subjected to heat, flame or shock. Probability of explosion increases when heated.	
20 Non flammable gas	Fire: Some materials in this group cannot catch fire, others can but do not ignite readily. Heated container may rupture violently and produce flying missiles.	Gas very irritating if inhaled, contact with materials may cause severe burns to skin and eyes.
21		
22 Oxygen	Fire: Materials that do not burn in air may be ignite in oxygen vapour. Reaction with fuel may be violent. Explosion: Mixtures with fuels may explode. Vapour entering sewers or other closed spaces may create explosion hazard.	Content with liquid or cold gas may cause severe skin and eye injury similar to a burn.
23 Flammable gas	Fire: May be ignited by heat, sparks or open flames. Ignition of vapour may occur at some distance from leaking container. Heated container may rupture violently and produce flying missiles. Vapour entering sewers or other closed spaces may create fire or explosion hazard. Explosion: May form explosive mixture, with air.	Vapours may cause dizziness or suffocation if inhaled.
24 Flammable gas, corrosive	Fire: May be ignited by heat, sparks, or open flames. Ignition of vapour may occur at some distance from leaking container. Heated container may rupture violently and produce flying missiles. Vapour entering sewers or other closed spaces may create fire or explosion hazard. Explosion: May form explosive mixtures with air.	Gas very irritating if inhaled. Contact with material may cause severe burns to skin and eyes.
26 Non flammable gas, poison	Fire: Heated container may rupture violently and produce flying missiles. Some materials in this group cannot catch fire, other can but do not ignite readily.	Vapour is poisonous, can be fatal if inhaled in high concentrations. Contact with material may cause severe burns to skin and eyes. Contaminated water or material run off may pollute water supply.
27 Oxidizer, poison	Fire: May cause fire on contact with combustion. Reaction with combustibles. Vapour entering sewers or other closed spaces may create fire or explosion hazard. Heated container may rupture violently and produce flying missiles. Explosion: Mixture with fuels may explode.	Vapour is poisonous, can be fatal if inhaled in high concentrations: Contact with material may cause severe burns to skin and eyes. Contaminated water or material run-off may pollute water supply.
28 Flammable gas, poison.	Fire: May be ignited by heat, sparks or open flames. Ignition of vapour may occur at some distance from leaking container. Heated container may rupture violently and produce flying missiles. Vapour entering sewers or other closed spaces may create fire, explosion or poison hazard. Explosion: May form explosive mixture with air.	Vapour is poisonous, can be fatal if inhaled in high concentrations: Contact with material may cause severe burns to skin and eyes. Contaminated water or material may pollute water supply.
29 Flammable gas, poison, extremely hazardous.	Fire: Some gases in this group are easily ignited by heat, sparks or open flames, others can catch fire but do not ignite readily or may react violently with combustibles. Heated container may rupture violently and produce flying missiles. Vapour entering sewers or closed spaces may create poison, explosion, or fire hazard.	Vapour very poisonous. Breathing of vapour causes little irritation. Fatal concentrations can be readily inhaled without noticing. Run-off may pollute water supply.

HAZARD	POTENTIAL HAZARD	HAZARD TO HUMAN HEALTH
30 Combustible or Flammable liquid	Fire: May be ignited by heat or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapour may occur at some distance from leaking container. Vapour entering sewer or other closed spaces may cause an explosion hazard.	Fire may produce irritating gases. Vapour may cause dizziness or suffocation if inhaled.
31 Flammable liquids, corrosive	Fire: May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapour may occur at some distance from leaking container. Vapour entering sewers or other closed spaces may create fire explosion hazards.	Fire may produce irritating gases. Vapour may be irritating, if inhaled. Contact with material may cause severe burns to skin and eyes. Contaminated water or material run off may pollute water supply.
32 Flammable liquid, poison	Fire: May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapour may occur at some distance from leaking container. Vapour entering sewers or other closed spaces may create a fire or explosion hazard.	Vapour is poisonous if inhaled. Contact with material may cause severe burns to skin and eyes. Liquid may cause death, if consumed. Run-off may pollute water supply.
34 Flammable liquid, self reactive or thermally unstable	Fire: May be ignited by heat, sparks or open flames. Ignition of vapour may occur at some distance from leaking container. Heated container may rupture violently and produce flying missiles even if water is applied for cooling. Vapour entering sewers or other closed spaces may create fire or explosion hazard.	Contact with material may cause severe burns to skin and eyes. Fire may produce poisonous gases. Contaminated water or material run-off may pollute water supply.
35 Flammable liquid, corrosive, self-reactive or thermally unstable.	Fire: May be ignited by heat, sparks or open flames. Ignition of vapour may occur at some distance from leaking container. Heated container may rupture violently and produce flying missiles even if water is applied for cooking. Vapour entering sewers or other closed spaces may create fire or explosion hazard.	Contact with material may cause severe burns to skin and eyes. Fire may produce poisonous gases. Contaminated water or material run-off may pollute water supply.
36 Flammable liquid, poison, self-reactive or thermally unstable.	Fire: May be ignited by heat, sparks or open flame. Ignition of vapour may occur at some distance from leaking container. Heated container may rupture violently and produce flying missiles even if water is applied for cooling. Vapour entering sewer or other closed spaces may create fire or explosion hazard.	Vapour is poisonous, if breathed. Liquid or solid may cause death, if consumed. Fire may produce poisonous gases. Contact with material may cause severe burns to skin and eyes. Contaminated water or material run-off may pollute water supply.
38 Pyrophoric liquid	Fire: Burns very rapidly and intensely, sometimes with flareburning effect.	Contact with material may cause severe burns to skin or eyes.
40 Flammable solid	Fire: Burns very rapidly and intensely, sometimes with flare burning effect. May be ignited by heat, sparks or open flame.	Contact with material may cause severe burns to skin and eyes.
41 Flammable solid, poison.	Fire: Burns very rapidly and intensely, sometimes with flare burning effect.	Vapour, mist, or dust is poisonous, if breathed. Contact with material may cause severe burns. Fire may produce poisonous gases
Flammable solid, Pyrophoric.	Fire: May catch fire spontaneously in air. May re-ignite after fire is extinguished.	Materials have little health hazard. Contact with material may cause severe burns to skin and eyes.

HAZARD	POTENTIAL HAZARD	HAZARD TO HUMAN HEALTH
42 Flammable solid, Pyrophoric poison.	Fire: May catch fire spontaneously in air. May re-ignite after fire is extinguished.	Vapour, mist or dust is poisonous, if breathed. Contact with material may cause severe burns. Fire may produce poisonous gases.
43 Flammable solid, water reactive.	Fire: Burns very rapidly and intensely, sometimes with flare burning effects. May catch fire spontaneously in air. May react with water to release flammable gas.	Contact with material may cause severe burns.
44 Flammable solid, poison, water reactive.	Fire: Burns very rapidly and intensely, sometimes with flare burning effect. May catch fire spontaneously in air. May react with water to release flammable gas.	Vapour, mist or dust is poisonous, can be fatal if inhaled in high concentrations. Contact with material may cause severe burns. Fire may produce poisonous gases.
46 Flammable solid, Pyrophoric, water reactive.	Fire: May catch fire spontaneously in air. May react with water to release flammable gas. May re-gnite after fire is extinguished. Burns very rapidly and intensely, sometimes with flare burning effect.	Contact with material may cause severe burns.
47 Flammable solid, Pyrophoric, poison, water reactive.	Fire: May catch fire spontaneously in air. May react with water to release flammable gas. May re-gnite after fire is extinguished. Burns very rapidly and intensely, sometimes with flare-burning effects.	Vapour, mist or dust is poisonous, can be fatal if inhaled in high concentrations. Contact with material may cause severe burns. Fire may produce poison gases.
50 Oxidizer	Fire: May cause fire and react violently on contact with combustibles. Reaction with fuels may be violent. Explosion: Mixture with fuels may explode.	Fire may produce poisonous gases.
51 Oxidizer, corrosive.	Fire: May cause fire and reacts violently on contact with combustibles. Reactions with fuels may explode. Explosion: Mixture with fuels may explode.	Contact with material may cause severe burns to skin and eyes. Fire may produce poisonous gas.
53 Oxidizer, poison, corrosive.	Fire: May cause fire and reacts violently on contact with combustibles. Reaction with fuels may be violent. Explosion: Mixture with fuels may explode.	If inhaled, may be fatal. Contact with material may cause burns to skin and eyes. Run-off may pollute water supply.
54 Oxidizer, self-reactive, thermally unstable.	Fire: May cause fire and react violently on contact with combustibles. Reaction with fuels may be violent. Heated container may rupture violently and produce flying missiles. Explosion: Mixture with fuels may explode.	Contact with material may cause severe burns to skin and eyes. Fire may produce poisonous gases.
55 Oxidizer, corrosive, self-reactive, thermally unstable.	Fire: May cause fire and react violently on contact with combustibles. Reaction with fuels may be violent. Heated container may rupture violently and produce flying missiles. Run-off to sewer may create fire or explosion hazard. Explosion: Mixture with fuels may explode. Decomposition with explosive violence may be caused by friction, shock, heat or contamination.	Contact with material may cause severe burns to skin and eyes.
56 Oxidizer, poison, self-reactive or thermally, unstable	Fire: May cause fire and react violently on contact with combustibles. Reaction with fuels may be violent. Heated container may rupture violently and produce flying missiles. Explosion: Mixture with fuels may explode. Decomposition with explosive violence may be caused by friction, shock, heat, or contamination.	Vapour, mist, or dust is poisonous, can be fatal if inhaled in high concentrations. Contact with material may cause severe burns to skin and eyes. Run off to sewer may create poison hazard.

HAZARD	POTENTIAL HAZARD	HAZARD TO HUMAN HEALTH
57 Organic peroxide	Fire: May be ignited by heat, sparks, or open flame. May cause fire in contact with combustibles. Reaction with fuels may be violent. Heated container may rupture violently and produce flying missiles even if water is applied for cooling. Explosion: Decomposition with explosive violence may be caused by friction, shock, heat or contamination.	Contact with material may cause severe burns to skin and eyes.
58 Organic peroxides, highly sensitive, needs refrigeration.	Fire: Auto ignition may occur. May be ignited by heat, sparks, or open flames. Burns very rapidly and intensely, sometimes with flare burning effect. May cause fire on contact with combustibles. Heated containers may rupture violently and produce flying missiles. Explosion: Decomposition with explosive violence may be caused by loss of refrigeration, friction, shock or contamination.	Contact with material may cause severe burns to skin and eyes.
59 Organic peroxide, extremely sensitive.	Fire: Auto ignition may occur. May be ignited by heat, sparks, or open flame. Burns very rapidly and intensely. Sometimes with flare-burning effect. May cause fire on contact with combustibles. Reaction with fuels may be violent. Heated container may rupture violently and produce flying missiles. Explosion: Decomposition with explosive violence may be caused by friction, shock, heat or contamination.	Contact with material may cause severe burns to skin and eyes.
60 Poison, highly toxic.	Fire: Some material in this group cannot catch fire, others can but do not ignite readily.	Vapour, mist, or dust is poisonous, if inhaled. Liquid or solid may cause death, if consumed. Contaminated water or material run-off may pollute water supply. Run-off to sewer may create poison hazard.
61 Poison, highly toxic, combustible.	Fire: May be ignited by heat, sparks or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapour may occur at some distance from leaking container. Vapour entering sewer or other closed spaces may create fire or explosion hazard.	Vapour, mist, or dust is poisonous, if breathed. Liquid or solid may cause death, if consumed. Contaminated water or material run-off may pollute water supply. Run-off to sewer may create poison hazard.
62 Poison, extremely toxic.	Fire: Some material in this group cannot catch fire; others can catch fire but do not ignite readily.	Vapour, mist, or dust is poisonous, can be fatal if inhaled in high concentrations. Poisonous by skin absorption. Contact with material may cause severe burns to skin and eyes. Small amount of solids or liquids may cause death, if consumed. Contaminated water or material run off may pollute water supply. Run-off to sewer may create poisonous hazard.
64 Poison, poisonous through skin absorption, extremely or highly toxic.	Fire: Some material in this group cannot catch fire; others can catch fire but do not ignite readily.	Vapour, mist or dust is poisonous, can be fatal if inhaled in high concentrations. Contact with material may cause severe burns to skin and eyes. Small amounts of liquid or solid may cause death, if consumed. Contaminated water or material run off may pollute water supply. Run-off to sewer may create poisonous hazard.

HAZARD	POTENTIAL HAZARD	HAZARD TO HUMAN HEALTH
65 Poison, extremely toxic, flammable.	Fire: May be ignited by heat, sparks or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapour may occur at some distance from leaking container. Vapour entering sewer or other closed spaces may create fire or explosion hazard.	Vapour, mist or dust is poisonous, can be fatal if breathed in high concentrations. Contact with material may cause severe burns to skin and eyes. Small amounts of liquid or solid may cause death, if consumed. Contaminated water or material run off may pollute water supply. Run-off to sewer may create poison hazard.
67 Poison, flammable, poisonous through skin absorption, extremely toxic.	Fire: May be ignited by heat, sparks or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapour may occur at some distance from leaking container. Vapour entering sewer or other closed space may create fire or explosion hazard.	Vapour, mist or dust is poisonous, can be fatal if breathed in high concentrations. Contact with material may cause severe burns to skin and eyes. Poisonous by skin absorption. Small amount of liquid or solid may cause death if consumed. Contaminated water or material run off may pollute water supply. Run-off to sewer may created poisonous hazard.
70 Radioactive, low hazard.		Degree of hazard due to radioactivity will vary depending upon type, quantity and form of the material. Hazard may be from internal radiation from breathing gases, vapour or dust from air borne material or contamination of skin, open cuts, sores, it may be from external radiation (as from x-rays) from contamination on skin or from exposure to unshielded radioactive material. Radiation hazard is generally of lower order and does not pose an immediate threat to life or death.
71 Radioactive		Degree of hazard due to radioactivity will vary depending upon type, quantity, and form of the material. Hazard may be from internal radiation from breathing gases, vapours, or dust from air-borne material or contamination of skin or from exposure to unshielded radioactive material. Prolonged exposure may be a threat to health or life.
72 Radioactive Oxidizer.	Fire: May cause fire on contact with combustion. Reaction with fuels may be violent.	Material is of relatively low order of hazard with regard to external radiation hazard is external, caused by breathing gases or vapour or from contamination of skin, open cuts, sores. Vapour, dust, or mist is poisonous, can be fatal if inhaled in high concentrations. Contact with the material may cause severe burns to skin and eyes. Fire may produce poisonous gases.
73 Radioactive, corrosive.		Material is of relatively low order of hazard with regard to external radiation (as from x-rays). Primary radiation hazard is internal, caused by breathing gases or vapour or from contamination or skin, open cuts, sores. Vapour, dust or mist is poisonous, can be fatal if inhaled in high concentrations. Contact with material may cause severe burns to skin and eyes. Fire may produce poisonous gases.
74 Radioactive, pyrophoric.	Fire: May catch fire spontaneously in air. Burns very rapidly and intensely, sometimes with flare-burning effect. May regnite after fire is extinguished.	Material is of relatively low order of hazard with regard to external radiation (as from x-rays). Primary radiation hazard is internal, caused by breathing vapour or dusts from air-borne material or by contamination of skin, open cuts, sores.

HAZARD	POTENTIAL HAZARD	HAZARD TO HUMAN HEALTH
78 Radioactive, poison, corrosive, for use in uranium hexafluoride (UF6) only.		Material is of relatively low order of hazard with regard to external radiation (as from x-rays). Vapour, dust, or mist is poisonous, can be fatal if breathed in high concentrations. Contact with material may cause severe burns to skin and eyes. The reaction product with air is readily visible as a white cloud, settling as a dust on surfaces.
79 Radioactive for use on acid solutions of plutonium nitrate.		Direct external radiation (as from x-rays) is relatively low. Spilled material is extremely hazardous with regard to internal radiation from contact with skin, cuts, wounds, or from breathing air-borne dusts and fumes. An extremely radio-toxic material when taken into the body.
80 Corrosive	Fire: Some material in this group cannot catch fire; others can catch fire but do not ignite readily.	Vapour may be irritating if breathed. Contact with materials may cause severe burns to skin and eyes. Contaminated water or material run-off may pollute water supply.
81 Corrosive poison.	Fire: Some material in this group cannot catch fire; others can catch fire but do not ignite readily.	Vapour, mist or dust is poisonous if inhaled. Contact with material may cause severe burns to skin and eyes. Contaminated water or material run-off may pollute water supply. Run-off to sewer may create poison hazard.
82 Corrosive heat of dilution.	Fire: Some material in this group cannot catch fire; others can catch fire but do not ignite readily. Explosion: Explosive, concentrations of gas may accumulate in tanks containing acid.	Vapour may be irritating, if inhaled. Contact with material may cause severe burns to skin and eyes. Contaminated water or material run-off may pollute water supply.
83 Corrosive, combustible.	Fire: May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapour may occur at some distance from leaking container. Vapour entering sewer or other closed spaces may create fire or explosion hazard.	Vapour may be irritating if inhaled. Contact with material may cause severe burns to skin and eyes. Contaminated water or material run-off may pollute water supply. Run-off to sewer may create poison hazard.
84 Corrosive poison, heat . of dilution	Fire: Some material in this group cannot catch fire; others can catch fire but do not ignite readily. Explosion: Explosive concentrations of gas may accumulate in tanks containing acids.	Vapour, mist or dust is poisonous, if inhaled. Contact with material may cause severe burns to skin and eyes. Contaminated water and material run-off may pollute water supply. Run-off to sewer may create poison hazard.
85 Corrosive, combustible, poisonous.	Fire: May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapour may occur at some distance from leaking container. Vapour entering sewer or other closed spaces may create fire or explosion hazard.	
86 Corrosive, combustible, heat of dilution.	Fire: May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapour may occur at some distance from leaking container. Vapour entering sewer or other closed spaces may create fire or explosion hazard. Explosion: Explosive concentrations of gas may accumulate in tanks containing acid.	

HAZARD	POTENTIAL HAZARD	HAZARD TO HUMAN HEALTH
87 Corrosive, combustible,	Fire: May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapour may occur at some distance from leaking container. Vapour entering sewer or other closed spaces may create fire or explosion hazard. Explosion: Explosive concentrations of gas may accumulate in tanks containing acids.	

Source: Schieler - Pauze, Vannostrand Reinhold: Hazardous Materials, London, 1976; pg. 216-245.

3.2 PESTICIDES

Pesticides Registration Scheme of Tanzania is under the Tropical Pesticides Research Institute (TPRI) Act (No.18 of 1979) and the Pesticides (Registration and Control) Regulations (Government Notice No.193 of 12th October, 1984).

It is required and is a pre-requisite that, the WHO class by hazard of a pesticides, be indicated during registration.

SECTION IV

4.0 EXISTING ENVIRONMENTAL POLICY, LAWS, RULES ANDREGULATIONS RELATING TO THE MANAGEMENT OF TOXIC AND HAZARDOUS CHEMICALS

The management of chemicals is a continuous process of assessing and reducing Arisk" or the likelihood that a chemical will harm human health or the environment. The risk associated with exposure to chemicals varies according to circumstances; their management requires a sense of priorities and a desire to anticipate and prevent problems rather than simply to react to them. Management involves supervising the production, transportation, storage, distribution, use and disposal of chemicals - the activities that make up a chemical's "life cycle"[7].

Tanzania's management of chemicals is generally poor, uncoordinated with weak or non-existent enforcement. Therefore, there is no single or umbrella instrument which provides for management of chemicals or addresses adequately the issue of chemicals hence, the danger posed by toxic and hazardous chemicals is real. In appreciation of the dangers posed by chemicals to human health and on the environment, Tanzania is a signatory to Chapter 19 of Agenda 21 relating to environmentally sound management.

TABLE 3.1(B): CLASSIFICATION OF PESTICIDES BY HAZARD BASED ON THE LD50 FOR THE ACUTE ORAL AND DERMAL TOXICITY TO THE RAT[6]

		LD 50 For The Rat (Mg/kg Body Weight)			
Class		Oral		Dermal	
		Solids	Liquids	Solids	Liquids
1a	Extremely hazardous	5 or less	20 or less	20 or less	40 or less
1b	Highly hazardous	5-50	20-200	10-100	40-400
II	Moderately hazardous	50-500	200-200	100-100	400-400
III	Slightly hazardous	over 500	over 2000	over 1000	over 4000

[6] Extract from WHO Chronicle, 19:397-401 (1975)

[7] Legislating Chemicals: An Overview, AUnited Nations Environment Programme, 1995, pg.16

TABLE 3.1(C): LIST OF HAZARDOUS CHARACTERISTICS ON THE UNITED NATIONS RECOMMENDATIONS ON TRANSPORT OF DANGEROUS GOODS (UNRTDG) ST/SG/AC/10/1/ REV.S. UNITED NATIONS, NEW YORK, 1988

UN	CODE	CHARACTERISTIC CLASS
1	H 1	**EXPLOSIVE:** An explosive substance or waste solid or liquid substance or waste (mixture of substances or wastes) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings.
3	H 3	**FLAMMABLE LIQUIDS**: Flammable liquids are liquids or mixtures of liquids, or liquids containing solids in solution or suspension (for example paints, but not including substances or wastes otherwise classified on account of their dangerous characteristics) which give off a flammable vapour at temperatures of not more than 65.6°C, closed-up test, or not more than 65.60C, open-cup test. Since the results of open-cup tests and closed-up tests are not strictly comparable and even individual results by the same test are not often variable, regulations varying from the above figures to make allowance for such difference would be within the spirit of this definition.
4.1	H 4.1	**FLAMMABLE SOLID**: Solids or waste solids, other than those classed as explosives which under conditions encountered in transport are readily combustible or may cause or contribute to fire through friction.
4.2	H 4.2	**SUBSTANCES OR WASTES LIABLE TO SPONTANEOUS COMBUSTION**: Substances or wastes which are liable to spontaneous heating under normal conditions encountered in transport, or to heating up on contact with air, and being then liable to catch fire.
4.3	H 4.3	**SUBSTANCES OR WASTES WHICH, IN CONTACT WITH WATER EMIT FLAMMABLE GASES** Substances or wastes which by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.
5.1	H 5.1	**OXIDIZING** Substances or wastes which, while in themselves not necessarily combustible, may, generally by yielding oxygen, cause or contribute to the combustion of other materials.
5.2	H 5.2	**ORGANIC PEROXIDES**: Organic substance or wastes which contain the bivalent O-O-structure are thermally unstable substances which may undergo exothermic self-accelerating decomposition.
6.1	H 6.1	**TOXIC OR POISONOUS (ACUTE)** Substances or wastes liable either to cause death or serious injury or to harm human health if swallowed or inhaled or by skin contact.
6.2	H 6.2	**INFECTIOUS SUBSTANCES EXTREMELY HAZARDOUS TO HEALTH:** Substances or wastes containing viable micro-organisms or their toxins which are known or suspected to cause disease in animals or humans.
8	H 8	**CORROSIVES:** Substances or wastes which, by chemical action, will cause severe damage when in contact with living tissue, in the case of leakage will materially damage, or even destroy other goods or the means of transport; they may also cause other hazards.
9	H 10	**LIBERATION OF TOXIC GASES IN CONTACT WITH AIR OR WATER**: Substances or wastes which, by interaction with air or water, are liable to give off toxic gases in dangerous quantities. Substances or wastes, which if they are inhaled or ingested or if they penetrate the skin, may involve delayed or chronic effects including carcinogenicity.
	H 12	**ECOTOXIC** Substances or wastes which, if released, present or may present immediate or delayed adverse impacts to the environment by means of bio-acummulation and/or toxic effects upon biotic systems.
	H 13	Capable, by means, after disposal, of yielding another materials, e.g., leachate, which possesses any of the characteristics listed above.
10	H 14	Radioactive wastes
11	H 15	**PERSISTENT WASTE**: Wastes which contaminate the environment for long periods of time.
12	H 16	**CARCINOGENIC WASTES:** Wastes which may lead to development of cancer in human beings or animals.

4.1 THE NATIONAL ENVIRONMENTAL POLICY

The National Environmental Policy December, 1997, seeks to provide the framework for making fundamental changes that are needed to bring environmental considerations into the main-stream of decision-making in Tanzania. It seeks to provide policy guidelines, plans and give guidance to the determination of priority actions and provides for monitoring and regular review of policies, plans and programmes. It further provides for sectoral and cross-sectoral policy analysis in order to achieve compatibility among sectors and interest groups and exploit synergy's among them.

The overall objectives of the Policy are:

(a) to ensure sustainability, security and equitable use of resources for meeting the basic needs of the present and future generations without degrading the environment or risking health or safety;

(b) to prevent and control degradation of land, water, vegetation and air which constitute our life support system;

(c) to conserve and enhance our natural and man made heritage including the biological diversity of the unique ecosystems of Tanzania;

(d) to improve the conditions of productivity of degraded areas including rural and urban settlements in order that all Tanzanians may live in safe, healthy, productive, and aesthetically pleasing surroundings;

(e) to raise public awareness and understanding of the essential linkages between environment and development and to promote individual and community participation in environmental action;

(f) to promote international co-operation on the environment agenda, and expand participation and contribution to relevant bilateral, sub-regional, regional and global organisations and programs including implementation of treaties.

From the above Policy objectives, the role of the Policy therefore lies in providing for the execution of a range of strategic functions as stated below:

(i) Development of consensual agreement at all levels for the challenge of making trade-offs and the right choices between immediate economic benefits to meet short-term and urgent development needs, and long-term sustainability benefits.

(ii) Development of a unifying set of principles and objectives for integrated multi-sectoral approaches necessary in addressing the totality of environment.

(iii) Fostering Government-wide commitment to the integration of environmental concerns in the sectoral policies, strategies and investment decisions, and to the development and use of relevant policy instruments which can contribute the most to achieving this objective.

(iv) Creating the context for planning and co-ordination at a multi-sectoral level; to ensure a more systematic approach, focus and consistency, for the ever increasing variety of players and intersity of environmental activities.

A careful review of the Policy indicates that it does not adequately address the issue of toxic and hazardous chemicals. Paragraph 56 Section (e), (f) and (g) merely provide that:

(e) installation of resource-saving and waste-recycling facilities, use of clean technology and production of safe and less toxic products shall be promoted and supported;

(f) workers' health shall be adequately protected from environmental health hazards;

(g) a review will be made of laws, rules, and regulations governing importation, manufacture, transportation, handling, use, storage and disposal of toxic chemicals, and hazardous substances, as appropriate.

4.2 THE LEGAL REGIME

Tanzania's legal regime relating to the management of chemicals is based on statutory law and common law and judicial precedents. Statutory laws are laws enacted by Parliament from time to time, while common law are principles and rules which derive their authority from usage and customs or from judgements and decrees of the courts applicable as on the reception date (1st July, 1920).

4.2.1 THE COMMON LAW

Under common law, the environment and human health can be protected through two actions, one based on action for nuisance and the other under the strict liability rule provided for in the case of Rylands Vs Pletcher[8]. Nuisance is not a

[8] 1866 LR 1EX 265

component of any statute but it is found in common law practice and development in England and made applicable in Tanzania under Judicature and Application in Laws Ordinance, Cap.453, whereby common law, the doctrines of equity and statutes of general application in force in England on 1st July, 1920, are applicable in Tanzania only where statutes are silent.

4.2.2 STATUTORY LAW

As pointed out earlier on, in Tanzania there is no specific legislation which addresses issues of chemicals but there are several statutes enacted for specific problems in a particular sector addressing "some" kind of management. It should be pointed out here that there is no legislation dealing with fertilizers, industrial and consumer chemicals. This is a serious weakness in our legal regime.

4.2.3 THE TROPICAL PESTICIDES RESEARCH INSTITUTE ACT NO.18 OF 1979

This legislation is meant to regulate the entire life cycle of pesticides, that is, registration, importation, manufacturing/ formulating, distribution, transportation, sale, handling , use and disposal. Apart from regulating pesticides, the Institute also among other activities, carries out research, evaluates and disseminates the findings of the fundamental aspects of pesticides.[9]

The affairs of the Institute are managed by the Council.[10] The Institute has a Pesticides Approval and Registration Technical Committee (PARTC) to advise the Council on all technical matters regarding pesticides.[11]

The Pesticides activities are regulated by the Institute as follows:

(i) Registration:

All pesticides to be used in the country must be registered by the Institute and be maintained in the Register.[12]

It is required that the application forms should be accompanied with the registration dossiers, specified samples for both quality assessment and efficacy testing to the Registrar of Pesticides for registration consideration.

(ii) Importation:

It is mandatory that importers send their applications to the Registrar of Pesticides. Import permits are processed and granted only to pesticides which are registered and approved for use by the Institute.[13] The importer shall be guilty of an offence if he imports or causes to import unregistered or experimentally registered pesticides. The defaulter, however, is liable to a fine of Tshs. 3,000/' (5 US Dollars equivalent) or three months imprisonment.[14]

(iii) Manufacturing/Formulation:

It is mandatory that pesticides manufacturers and formulators be registered by the Institute. To this effect, they are required to manufacture/formulate only registered pesticides.[15]

(iv) Labelling:

Pesticides sold, used or distributed must bear a label written in both languages, English and Kiswahili, and must observe the Institute's labelling requirements.[16]

(v) Pesticide Sellers and Fumigators:

These are required by the law to be registered by the Institute and be issued with permits to conduct their business. Only registered and properly labelled pesticides are allowed to be sold or used. The pesticides must be in their original containers.[17]

(vi) Disposal:

It is mandatory that disposal of obsolete pesticides and empty containers be done as recommended by the manufacturers in order to minimize risks of contaminating the environment.

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9 Section 4 of the Act

10 Section 6 of the Act

11 Section 13 of the Act

12 Section 15 and 16 of the Act

13 Section 19 of the Act

14 Section 19 of the Act

15 Section 19 of the Act

16 Section 20 of the Act

17 Section.... of the Poeticised Control Regulations

(vii) Inspectorate Services:

The Institute has appointed inspectors to ensure compliance of the conditions stated in the Act. These inspectors are obliged to execute their duties without obstruction.[18]

Problems of Enforcement

1. The TPRI Act is enforced by Pesticides Inspectors who are not properly and specifically trained. The enforcement is mainly to importers, manufacturers/ formulators, pesticide retailers and fumigators. Registration of pesticides is done voluntarily; however, having a very small number (eight) of inspectors with limited financial resources, the enforcement is weak. There exists in the country unregistered and expired pesticides irrespective of the efforts done by the Institute to register and monitor compliance.

2. Although the TPRI Act provides for control of pesticides transportation, the Pesticides Control Regulations, however, do not require the importer to state the means of ferrying the chemicals; and the Pesticides Regulations have no set guidelines to be followed by transporters of pesticides. Railway wagons and road trucks carrying pesticides do so without labels to indicate presence of toxic and hazard chemicals.

3. With the exception of conducting pest management courses, there are no concerted efforts to educate the public and the pesticide users in general on the safe use and handling of pesticides. Users remain ignorant of, for example, the proper storage, application rates, expiry dates. of pesticides, as a result the human health and the environment is at risk.

Despite the efforts which have been made by the Institute to place inspectors at the major entry points - Dar es Salaam, Namanga, Tanga and Tunduma there exists entry of unregistered pesticides through illegal means. This can be explained by the large size of the country and fewer numbers of inspectors.

4.2.4 THE EXPLOSIVE ORDINANCE (CAP 538)

The Explosives Ordinance is governed by the Ministry of Energy and Minerals operating under the Commissioner for Mining.

Major chemicals while in combination or separate, can cause explosions or be used to prepare explosives which are regulated by the Act, include gun-cotton, blazing powders, azide of lead, dynamite, nitro-glycerine and other similar chemicals. These explosives are meant to be used only in mining activities.[19]

(i) Control of Explosive:

Being explosives, these chemicals pose a threat to human health and therefore, must be regulated. A licence or permit is first sought from either the Inspector of Explosives, a Minister, or the Commissioner for blasting, importation, transportation or storage purposes.[20]

It is required that the premises intended to store explosives must be safe before an application is considered for a permit by the Commissioner. Stores can either be ware-houses or boxes.[21]

For purposes of blazing, it is required that the practitioner be issued with a certificate by the Inspector.

(ii) Enforcement:

Monitoring compliance is done by Inspectors or Police Inspectors appointed under the Act.[22]

Inspection is made to all premises occupied by explosives to make sure that holders of licences or permits conform to the imposed conditions. Inspectors are empowered to enter the premises at all reasonable times and be able to seize or arrest any person who contravenes the law.

(iii) Enquiry:

The Mining Inspector is mandated to make enquiries, if he deems it necessary in case of an accidental explosion that has caused injury or death of a person. The explosion might have occurred during storage, manufacturing, transportation or use. The report compiled by the Mining Inspector may be relied on as evidence in any proceedings in Courts of Law.

(iv) Criminal Proceedings:

Any person who contravenes the Ordinance is guilty of an offence and is liable to a fine of Tshs. 5,000/' (equivalent to

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18 Section 21 of the Act

19 Section 6 of the Ordinance

20 Sections 20, 25 and 42 of the Ordinance

21 Section 31-32 and 33-34 of the Ordinance

22 Section 46-48 of the Ordinance

US Dollars 8). Obviously, this fine is very much on the low side and does not deter the would be violators of the law. It must be enhanced in order to serve its purpose.

4.2.5 THE PROTECTION FROM RADIATION ACT NO.5 OF 1983

This legislation was enacted for purposes of controlling the use of radioactive, radiation devices and such articles, by way of registration and licensing. The main objective is to protect the environment and human beings from harm resulting from ionising radiation.[23]

The main functions of the Commission established under this legislation are:

(i) to control the importation, movement and use of radioactive plants, installations, and materials to be used;

(ii) to advise and provide information to the Government on the proper use of ionising radiation in the light of current available knowledge, its possible hazardous effects and the methods necessary for enhancing the protection of the public from it;

(iii) to maintain a register of importers or users and operators of nuclear or other radioactive plants, installations, apparatus or other radioactive materials;[24] and,

(iv) to consider applications for and grant licences to persons intending to import or use atomic or other radioactive plants, installations or materials.

Mechanism of Control

(a) General Licensing Requirements:

The Act stipulates that importers or users of ionising radiation's should apply to the Commission. In order to minimise number of individuals importing ionising radiation, applications are scrutinized before granting licences.[25] Holders of the licence are under obligation to ensure safety[26] and avoid unnecessary accumulation of radioactive wastes.

(b) Licensing for Disposal and Accumulation:

The Act prohibits accumulation of radioactive wastes although receipt and accumulation of radioactive materials is allowed by permit.[27] The Commission, however, with the approval of the Minister and local authorities, may grant a disposal licence to a person for receiving radioactive wastes from producers to be disposed of in a disposal plant. The issued licence can be withdrawn if the holder violates the underlying conditions imposed by the Commission.

(c) Personnel Radiation Monitoring Services:

The Radiation Protection Advisory Committee of the Commission has a task to establish measure to ensure workers, students and the general public is safe against waste disposal and radioactive devices capable of emitting ionising radiation.

The Committee is also responsible for making inquiries or investigations regarding the safe use and disposal of radionuclides or devices producing ionising radiation and submit results to the Commission.

(d) Registration:

Users of radioactive apparatus are required by the Act to be registered. These radioactive apparatus includes mobile apparatus and any other of the kind.[28]

(iv) Penal Sanctions:

Depending on the magnitude and type of the offence, the penalties are relatively low as compared to the consequences a person may encounter in case of a radioactive accident. The highest fine being Tshs. 100,000/' or five years imprisonment.

Enforcement Problems

(i) The imposed fines of Tshs. 100,000/' is relatively small compared to the consequences a person might have as a result of the effects of radioactive accidents. These fines should be reviewed and be raised accordingly.

(ii) The provision of granting certificates for radioactive waste disposal facilities triggers a problem to human

[23] Section 5(1) of the Radiation Act

[24] Section 7(1) ot the Radiation Act

[25] Section 14-17 of the Radiation Act

[26] Section 23 of the Radiation Act

[27] Section 25(3) of the Radiation Act

[28] Section 18-22 of the Radiation Act

health. Accordingly, this creates a loop-hole for the unnecessary generation of radioactive wastes. Disposal licenses for the radioactive wastes should be prohibited and alternatives be addressed to export these wastes. This is because the country has very limited technology to handle the radioactive wastes.

4.2.6 THE PETROLEUM (CONSERVATION) ACT NO.18 OF 1981 AND THE PETROLEUM (EXPLORATION AND PRODUCTION) ACT NO.28 OF 1980

The Petroleum (Exploration and Production) Act deals with production and exploration of petroleum and petroleum products while the Petroleum (Conservation) Act regulates import/export, sale, transport and distribution of petroleum. At present, petroleum mining activities are at their early stages and not properly defined therefore, requirements of the Act is of limited use for discussion.

The Petroleum (Conservation) Act, among others, empowers the Minister to regulate:

(i) mode of importation, storage, loading and transhipment of petroleum;

(ii) conditions for licences and premises to be used by holder of licenses;

(iii) the description of vehicles/vessels used in the conveyance of petrol and quantities to be conveyed; and,

(iv) provision for precautions to be observed in the process of conveying the petrol.[29]

4.2.7 THE PLANT PROTECTION ACT, 1997

The Plant Protection Act, 1997 has repealed Part V (Pesticides Registration and Control) of the Tropical Pesticides Research Institute (TPRI) Act No.18 of 1979.[30]

The Act is intended to regulate all pesticides hereinafter called the plant protection substances, unless the Minister of Agriculture delegates the administrative power of plant protection substances to TPRI.[31]

The plant protection substances administration and monitoring procedures, however, are like those described above for TPRI. Nevertheless, some additional precautionary approaches have been added. These are:

(i) compliance with the International requirements as stipulated in various conventions;[32]

(ii) empowerment of the Minister to make a code of conduct to ensure that plant protection substances and equipment are used only in accordance with proper professional practices.[33] This would require qualified personnel to use leak-proof equipment thereby reducing body contamination and unnecessary over use due to spills and leakages;

(iii) inclusion of the personnel in customs and postal services. These are the key people to co-operate with for observing compliance at the entry points in particular; and,

(iv) stringent penalties have been instituted to contraveners of the Act, that is, a fine of not less than 10 million shillings for a corporate body and 2 million shillings for an individual or three years imprisonment.[34]

The Tropical Pesticides Research Institute (TPRI), however, has well-built infrastructure and experienced experts (although needing additional training) to carry out plant protection substance activities.

Based on the above observations, it was recommended that the Minister for Agriculture at his own discretion, (Section 30 and 32 of the Plant Protection Substances Act, 1997) has to conditionally appoint TPRI to execute such functions, as follows:

(i) TPRI is to continue monitor and regulate plant protection substances in the country.

(ii) Inspectorate services be strengthened to include both Plant Protection Department of the Ministry of Agriculture and TPRI staff.

(iii) The Tropical Pesticides Research Institute Act of 1979 be reviewed to accommodate the current global changes of sound chemicals management aspects.

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29 Section of the Petroleum (Conservation) Act

30 Section 44 of the Plant Protection Act, 1997

31 Section 30 and 32 of The Plant Protection Act, 1997

32 Section 16(k) of the Plant Protection Act, 1997

33 Section 27 of the Plant Protection Act

34 Section 40(2)(a)(b) of the Plant Protection Act

4.2.8 THE PHARMACEUTICALS AND POISON ACT NO.9 OF 1978

The Act is under the Ministry of Health and it regulates pharmaceuticals and pharmaceutical products. Although the function of the Act is not related to the toxic and hazardous chemicals it is worthy to mention the objective, success and problems faced on enforcement.

The Objectives:

Objectives of the Act include the control and regulate disposal, importation, transportation, export, manufacture, distribution, sale, use registration, labelling, packaging and storage of pharmaceuticals.

Monitoring Compliance:

Inspectors are responsible for monitoring and effecting compliance. This is done by:

(i) entering in all premises set for business by registered persons;
(ii) entering upon all registered premises;
(iii) entering and inspecting in the premise suspected by the provision of the Act is about to be contravened in relation to poison.
(iv) exercising the power to take samples for analysis for products intended for sale;[35]
(v) seizing and detaining products that constitute evidence of contravening Act;
(vi) carrying on inspection of drugs and products at all levels of distribution, manufacturing and promotion;
(vii) examining certificates of registration, licence books or other records and taking samples.

Implementation Problems:

(i) There are no sufficient staff to travel all over the country and monitor compliance.
(ii) Shortage of financial resources makes it impossible for the inspectors to enforce compliance.
(iii) Fines imposed to those who contravene the law are very low.

4.2.9 THE DRUGS AND PREVENTION OF ILLICIT TRAFFIC IN DRUGS ACT NO.9 OF 1995

The objective of the Act is to control and regulate operations relating to drugs, prevention of illicit traffic in drugs and forfeiture of property derived from or used in illicit traffic in drugs; however, these are of limited effect to toxic and hazardous chemicals.

4.2.10 THE FACTORIES ORDINANCE (CAP 297)

The objective of the Ordinance is to control industrial chemicals and occupational health hazards. The main objective of the legislation is to protect human health from hazards of occupational exposure.

It is required by the Ordinance that all factories should be licensed to ensure that the operation does not harm or cause injury to humans.[36] Monitoring compliance is done by the factory inspectors.

Problems of Monitoring Compliance:

(i) There are few inspectors and therefore, who cannot manage to cater for the needs of the existing factories.

(ii) Insufficient financial resources. This aspect has a serious impact on the functioning of the legislation, that is, there is no functional equipment to be used by inspectors during their duties.

(iii) There are only two occupational Medical Doctors to take care of people affected by chemicals at the work places. This number is insignificant when compared to the size of the country.

SECTION V

5.0 FACTORS WHICH IMPEDE BETTER MANAGEMENT OF TOXIC AND HAZARDOUS CHEMICALS IN TANZANIA

Tanzania has liberalised both local and international trade and this has resulted in an increase in flow of goods into and out of the country. Industrial activities have increased the consumption of chemicals. Most chemicals requirements of industry and other manufacturing entities are still met through imports. Tanzania, like any other country, uses chemicals as an essential means for achieving economic and social development. This calls for legal and technical infrastructure for procuring and handling chemicals safely and ensuring that they are used properly.

The above call is in line with the key objectives in Chapter 19 of Agenda 21 which urges development of national system

[35] Section 52-55 of the Act

[36] Act No.10 of 1967

for the environmentally sound management of chemicals in all countries by the year 2000. Below are the key factors which empede better management of toxic and hazardous chemicals in our country.

(1) Absence of National Environmental Policy

Before December, 1997, Tanzania had no National Environmental Policy. The management of the environment was being done under sectoral policies which did not effectively address the environmental concerns. Due to the lack of framework environmental policy, there was no policy document for making fundamental changes that are needed to bring environmental considerations into the mainstream of decision-making in Tanzania.

As a result there:

(a) were development principles and objectives which had not integrated multi-sectoral approaches necessary in addressing the totality of the environment;

(b) was no basis for integration of environmental concerns in the sectoral policies, strategies and programmes; and,

(c) was no instrument for sectoral and cross-sectoral policy analysis in order to achieve compatibility among sectors as regards environmental management.

(2) Lack of Specific Provisions for Chemical Management in the Nationaln Environmental Policy, 1977

Whereas the Environmental Policy for Zanzibar (Tanzania Islands) specifically deals with toxic chemicals (Section 15), the National Environmental Policy of the United Republic of Tanzania, 1997, lacks specific provision for chemical management. It is felt that, this is a serious omission and this may be taken as evidence of lack of political commitment on the part of the Policy and decision- makers regarding chemicals management.

The lack of specific provisions on chemicals management in the National Environmental Policy, 1997, does not augur well with key objectives in Chapter 19 of Agenda 21, which provides that by the year 2000, national systems for environmentally sound management of chemicals including legislation, provisions for implementation and enforcement, should be in place in all countries to the greatest extent possible.

In order to achieve a sound chemicals management, many countries have formulated a single law to govern chemicals. Examples of those countries are given on the item of lack of framework environmental legislation. In Tanzania that direction may prove to be difficult for decision-makers to follow and also does not appear to be consistent with the Government's Policy objectives.

(3) Lack of Legislation

It is sad to note that at present there is no legislation on fertilizers, chemical wastes, industrial and consumer chemicals. This is a major factor which impedes better management of toxic and hazardous chemicals in Tanzania.

Paragraph (g) of Section 56 of the National Environmental Policy, 1997, sets as one of the policy objectives on industries that:

> *(g) a review will be made of laws, rules and regulations governing importation, manufacture, transportation, handling, use, storage and disposal of toxic chemicals and dangerous products, hazardous wastes and hazardous substances, as appropriate.*

It is, however, obviously that a review cannot be done where such laws, rules and regulations are non-existent. Instead and accordingly the Policy should have provided that laws, rules and regulations shall be formulated to govern the management of chemicals' *"life cycle"*. Inspite of this, the industries which use substantial quantities of variable toxic and hazardous chemicals will continue to operate unregulated. The use of these unregulated chemicals poses a serious threat to human health and the environment in different life-cycle phases, that is, importation, transportation re-packaging, handling, storage, use pattern and disposal. With limited knowledge of environment impact assessment, environmental management system and cleaner production, hazardous industrial chemicals, and their associated effluent, the implication of the risk of chemicals to human beings and the environment is serious.

(4) Lack of Framework Environmental Legislation

At present Tanzania has fragmented, inadequate and uncoordinated legislation, rules and regulations. Clause 69 and 70 of the National Environmental Policy, 1997, recognizes this weakness. It is now accepted all over the world that the broad range of areas covered under the field of environment, the structure of division of Government functions, and the numerous number of major players, necessitates the formulation of a framework environmental legislation and the related sectoral legislation, to provide the legal basis for effective and comprehensive environmental management.

Since the National Environmental Policy is in place, there is an urgent need to formulate a framework environmental

legislation and related set of sectoral legislation, to provide the legal basis for an effective and comprehensive environmental management.

Furthermore, it is proposed that concerted efforts be made to formulate a single law to cover chemicals; although a few countries have done this. In order to achieve a better co-ordinated approach, for example, Denmark has consolidated separate statutes on pesticides and on toxic and harmful substances into one chemical substances and product legislation [Act on Chemical Substances and Products 1979 (amended in 1989)]. This framework legislation on chemicals is supplemented by separate statutory orders for different categories of substances such as pesticides and industrial chemicals. In comparison, Sweden's simple framework law on chemical products (Act on Chemical Products 1985 as amended in 1997) is also supported by separate ordinances on pesticides and other chemicals; while Thailand's new legislation (Hazardous Substances Act 1992) covers agricultural, industrial and consumer chemicals.

(5) Weak or Non-existent Enforcement Mechanisms

Tanzania currently uses the regulatory and control approach to control and manage chemicals. Non-regulatory mechanisms such as voluntary and incentive schemes are non-existent. Improved national legislation on chemicals including better implementation and enforcement, is fundamental to sound management of toxic and hazardous chemicals.

The enforcement mechanism of the law related to Environmental Management is weak due to the following:

(a) poor financial support from the Central Government for running the chemical regulatory schemes;
(b) lack of updated and adequate equipment to monitor effects of chemicals at various chemical working places;
(c) absence of "polluter pays principle" in our legal regime;
(d) excessively low fines prescribed by various legislation;
(e) lack of health or environmental monitoring mechanisms;
(f) insufficient information on chemicals in use and lack of a National Chemical Register;
(g) absence of economic instruments in the management of chemicals;
(h) poor transport infrastructure and absence of a requirement to licence chemical transporters.

(6) Lack of Properly Trained Personnel/Staff

Tanzania does not have enough and properly trained personnel to adequately manage chemicals. Those who are trained in different areas of specialisation lack additional specific training courses and continued education to up-date their knowledge, hence:

(a) inadequate number of occupational medical doctors who can relate symptoms of chemical effect (acute or chronic) to human health;

(b) insufficient number and questionable competence of toxicologists to conduct exotoxicological studies for the imported or newly introduced chemicals using native specimen. Studies would be useful to determine the differences in toxicity values caused by differences in the extent of exposure, and therefore, formulate guidelines for exposure limit values relevant to our environment in view to safeguard human health and the ecosystem;

(c) insufficient number of specially trained inspectors in the field of chemicals management, for example, risk identification, risk estimation, risk evaluation and management, response to chemical accidents, stabilisation of the chemical contaminated areas, procedure for spot-check and routine inspection, among others;

(d) presence of inexperienced chemical analysts due to lack of exposure to various analytical methods, various modern analytical instruments and good laboratory practices hence, poor chemical quality control.

(7) Lack of Inter-sectoral Collaboration and Co-ordination

Due to fragmented legislation, there is no defined and effective co-ordinating chemical management mechanism. There is also no co-operation among chemical authority bodies in the common working ventures, for example, joint inspection.

(8) Lack of Public Awareness and Participation

Efforts to enforce the laws regarding chemicals to protect human health and the environment from harmful effects of chemicals become future if the general public and the intended target groups are not involved. There must be provision in the various legislation for the peoples' right to know effects of chemicals, thus:

- there must be a chemical media education programmes;
- poison centres and chemical emergency response units should be established and operational at various places;

- there must be provision for manuals, newsletter on safe use of chemicals especially to target groups and the groups most at risk;
- public interest-groups should be used as watch-dogs to uncover non-compliance incidences; and,
- local authorities, health and extension officers must be properly trained and used to enforce the laws. This could also be a cost-effective approach.

SECTION VI

6.0 THE NECESSARY CAPACITY BUILDING FOR THE ENFORCEMENT OF TOXIC AND HAZARDOUS CHEMICALS' REGULATION

6.1 CAPACITY-BUILDING

Adequate National capacity (human and infrastructure) must be available to achieve a sound management of toxic and hazardous chemicals in Tanzania. Building capacity for the development of competence in chemicals management is a lengthy process.

This section gives an overview of the situation on the present national capacity and recommends the necessary capacity building for managing chemicals.

6.1.1 TECHNICAL INFRASTRUCTURE

(i) The country has an inadequate pool of experts to be placed at different Institutions capable of managing chemicals. Where there are, the experts lack specific training and continued education in the chemical management aspects.

(ii) Laboratory and analytical equipment:

These are located mainly at the tertiary levels of education, research institutions, Government Chemist's Laboratory and at Tanzania Bureau of Standards. To some extent, few industries like the Tanzania-Italian Petroleum Refinery (TIPER), Portland Cement Plant and Pesticides Manufacturing Limited (PML), are equipped with these facilities; however, there is no recognised body which confers a Good Laboratory Practice (GLP).

(iii) Technical Training and Education Programmes:

There are no specific training programmes in chemical management aspects; however, there exists some basic training offered by some Institutes which caters for specific chemical management courses for particular target groups, these are:

- The Tropical Pesticides Research Institute which conducts Pest Management courses for pesticides stockists, retailers and fumigators.
- Faculty of Chemical and Process Engineering of the University of Dar es Salaam which conducts training in chemical safety for safety measures at a chemical working places.
- The Muhimbili Medical Centre (Faculty of Medicine) which offers occupational health services.

6.1.2 PUBLIC AWARENESS

Efforts have been made by individual chemical authority bodies to educate the public on the adverse effects of toxic and hazardous chemicals, that is,:

(i) the information to the public regarding adverse effects of chemicals is disseminated through various means, namely: publication of brochures, news letters, booklets, list of registered pesticides, list of registered industries. Others are the African/Tanzania Safety Health News Letters, radio and television programmes.

(ii) routine and spot-check inspection of, for example, pharmacies drug, shops, pesticides sellers, factories, as conducted by the Tropical Pesticides Research Institute, Factory and Pharmacy Board Inspectors, to educate the chemical handlers on better management of chemicals.

(iii) the Non-Government Organizations (NGOs) such as, JET, AGENDA, among others, which deal with environmental issues, have done an appreciable job to create awareness to the public regarding chemicals management; however, these organisations are not very effective because they are in-experienced, under-funded, have few experts. More importantly, there are no formal avenues provisions for these NGOs to obtain information related to chemicals management from the chemical authority bodies in order for them to disseminate the right information to the public.

6.1.3 LOCAL GOVERNMENT AUTHORITIES AND CO-OPERATIVE SOCIETIES

These are the key local authority bodies to manage chemicals under their jurisdictions. As substantial quantities of chemicals especially pesticides are used within these local authorities, there is a need for the chemical authority bodies to give maximum co-operation to these local authority bodies.

6.1.4 TECHNICAL CHEMICAL ADVISORY COMMITTEES

These committees helps the chemical authority bodies to achieve the objectives of their legislation, for proper chemicals management.

The fact that members of these committees are not conversant with the scope and objectives of the respective chemical authority body's legislation, the input of these members to the proper functioning of the chemical authority bodies regarding chemicals management is inadequate.

6.1.5 COLLECTION AND DISSEMINATION OF NATIONAL/LOCAL CHEMICAL DATA

Chemical data is not institutionalised and not detailed; however, the general public is not accessible to this data. It is recommended that chemical data should be disseminated to the public for consumption.

6.2. THE NEEDED CAPACITY BUILDING FOR CHEMICAL MANAGEMENT

6.2.1 TECHNICAL INFRASTRUCTURE

(i) There is a need to conduct a nation-wide inventory of the available experts in view to identify the specific training needs of experts. The important specific training areas for these experts should include: (eco) toxicology, inspectorate services, occupational health medical doctors services, career in the chemical management, chemical analysis, among other aspects. These can be able to interpret and evaluate toxicological data of chemicals for the better management.

(ii) Efforts should be made to identify efficiency/deficiency of each analytical equipment at different places where such equipment are place. This will facilitate to solve chemical analysis where problems arises. Accordingly, chemical analysts must exchange ideas and share their experiences. Chemical authority bodies should also pool together their limited resources to train instrumentation engineers to repair and maintain the existing analytical equipment.

(iii) The technical training and education programmes offered by the Faculty of Chemical and Process Engineering, Tropical Pesticides Research Institute and Muhimbili Medical Centre, should be extended to include a wide range of target groups. The target groups to be trained should include the local government experts, that is, agricultural extension and public health officers, chemical store-keepers for better stock management practices, training of the trainers in view to impart the necessary knowledge of chemical management to farmers and factory workers. Accordingly, training should be conducted zonal level to reduce costs and attract more participation of the trainees.

(iv) The chemical authority bodies should work closely and disseminate up-dated chemical safety measures to local government experts. These local government experts should also be co-opted to execute the functions of the chemical authority bodies as a cost-effective approach regarding chemical management.

(v) An elementary course on chemical management should be incorperated in the education curriculum at various levels of education system. This will enhance concern regarding chemicals management.

(vi) Procurement of scientific laboratory/field equipment and analytical reagents should be done by researchers, scientists or laboratory technicians; and they should attend an elementary course of materials management.

6.2.2 PUBLIC AWARENESS

Sound chemical management becomes more effective if the target group is well informed on the risks associated with toxic and hazardous chemicals therefore, the Chemical Authority bodies should:

(i) intensify their efforts to create public awareness through, for example, radio/television programmes, newsletters, seminars;

(ii) let people and the public in general have access to the existing data sources on toxic and hazardous chemicals and their associated risks;

(iii) furnish up-dated information regarding chemicals to the non-government organizations (NGOs). The experts in NGOs should receive training, with a view to uncover mal-practices in chemical use and disseminate the right information to the public regarding chemical safety and proper handling; and,

(iv) there should be a stream-lined pathway of chemical research findings to be disseminated to the public as opposed to the present attitudes and practices of shelving the findings.

6.2.3 *TRANSPORTATION OF TOXIC AND HAZARDOUS CHEMICALS*

This service is mainly done by the private sector individuals who are not licensed and trained to execute such functions.

It is recommended that:

(i) transporters of chemicals be licensed by the recognised national body. Licensing conditions should include competence, experience, qualifications of workers involved in the loading and off-loading, ability to curb any chemical accidents, such as, spills, explosion;

(ii) transporters should be informed of and be required to adhere to the international/ national labelling requirements, for transporting toxic and hazardous chemicals.

6.2.4 *NATIONAL INFORMATION EXCHANGE SYSTEM*

The existing information exchange mechanisms from international organizations and national parties regarding toxic and hazardous chemicals is done through courses, seminars, workshop, symposia, newsletters; however, there is no adequate access to information by the consumers or end users of the information. The information exchange mechanism regarding toxic and hazardous chemicals should be stream-lined, enhanced and strengthened.

6.2.5. *ESTABLISHMENT OF NATIONAL EMERGENCY RESPONSE UNIT POISON CENTRES*

A complete strategy with key actors should be adopted. The public should be fully informed and drilled on procedures. The procedures should be harmonized at regional level.

6.2.6 *ESTABLISHMENT OF NATIONAL REGISTER ON TOXIC AND HAZARDOUS CHEMICALS*

This should be established and by different categories. The public should be fully informed, as far as possible, on a regional scale. .

APPENDIX I(I)

THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT ACT, 1998

DRAFT BILL

An Act to provide for the control and management of the manufacture, distribution and use of toxic and hazardous chemicals and to establish a toxic and hazardous chemicals control and management board and for matters concerned therewith.

PART I - PRELIMINARY

1. SHORT TITLE

This Act may be cited as the Toxic and Hazardous Chemicals Control and Management Act, 1998.

2. INTERPRETATION

In this Act, unless the context otherwise indicates:

"active ingredient" means the biologically active part of the chemical present in a formulation.

"adjuvant", means any adhesive, deposit builder, emulsifying agent, spreading, synergism or wetting agent intended to be used as an aid to the application and/or effect of a chemical.

"common name", means the name assigned to a chemical active ingredient by the International Standards Organization to be used as a generic or non-proprietary name for that particular active ingredient only.

"confidential", means something spoken or written in trust.

"trade name", means the name under which the chemical is labelled, registered and promoted by the manufacturer and which, can be used exclusively by the manufacturer to distinguish the product from other chemicals containing the same active ingredient.

"formulae", means the combination of various ingredients designed to render the product useful and effective for the purpose claimed, the form of the chemical as purchased by users.

"toxic and hazardous chemical", means any chemical which has the likelihood of causing adverse effects or injury to human health or the environment and which has been so designated by the board.

"advertising", means the promotion of the sale and use of the chemical by print, electronic media, signs, displays, gift, demonstration or word of mouth.

"banned', means a chemical for which all registered uses have been prohibited by the board, or for which all requests for registration or equivalent action for all uses have, for health and environmental reasons, not been granted.

"board", means the Toxic and Hazardous Chemicals Control and Management Board established under this Act.

"chemical", means a chemical substance in any form whether by itself or in a mixture or preparation whether manufactured or obtained from nature and includes such substances used as industrial chemicals but excludes medicines and for the purposes of this Act means a toxic and hazardous chemical.

"ministry", means ministry having responsibility for chemicals control and management.

"inspector", means an inspector designated by the Minister under this Act.

"label", means the written, printed or graphic matter on, or attached to, the chemical or the immediate container thereof and the outside container or wrapper of the retail package of the chemical.

"manufacture", means the production, by a person or other entity in the public or private sector or any individual engaged in the business or function (whether directly or through an agent or through an entity controlled by or under contract with it), of a chemical's active ingredient or preparation of its formulation or production and includes formulation for the purposes of this Act.

"minister", means minister for the time being having responsibility for chemicals control and management.

"severely restricted", a limited ban means toxic and hazardous chemicals for which virtually all registered uses have been prohibited by final government regulatory action but certain specific registered use or uses remain authorized.

"pictogram" means a symbol which conveys a message without words.

"prescribed" means prescribed in schedules or regulations made under this Act.

"proprietary" means of a proprietor.

"provisional clearance" means an authority given by the board to allow use, or sale as the case may be, on an limited basis and under stipulated conditions for the purpose of obtaining information needed before registration is granted.

"registrar" means the person designated as such by the minister, under this Act.

"technical committee" means the committee that advises the Board on any matter pertaining to toxic and hazardous chemicals registration and control.

"registration" means the process whereby the board approves the import, manufacture, sale and use of a chemical following the evaluation of comprehensive scientific data demonstrating that the product is effective for the purposes intended and animal heath or environment.

"responsible authority" means the government agency or agencies responsible for regulating the manufacture, distribution or use of chemicals and more generally for implementing chemical legislation in other countries.

PART 2 - ADMINISTRATION

3. ESTABLISHMENT OF THE TOXIC AND HAZARDOUS CONTROL AND MANAGEMENT BOARD

(1) There is hereby established Toxic and Hazardous Chemicals Control and Management Board which shall be responsible for the registration, control and management of all toxic and hazardous chemicals in Tanzania and which shall perform any and all of the functions assigned to it under this Act or the regulations made thereunder.

(2) Without prejudice to the generality of the foregoing provisions, the Board shall;

(a) monitor and control the import, manufacture, distribution, storage, disposal and residues of toxic and hazardous chemicals in Tanzania and to this end collect, maintain and publish statistical and other information relating thereto;
(b) make guidelines on the environmentally sound handling and use of toxic and hazardous chemicals;
(c) conduct public educational campaigns on the wise use of chemicals,
(d) register chemicals, issue provisional clearances certificates and permits provided for under this Act;
(e) control the import, manufacture, sale, storage, and use of toxic and hazardous chemicals through licensing;
(f) designate by order in the Gazette, any chemical to be toxic or hazardous chemical and which shall be subject to the provisions of this Act, the regulations, and the register and issue provisional clearances and certificates provided for under this Act for such chemicals;
(g) propose regulations to be made under this act by the minister;
(h) delegate any of its powers to a public officer subject to the approval of the Minister, provided that such delegation does not extend to the power to delegate.

4. COMPOSITION OF THE BOARD

The Board shall be composed of:

(i) the Director of the Department of the Environment who shall serve as Chairman;
(ii) the Director of Agricultural Services or his representative;
(iii) the Director of Agricultural Research or his representative;
(iv) the Director of Livestock Services or his representative;
(v) the Director of Health Services or his representative;
(vi) the Commissioner for Customs or his representative;
(vii) the Attorney General or his representative;
(viii) A representative of the Tanzania Chamber of Commerce, Industries and Agriculture;
(ix) the Registrar of toxic and hazardous chemicals who shall serve as Secretary;
(x) two other persons appointed by the minister to serve for such a term of office as the Minister may determine.

5. MEETING OF THE BOARD

(1) The Chairman shall preside at all meetings of the Board that he attends except where it is necessary in the interests of justice that he abstains from presiding.

(2) In the absence of the Chairman at a meeting of the Board, or where subject to subject to sub-section (1) of this section he abstains from presiding, the members shall elect one of themselves to preside at the meeting.

(3) All questions raised at any meeting shall be determined by a simple majority vote of member present and voting.

6. *LIABILITY OF MEMBERS OF THE BOARD*

No members of the Board acting in good faith shall be liable for any act or omission done by the Board in the course of its duties.

7. *TECHNICAL COMMITTEES*

(1) There shall be established such a number of technical committees as the Board deems necessary to advise it in implementing the provisions of this Act.

(2) The Board shall determine the terms of reference for each technical committee.

(3) Each technical committee shall be chaired by a member of the Board and shall be composed by such a number of experts as may be appointed by the Board, to serve for such a term as may be specified in their appointment.

(4) The chairman or other presiding member at a meeting of the Board shall have a deliberate vote and, if upon any question the votes are equally divided, a casting vote.

(5) The Board shall meet at least four times a year and at such places and other times as the Chairman may appoint; at any meeting of the Board, five members including the Chairman or other member presiding shall form a quorum.

(6) The Chairman shall convene a special meeting of the Board on his own initiative or upon the request of three members.

(7) The Board may invite any person to attend and participate in any of its meetings but the person shall have no right to vote at the meeting.

(8) Subject to this section, the Board may regulate its own procedure.

8. *THE REGISTRAR OF TOXIC AND HAZARDOUS CHEMICALS*

(1) The Minister shall designate from among the senior officers of the Department of the Environment, the Registrar of toxic and hazardous chemicals.

(2) The Registrar shall serve under the direction of the Board and shall perform all duties required of his office by this Act or by any regulations and guidelines made thereunder.

(3) Without prejudice to the generality of sub-section 2 of this Section the Registrar shall:

(a) maintain and publish periodically a register of all toxic and hazardous chemicals stating registered, provisionally cleared, restricted or banned chemicals;
(b) issue licences, certificates or registration and provisional clearance as directed by the Board;
(c) maintain registers of manufactures importers, transporters, distributors and commercial applicators of chemicals;
(d) implement international notification schemes relating to chemicals including the prior informed consent procedure;
(e) cause the board and the minister to amend and maintain the schedules to this Act or the regulations in conformity with decisions taken pursuant to this Act;

9. *THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT FUND*

(1) There is hereby established the Toxic and Hazardous Chemicals Control Management Fund, (hereinafter referred to as "the fund").

(2) The fund shall be administered by the Board.

(3) All fees and fines payable under this Act, disbursements from Government and funds from other sources for the purpose of Toxic and Hazardous Chemicals Control Management shall be paid into the fund.

(4) The fund shall be applied solely for the furtherance of the objectives of this Act including public awareness of the safe and wise handling of chemicals.

PART 3 - REGISTRATION CHEMICALS

10. REGISTRATION OF CHEMICALS

(1) An application for the registration of a chemical shall be submitted to the board in the prescribed manner and form.

(2) Each application shall be accompanied by a fee to be prescribed from time to time.

(3) Information submitted to the Board shall be treated as confidential.

11. THE DECISION TO REGISTER, PROVISIONALLY CLEAR OR REJECT THE APPLICATION

(1) The Board shall consider the application submitted in accordance with Section 10 and if it is satisfied after such inquiry, investigation, test or analysis of the chemical as it deems fit, may register the chemical provisionally, clear the chemical or reject the application.

(2) Upon the registration or provisional clearance of the chemical, the registrar shall issue a certificate, and assign a registration number.

(3) In making its decision under sub-section 1 of this section, the Board shall be guided, among other considerations, by whether:

(a) all matters submitted with the application are true in all material particulars;
(b) the label is not misleading and complies with provisions of this Act;
(c) the chemical subject of the application has not been registered before;
(d) the chemical does not pose a serious danger to human life and the environment when applied in accordance with instructions;
(e) the use of the chemical has not been restricted or banned in other countries;

(4) Where the Board rejects an application for the registration of a chemical under this section, it shall state its reasons.

12. AUTHORIZATION TO IMPORT MANUFACTURE AND USE UNREGISTERED CHEMICALS

(1) Notwithstanding the provisions of section 10 and 11 of this Act, the Boar may authorize the import, manufacture and use of a chemical which has not been registered or provisionally cleared if the chemical is to be applied solely for scientific and educational purposes.

(2) An authorization of the Board provided for in sub-section 1 of this section, shall be pursuant to an application made in the prescribed form and manner and subject to such conditions as the Board deems fit.

13. DURATION OF REGISTRATION AND RENEWAL OF REGISTRATION

(1) The Registration of a chemical shall be valid for a period of five years.

(2) The Board may upon the application of the person desiring to renew the registration of a chemical, renew the registration for further periods of five years provided that the Board is satisfied that the chemical remains safe and effective for use in Tanzania.

(3) Where the Board refuses to renew the registration of a chemical in accordance with sub-section (2) of this section, it shall give reasons.

14. RESTRICTION AND SUBSEQUENT BANNING OF CHEMICALS

Upon application for the registration of a chemical or where after registration, a chemical is proved to be dangerous to human life and the environment, the Board may restrict the use and handling of such a chemical and require that the chemical be manufactured, sold, distributed, stored and used subject to such conditions as the board deems necessary.

15. CANCELLATION OF REGISTRATION

(1) The Board may cancel the registration, provisional clearance or authorization of any chemical and shall give reasons for such cancellation provided that in any such case the Board shall, before proceeding, give an opportunity to the person on whose application of chemical was registered an opportunity to show cause why the registration should not be cancelled.

(2) Without prejudice to the generality of sub-section (1) of this section the Board may cancel the registration of a chemical if:

(a) the registration was secured in violation of any of the provision of this Act;
(b) the chemical has been banned in accordance with provisions of this Act;
(c) the chemical had been registered subject to conditions and those conditions have not been observed;
(d) the chemical has fallen into disuse;
(e) the chemical has been withdrawn from the market and use and the person upon whose application the chemical was registered has notified the Board in writing of such withdrawal.

(3) Every cancellation under this section shall be notified in the Official Gazette and amendments to the register of chemicals shall be effected forthwith.

PART 4 - PRESENTATION OF CHEMICALS

16. CONTAINERS

(1) The Board shall, on the registration or provisional clearance of a chemical, approve a container suitable for the safe and effective storage, distribution, and handling of the chemical.

(2) No person shall manufacture, import, distribute, store, sell or offer for sale a chemical other than in a container conforming in all respects to the container approved in sub-section (1) of this section

(3) A manufacture, in the case of products manufactured in Tanzania or importer of a chemical may be required by the Board to be responsible for disposing of the containers of chemicals in any manner that may be prescribed including environmentally sound measures such as recycling.

(4) No person shall use a chemical container for a purpose which has been prohibited by the Board.

17. LABELS

(1) No person shall distribute, sell, offer for sell, or hold in stock any chemical unless a label is part of or securely included in or affixed upon its container and such a label has been approved by the Board upon application for the registration of the chemical.

(2) The label shall be written in English and Kiswahili languages and shall state any particulars as may be prescribed.

(3) Pictograms as may be prescribed shall be used in each label.

(4) No person shall alter the label of any chemical in contravention of this sub-section.

(5) For the purpose of this Act any publication issued along with the product containing information that may be in accordance with the provisions of sub-section 2 of this section shall be deemed to be part of the label.

18. ADVERTISING OF CHEMICALS

(1) No person shall advertise any chemical that has been banned or is not registered in accordance with this Act.

(2) No person shall advertise any chemical in a manner that is false, misleading or intended to deceive or to make any extravagant claim or promise.

(3) Any advertisement of a chemical shall:

(a) be consistent with the statements required under section 17 to be included in the label;
(b) not include any false and misleading comparisons;
(c) comply with the conditions of registration of the chemical and with such other requirements as may be prescribed.

PART 5 - CONTROL OF MANUFACTURE IMPORT, EXPORT, DISTRIBUTION AND USE OF CHEMICALS BY LICENSING

19. LICENCE FOR MANUFACTURE, IMPORT ETC. OF CHEMICALS

(1) No person shall manufacture, import, export, distribute, keep in stock, or sell a chemical without a licence issued by the Board subject to such conditions as may be prescribed.

(2) An application for a licence under sub-section 1 of this section shall be made in the prescribed manner and form to the Board and shall be accompanied by such a fee as may be prescribed.

(3) Each licence granted by the Board shall be subject to such a fee as may be prescribed in schedule 2 of this Act.

20. LICENSING OF PREMISES

(1) A licence for the manufacture, storage, and sale of a chemical shall specify location and premises in which such manufacture, storage and sale of the chemical, shall take place and shall be valid for only such a place.

(2) The Board may inspect the premises before granting a licence, under sub-section (1) of this Section, in order to determine their suitability for the purpose for which the licence is required.

21. USE OF CHEMICALS

(1) No person shall use or require an employee to use a chemical in a manner or for a purpose contrary to the manner or purpose permitted by the Board on the registration or provisional clearance of the chemical or as may be prescribed.

(2) No person shall compel an employee to use any chemical in a manner or for a purpose contrary to the provisions of this Act.

(3) Every employer who requires or permits an employee to use a chemical shall provide and require the employee to use such facilities and clothing conducive to the safe handling of such chemical.

22. USE OF RESTRICTED CHEMICALS

(1) No person shall use a chemical which has been registered under section 11 to be for restricted use without a licence issued by the Board.

(2) An application for a licence required by sub-section (1) of this section shall be made to the Board stating how the applicant proposes to fulfil the conditions required by the Board for the restricted use of the chemical.

(3) Every employer who requires or permits an employee to use a chemical shall provide and require the employee to use such facilities and clothing conducive to the safe handling of such chemical

23. LICENSING OF COMMERCIAL APPLICATORS

(1) Any person desiring to carry on the business of applying chemicals for gain shall apply to the Board for a commercial applicator's licence in the prescribed form.

(2) In making its decision on whether to grant a commercial applicator's licence, the Board shall be guided by among other considerations;

(a) the applicant's understanding of chemicals, their beneficial use and their positive effects;
(b) the applicant's ability to compensate any victims of chemical use by possessing an adequate insurance policy or resources;
(c) the applicant's possession of suitable premises, equipment, and protective clothing;

(3) Subject to the provision of sub-sections 1 and 2 of this section, a commercial applicator's licence shall be issued on payment of such a fee as may be prescribed in schedule 2 of this Act.

24. CONTAMINATION

(1) An inspector designated under Section 28 of this Act shall have power to:

(a) enter and inspect premises where food reasonably believed to be contaminated by chemicals is kept;
(b) seize, detain, remove and take samples of such food wherever found;
(c) submit such samples for analysis.

25. NOTIFICATION OF DEATH AND INJURY

(1) Any person on whose premises or land, injury or death or any person has occurred as a result of exposure to, use or handling of chemicals shall send a notice forthwith of such death or personal injury to the Registrar.

(2) Any person on whose premises or land, injury or death of animals has occurred as a result of recent exposure to, use or handling of chemicals shall send a notice forthwith of such death or personal injury to the Registrar.

(3) Any registered medical practitioner who has reason to believe upon examination of a person that such a person had died or suffered personal injury as a result of exposure to chemicals shall notify the Registrar forthwith.

(4) Any public health officer who has reason to believe that certain ailments and death occurring in any area under his charge may be linked to exposure to any chemicals being handled or used in the area shall notify the Registrar forthwith.

(5) Any livestock officer who has reason to believe that certain ailments and deaths of animals occur in the area under his charge may be linked to exposure to any chemicals shall notify the Registrar forthwith.

26. INQUIRY

(1) The Registrar may upon receiving a notification under Section 25 appoint a person or person having legal or special qualifications to hold an inquiry into the cause of death or injury.

(2) The person or persons appointed to hold the inquiry shall have the power of a court to summon witnesses and compel the production of documents and material objects.

(3) The person or persons holding the inquiry shall within a reasonable time report to the Registrar their findings and recommendations which may include the filing of charges where there has been a violation of this Act.

(4) The Registrar shall report to the Board on the findings and recommendations of the inquiry and the measures taken pursuant thereto.

27. DISPOSAL OF CHEMICALS AND CHEMICALS CONTAINERS

No person shall dispose of any chemical, chemical wastes, or a chemical container in the Tanzania without a permit of the Board.

PART 7 - ENFORCEMENT

28. DESIGNATED INSPECTORS

The Minister may by notification in the Gazette designate as many persons as he deems fit from among the duly qualified officers whether by name or by title of office, to be inspectors within such local limits as may be specified in the notification.

29. POWERS AND DUTIES OF INSPECTORS

(1) An inspector may, in the performance of his duties pursuant to the provisions of this Act or any regulations made thereunder, at all reasonable times without a warrant;

(a) enter on any land, premises or vehicle where a chemical is or may be reasonably suspected to be manufactured, stored, sold, distributed or used to determine whether the provisions of this Act are being complied with;

(b) require the production of, inspect, examine and copy licences, registers, records and other documents relating to this Act;

(c) make examinations and enquiries to discover whether this Act is complied with;

(d) take samples of any articles and distances to which this Act relates and, as may be prescribed, submit such samples for test and analysis;

(e) carry out periodic inspection of all establishments within the local limits of his jurisdiction which manufacture, import, store, sell, distribute or use chemicals as many times as he deems necessary, including any imprompt visits, to determine whether the provisions of this Act are being carried out;

(f) seize any equipment, chemical or other thing which he believes has been used in the commission of an offence against this Act or regulations made thereunder;

(g) cause a police officer to arrest any person who he believes has committed an offence, against this Act.

(2) In exercising his powers under this section, the inspector shall suitably identify himself by declaring his office.

30. PROCEDURE FOR TAKING SAMPLES

(1) An Inspector shall before or on taking samples of any chemical in accordance with Section 29 of this Act for analysis, inform the person apparently in charge of the chemical that the sample will be taken for analysis.

(2) The inspector shall divide the samples into three parts to be marked, sealed and delivered as their nature will permit, as follows:

(a) the sample to be delivered to the person apparently incharge of the chemical;

(b) the sample to be delivered to the designated laboratory for analysis;

(c) the sample to be delivered to the Registrar.

(3) Where the chemical is packed in small containers is likely to deteriorate or be damaged by exposure, the inspector may take three containers or packages and after suitably marking the same and sealing them, proceed as provided for in sub-section (2) of this section.

32. WHO MAY REQUEST ANALYSIS

(1) An inspector may in writing request the designated laboratory to analyse a sample taken in accordance with Section 30 of this Act.

(2) A buyer of chemical may, upon the payment of a prescribed fee, be entitled to request the analysis of such a chemical.

(3) A Court of law may order that a chemical be analysed.

(4) The Board may request that any chemical be analysed for any purpose it may deem necessary to implement the provisions of this Act.

33. ANALYSIS OF CHEMICALS AND THEIR EFFECT IN THE ENVIRONMENT

Any designated laboratory may analyze any food, water, soil, or other substances submitted by the Board or an Inspector pursuant to a request in writing in order to determine the levels of chemical residues in food or the effect of chemicals on the quality of water, air, soil and other living and non-living things or to make any such determination the Board or the Inspector may require.

34. CERTIFICATE OF THE ANALYST AND ITS EFFECT

(1) The designated laboratory and the reference laboratory shall issue a Certificate of analysis stating the results of analysis of any substance submitted in accordance with this Act.

(2) The certificate of the designated laboratory, or the reference laboratory analyst as the case may be, shall state the method of analysis followed and a certificate shall be signed under the hand of the chief chemist of the laboratory or the reference laboratory as the case may be.

(3) A certificate complying with sub-section (1) and (2) of this section shall be sufficient evidence of the facts stated therein, whether produced by the defence or the prosecution unless either party wishes to require that the analyst appear as a witness.

35. KEEPING OF RECORDS OF CHEMICALS TRANSACTIONS

(1) The Board shall keep all records of chemicals, formulated, sold or otherwise distributed in Tanzania.

(2) Every person who manufactures, imports, exports, formulates, sells or otherwise distributes chemicals or is a commercial applicator of chemicals, in accordance with the provisions of this Act, shall keep a record of all quantities of chemicals manufactured, formulated, imported, sold, distributed or used.

(3) The record kept in accordance with sub-section 2 of this section shall contain the name and address of persons involved in such transactions and shall contain any other matters that may be prescribed or contained in the conditions of registration of any chemical.

(4) The record kept in accordance with sub-section (2) and (3) of this section shall be made available to an Inspector, the Registrar or the Board upon request.

(5) The record kept in accordance with sub-sections (2) and (3) of this section shall be transmitted to the Board at the end of each calendar year.

PART 8 - OFFENCES AND PROCEEDINGS

36. GENERAL PENALTY

Any person who commits an offence against the provisions of this Act or of the regulations made for which no other penalty is specifically provided is liable on first conviction to imprisonment for a term of not less than three months or to such a fine as may be prescribed in schedule 3 of this Act or both.

37. SPECIFIC OFFENCES

(1) Any person who:

(a) gives false information in an application for the registration of chemical;
(b) manufactures, imports, export or sells a banned chemical contrary to the provisions of section 12, 14 and 19;
(c) contravenes sections 16, 17 and 18;
(d) carries on the business of a commercial chemical applicator without a licence contrary to section 23 of this Act;

shall be guilty of an offence and shall be liable to imprisonment for a term of not less than 1 year or to such a fine as may be prescribed in schedule 3 of this Act, or both.

(2) Any person who:

(a) manufactures, exports, imports, stores, distributes, transports, sells, offers for sale any chemical without a licence issued under this Act.
(b) manufacturers, exports, imports, stores, distributes, or sells any chemical at a premises

different from that licensed for the purpose under this Act, commits an offence and is liable to imprisonment of not less than three months or to such a fine as may be prescribed in schedule 3 of this Act or both.

38. ADULTERATED, DECOMPOSED AND DETERIORATED CHEMICALS AND THEIR CONTAINERS

(1) No person shall manufacture, formulate, import, sell, distribute or store any chemical which has been adulterated, or which has decomposed or deteriorated so as to be ineffective for its purpose or which is packed in containers which have deteriorated or have been damaged rendering them dangerous to store, handle and use safely.

(2) Any person who contravened the provisions of sub-section (1) of this section is guilty of an offence and is liable to imprisonment for a term of not less than six months and to such a fine as may be prescribed in schedule 3 of this Act or both.

39. A SECOND AND SUBSEQUENT OFFENCE AGAINST THIS ACT OR ANY REGULATIONS MADE UNDER THIS ACT SHALL BE PUNISHABLE BY A FINE NOT LESS THAN TWICE THE AMOUNT OF THE FINE PRESCRIBED FOR THE FIRST OFFENCE OR BY A TERM OF IMPRISONMENT NOT LESS THAN TWICE THE LENGTH FOR THE FIRST OFFENCE OR BOTH.

40. LIABILITY OF BODIES CORPORATE, PARTNERSHIPS, AGENTS, PRINCIPALS AND EMPLOYERS

(1) Where an offence against this Act is committed by a body corporate every director or officer of the body corporate who had knowledge or should have had knowledge of the commission of the offence shall also be guilty of the offence.

(2) Where an offence is committed against this Act by a partnership, every partner or officer of the partnership who had knowledge or should have had knowledge of the commission of the offence shall be guilty of the offence.

(3) A person shall be personally liable for any offence against this Act whether committed by him on his own account or as an agent or servant of another person.

(4) A person shall be personally liable for any offence against this Act whether committed by his employee or agent against this Act unless the employer or principal proves that the offence was committed without his consent, or connivance, and that no neglect is attributed to his part.

PART 9 - FINAL PROVISIONS

41. FORFEITURE, CANCELLATION AND OTHER ORDERS

(1) The Court before which a person is prosecuted for an offence against this Act or the regulations made under the Act may in addition to other orders it may make;

(a) upon the conviction of the accused;
(b) if it is satisfied that an offence was committed not withstanding that no person has been convicted thereof, order that the substance, equipment and appliances used in the commission of the offence be forfeited to the state or be disposed of as the court directs;

(2) In making the order to forfeit under sub-section 1 of this section, the court may also order that the costs of disposing of the substances, equipment and appliance as provided for in sub-section (1) of this section be borne by the accused.

(3) The court may further order that the registration or provisional clearance of a chemical, or a licence or permit issued under this Act be cancelled.

42. APPEAL FROM THE DECISIONS OF THE BOARD

(1) The decision of the Board under this Act shall be final and shall not be subject to any appeal.

(2) The High Court in the exercise of its supervisory jurisdiction may review any decision made under this Act on matters of law.

43. EXEMPTIONS FOR GOVERNMENT ACTIVITIES

(1) The Board may if deems fit exempt certain chemicals imported and distributed in Tanzania by the Government, from fees required to be levied by the provisions of this Act.

(2) In case of emergencies, the Board may exempt from fees required to be levied under this Act, any chemical

donated, imported and distributed by international aid agencies and programmes.

44. POWER TO MAKE REGULATIONS

(1) The Minister may in consultation with the Board make regulations for the effective carrying out of the objects and purposes of this Act.

(2) In particular and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely:-

(a) the form in which an application for registration of chemical or renewal or registration shall be made, the procedure for application, the information that shall be required;
(b) the form and contents of the label including the use of suitable pictograms;
(c) the requirements of chemical containers;
(d) the licensing of manufacture, import, export, storage, transport, distribution and sale of chemical and the form and condition attached to such licences;
(e) the form of the certificate of registration, and the provisional clearance, licences permits and authorisation provided for under this Act;
(f) the advertising of chemicals;
(g) the licensing of commercial applicators, the form and condition attached to such licences;
(h) the environmentally sound disposal of chemicals, and their containers;
(i) qualifications and duties of inspectors, analysis and referee analysts and the form of the certificate of the analysts and the referee analyst;
(j) the methods of sampling and analysis to be followed;
(k) the records to be kept and the form in which they will be kept;
(l) measures for compensation of workers injured by chemicals in the course of employment;
(m) notification procedures for chemicals which are banned or severely restricted in other countries including the implementation of the prior informed consent procedure in accordance with International arrangements;
(n) secrecy of information submitted to the board as confidential.

APPENDIX (1)(II)

THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING) REGULATIONS, 1998

ARRANGEMENT OF REGULATIONS

THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT ACT, 1999 (NO..... OF 1999)

DRAFT REGULATIONS

Made under s..... of the Toxic and Hazardous Chemicals (Control and Management) Act, 1998.

THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING) REGULATIONS, 1998

PART I - GENERAL

CHEMICALS CONTROL AND MANAGEMENT

1. These Regulations may be cited as the Toxic and Hazardous (Licensing) Regulations 1998.

CONTROL AND MANAGEMENT

2. In these Regulations, unless the context requires otherwise "the Act" means the Toxic and Hazardous Chemicals Act, 1998.

3. *"Board"* means the Toxic and Hazardous Chemicals Control and Management Board established under the Toxic and Hazardous Chemicals Control and Management Act, 1998, and includes the delegate of the Board.

"Commercial applicator" means any person who carries on the business of applying toxic and hazardous chemicals.

"Export" means to send toxic and hazardous chemicals out of the United Republic of Tanzania to any other country for any purpose.

"Hazardous chemical" means a chemical with a potential to cause injury.

"Private user" means any person who uses a toxic and hazardous chemical for his own private purposes and does not operate a business as a commercial applicator.

"Regulations" means these regulations and any other regulations which may be made under the Act.

"Retailer" means a person who sells toxic and hazardous chemicals to another person for his own use.

"Toxic" this is the adjective applied to any substance able to cause injury to living organisms as result of physio-chemical interaction.

"Transporter" means a person who is engaged in the business of transporting toxic and hazardous chemicals.

"Warehouse" means place for storing toxic and hazardous chemicals as a business.

"Wholesaler" means a person who distributes or sells toxic and hazardous chemicals to retailers.

PART II - GENERAL PROVISIONS

3(1). An applicant for any licence provided for under these Regulations shall be a resident of the United Republic of Tanzania.

(2). Where the applicant is not a resident of the United Republic of Tanzania, the applicant shall designate a representative who is resident in the United Republic of Tanzania.

4. Every application for a licence under these Regulations shall relate to toxic and hazardous chemicals which is registered under the Act and its Regulations.

5. Fees to be prescribed by the board shall be paid for:

(a) any application for a licence;
(b) any licence granted under these Regulations.

6(1). The Board may cancel or suspend a licence issued under these Regulations and shall give reasons for such cancellation or suspension.

(2). The Board may change the special conditions of any licence granted under these Regulations and shall give reasons for such change.

7(1). An applicant for a licence under these Regulations shall have an opportunity to be heard at any proceedings of the Board when the application is considered.

(2). Where the Board intends to cancel or suspend a licence or change the special conditions of a licence, the holder shall be given an opportunity to be heard.

(3). The applicant may appear in person or through representative at such proceedings.

8. The Board may delegate its duties under these Regulations to licence:

(a) retailing;
(b) wholesaling;
(c) transporting;
(d) ware-housing;
(e) private use of toxic and hazardous chemicals.

Degradation may be done provided that such delegated duties shall not entail delegation of powers as well.

PART III - RETAIL, WHOLESALE, TRANSPORTATION AAND WAREHOUSE STORAGE OF TOXIC AND HAZARDOUS CHEMICALS

9(1). No person shall retail, wholesale or store in a ware-house any toxic or hazardous chemicals or transport any restricted toxic and hazardous chemicals without a licence issued by the Board under these Regulations.

(2). A licence for retailing toxic or hazardous chemicals registered for general use shall be in Form "A" set out in Schedule 2 to these Regulations.

(3). A licence for retailing toxic or hazardous chemicals registered for restricted use shall be in Form "B" set out in Schedule 2 to these Regulations.

(4). A licence for wholesale of toxic or hazardous chemicals shall be in Form "C" set out in Schedule 2 to these Regulations.

(5). A licence for transporting restricted toxic or hazardous chemicals shall be in Form "D" set out in Schedule 2 to these Regulations.

(6). A licence for ware-house storage toxic or hazardous chemicals shall be in Form "E" set out in Schedule 2 of these Regulations.

10(1). Every person desiring to retail, wholesale, or stock up a ware-house toxic or hazardous chemicals or transport restricted toxic or hazardous chemicals shall apply to the Board for a licence.

(2). The application shall be made in Form I set out in Schedule I to these Regulations.

(3). The applicant shall specify in the application whether he intends to:

(a) retail toxic or hazardous chemicals registered for general purposes;
(b) retail toxic or hazardous chemicals registered for restricted use;
(c) wholesale toxic or hazardous chemicals;
(d) transport restricted toxic or hazardous chemicals;
(e) store in a warehouse toxic or hazardous chemicals.

11(1). The Board shall consider any application for a licence under Regulations 10 within 30 days of receipt of the application.

(2). The Board shall, in considering the application satisfy itself that:

(a) the applicant has sufficient training and understanding of the nature of toxic and hazardous chemicals and of the risks involved in their handling and use;
(b) the applicant has ability to transmit his knowledge of risks involved to toxic or hazardous chemical users;
(c) the applicant has suitable premises and in the case of transporters suitable vehicles and vessels which are properly marked;
(d) the applicant has suitable protective measures at the premises and clothing for the handling of toxic or hazardous chemicals;
(e) the applicant has capacity to fulfil such other requirements as may be determined by the Board.

(3). The Board may make any or all of the considerations in sub-Regulation (3) or this Regulation conditions of any licence granted under Regulation 9 of these Regulations.

12(1). The licence issued under Regulation 9 shall be valid for a period of one year.

(2). The licence may be renewed upon application by the holder to the Board in Form III set out in Schedule I to these Regulations and in accordance with Regulation II of these Regulations.

PART IV - LICENSING OF IMPORTERS

13(1). No person shall import a toxic or hazardous chemical in the United Republic of Tanzania without a licence issued by the Board under these Regulations.

(2). A licence issued under this regulation shall be in "Form F" set out in Schedule 2 to these Regulations.

14(1). Any person desiring to import toxic or hazardous chemicals into the United Republic of Tanzania shall apply to the Board for a licence.

(2). The application shall be made in Form IV set out in Schedule I to these Regulations.

15(1). The Board shall consider each application for a licence to import a toxic or hazardous chemical within sixty (60) days of receipt of the application.

(2). In considering the application, the Board shall satisfy itself that:

(a) the applicant is aware of the toxicity and hazardous nature of the chemical and the risk involved in its use and handling;
(b) the applicant is capable of handling the risks arising from the importation of such toxic and hazardous chemical indicated by the possession of an adequate insurance coverage or similar guarantee;
(c) the applicant has plan and means to dispose of any surplus toxic or hazardous chemicals and containers in an environmentally sound manner, as determined by the Board;
(d) the applicant shall distribute the toxic or hazardous chemicals to only those wholesalers and retailers appropriately licensed under these Regulations;
(e) the applicant shall comply with such other measures as may be determined by the Board;
(f) the requirements for the Prior Informed Consent procedure set out in the Act and any Regulations have been fulfilled.

(3). The Board may make any or all the considerations in sub-Regulation (2) of this Regulation conditions for the granting of a licence to import a toxic or hazardous chemical.

16(1). A licence to import a toxic or hazardous chemical shall be valid for such consignments and for such a period as may be determined by the Board.

PART V - LICENSING OF EXPORTS OF TOXIC OR HAZARDOUS CHEMICALS

17(1). No person shall export a toxic or hazardous chemical from the United Republic of Tanzania without a licence issued by the Board under these Regulations.

(2). A licence issued under this Regulation shall be in Form "G" set out in Schedule 2 to these Regulations.

18(1). A person desiring to export toxic or hazardous chemical from the United Republic of Tanzania shall apply to the Board for a licence.

(2) The Application shall be in Form I set out in Schedule I to these Regulations.

19(1). The Board shall consider the application to export toxic or hazardous chemical within sixty (60) days of receipt of the application.

(2). The Application shall be in Form I set out in Schedule I to these Regulations.

19(1). The Board shall consider the application to export toxic or hazardous chemical within sixty (60) days of receipt of the application.

(2). The Board shall in considering the application satisfy itself that:

(a) the requirement for the Prior Informed Consent procedure where appropriate have been fulfilled;
(b) the application meets such other requirements that may be determined by the Board.

(3). The Board may make any or all of the considerations in sub-Regulation (2) of this Regulation conditions for the granting of a licence to export a toxic or hazardous chemical.

20(1). A licence to export a toxic or hazardous chemical shall relate to such a consignment of toxic or hazardous chemicals and be for such a period as may be determined by the Board.

PART VI - LICENSING OF MANUFACTURERS

21(1). No person shall manufacture or formulate any toxic or hazardous chemical without a licence issued by the Board under these Regulations.

(2). A licence issued under this Regulation shall be in Form "H" set out in Schedule 2 to these Regulations.

22(1). A person manufacturing or formulating or designing to manufacture or formulate a toxic or hazardous chemical in the United Republic of Tanzania shall apply to the Board for a licence to manufacture or formulate a toxic or hazardous chemical.

(2). The application shall be made in Form II set out in Schedule I to these Regulations.

23(1). The Board shall consider each application for a manufacturer's licence within ninety (90) days of receipt of the application.

(2). The Board shall in considering the application satisfy itself that:

(a) the toxic of hazardous chemical to which the application relates is registered under the Act;
(b) the applicant has human resources with the technical competence to manufacture or formulate the toxic or hazardous chemical;
(c) the applicant has conducted an adequate environmental impact assessment of the proposed manufacturing or formulating plant;
(d) where the plant is in existence, that applicant has adequate plans and capability to protect the health of workers and the environment, and that the applicant has complied with existing environmental Regulations and standards;
(e) the applicant complied with such other measures which the Board deems necessary for the environmentally sound operations of the plant.

(3). The Board may make any or all of the considerations in sub-Regulation (2) of this Regulation conditions for granting a manufacture's licence.

24(1). A manufacture's licence shall be valid for two years.

(2). A manufacture's licence may be renewed upon an application by the holder to the Board in Form III in Schedule I to these Regulations and in accordance with Regulation 23 of these Regulations.

(3). In reviewing the licence, the Board shall satisfy itself that the conditions set out in sub-Regulation 2(a), (b), (d) and (e) of Regulation 23 of these Regulation continue to be satisfied.

PART VII - LICENSING OF COMMERCIAL APPLICATORS

25(1). No person shall carry on the business of a commercial applicator of toxic or hazardous chemicals without a licence issued by the Board under these Regulations.

(2). A licence issued under this Regulation shall be in Form "J" set out in Schedule 2 to these Regulations.

26(1). Every person desiring to carry out the business of a commercial applicator of toxic or hazardous chemicals shall apply to the Board for a licence.

(2). The application shall be made in Form I set out in Schedule I to these Regulations.

(a) the applicant has sufficient training to handle the application of toxic or hazardous chemicals on a large scale;
(b) the applicant has suitable equipment which is in a good state of repair.
(c) the applicant has trained employees in the safe use of toxic or hazardous chemicals;
(d) the applicant has suitable emergency plans and responses;
(e) the applicant has protective clothing to be used by the employees in the application of toxic or hazardous chemicals;
(f) the application shall satisfy such other requirement as may be determined by the Board.

(3). The Board may make any or all of the considerations in sub-Regulation (2) of this Regulation conditions to the granting of a commercial applicator's licence.

28(1). A commercial applicator's licence shall be valid for one year.

(2). A commercial applicator's licence may be renewed upon application by the holder to the Board in Form III set out in Schedule I to these Regulations and in accordance with Regulation 27 of these Regulations.

PART VIII - LICENSING OF PRIVATE USERS OF RESTRICTED TOXIC AND HAZARDOUS CHEMICALS

29(1). No person shall use any restricted toxic or hazardous chemical without a licence issued by the Board under these Regulations.

(2). A licence issued under this Regulation shall be in Form "K" set out in Schedule 2 of these Regulations.

30(1). Every person desiring to use a restricted toxic or hazardous chemical and who is not a commercial applicator of toxic or hazardous chemicals shall apply to the Board for a licence.

(2). The application shall be made in Form I set out in Schedule I to these Regulations.

31(1). The Board shall consider any application for a private user's licence within thirty (30) days of receipt of the application.

(2). The Board shall in considering the application satisfy itself that:

(a) the applicant understands the risks involved in using the toxic or hazardous chemical and is capable of using the said chemical in an environmentally sound manner;
(b) the method which the applicant proposes to use in applying the toxic or hazardous chemical meets the Board's approval;
(c) the applicant has suitable equipment for applying the toxic or hazardous chemical;
(d) the applicant has suitable protective clothing for handling toxic or hazardous chemicals;
(e) the applicant shall satisfy any other requirements as may be determined by the Board.

(3). The Board may make any or all of the considerations in sub-Regulation (2) of this Regulation conditions for granting a private user's licence.

32. A private user's licence shall be valid for one (1) year.

SCHEDULE 1

FORM I

THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING) REGULATIONS, 1998

Instructions

a. To be completed in quadruplicate

b. Type or use block letters

c. An application fee of_____ shillings shall be paid.

To the Toxic and Hazardous Chemicals Control and Management Board.

APPLICATION FOR A LICENCE

Name of Applicant .....

.....

Address .....

.....

.....

Application for a licence for:

( ) Retail of unrestricted toxic or hazardous chemicals
( ) Retail of restricted toxic or hazardous chemicals
( ) Wholesale of toxic or hazardous chemicals
( ) Transportation of restricted toxic or hazardous chemicals
( ) Warehousing of toxic or hazardous chemicals
( ) Commercial application of toxic or hazardous chemicals
( ) Private use of restricted toxic or hazardous chemicals

Location of business

.....

.....

.....

Names and qualifications of Applicant

.....

.....

.....

.....

Toxic or hazardous chemical(s) applied for

.....

.....

.....

.....

Precautions and safety measures for handling toxic or hazardous chemicals

.....

.....

.....

I certify that the information provided is complete and correct

....

Date: Signature of applicant

Title: .....

FOR OFFICIAL USE

Date of receipt of application

.....

Date of inspection of premises .....

(a separate inspection report is required).

Approved ( ) Licence Number .....

Rejected ( )

Further information required ( )

Date of meeting

.....

SCHEDULE I

FORM II

TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING) REGULATIONS, 1998

Instructions:

1. Complete in quadruplicate
2. Type or use block letters
3. An application fee of ..... shillings shall be paid.

To the Toxic and Hazardous Chemical Control and Management Board

APPLICATION FOR TOXIC OR HAZARDOUS CHEMICAL MANUFACTURER'S LICENCE

Name of applicant

.....

Address

.....

.....

Location of premises

.....

.....

Name of supervising chemist

.....

.....

Qualification and experience of the supervising chemist (attach a curriculum vitae)

.....

.....

Other key officers .....

Name .....

Qualification .....

Title .....

.....

.....

.....

.....

.....

.....

Chemical to be manufactured .....

Trade name .....

Common name .....

Chemical name .....

Registration number .....

Sources of raw materials .....

.....

.....

.....

Attachments:

(1) Description of manufacturing equipment, (appendix I).
(2) Description of manufacturing process (appendix II).
(3) An environmental impact assessment of the proposed manufacturing or formulation plant (appendix III).
(4) Curriculum vitae of key officers in the production process (appendix IV).

I certify that the information provided is complete and correct

Date ..... Signature of applicant and title .....

FOR OFFICIAL USE

Date of receipt of application .....

Date of inspection of premises (a separate inspection report is required) .....

Approved ( ) Licence number .....

Rejected ( )

Further information required ( )

Date: .....

SCHEDULE I

FORM III

THE TOXIC AND HAZARDOUS CHEMICALS (LICENSING) REGULATIONS, 1998

Instructions

a. To be completed in quadruplicate

b. Type or use block letters

c. An application fee of_ ..... shillings shall be paid.

To the Toxic and Hazardous Chemicals Control and Management Board.

APPLICATION FOR RENEWAL OF A LICENCE

Application for a licence for

( ) Retail of unrestricted toxic or hazardous chemicals
( ) Retail of restricted toxic or hazardous chemicals
( ) Wholesale of toxic or hazardous chemicals
( ) Transportation of restricted toxic or hazardous chemicals
( ) Warehousing of toxic or hazardous chemicals
( ) Commercial application of toxic or hazardous chemicals
( ) Private use of restricted toxic or hazardous chemicals

Location of business

.....

.....

Current licence number .....

Chemical(s) applied for .....

.....

.....

Does the applicant seek any changes in the conditions of the current licence?

.....

.....

.....

I certify that the information provided is complete and correct

Date ..... Signature of applicant .....

Title .....

FOR OFFICIAL USE

Date of receipt of application .....

Date of inspection of premises .....

(a separate inspection report is required)

Approved ( ) Licence number .....

Rejected ( )

Further information required ( )

Date: .....

SCHEDULE I

FORM IV

THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING) REGULATIONS, 1998

Instructions

a. To be completed in quadruplicate

b. Type or use block letters

c. An application fee of ..... shillings shall be paid.

To the Toxic and Hazardous Chemicals Control and Management Board.

APPLICATION FOR A LICENCE TO IMPORT A TOXIC OR HAZARDOUS CHEMICAL

Name of Applicant

.....

Address

.....

.....

.....

Qualifications (professional and education) of applicant .....

.....

.....

.....

Name and qualifications of the person(s) who shall be in charge of the business

.....

.....

.....

Location of business .....

.....

.....

Chemical applied for under this licence .....

.....

.....

.....

State whether chemical has been banned or is severely restricted in any country?

.....

.....

Precautions and safety measures for the handling of the chemical .....

.....

.....

I certify that the information provided is complete and correct

Date ..... Signature of applicant .....

Title .....

FOR OFFICIAL USE

Date of receipt of application .....

Date of inspection of premises .....

(a separate inspection report is required)

Approved ( ) Licence number .....

Rejected ( )

Further information required ( )

Date: .....

Registration number .....

SCHEDULE I

FORM V

THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING) REGULATIONS, 1998

Instructions

a. To be completed in quadruplicate

b. Type or use block letters

c. An application fee of ..... shillings shall be paid.

To the Toxic and Hazardous Chemicals Control and Management Board.

APPLICATION FOR A LICENCE TO EXPORT A TOXIC OR HAZARDOUS CHEMICAL

Name of applicant .....

Address .....

.....

.....

.....

Qualification (professional and educational) of applicant .....

.....

.....

.....

Name and qualifications of the person(s) who shall be in charge of the business

.....

.....

.....

Location of business .....

.....

.....

.....

Chemical applied for under this licence .....

.....

.....

.....

.....

Registration number of the chemical .....

.....

State whether the chemical is banned or severely restricted in Tanzania .....

.....

.....

.....

Have the Prior Informed Consent procedures been satisfied? .....

Precautions and safety measures for the handling of chemicals .....

.....

.....

.....

I certify that the information provided is complete and correct.

Date ..... Signature of applicant .....

Title .....

FOR OFFICIAL USE

Date of receipt of application .....

Date of inspection of premises .....

(a separate inspection report is required)

Approved ( ) Licence number .....

Rejected ( )

Further information required ( )

Date: .....

SCHEDULE 2

FORM A

THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING REGULATIONS) LICENCE TO RETAIL TOXIC OR HAZARDOUS CHEMICALS FOR GENERAL USE

The Toxic and Hazardous Control and Management Board in its capacity as Licensing Authority under the Toxic and Hazardous Chemicals Control and Management Act, hereby licenses:

Name .....

Postal Address .....

.....

Location address .....

.....

To retail toxic or hazardous chemicals registered for general use in Tanzania subject to due compliance with the requirements of the Toxic and Hazardous Chemicals Control and Management Act and its Regulations.

The special conditions attached to this licence are .....

.....

This licence remains valid from ..... to .....

Granted ..... Signed .....
(date) For the Toxic and Hazardous Chemicals Control and Management Board

FEE: .....

Licence number .....

SCHEDULE 2

FORM B

THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING REGULATIONS) LICENCE TO RETAIL RESTRICTED CHEMICALS

The Toxic and Hazardous Control and Management Board in its capacity as Licensing Authority under the Toxic and Hazardous Chemicals Control and Management Act, hereby licenses

Name .....

Postal Address .....

.....

Location address .....

.....

To retail chemicals registered for restricted use in Tanzania subject to due compliance with the requirements of the Toxic and Hazardous Chemicals Control and Management Act and its Regulations.

This licence remains valid from ..... to .....

Granted ..... Signed .....
(date) For the Toxic and Hazardous Chemicals Control and Management Board

FEE: .....

Licence number .....

SCHEDULE 2

FORM C

THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING REGULATIONS) LICENCE TO WHOLESALE TOXIC OR HAZARDOUS CHEMICALS

The Toxic and Hazardous Control and Management Board in its capacity as Licensing Authority under the Toxic and Hazardous Chemicals Control and Management Act, hereby licenses:

Name .....

Postal Address .....

.....

Location address .....

.....

To wholesale in toxic or hazardous chemicals in Tanzania subject to due compliance with the requirements of the Toxic and Hazardous Chemicals Control and Management Act and its Regulations.

The special conditions attached to this licence are .....

.....

This licence remains valid from ..... to .....

Granted ..... Signed .....
(date) For the Toxic and Hazardous Chemicals Control and Management Board

FEE: .....

Licence number .....

SCHEDULE 2

FORM D

THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING REGULATIONS) LICENCE TO TRANSPORT RESTRICTED TOXIC OR HAZARDOUS CHEMICALS

The Toxic and Hazardous Control and Management Board in its capacity as Licensing Authority under the Toxic and Hazardous Chemicals Control and Management Act, hereby licenses:

Name .....

Postal Address .....

.....

Location address .....

.....

To transport restricted toxic or hazardous chemicals by .....
(air, road, rail, boat) in Tanzania subject to due compliance with the requirements of the Toxic and Hazardous Chemicals Control and Management Act and its Regulations.

The special conditions attached to this licence are .....

.....

This licence remains valid from ..... to .....

Granted ..... Signed .....
(date) For the Toxic and Hazardous Chemicals Control and Management Board

FEE: .....

Licence number .....

SCHEDULE 2

FORM E

TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING) REGULATIONS
LICENCE WAREHOUSE CHEMICALS

The Toxic and Hazardous Chemicals Control and Management Board, in its capacity as Licensing Authority under the Toxic and Hazardous Chemicals Control and Management Act, hereby licences:

Name: .....

.....

.....

This licence remains valid from ..... to .....

Granted ..... Signed .....
(date) For the Toxic and Hazardous Chemicals Control and Management Board

FEE: .....

Licence Number .....

SCHEDULE 2

FORM F

TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING REGULATIONS)
LICENCE TO IMPORT TOXIC OR HAZARDOUS CHEMICALS

The Toxic and Hazardous Chemicals Control and Management Board as Licensing Authority under the Toxic and Hazardous Chemicals and Management Act, hereby licences:

Name .....

Postal address .....

Location of premises .....

To import .....
(quality or number of consignments)

Name of chemical .....

.....

Name and address of exporter .....

.....

Registered number under the Toxic and Hazardous Chemicals Control and Management Act

.....

.....

This licence remains valid from ..... to .....

Granted ..... Signed .....
(date) For the Toxic and Hazardous Chemicals Control and Management Board

FEE .....

Licence number .....

SCHEDULE 2

FORM G

THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING REGULATIONS) LICENCE FOR EXPORT OF A CHEMICAL

The Toxic and Chemicals Control and Management Board, in its capacity as Licensing Authority under the Toxic and Hazardous Chemicals Control and Management Act, hereby licences

Name .....

Postal address .....

Location of premises .....

To export .....

(name of the chemical and quantity) .....

To (name address, location, country) .....

.....

.....

Manufacturers name and address .....

.....

This licence is issued subject to due compliance with the Toxic and Hazardous Chemicals Control and Management Act and its Regulations.

The special conditions attached to this licence are: .....

.....

.....

Granted ..... Signed .....

(date) For the Toxic and Hazardous Chemicals Control and Management Board

FEE .....

Licence number .....

SCHEDULE 2

THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING REGULATIONS) LICENCE TO MANUFACTURE CHEMICALS

The Toxic and Hazardous Chemicals Control and Management Board as Licensing Authority under the Toxic and Hazardous Chemicals Control and Management Act hereby licenses.

Name .....

Postal address .....

Location of premises .....

To manufacture ..... (name of chemical) registered under the Toxic and Hazardous

Chemicals Control and Management Act, Registration No. .....

.....

at the premises specified above in Tanzania subject to due compliance with the requirements of the Toxic and Hazardous Chemicals Control and Management Act and its Regulations.

The special conditions attached to this licence are: .....

This license remains valid from ..... to .....

Granted ..... Signed .....
(date) For the Toxic and Hazardous Chemicals Control and Management Board

FEE .....

Licence number .....

SCHEDULE 2

FORM J

THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING REGULATIONS) LICENCE FOR COMMERCIAL APPLICATIONS OF CHEMICALS

The Toxic and Hazardous Chemicals Control and Management Board, in its capacity as Licensing Authority under the Toxic and Hazardous Chemicals Control and Management Act, hereby licenses:

Name .....

Postal address .....

Location of premises .....

to carry out the business of a commercial application of chemicals in geographical area .....

.....

.....

This licence covers restricted/non-restricted chemicals both restricted/non-restricted chemicals.

The licence is issued subject to due compliance with the Toxic and Hazardous Chemicals Control and Management Act and its Regulations.

The special conditions attached to this licence are: .....

This license remains valid from ..... to .....

Granted ..... Signed .....
(date) For the Toxic and Hazardous Chemicals Control and Management Board

FEE .....

Licence number .....

SCHEDULE 2

FORM K

THE TOXIC AND HAZARDOUS CHEMICALS CONTROL AND MANAGEMENT (LICENSING REGULATIONS LICENCE FO PRIVATE USE OF A RESTRICTED CHEMICAL

The Toxic and Hazardous Chemicals Control and Management Board, in its capacity as Licensing Authority under the Toxic and Hazardous Chemicals Control and Management Act, hereby licenses:

Name .....

Postal address .....

Location of use .....

To use: .....

.....

.....

(name of chemical, common name and trade name)

Registration number .....

In due compliance with the Toxic and Hazardous Chemicals Control and Management Act and its Regulations.

The special conditions attached to this licence are: .....

This license remains valid from ..... to .....

Granted ..... Signed .....

(date) For the Toxic and Hazardous Chemicals Control and Management Board

FEE .....

Licence number .....

APPENDIX 2

LEGISLATION RELATING TO ENVIRONMENT

1.0 LAND-USE

1. Town and Country Planning Ordinance, Cap 378 of 1956;
   (a) Amended by Acts: 38/66, 41/69, 13/91.
   (b) Regulations under Section 78:
      i. The Town and Country Planning (Appeals) Regulations, 1959;
      ii. The Town and Country Planning - (Constitution and Proceedings of Joint Area Planning Committees) Regulations, 1960;
      iii. The Town and Country Planning (Use Classes) Regulations, 1960;
      iv. The Town and Country Planning (Modifications of Planning Schemes) Regulations 1964;
   (c) Orders under Section 13:
      i. The Dodoma Planning Area Order, 1959;
      ii. The Planning Area Order, 1960;
      iii. The Dodoma Planning Area Order, 1963;
      iv. The Town and Country Planning Area (Public Beaches Planning Area) Order, 1992.
2. Land Acquisition Act 47 of 1967. As amended by Act: 25/68
3. Land Ordinance 113 of 1923. As amended by Acts: 21/66, 28/70, 10/74, 13/89.
4. Rural Lands (Planning and Utilisation) Act 14 of 1973
5. Public Lands (Preserved Areas) Ordinance, Cap 338. As amended by Act 28/65
6. Protected Places and Areas Act: 38 of 1969.
7. Public Recreation Grounds Ordinance, Cap 320 of 1954, as amended by Acts: 10/68, 48/66.
8. Grass fires (Control) Ordinance 8 of 1943
9. Fire Inquiry Ordinance, Cap 133 of 1974

2.0 NATURAL RESOURCES

10. Natural Resources Ordinance, Cap 259
11. Wildlife Conservation Act 12 of 1974. As amended by Act 21/78.
12. Fisheries Act 6 of 1970.
13. Forestry Ordinance, Cap 389 of 1959. As amended by Acts 1/64, 51/64, 8.79, 13/91.
14. Territorial Sea and Exclusive Economic Zone Act 3 of 1989.
15. National Parks Ordinance Cap 412 of 1959. As amended by Acts 7/67, 50/68, 27/74, 14/75.
16. Game Parks Ordinance of 1974. As amended by Acts 27/74, 14/75.
17. Ngorongoro Conservation Area Ordinance 413 of 1969.

3.0 HEALTH AND ENVIRONMENTAL POLLUTION

18. Public Health (Sewerage and Drainage) Ordinance, 336 of 1955.
19. Penal Code, Cap 16 of 1945:
   (i) Section 170: Prohibition on Common Nuisance.
   (ii) Section 184: Fouling water.
   (iii) Section 185: Fouling air.
   (iv) Section 179: Negligent Spread of Diseases.
   (v) Section 180-181: Adulteration and Sale of Noxious Foods.
   (vi) Section 186: Offensive Trade.
20. Mining Act 17 of 1979.
21. Mining (Controlled Areas) Ordinance.
22. Food Control of Quality Act 10 of 1978.
23. Petroleum Exploration and Production Act 27 of 1980.
24. Petroleum Conservation Act 18 of 1981.
25. Protection from Radiation Act 5 of 1983.
26. Explosives Act 56, of 1963.
27. Fire and Rescue Services Act 3 of 1985.
28. Pharmaceutical and Poisons Act 9 of 1978.
29. Disaster Relief Act 9 of 1990.

4.0 WATER AND ENERGY

30. Water Utilization (Control and Regulations) Act 42 of 1974. As amended by Act 10/81, 17/89.
31. Waterworks Ordinance, Cap 281 of 1949.
32. Electricity Ordinance, Cap 131 of 1931.

5.0 AGRICULTURE, LIVESTOCKS AND CROPS

33. The Plant Protection Act, 1997.
34. Locusts Ordinance of 1929.
35. The Seed Act of 1973.
36. Range Development and Management Act, 1964, Cap 569.

37. Animal Disease Ordinance, Cap 156.
38. Fertilizers and Animal Foodstuff Ordinance, Cap 469.
39. Hides and Skins Act 68 of 1963.
40. Cattle Grazing Ordinance, Cap 155.
41. Transfer of Native owned Livestock (Notification), Cap 158.
42. Animal (Protection) Ordinance, Cap 153.
43. Animal (Native Livestock), Cap 157.
44. Tsetse Fly Ordinance, Cap 100.
45. Dairy Industry Ordinance 456 of 1956.
46. The Agriculture Input Trust Fund Act of 1994.

6.0 INDUSTRIES AND INVESTMENTS

47. Factories Ordinance, Cap 46 of 1950.
    As amended by Act: 13/91.
48. The Tanzania Investment Act, 1997.
49. National Industries (Licensing and Registration) Act 10 of 1967. As amended by Act: 33/64, 12/66, 41/69, 2/70, 11/71, 18/75, 22/81, 10/84, 17/89, 13/91, 14/92.

7.0 TRANSPORTATION

50. Highways Ordinance, Cap 167 of 1967.
    As amended by Act: 40/69.
51. Inland Water Transport Ordinance, Cap 172 of 1938.
    As amended by Act: 48/62, 6/66
52. Merchant Shipping Act 43 of 1967.
53. Tanzania Harbours Authority Act 12 of 1977.

8.0 LOCAL GOVERNMENTS

54. Local Government District Authority Act 7 of 1982.
    As amended by Act: 4/85, 13/88, 8/92.
55. Local Government Urban Authority Act 8 of 1982 .
    As amended by Act 14/61, 38/66, 41/69, 13/19.
56. Township Ordinance, Cap 101.
    As amended by Act: 7/85.

9.0 ANTIQUITIES

57. National Museum of Tanzania Act 7 of 1980.
58. Antiquities Act Cap 550 of 1964.
    As amended by Act 22/79.

10. INSTITUTIONS DEALING WITH ENVIRONMENT

59. National Land Use Planning Commission Act 3 of 1985.
60. National Environment Management Council Act 19 of 1983.
61. Urban Water Supply Act 7 of 1981.
62. Tropical Pesticides Research Institute Act 18 of 1979.
    Standards Act 4 of 1975.
63. Standards Act 3 of 1975.
64. Tanzania Fisheries Research Institute Act 6 of 1980.
65. Tanzania Forestry Research Institute Act 5 of 1980.
66. Tanzania Industrial Studies and Consulting Organisation Act 2 of 1976.
67. Serengeti Wildlife Research Institute Act 5 of 1980.
68. Rufiji Basin Development Authority Act 5 of 1975.
69. College of African Wildlife Management Act Cap 549 of 1964. As amended by Act 39/74.
70. Tanzania Tourism Board Act 25 of 1962.
    As amended by Act: 18/92.

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4. UNEP: *London Guidelines for the Exchange of Information on Information on Chemicals in International Trade*. Adopted by UNEP Governing Council Decision 14/27 of 17th June, 1987, Nairobi amended in 1989.

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UGANDA COUNTRY REPORT

EXECUTIVE SUMMARY

Chemicals play a vital and an indispensable role in almost every sector of Uganda's developing economy. Depending on the amounts involved, a number of physico-chemical properties and the degree of toxicity, a chemical may adversely affect living organisms, plants, animals as well as human health. The general population is exposed to different chemical substances in several forms mainly in three ways, namely: by inhalation, ingestion, and through contact with the body surface. Activities such as accidental or intentional discharge of toxic chemical effluents containing fertilizers, pesticides and industrial wastes into surface and underground portable water sources; and, use of soils contaminated with cadmium, mercury, and lead for food production; consumption of fish, milk and eggs contaminated with polychlorinated biphenyls or foodstuffs containing aflatoxins, residues of pesticides, antibiotics, and other drugs may lead to the build-up, transformation, dispersion and distribution of toxic and hazardous chemicals in the environment. The preconcentration of toxic chemicals via the food chain may cause detrimental effects in aquatic ecosystems, wildlife, and human beings.

Air pollutants such as carbon dioxide, gaseous solvents as well as ozone depleting substances, for example, chloroflourohydrocarbons may lead to phenomena like global warning and ozone depletion, respectively.The former is responsible for a process which could threaten the very existence of our life support systems, while the latter could lead to the disappearance of the protective ozone layer against the powerful ultraviolet radiation from the sun.

A local survey revealed that there are several types of chemicals which could be classified under twelve major groups based on their uses. The groups include : petrochemicals; agricultural chemicals; laboratory and industrial chemicals; plastics and rubber product chemicals; cosmetics, detergents and perfumes; pharmaceuticals; adhesives, paints, polishes, lubricants and building materials; food additives, preservatives and contaminants; textile, leather and wood product processing chemicals; aerosols and air pollutants; and, radioactive nuclides.

The survey also revealed the following:

(i) industrial chemical effluents/wastes are directly discharged into streams, rivers and lakes without treatment;

(ii) toxic chemicals which are severely restricted or banned in their countries of origin are still imported and widely used in Uganda

(iii) the widespread abuse/misuse of toxic chemicals to control, head lice, catch fish and suicide poisonings

(iv) use of protective clothing such as gloves, boots, goggles during pesticide application is rare among farmers especially in the rural areas

(v) improper use, transport, storage, disposal of chemicals, chemical wastes, low level-radiation radioactive wastes

(vi) continued importation of second-hand refrigerators which use ozone-depleting substances, for example, chlorofluorohydrocarbons CFCs.

(vii) improper disposal of expired drugs; and,

(viii) continued use of highly toxic materials such as asbestos

Against this background, the need to examine loopholes in the current regulatory controls on and monitoring importation or production of toxic chemicals and their disposal, in order to protect human health and the environment from the adverse effects due to these substances, cannot be over-emphasized.

A review of the international conventions, Ugandan laws, regulations and practices regarding the import, storage, transport, use, sale and disposal of chemicals demonstrates:

- an urgent need to up-date the laws and make them more relevant to the local situation
- the need to regularly review the international conventions so as to take action regarding those chemicals where there is overwhelming evidence of danger to human health; and,
- to monitor chemicals from importation up to the disposal stage

After a critical assessment of the existing laws and regulations on those potentially dangerous chemicals based on current scientific data, it is proposed that the regulatory processes be modified and regularly up-dated with special emphasis on the key areas listed below.

(i) Information on chemicals.

(ii) Existing regulatory controls from country of origin (for chemical imports).

(iii) Licensing importation or local production of chemicals.

(iv) Safety of production processes when chemical is locally manufactured.

(v) Storage and transportation of chemicals, by-products and main products.

(vi) Restrictions on use,handling, distributing and marketing of chemicals.

(vii) Disposal of expired chemicals, chemical wastes and by-products.

(viii) The agency and manpower to monitor, supervise and enforce compliance to regulations.

CHAPTER ONE

INTRODUCTION

In last century, synthetic and naturally derived chemicals have played a crucial role in man's attempt to achieve economic and industrial development. Major break-throughs in chemistry, and the chemical industry have contributed to increased food production to feed and meet challenges of rapidly growing populations. Pharmaceutical products have increased man's ability to cure and prevent diseases. Chemicals have also played a key role in the development of a wide range of household products and consumer goods in modern society. These products have also added to the quality of life through improved clothing and shelter, among others.

There are, however, human and environmental costs associated with the production, transport and use of chemicals because they have the potential to cause harm to human health and/or the environment; and because of this danger, most chemicals could be regarded as toxic or hazardous. In simple terms "toxic" and "hazardous" products refer to substances which are "poisonous" and "dangerous", respectively. According to the United Nations Environment Programme (UNEP), a hazardous chemical is defined as chemical which represents a threat to human or animal health or to the environment. This broad definition has two major implications. First, all toxic chemicals are inherently hazardous. Secondly, even those chemicals which pose a 'very remote' threat to human, animal health and/or the environment fall under the category of hazardous chemicals.

The threat to human health and the environment in general may be a result of major industrial accidents stemming from transportation of hazardous substances, chemical spills as well as explosions at industrial facilities. Chemicals used to fight diseases, control pests and weeds, and regulate the growth of food crops, also represent a serious hazard to the environment. In 1977, the World Health Organization (WHO) estimated the number of deaths from pesticides globally to be about 20,640. In 1981, OXFAM, up-dating on the WHO figures, estimated the world pesticide-related poisonings at about 750,000 a year. In 1983, the Economic and Social Commission of Asia and the Pacific suggested that pesticide poisoning incidences could be as high as two million a year, of which 40,000 could be fatalities. Current pesticide poisoning figures world-wide must be much higher because the use of chemicals in agriculture and for vector control has considerably increased in the last fifteen years. In addition, the absence of proper records of the impact of pesticides on human health and environment in most developing countries may lead to an under-estimation of the problem.

1.1 GLOBAL ACTION TO CONTROL HAZARDS ASSOCIATED WITH CHEMICALS

The United Nations Environment Programme (UNEP) was launched at a "United Nations Conference on Human Environment" in June 1972 in Stockholm, Sweden by 113 nations, UN agencies, a host of individuals, and non-government organizations (NGOs). In general terms, the programme maintains a constant watch on the changing 'state of the environment'; analyses the trends in depth; assesses the problems using a wide range of data and techniques; and, promotes 'action plans' or projects leading to environmentally sound development.

With respect to chemicals, UNEP operates an information service known as the International Register of Potentially Toxic Chemicals (IRPTC) related to over 50,000 chemicals. The main operation of this service is data retrieval, analysis and evaluation of chemicals for regular publication in the IRPTC bulletin and elsewhere. Based on this information and other reliable sources, several governments have taken measures to reduce the impacts of chemicals. Many toxic and hazardous chemicals have been banned, severely restricted or not approved by governments in industrialized and many developing countries. International cooperation at the level of information sharing and exchange has led to successful regulatory action against chemicals where previously no control existed. For example, the Pesticide Action Network International (PAN), a coalition group which links groups working against pesticide abuse in the developing countries with those in industrialized countries launched a world-wide campaign, the "Dirty Dozen", on June 5, 1985.

This campaign targets 12 hazardous pesticides commonly used in developing countries as listed below:

(i) **Parathion**: This chemical is responsible for a lot of pesticide poisoning in the world. It is so acutely toxic that a teaspoon spilled on the skin can be fatal. This extremely

hazardous organophosphate is widely used instead of the more environmentally persistent organochlorines.

(ii) **2,4,5-T**: One-half of the defoliant "Agent Orange" sprayed by the United States (U.S) military on vast areas of Vietnam, 2,4,5-T, is widely used as a herbicide today. It is contaminated with dioxin, the most toxic chemical known on a per-weight basis and suspected of causing birth defects and spontaneous abortions.

(iii) **Paraquat** : A frequent method of suicide in the developing countries, paraquat has no known antidote. Extremely poisonous when ingested, inhaled or absorbed through the skin, this potent weed-killer causes death by suffocation.

(iv) **DDT**: The book 'Silent Spring' revealed DDT's devastating effect on wildlife. Extremely persistent in the environment, DDT is present in virtually all foods and living things, its chronic toxicity increased by accumulation in body fats at each level of the food chain. Uncontrolled world-wide use of DDT has helped to breed pesticide-resistant mosquitoes, causing a dramatic resurgence in malaria.

(v) **Aldrin/Dieldrin/Endrin**: Acutely and indiscriminately toxic, the "drins" kill beneficial insects along with target pests. They also pose serious chronic hazards, including cancer in test animals. Environmentally persistent, they have been found in rain water, ground and surface water, soil, and food crops.

(vi) **Chlordimeform** : Produced primarily for use on cotton in the Third World, chlordimeform is notorious for industry's 1976 Afield experiment" performed on 6 Egyptian teenagers to determine its effects on humans. Toxic if swallowed or absorbed through the skin, this organochlorine may also cause severe bladder irritation.

(vii) **Dibromochloropropane (DBCP)**:DBCP, a carcinogen, has been directly linked to sterility in male workers manufacturing or applying the pesticide. This powerful soil fumigant rapidly makes its way into ground-water supplies.

(viii) **Chlordane/Heptachlor**: Residues of these two extremely persistent organochlorines pesticides have been detected virtually everywhere on earth. They accumulate in human fat cells and are suspected carcinogens.

(ix) **HCH/Lindane** : HCH is a suspect carcinogen. It is not registered for use in the United States. Lindane, HCH's most toxic isomer, is the active ingredient in many headlice control products, even though it can cause nerve damage in humans and animals, and is widely used in agriculture.

(x) **Ethylene Dibromide** : EDB is an extremely potent carcinogen and mutagen that also damages male and female fertility. A fumigant used widely on soil, grains and citrus fruits, EDB penetrates human skin, rubber and plastic, and the skin of many crops, and can contaminate ground-water.

(xi) **Camphechlor(Taxaphene)**: One of the world's most widely used pesticides during the 1970s, Camphechlor can be absorbed through the skin and is often fatal if swallowed. Extremely toxic to fish, it disperses over large areas once released into the environment and accumulates in the fat cells of animals.

(xii) **Pentachlorophenol (PCP)**: PCP, a highly hazardous organic compound, is toxic to the liver, kidney and central nervous systems. Used widely as a wood preservative, for termite control, and as a herbicide, it can be absorbed across the skin, the lung, and the gastro-intestinal lining.

Within the last thirteen years, the "Dirty Dozen" campaign has been a continous reminder of the devastating effect of hazardous chemicals on human health, flora and fauna. It is reasonable to assume that current attempts to regulate and legislate on toxic and hazardous chemicals may partly be seen as successes of the "Dirty Dozen" campaign.

1.2 DEFINITIONS

(a) "A chemical"is defined in the National Environment Statute as a chemical substance in any form whether by itself or in a mixture or preparation whether manufactured or derived from nature and for purposes of that Statute, chemicals include industrial chemicals, pesticides, fertilizers and drugs.

(b) "Atoxic chemical" means a chemical that can cause injury or death of a living organism or tissue as a result of physic-chemical interaction.

(c) "Hazard"is the ability of a chemical to cause harm and its assessment is based on the inherent unchanging characteristics of the chemical itself.

(d) "Hazardous chemical" means a chemical which represents a threat to human or animal health or to the environment.

(e) "Banned chemical"means a chemical which has, for health or environmental reasons, been prohibited for all uses by final government regulatory action.

(f) "Severely restricted chemical"means a chemical for which, for health or environmental reasons, vitually all uses have been prohibited nationally by final government regulatory action, but for which certain specific uses remain authorized.

(g) "Chemical safety" means the prevention and management of adverse health effects both short-term and long-term to humans and environment derived from the production, storage, transport, trade and disposal of their wastes and the minimization of economic losses arising from their hazards.

(h) "Pesticide" means a chemical substance used for control of an organism that is detrimental to man or his interests.

(i) "Management" means the handling, supply, transport, storage, treatment, application or other use of a chemical subsequent to its initial manufacture or formulation.

1.3 IMPORTANCE OF CHEMICALS IN THE SOCIO-ECONOMIC DEVELOPMENT OF UGANDA

The use of chemicals is an essential means for achieving socio-economic development world wide. In Uganda a variety of chemicals are used. These are grouped as shown below.

(i) Petrochemicals (petrol, diesel, greases, oils etc).
(ii) Fertilizers (organic/inorganic).
(iii) Pesticides (herbicides, insecticides, rodenticide, etc).
(iv) Industrial chemicals (acids, alkalis, oxides, salts etc).
(v) Synthetic organic chemicals (PVCs, PCBs, Polyester).
(vi) Cosmetics (toilet soaps, perfumes, hair conditioners etc).
(vii) Pharmaceuticals (human and veterinary drugs).
(viii) Solvents and paints (cleaning and polishing chemicals).
(ix) Natural and synthetic rubber.

Pesticides are the most accessible abundant and misused chemicals in Uganda. Agricultural production being a leading foreign exchange earner (about 90% of Uganda's foreign exchange earnings), the use of pesticides is a major issue (NEAP paper).

Pesticides are used for various purposes as below.

(i) Crop protection

cotton, green bananas, coffee and horticulture products are protected against seedling and foliage pests and fungal damage, using pesticides like thoidan, pernethrin, cypermethrin, fenitrothion, aluminium phosphate, and organophosphate.

(ii) Livestock protection

Protection against ticks using organophosphate, pyrethmoids detamethrin and cypermethrin.

(iii) Vector control

Mosquitoes, tse-tse flies, black flies and snails that cause disease such as malaria, sleeping sickness, river blindness, bilharzia, respectively, (among others) are controlled using dieldrin, thiodan, dectametrin, alpha cypermethrin and permethrin.

(iv) Locust/Army-worm control

Desert locusts are controlled using thiodan and decamethrin.

(v) Weed control

Gramoxone, dalapon and atrazine 2-4-D and 2-4-5-T are applied in plantations of tea, sugarcane, coffee and bananas, to eradicate weeds.

(vi) Seed dressing

Seeds are preserved using linadane, heptachior and dieldrin mixed with phenly mecuric acetate.

(vii) Preservation of wood

In order to control termites trees are sprayed with dieldrin, carbosulfan and carbofuran are used.

There has been massive misuse of pesticides by people which has lead to grievous effects, as listed below

- Poisoning fish, by unscrupulous fishermen.
- Treating skin diseases, wounds and killing head lice.
- Empty containers of pesticides are applied to a household purposes as water containers and for packing drinks.
- Exposure of workers to pesticides without adequate protective cover.
- Accidental ingestion of treated seeds.

The misuse of pesticides has brought about the following effects:

- acute poisoning of about 272,000 cases annually, sometimes leading to death in humans;
- extensive destruction of crops (for example, bananas in 1989);
- ill health as a result of ingestion, skin absorption and inhalation;
- impotence among males;
- loss of bio-diversity through poisoning and genetic irritations.

The wide application of phosphate fertilizers and sewerage sludge in agricultural land may lead to the contamination of soil and water ways with toxic trace metals.

On consumption of fish which is contaminated by mercuric chloride, mammals develop a fatal neurological disorder. Cadmium causes a cracking bone disease when consumed. Lead poisoning arises mainly from leaded paints, leaded gasoline, leaded glazed pottery, water pipes and plates. Exposure to arsenic brings about lung and skin cancer.

Industrial and biological gaseous emissions such as carbon dioxide (CO_2), methane (CH_4), carbon monoxide (CO), volatile organic carbon (VOC), sulphur dioxide (SO_2), water vapour (H_2O), ozone (O_3) and the oxides of Nitrogen (No_x), lead to the warming of the atmosphere and the destruction of the troposphere and stratosphere resulting into photochemical smog which causes death.

The use and disposal of hazardous materials and toxic chemicals is threatening water resources and the food chain, bringing about lower soil fertility, deterioration in crop quality, loss of the genetic stock of the soil.

The health effects of these chemicals are illustrated in Table 1.1 (adapted from Appendix 2 of NEAP paper on Mining, Toxic Chemical.)

1.4 MANAGEMENT OF CHEMICALS

The effects arising from the physical, chemical and biological properties of chemicals are feared, which brings about the need for their proper management. The management of chemicals is basically the process of assessing and reducing the risk that substances will harm human health or the environment. It involves, in great detail, the supervision of production, transportation, storage, distribution, use and disposal of chemicals.

The day-to-day management of chemicals concerns the control of consumer products, measures to protect workers from exposure to chemicals, reduction of hazardous emissions into the environment, efforts to reduce the volume and number of harmful chemicals in use by introducing safer alternatives and cleaner technology and better regulation of the production and distribution of previously un-regulated substances.

There is no single organization dealing with all aspects of chemical management. Nationally, the management of chemicals lies in:

- Ministries responsible for Agriculture, the Environment, Health, Trade and Industry, Labour, Customs and Transport;
- manufacturing, trade and other industry associations;
- scientific agencies, universities and research institutions;
- trade unions, non-governmental environmental organisations and consumer groups;
- legislators and judicial officers;
- individual producers, distributors and handlers of chemicals;and,
- international organisations.

Below is a summary of international organization which deal with a particular kind of chemical, related to a particular activity.

Food and Agriculture Organization of the United Nations (FAO): Agriculture and household pesticides.

International Agency for Research on Cancer (IARC): Hazard assessment, carcinogenicity.

International Labour Organization (ILO): Safe use of chemicals at work; prevention of industrial accidents.

International Programme on Chemical Safety (IPCS): Risk assessment; guidelines for setting exposure limits; guidelines for safe use.

UNEP: Chemicals; assessment and management of environmental and health effects; cleaner production; raising awareness about accidents.

United Nations Industrial Development Organization (UNIDO): Chemical industry.

World Health Organization (WHO): Pharmaceuticals; health effects.

CHAPTER TWO

WHY LEGISLATE ON TOXIC AND HAZARDOUS CHEMICALS IN UGANDA?

Chemicals are major pollutants of the environment. Improper handling or labelling of chemicals, especially in the absence of information on their chemical, physical and biological activity, has led to serious accidents with highly devastating consequences to the human and natural environment. The impact of hazardous chemicals on human health has largely overshadowed the effect of these substances on the natural environment, for example, microorganisms, aquatic life, plants, and animals.

In recognition of the potential hazards chemicals might pose to human health and the environment, it is of vital importance to keep proper records of the nature, type, and amount of chemicals imported and locally produced. Special attention should be paid to the local production of chemicals using hazardous processes. Furthermore, the disposal of chemical wastes as well as expired chemicals should be carefully monitored to prevent undesirable effects arising from improper disposal of chemicals.

The most recent and probably only comprehensive data on chemical imports into Uganda were compiled and reported by Wasswa, Kiremire, and Ngambeki. **Table 1.1** lists the chemical imports into the country between 1992 and 1994.

According to the authors, no chemicals were locally produced within that period. One of the most striking findings of this study was the methods used to dispose of the expired chemicals and chemical waste. **Table 1.2** illustrates the methods used to dispose of chemicals in the period between 1992 and 1994.

The 'hidden' impact of chemicals on the aquatic life, flora and fauna as well as surface and ground water sources, especially when chemicals are dumped into streams, should not be underestimated. The on-going indiscriminate pollution of surface and ground-water sources with chemicals clearly demonstrate an urgent need to legislate on hazardous and toxic chemicals.

TABLE 1.1: CATEGORIES OF CHEMICAL IMPORTS INTO UGANDA BETWEEN 1992 AND 1994

Category of Chemical	Quantity (kg)	Percentage
Pesticides	2781244	29.01
Fertilizers	1971550	19.49
Petroleum products	1667472	16.48
Inorganic salts	1927212	19.36
Polymers	646472	6.72
Soaps and detergents	240979	2.21
Medicaments	177782	1.38
Other organic compounds	166296	1.64
Gases	155575	1.54
Acids	100292	0.99
Solvents	63252	0.8
Heavy metals/metal oxides	35899	0.38

TABLE 1.2: METHODS OF DISPOSAL OF EXPIRED CHEMICALS AND CHEMICAL WASTE

Disposal Methods	Percentage
Municipal sewers/Drainage	0.2656
Streams	35.22
Pits	9.31
Kampala City Council (KCC) dumping sites	18.22
Incinerators	4.26
Shipped back to supplier	4.31
Sold for recycling	2.13

It is reasonable to assume that all chemicals are potentially hazardous to living organisms, plants, humans and the environment. This is because there so many different ways a chemical can cause damage as indicated below.

- A chemical may kill target and non-target insects, animals, or plants.
- A chemical may persist in the environment.
- A chemical may spread far and wide.
- A chemical may change into another poison.
- A chemical may become more poisonous in the presence of other chemicals.
- A chemical may poison by methods entirely different from those known.
- Chemical poisoning may take place in such a way that it is hard to recognize when it is taking place.
- Chemical damage may appear long after the chemical has left the body.
- A chemical may be dangerous even if all label directions (instructions on application) are followed.
- A chemical may cause damage that was never investigated before it was registered or not discovered during toxicological testing.

The main reasons which necessitate legislation on chemicals include :

(a) protection of human health and the environment from disastrous effects associated with chemicals;

(b) development of a regulatory mechanism for managing known toxic chemicals right from labelling, importation, storage, transportation, use as well as disposal stages;

(c) promotion of data collection on toxicity, physical and chemical properties of commonly used chemicals with a view to tighten legislation where there is need;

(d) restriction or prohibition of the use of those chemicals or chemical processes where there is overwhelming evidence of danger to the general population or the environment, and encourage the search for alternatives;

(e) promote the proper labelling, use, handling, management and disposal of chemicals;

(f) curb the proliferation of banned chemicals through forbidden trading practices carried out by unscrupulous traders.

2.1 BACKGROUND INFORMATION ON CHEMICALS

Different chemicals react differently when exposed or when they come in contact with living tissue, plants and other organisms. This is influenced by their individual characteristics such as the physical,chemical properties, among other factors. Therefore, in order to protect the general population and the natural environment against hazards related to chemicals, it is important to have access to the following basic information on the individual chemicals.

2.1.1 IDENTITY OF THE CHEMICAL

A chemical may be identified using the Chemical Abstract Service (CAS) Number Index. By convention, CAS Index Names are written in inverted order, for example, chloromethane is listed as methane, chloro and ethyl acetate as acetic acid, or ethyl acetate. The chemicals are arranged alphabetically by the primary name, which is generally the index name from the Chemical Abstracts Service (CAS). No two chemical substances can have the same CAS number. In some cases, especially for pesticides and pharmaceuticals, the common name is preferred to the more complex systematic name. Under this nomenclature, a Synonym Index which refers to a synonym in common use, is then adopted.

2.1.2 SOURCE OF THE CHEMICAL

Information on whether a chemical is imported, locally manufactured, a by-product of an industrial or natural process is very important for regulatory purposes.

A chemical which poses a threat to human health and the environment may be stopped at the point of entry into the country, whereas chemicals which are by-products of natural

processes (that is, aflatoxins) might require a different strategy to control.

2.1.3 PHYSICAL PROPERTIES OF THE CHEMICAL

The physical properties of a chemical which include, among others, the physical state (solid, liquid, gas), melting and boiling points, density, flash point, are important especially for purposes of managing hazards associated with a specific chemical. For example, highly flammable liquids have flash points below 21 degrees celsius.

2.1.4 CHEMICAL PROPERTIES OF SUBSTANCE

The hazardous nature of a chemical is highly governed by the way it reacts with other substances and these reactions are usually influenced by the functional group or groups attached to that chemical. A functional group or chemical group is a family of related compounds that tend to react in a similar way in both the environment and living organisms, however, the toxicity of individual chemicals varies greatly. Even members of the same chemical group may not be equally toxic. Knowledge of the chemical group(s) to which a substance belongs facilitates limited predictions about the chemical behaviour of that particular chemical. This general rule, however, does not always apply when a chemical substance possesses two or more different functional groups.

2.1.5 PROCESS(ES) OF PRODUCING A CHEMICAL

There may be several chemical processes which can be used to produce the same chemical. The process used to manufacture a chemical is usually influenced by the costs involved. The most cost-effective process for producing a particular substance, however, may not necessarily be the most environmentally friendly route. For example, at the Union Carbide pesticide producing plant in Bhopal-India, the method used to produce the pesticide Sevin, involved a highly toxic chemical intermediate called *methyl isocyanate* (MIC). It is this chemical which caused the death of more than 2000 people and injured more than 100,000 in the gas leak tragedy in Bhopal in 1984. Therefore, the relevance of the production processes must be given adequate attention in drafting legislation to protect human health in the environment in Uganda.

2.1.6 USES OF A CHEMICAL

Chemicals may be classified based on their uses. Controlling chemicals based on use especially for those chemicals with multiple uses has the advantage of restricting a chemical for only those specifically hazardous uses. In the absence of comparable alternatives less controversial uses of a chemical may be allowed. Some of the most common uses of chemicals include:

- Petrochemicals (e.g., petrol, diesel, greases, oils).
- Mining and explosives industry chemicals.
- Agricultural chemicals (e.g., pesticides, fertilizers, plant growth regulators).
- Laboratory and Industrial Chemicals (e.g., acids, alkalis, gases, metals,solvents).
- Chemicals for plastics and rubber product chemicals (e.g., PVCs, Polyester).
- Cosmetics, detergents and perfumes (e.g., soaps, perfumes, hair conditioners).
- Pharmaceuticals (e.g., human and veterinary drugs).
- Adhesives, paints, polishes, and building materials (e.g., asbestos).
- Food preservatives, additives and contaminants (e.g., antioxidants, dyes, aflatoxins).
- Leather, textile, and wood product processing chemicals.
- Air pollutants ((e.g., chlorofluorocarbons;solvents) and aerosols.
- Selected radionuclides (e.g., Tritium, Carbon-14, Strontium-90, Caesium-137).

2.1.7 HAZARDOUS CHARACTERISTICS

Hazardous characteristics give the first indications about the toxicity of a chemical. A classification of substances based on hazardous characteristics is included in the United Nations Recommendations on the Transport of Dangerous Goods (ST/SG/AC.10/1/Rev.5). The UN Code Characteristics Class include : **H1** Explosive; **H3** Flammable Liquids; **H4.1** Flammable Solids; **H4.2** Substances or wastes liable to spontaneous combustion; **H4.3** Substances or wastes which, in contact with water emit flammable gases; **H5.1** Oxidizing; **H5.2** Organic peroxides; **H6.1** Toxic or Poisonous (Acute); **H6.2** Infectious substances extremely hazardous to health; **H8** Corrosives; **H10** Liberation of toxic gases in contact with air or water; **H11** Toxic (delayed or chronic); **H12** Ecotoxic; **H13** Capable, by any means, after disposal, of yielding another material, for example, leachate, which possesses any of the characteristics listed above; **H14** Radioactive waste; **H15** Persistent waste; **H16** Carcinogenic wastes. This classification list would be indispensable in a comprehensive legislation on hazardous chemicals.

[**] Corresponds to the hazardous classification system included in the United Nations Recommendations on the Transport of Dangerous Goods (ST/SG/AC.10/1/Rev.5). New York, 1998.

2.1.8 WORLD HEALTH ORGANIZATION CLASSIFICATION OF CHEMICAL BY HAZARD

This classification is extremely important when available, however, this categorization has mainly been done for chemicals (that is, agricultural chemicals) which are taken to possess some form of hazard to human health and the environment even under "normal" conditions of use. The classification avails toxicity data which can help in drafting appropriate legislation for the chemical. The WHO classification of chemicals (usually pesticides) by hazard, divides these substances into four different categories based on their toxicity to test animals (Table 2.1). The terms "oral" and "dermal" refer to the route of exposure, while the terms "solids" and "liquids" refer to the physical state of the product or formulation under classification.

2.1.8.1 Lethal Dose (LD50) Values

The LD50 (Lethal Dose) is used to denote the acute toxicity of a pesticide. It is defined as the average dose in milligrams of a particular pesticide per kilogram live body weight (mg/kg) that is needed to kill 50% of the experimental animals. The type of animal (usually rats or mice) and the route of exposure (i.e. oral or dermal) are indicated in brackets.

LD50 values derived from experimental animals can only be used as indices of the predicted toxicity to man. However, direct extrapolations are subject to several variables such as the age, sex, health, number of experimental animals used, route of administration and experimental conditions. Nevertheless, figures in Table 2 may be used as general guidelines for LD50 values vis a vis toxicity to humans.

2.1.9 EFFECT OF CHEMICAL ON OZONE LAYER

In order to support international efforts in phasing out chemicals which affect or are known to contribute to the depletion of the ozone layer, the importation and use of products containing chemicals like chlorofluorohydrocarbons (CFCs) must be severely restricted or totally banned. A legal mechanism must be put in place to monitor, regulate, and update the list of ozone-depleting substances imported into the country. Therefore, the effect of the chemical on the ozone layer is also relevant in formulating legislation on hazardous toxic chemicals.

2.1.10 CONCENTRATIONS AND PATHWAYS INTO THE ENVIRONMENT

Once a chemical comes into contact with air, surface and ground-water, soil, or plants, several processes may take place, it may transform into less toxic intermediates. A chemical may remain almost unchanged for a long time and this could lead to its preconcentration through the food chain. The contamination of rivers, lakes and coastal waters with organochlorine compounds, such as DDT, polychlorinated biphenyls, toxaphene, or with hydrocarbons and other substances as a result of oil spills, has led to a marked increase in the levels of these compounds in fish and other aquatic organisms. It is also possible for a chemical to transform into more toxic intermediates which may then accumulate in the food chain. For example, inorganic mercury can be converted into methyl mercury, which may accumulate in aquatic organisms like fish and finally humans. Methyl mercury was identified as the cause of death among Japanese fishermen at Minamata.

2.1.11 SPILLS

Chemicals may get exposed in the environment in a variety of ways. These may include condesates of indirect vapours from stages devoted to production, sludge arising from the production of chemicals, contaminated air emitted into the atmosphere following production processes in chemical plants, fumes emitted at industrial sites into the

TABLE 2.1: WHO CLASSIFICATION OF PESTICIDES BY HAZARD

	LD50 FOR THE RAT (MG/KG BODY WEIGHT)			
CLASS	ORAL		DERMAL	
	Solids	Liquids	Solids	Liquids
Ia Extremely hazardous	5 or less	20 or less	10 or less	40 or less
Ib Highly hazardous	5 - 50	20 - 200	10 - 100	40 - 400
II Moderately hazardous	50 - 500	200 - 2,000	100 - 1,000	400 - 4,000
III Slightly hazardous	over 500	over 2,000	over 1,000	over 4,000

TABLE 2.2 : GUIDELINES FOR LD50 VALUES IN RELATION TO TOXICITY TO HUMANS

ORAL LD50 (MG/KG)	LEVEL OF TOXICITY	FATAL DOSE FOR AN "AVERAGE ADULT"
Less than 5	Super-toxic	a few drops
5 to 50	Extremely-toxic	up to a teaspoon
50 to 500	Highly-toxic	up to 2 table-spoons
500 to 5,000	Moderately-toxic	1 ounce to 12 ounces
5,000 to 15,000	Slightly-toxic	12 ounces to 2 gallon

Source: (Kit) Pesticide Education and Action Project, San Francisco, 1985: Pesticides don't know when to stop killing.

atmoshere, accidental spills of toxic and highly flammable petroleum products during storage or transportation. Where the risk of spilling exists, counter-measures must be available to lessen the impact caused by hazardous chemicals.

2.1.12 TREATMENT OF POISONING/ REMOVAL OF CHEMICAL

It is absolutely essential to know or have access to information on how to treat someone who has been exposed to a hazardous chemical. Absence of this information may be detrimental. In the same way, it is of paramount importance that methods (such as, phyisical, mechanical, biological or chemical) are available for decontaminating ground or water surfaces, or soils exposed to hazardous chemicals. Prior knowledge or access to information on methods to treat chemical spills or chemical poisoning can considerably reduce the long-term, as well as the negative impact of hazardous chemicals on human health and the environment.

2.1.13 DISPOSAL METHODS WHERE APPLICABLE

Special attention needs to be drawn to the disposal of chemicals in general and toxic chemicals in particular. An earlier study by Wasswa, Kiremire,Ngambeki noted that the main method used for the disposal of industrial effluents and expired chemicals was discharging these substances into municipal sewers without treatment of the effluent at the discharge point [11]. Against this background, the disposal of toxic chemicals must be given adequate attention when drafting legislation on toxic chemicals. Impacts of different chemical disposal techniques on human health and the environment must be assessed in order to reduce air, land, and water pollution.

2.1.14 ALTERNATIVE(S) TO A HAZARDOUS CHEMICAL

The existence of alternatives to a hazardous chemical would simplify the process of legislating on toxic chemicals; however, it is not always possible to find appropriate alternatives to toxic and hazardous chemicals. A prior assessment of alternatives in terms of cost, effectiveness and availability, is necessary before an indispensable but otherwise toxic chemical is banned.

2.1.15 METHODS OF ANALYSIS

There may be several methods of determing a specific chemical in air, water, soil, plants, microorganisms, foodstuffs, blood, urine, and other biological matrices. There has to be a consensus on which method(s) is to be used for assessing a chemical in a given matrix. The advantages and limitations of the chosen methods must be assessed. Analytical methods are, therefore, very important for the purposes of indentifying and confirmation of the presence of a chemical in a specific matrix. Without an appropriate method for the determination of a specific chemical in a particular matrix, monitoring and enforcing legislation on a hazardous chemical may prove very difficult.

2.1.16 RECOMMENDATIONS OF AN EXPERT COMMITTEE

Proper assessment of all relevant information on a chemical and a cost-benefit analysis of its impact on human health and environment would necessitate an opinion of an indepedent inter-disciplinary expert committee. Although it may not be possible to carry out this exercise for every individual chemical, there are specific chemical substances which are banned or severely restricted in many industrialized countries, and these might need a 'balanced' expert opinion so as to

achieve the most cost-effective and rational judgement on a hazardous chemical.

2.1.17 MINISTRY/AGENCY (IES) IN CHARGE OF REGISTRATION, LICENSING, MONITORING, USE AND DISPOSAL OF CHEMICAL

This is probably one of the most critical areas which determines the success or failure of any regulatory process. Many ministries (such as, Health, Agriculture, Defence, Education, Internal Affairs, and Environment) import chemicals for different uses; however, there are chemicals which may be used in more than one Ministry. For example, pesticides may be used in Agriculture as well as Health ministries. The recommendations by an inter-disciplinary expert committee should be able to resolve the key question of the agency to be charged with the responsibility of implementing the action against a chemical. The said agency may be the Pesticide Registration Board (Ministry of Agriculture), the National Drug Authority (Ministry of Health) or the National Environment Management Authority (Ministry of Water, Lands and Environment).

2.2 CLASSIFICATION OF CHEMICALS BASED ON USE AND THEIR SPECIFIC HAZARDS

The categorization of chemicals based on their uses offers an excellent opportunity to regulate toxic and hazardous chemicals because it reveals the pathways by which these substances come in contact with man and the environment. The following classification sheds some light on the sources of some hazardous chemicals and natural or man-made processes by which they may be dispersed or distributed in the environment.

2.2.1 PETROCHEMICALS

Petrochemicals mainly derived from fossil fuels are widely used in Uganda. They cause a wide range of environmental hazards which may include fish poisoning, pollution of ground-water sources, devegetation, death to some aquatic plants and animals **(Table 2.3)**.

In large urban centres with high industrial activities and large numbers of petroleum-fueled vehicles on roads, urban air may contain more than 100 hydrocarbons of varying concentrations and toxicities. Alkyl benzenes-members of the benzene family- are the most prominent.

Alkyl benzenes, leaded gasoline and several other by-products of the petroleum industry pose a threat to the environment as well as plant and animal life. The need to legislate on these substances arises from the necessity to protect the general public, underground water supplies, aquatic plants and animals, and the environment from potential hazards associated with any or a combination of these substances.

The regulatory process might address the following issues :

(i) substitution of leaded gasoline with unleaded petrol to reduce detrimental effects due to lead compounds
(ii) reduce water and air pollution arising from long-term, low-level exposure to toxic and hazardous chemical spills as well as petrochemical combustion products in the atmosphere
(iii) control the import, use, handling, storage, and disposal of non-biodegradable petrochemical wastes

2.2.2 MINING AND EXPLOSIVE INDUSTRY CHEMICALS

The mining industry is one of the major sources of heavy metals like lead, arsenic, cadmium, cobalt, and inorganic salts in the Ugandan environment.Once released in the environment these substances may enter the food chain, where they can be pre-concentrated to higher levels since they are not biodegradable. The persistence of some of these chemicals, especially the heavy metals, represents a threat to human health, aquatic life and the environment, as shown in **Table 2.4**.

2.2.3 AGRICULTURAL CHEMICALS (SUCH AS, PESTICIDES, FERTILIZERS, GROWTH REGULATORS)

The agricultural sector uses some of the most toxic and hazardous chemicals **(Table 2.5)**. These toxic chemicals may be taken up by plants used as food for man or animals. Agricultural chemicals discharged into rivers, lakes and other water-ways may also enter the human food chain via fish and other aquatic organisms.

There are several names by which an agricultural chemical may be referred to. These include:

(a) **Chemical Name**: The chemical name is derived from the chemical structure of the agricultural chemical. The preferred chemical name is that approved by the International Union of Pure and Applied Chemistry (IUPAC); however, these names tend to be long and confusing. Sometimes, the chemical name offers the only way to compare chemicals when the common or trade names differ.

(b) **Common Name**: The systems for naming chemical substances are quite complex and usually result in

TABLE 2.3: EXAMPLES OF PETROCHEMICALS AND HAZARDS ASSOCIATED WITH THEM

Name of Chemical (CAS Number)	Uses	Nature of Hazards
Benzene (CAS 74-43-2)	Constituent in motor oils, solvent for fats, inks, oils, paints, rubber; chemical intermediate; used in the manufacture of detergents, explosives, pharmaceuticals, dyestuffs.	**Human health** Vapour causes irritation to skin,eyes;scaly dermatitis may develop from defatting of the skin; acute exposure causes,dizziness, nausea, coma, even death.
n-Hexane (CAS 110-54-3)	Solvent, especially in extraction of edible fats and oils; laboratory reagent.	**Human health** Dermatitis and irritation of mucous membranes; acute exposure may cause nausea, headache and dizziness
Kerosene (CAS 8008-20-6)	Fuel for lamps, stoves, jets, and rockets; for degreasing and cleaning metals.	**Human health** Irritation due to defatting of skin; may cause pulmonary haemorrage and chemical pneumonitis; inhalation of high doses may cause headache, nausea, drowsiness, convulsions, coma.
Liquid Petroleum Gas (mixture of propane and butane)	As a fuel and in the production of petrochemicals.	**Human health** Light-headedness and drowsiness.
Tertaethyl lead (CAS 78 -00-2)	Anti-knock compound - blended into gasoline for this purpose.	**Human health** In contact with moist skin this dust may cause itching, burning; absorption of sufficient quantity causes intoxication of central nervous system.
Toluene (CAS 108-88-3)	As a chemical feed for phenol, benzoic acid, saccharin, etc; solvent for paints and coatings; component of automobile and aviation fuels.	**Human health** May cause irritation of eyes, respiratory tract, skin; acute exposure causes headache, drowsiness, collapse, and coma.

TABLE 2.4: POTENTIAL HAZARDS OF EXPLOSIVE INDUSTRY CHEMICALS

Name of Chemical (CAS Number)	Uses	Nature of Hazards
Picric acid (CAS 88-89-1)	Manufacture of explosives, rocket fuels, fireworks, matches, electric batteries; pharmaceuticals, leather industries, textile printing, photographic emulsions.	**Human health** Skin irritant, dust or fume cause eye irritation, ingestion of substance may cause headache,nausea, vomiting, diarrhea, yellow skin coloration.
Sulphuric acid (concentrated) (CAS 7664-93-9) .	Chemical feedstock for several chemicals that is, acetic acid, fertilizers, nitrate explosives, detergents; also used in mineral refining; leather industry; gas drying, etc.	**Human health** Burning and charring of skin due to great affinity for water; long exposures lead to respiratory infections, and digestive disturbances.
Toluene (CAS 108-88-3)	As a chemical feed for phenol, benzoic acid, saccharin, etc; solvent for paints and coatings; component of automobile and aviation fuels.	**Human health** may cause irritation of eyes, respiratory tract, skin; acute exposure causes headache, drowsiness, collapse, and coma

chemical names difficult to pronounce, or to remember. Hence, a simpler, and shortened common name is used for each agricultural chemical. The preferred common name is recommended by the International Organization for Standardization Technical Committee for Common Names of Pesticides.

(c) **Trade Names**: Trade names are used to identify the saleable product and its manufacturer, and are the names promoted by the manufacturing or formulating company.

In addition to the above mentioned names, chemicals may be classified on a chemical basis into various groups. A

chemical group is a family of related compounds that tend to react in a similar way in both the environment and living organisms. For example, chemical groups among agricultural chemicals include, organophosphates, carbamates, urea derivatives, chlorophenoxy- carbonic acids, triazines, amont others.

Agricultural chemicals may further be classified according to their applications, for example, insecticides, herbicides, fungicides, molluscicides, acaricides, nematicides, repellants, and rodenticides.

Example :

Chemical Name: 2-methyl-2-(methylthio)-propion-aldehyde O-(methylcarbamoyl) oxime
Common Name: Aldicarb
Trade Names: Aldicarb, OMS-771, Temic, Temik
Chemical Group: Carbamate
Application: insecticide, acaricide, nematocide

2.2.4 *LABORATORY AND INDUSTRIAL CHEMICALS (FOR EXAMPLE, ACIDS, ALKALIS, SALTS, SOLVENTS)*

Laboratories in industries and government research institutions use thousands of extremely toxic and hazardous chemicals which may include acids, alkalis, gases, oxides, salts, and solvents. In order to protect the users of these chemicals, reduce air pollution, and prevent disposal of chemical wastes into rivers, streams and underground water, it is necessary to draft legislation to manage the importation, use, handling, storage, and disposal of this wide spectrum of chemicals. Some of the commonly used chemicals are shown in **Table 2.6**:

2.2.5 *PLASTICS AND RUBBER PRODUCT CHEMICALS (SUCH AS, PVCS, POLYESTER)*

The widespread use of plastics and rubber products in Uganda could probably be attributed to their comparatively low costs, versatility as shopping-bags, transport and storage of food products.Unfortunately, plastics products are usually disposed of just like biodegradable organic matter. Such poor disposal methods slow down the decomposition of biodegradable waste and usually lead to blocking of water-ways as well as waste disposal pipes. Consequently, polythene bags (for example, *Kaveera*) could be classified as environmental and health hazard **(Table 2.7)**. Chemicals used to prepare rubber products may possess physical and chemical properties which are entirely different from plastics and rubber products.

2.2.6 *COSMETICS, DETERGENTS AND PERFUMES (FOR EXAMPLE, SOAPS AND PERFUMES)*

Cosmetics, detergents and perfumes contain chemical substances of varying concentrations and toxicities **(Table 2.8)**. The hazards associated with cosmetics and perfumes

TABLE 2.5: EXAMPLES OF AGRICULTURAL CHEMICALS, USES AND HAZARDS

Name of Chemical (CAS Number)	Uses	Nature of Hazards
Aldicarb (CAS 116-06-3)	Carbamate insecticides; systemic insecticide, acaricide and nematocide	WHO classification : Class Ia; extremely hazardous
2,4-D (CAS 94-75-7)	Herbicide for control of broad leaf plants; plant growth regulator.	Weakness, stupor, muscle twitching, convulsions, dermitits.
DDT (CAS 50-29-3)	Broad spectrum insecticide.	DDT and metabolites toxicants with long-term persistence in soil, water. DDT in fat of wild animals and humans may be hazardous.
Lindane (CAS 58-89-9)	Used against a wide range of insects including treatment of animals, buildings, seeds, soils.	**Human health:** Eye irritation, headaches, **Aquatic life:** toxic to freshwater and salty water aquatic life.
Paraquat (CAS 1910-42-5)	Used as herbicide; commonly used in suicidal cases	**Human health** Acutely toxic to humans; symptoms include nausea, vomiting, death occurs in cases when fatal dose is taken.
Pentachlorophenol (CAS 87-86-5)	Bactericide,herbicide, insecticide, molluscicide; mainly used as wood preservative.	**Human health** Eye irritation, headaches, nausea, vomiting, fever, dermatitis; toxic to aquatic life.

TABLE 2.6: EXAMPLES OF LABORATORY AND INDUSTRIAL CHEMICALS, THEIR USES AND HAZARDS ASSOCIATED WITH THEM

Name of Chemical (CAS Number)	Uses	Nature of Hazards
Acetone (CAS 67-64-1)	Solvent, used in production of lubricating oils, in manufacture of chloroform, various pharmaceuticals, and pesticides.	Irritation of eyes, nose and throat, dizziness and dermatitis.
Acetonitrile (CAS 75- 05-8)	Solvent, an extractant for animal and vegetable oils. Used in pesticides and pharmaceuticals.	Irritation of eyes, nose and throat. Slight flushing of face and chest tightness. Symptoms are: nausea, vomiting,respiratory depression, weakness, chest and abdominal pain, shock, unconciousness and death.
Formaldehyde (CAS 50-00-0)	Fungicide, germicide, disinfectant. Used in manufacture of silk, textiles, dyes, inks, explosives; Used in paper, photographic and furniture industries; used in drug and pesticide manufacture.	Irritation of mucous membranes of respiratory tract and eyes; eye burns. Symptoms include:coughing, laboured breathing, pulmonary edema, irritation of throat and stomach; mainly affects respiratory system, eyes and skin.

are important for several reasons. First, these substances are directly applied to human skin or hair. For example, mercury-based soaps, which were originally manufactured as an antiseptic product, are currently used and promoted as skin-lightening agents. These soaps were banned for use in the European Union because it had been discovered that absorption of mercuric iodide through the skin could cause renal deficiencies, miscarriages and skin damage; however, mercury-based cosmetics are still manufactured for export to Africa. Secondly, domestic waste-water containing some of the non-biodegradable break-down products of these chemicals, may contribute to the pollution of underground water sources.

Thirdly, perfumes which contain carriers in the form of chlorofluorocarbons (CFCs) may also contribute to the depletion of the ozone layer.

Legislation on cosmetics, perfumes, and detergents will among other things:

- control the import, use, and disposal of hazardous chemical ingredients in the above products.

2.2.7 *PHARMACEUTICALS (SUCH AS, HUMAN AND VETERINARY DRUGS)*

A prerequisite in legislating on a toxic and hazardous pharmaceutical (human or animal drug) is an adequate knowledge of its brand name, chemical name and generic name.

(a) The brand name is the internationally registered and protected name which identifies a pharmaceutical as the product of a particular drug company. The brand name may be a mixture of chemical compounds. A drug may be marketed under different brand names.

(b) The chemical name is the chemical substance used as the drug. The official name is internationally approved by the International Union of Pure andApplied Chemistry (IUPAC), but chemists and chemical literature usually make use of simpler names, since they are easier to remeber.

(c) The generic name: quite often chemical names are too long and pharmacists prefer to use the generic name which describes drugs of a particular class. But several generic names may exist for a particular drug. In order to solve this problem, the WHO selected one internationally approved generic name for each drug, the international non-proprietary name (INN) under which every drug should be referred to.

Examples:

(a) (I) Generic name (INN) : acetylsalicyclic acid or aspirin
(II) Chemical name : 2-acetoxybenzoic acid
(III) Brand names : Aspro, Anasprin, Empirin, Saletin

(b) (I) Generic name (INN) : paracetamol
(II) Chemical name : 4-hydroxyacetanilide p-acetylaminophenol, n-acetyl-p-aminophenol
(III) Brand names : Panadol, Dumin, Cetamol, Datrill

TABLE 2.7: PLASTICS AND RUBBER PRODUCTS, THEIR USES AND ASSOCIATED HAZARDS

Name of Chemical (CAS Number)	Uses	Nature of Hazards
Potassium hydroxide (CAS 1310-58-3)	Used in manufacture of other potassium compounds and general use as an alkali	Corossive material.
Vinyl Chloride (CAS 75- 01-4)	Used as chemical intermediate and as a solvent; used in polyvinyl and other resins manufacture.	Irritation of skin and eyes. Symptoms are: depression of central nervous system, lightheadedness, nausea and dulling of auditory and visual responses; death occurs when it is severe.
Thiram (CAS 137-26-8)	Used as a rubber accelerator and vulcaniser; a bacteriostat for for edible oils and fats; also used as a fungicide; rodent repellant, wood preservative; used in the blending of lubricant oils.	Irritation of mucous membranes, conjuctivitis, rhinitis, sneezing, and cough due to excessive exposure; skin irritaion with erythema and urticaria may also occur.
Styrene (CAS 100-42-5)	Used in manufacture of polymers (polystyrene) and copolymer elastomers; production of resins and polyesters.	Eye, nose, throat, and skin irritation; symptoms of narcosis, cramps, and death due to respiratory center paralysis

Further examples of drugs which currently approved for use in Uganda are outlined in the Essential Drug List for Uganda.

The major reason behind legislation on pharmaceuticals is basically to protect human health and environment. In Uganda, the main contentious issues include:

- control of highly toxic drugs which are issued over-the-counter;
- trade or smuggling of banned drugs into the country; and
- use, storage, labelling and disposal of expired drugs : some of the eight containers of expired drugs at the Virus Research Institute in Entebbe are slowly leaking into Lake Victoria.

2.2.8 ADHESIVES, PAINTS, POLISHES, LUBRICANTS, AND BUILDING MATERIALS (FOR EXAMPLE, ASBESTOS)

There are many products in this category some of them include those that are mentioned below:

Glue making is one of the basic industries in the world. Glue can be obtained from vegetable or animal sources.Glues obtained from boiling animal hides or bones are called animal glues. Glue is the improved term of gelatine, and the basic raw material for the manufacture of glue and gelatine is bones. Glue is chiefly used as an adhesive whereas gelatine is valued mainly according to its stiffening jelly and emulsifying properties.

Red lead paints are extensively used as priming coat for structural steel because they have excellent corossion-inhibiting properties for iron and steel.

Shoe polish consist of certain waxes, well distributed in a suitable solvent. It is an essential item of everyday use. Shoe polish give shine on the shoes and also increases the durability and maintains the quality of shoes.

Office gum paste is an adhesive which is used for pasting papers, stamps, envelopes, among others. An adhesive is a substance that holds materials together by surface attachments. A great variety of polymers and inorganic substances can be used for such purposes.

Metal and floor polishes are items of everyday use. Polishes improve the outward appearance of the article on which they are applied, and also increase their Alife span". Metal polishes are exclusively used for the cleaning of metal surfaces such as automobiles and their parts. Floor polishes consist of a mixture of few waxes well distributed in a suitable solvent.

Bitumen paints are used as protective coatings on steel and other surfaces, where protection is of greater importance than appearance. Bitumen is generally black/brownish material containing hydrocarbons which are soluble in carbon disulphide.

Asbestos materials are commonly used for many purposes. For example, they are used as floor tiles, asbestos cements, roofing felts and shingles, textiles, friction material including brake linings and clutch facings, paper, paints, plastics, and roof coatings.

The hazards usually associated with this category of products and chemicals **(Table 2.9)** used in diluting, dissolving and mixing adhesives, paints and polishes are as follows:

TABLE 2.8: EXAMPLES OF CHEMICALS IN COSMETICS, PERFUMES, AND DETERGENTS AND THEIR HAZARDS

Name of Chemical (CAS Number)	Uses	Nature of Hazards
Mercury-Inorganic (include mercuric cyanide, mercuric nitrate, mercuric iodide, mercuric sulfate)	Inorganic mercury is utilized in gold, silver, and tin-plating, tanning, dyeing, textile manufacture, photography, in extracting gold and silver from ores, paints and pigments, in drugs and disinfectants.	Either acute or chronic exposure may produce permanent changes to affected organs and organ systems.
Sodium hydroxide (CAS 1310-73-2)	Neutralizes acids; in making sodium salts, petrolium refining and reclamation of rubber; in manufacture of soaps, metal cleaning, electrolytic extraction of zinc, tin plating, oxide coating, laundering, bleaching and dish-washing.	Corrosive to body tissues, blindness, cutaneous burns and perforations of alimentary tract; attacks mainly the eyes, respiratory system and skin through inhalation of dust or mist, ingestion, and skin and eye contact.
Hydroquinone (CAS 123 -31-9)	Photographic developer, antioxidant or stabiliser; used as bacteriostatic agent, antimitotic and tumour- inhibiting agent	Skin depigmentation; loss of visual activity; blurred speech, tremors, sense of suffocation, vomiting, muscular twitching, headaches, convulsions, coma and collapse due to respiratory failure; green or brownish-green urine.
Ethyl ether (CAS 60-29 -7)	Solvent for waxes, fats, oils, perfumes, alkaloids, dyes, gums, resins, nitrocellulose, hydrocarbons, raw rubber, and smokeless powder; an inhalation anesthetic, a refridgerant; in diesel fuels, dry cleaning; as an extractant, and as a chemical reagent for various organic.	Flammable liquid; mildly irritating to eyes, nose and throat; overexposure leads to drowsiness, vomiting and unconciousness and death; chronic exposure may cause anorexia, exhaustion, headache, drowsiness, dizziness, excitation psychic disturbances, and increased susceptibility to alcohol.

- solvents such as alkyl benzenes, carbon disulphide are quite toxic to living organisms;
- used paints, adhesives, or polishes are easily biodegradable;
- lead is known to be toxic and as a result any lead containing compound or product is expected to possess similar toxic properties; and,
- asbestos is known to be toxic.

2.2.9 FOOD ADDITIVES, PRESERVATIVES AND CONTAMINANTS

Food additives are compounds added to food in order to improve or preserve the quality and achieve special effects for food. Conventional food additives include : synthetic and natural preservatives, antioxidants, emulsifying agents, dyes, organic acids, filtration and clarification aiding stuffs, chewing substances and coverings, acids, bases, salts, oxides, inorganic minerals, and sweeteners. In Europe, food additives are regulated based on the so-called Aprohibition principle": This means that all permitted additives can be used. All substances not listed are prohibited, unless permission is specified for food products.

Substances which might find their way in foodstuffs but at the same time pose a threat to human health or the environment, could be referred to as environmental contaminants **(Table 2.10)**.These include heavy metals (that is, lead, cadmium, copper); aflatoxins commonly found in oily fruits, and seeds; pesticide residues; as well as antimicrobial agents and drug residues in animal food products (meat, eggs, milk). There is an obvious need for measures to monitor the nutritional value of foods and avoid food poisoning.

Special attention must, therefore, be paid to:

- toxicity of food additives, preservatives and contaminants;
- levels of tolerable toxicity of food processing chemicals, and machine waste components; and,
- types of storage containers.

2.2.10 LEATHER, TEXTILE AND WOOD PRODUCT PROCESSING CHEMICALS

This category of substances is composed of chemicals which are also used as agricultural chemicals. For example, Chlorophenols that is, 2-Chlorophenol,2,4-Dichlorophenol,

TABLE 2.9: EXAMPLES OF CHEMICALS USED FOR ADHESIVES, PAINTS, POLISHES AND BUILDING MATERIALS, AS WELL AS THE NATURE OF THEIR HAZARDS

Name of Chemical (CAS Number)	Uses	Nature of Hazards
Titanium dioxide (CAS 13463-67-7)	Used as a white pigment in plastics, ceramics, paint and vanish industries; as a starting material for all other titanium compounds; as a gem, in curing concrete, and in coatings for welding rods.	Slight lung fibrosis.
Nitrobenzene (CAS 98-95-3)	As solvent; in manufacture of explosives aniline dyes; used in shoe and floor polishes, leather dressings, paint solvents; masks other unpleasant odours.	Irritation of eyes; causes fatigue, headeache, vomiting, general weakness, severe depression, unconciousness and coma; may lead to liver damage and anaemia.
Ethylene dibromide (CAS 106-93-4)	Scavenger in leaded fuels in combination with ethylene dichloride; a soil, grain and fruit fumigant; solvent for resins, gums and waxes; intermediate in manufacture of dyes, drugs.	Prolonged contact may cause blistering, and skin ulcers; irritation to eyes and mucous membranes of the respiratory tract; acute exposure results into central nervous system depression, severe vomiting.
Asbestos (CAS 1332-21-4)	Used in construction industry as floor tiles, asbestos cements, and roofing felts and shingles; in insulation materials and acoustic products; in textiles, friction material including brake linings and clutch facings, paper, paints, plastics, and roof coatings.	Causes cancer, especially lung and gastrointestinal cancer and mesotheliomas, and asbestosis in man.

2,6-Dichlorophenol, 2,4,5-Trichlorophenol and Pentachlorophenol, are known to be toxic; and highly toxic polychlorinated dibenzo-p-dioxins may be formed during the chemical synthesis of some chlorophenols. Available scientific evidence suggest that various chlorophenols are formed as intermediate metabolites during microbiological degradation of the herbicides 2,4-D, and 2,4,5-T, and pesticides lindane and benzene-hexachloride. Chlorophenols may also be produced inadvertently by chlorination reactions which take place during the disinfection of waste-water effluents or drinking water sources. The use of pentachlorophenol at manufacturing and wood preservation sites, is another major source of contamination of drinking water through run-off.

The poor biodegradation of some of the chlorophenols and the possibility of biosynthesis of their metabolites are major threats to potable water sources and could lead to the preconcentration of these chemicals in aquatic organisms, animals and humans via the food chain **(Table 2.11)**. Effluents containing toxic chemicals from wood, leather and associated industries discharged in surface waters, are also a major source of contamination of portable water sources which might cause adverse effects in aquatic life and human health. Regulatory control of this category of chemicals must therefore, take into account their multiple uses, their slow biodegradation, the toxicity of their metabolites, and the bioaccumulation of these substances via the food chain.

2.2.11 AIR POLLUTANTS (FOR EXAMPLE, SOLVENTS),AEROSOLS (SUCH AS, CHLOROFLUOROCARBONS)

Chemical substances which are gaseous or volatile at room temperature may contribute to air pollution. The major routes of exposure to these substances are inhalation,ingestion, aspiration, and skin and eye contact **(Table 2.12)**. The list of these substances includes mineral oils, petroleum-based lubricants, solvents, among others. Fine dust air-borne particles, such as those from asbestos may also be classified as air pollutants since asbestos dust adversely affects human health.

Volatile chlorofluorocarbons used as refrigerant fluids, propellant in spray cans and as the blowing agent in plastic foam products, may contribute to the depletion of the ozone layer. The ozone layer acts as a protective shield against strong ultraviolet radiation from sun which can induce skin cancer in humans.

Combustion of petroleum products leads to the production of gases such as carbon monoxide and carbon dioxide. The former is well known for its toxicity due to its ability to bind to iron of the haemoglobin, thus, preventing the attachment

TABLE 2.10:SOME EXAMPLES OF FOOD ADDITIVES AND PRESERVATIVES

Name of Chemical (CAS Number)	Uses	Nature of Hazards
Acetic acid (CAS 64-19-7)	Chemical feedstock for production of chemicals; used in the dye, rubber, pharmaceutical, food preservative, textile and laundry industries.	Vapour produces irritation to the eyes, nose, throat, and lungs; acute exposure may lead to vomiting, diarrhoea, shock, and heamolysis
Sulphur dioxide (CAS 7446-09-5)	In manufacture of chemicals; bleaching of fruit, gelatin, glue, grain, textiles, wood pulp; leather tanning; brewing and preservation.	Irritating to the upper respiratory tract; acute overexposure could resul in death.
Sodium nitrite (CAS 7632-00-0)	Food additive.	Induction of methemoglobinemia in infants; precursor in formation of carcinogenic nitrosamines.

of oxygen molecules. This process leads to the suffocation of the victim. The latter is one of the several polyatomic molecules like methane, nitrous oxide that are implicated in the greenhouse effect. In this effect, polyatomic molecules permit the passage of visible light, but they block the immediate radiation of heat from the earth and in the process these gases contribute to global warming.

2.2.12 SELECTED RADIONUCLIDES

The use and release of radioactive materials into the environment potentially exposes populations to ionizing radiation, and increases the risk of deleterious health effects **(Table 2.13)**. The radio-nuclides under consideration are those most frequently released from natural and man-made sources and the most important contributors to exposure of the population to radiation under normal circumstances.

2.3 KEY AREAS FOR SCRUTINY WHEN LEGISLATING ON TOXIC AND HAZARDOUS CHEMICALS

An effective regulatory system designed to protect human health and the environment in Uganda must critically assess the existing laws and regulations on those potentially dangerous products based on available scientific data about those substances. In addition, an evaluation of the need and alternatives to the deadly products has to be undertaken. Finally, the regulatory process must modify or update existing controls with special emphasis on the key areas listed below:

TABLE 2.11:EXAMPLES OF CHEMICALS ASSOCIATED WITH LEATHER, TEXTILES AND WOOD PROCESSING, AND THEIR POTENTIAL HAZARDS

Name of Chemical (CAS Number)	Uses	Nature of Hazards
Arsenic compounds (for example, arsenic disulphide, arsenic pentoxide; arsenic trichloride; arsenic trioxide; arsenic trisulphide)	In agriculture as insecticides, herbicides; manufacture of drugs; tanning, taxidermy, antifouling paints; pigment production; glass production.	Trivalent arsenic compounds are corrosive to the skin; acute exposure may lead to vomiting, diarrhoea or even death.
Pentachlorophenol (CAS 87-86-5)	Bactericide , fungicide, and slimicide for preservation of wood, wood products, other materials; also used as herbicide, insecticide, molluscicide.	Irritation of the eyes, nose, throat, headaches, nausea, chest pains; also toxic to aquatic life.
Sulphuric acid (concentrated) (CAS 7664-93-9)	Chemical feedstock for several chemicals, that is, acetic acid, fertilizers, nitrate explosives, detergents; also used in mineral refining; leather industry; gas drying.	**Human health** Burning and charring of skin due to great affinity for water; long exposures lead to respiratory infections, and digestive disturbances.
Sodium bisulfite (CAS 7631-90-5)	Digestion of wood pulp; leather tanning; textile dyeing; food preservative.	Irritation of skin, eyes, mucous membranes.

TABLE 2.12:AIR POLLUTANTS AND THEIR HAZARDS

Name of Chemical (CAS Number)	Uses	Nature of Hazards
1,1, 1-Trichloroethane (CAS 71-55-6)	Degreaser, cold cleaning, dip-cleaning; dry-cleaning agent, vapour degreasing agent, propellant.	Eye irritation; acute exposure include dizziness, unconsciousness, and death.
Formaldehyde (CAS 50-00-0)	Fungicide, germicide, disinfectant. Used in manufacture of silk, textiles, dyes, inks, explosives; Used in paper, photographic and furniture industries; used in drug and pesticide manufacture.	Irritation of mucous membranes of respiratory tract and eyes; eye burns. Symptoms include:coughing, laboured breathing, pulmonary edema, irritation of throat and stomach; mainly affects respiratory system, eyes and skin.
Pyridine (CAS 110-86-1)	Solvent, denaturant for ethyl alcohol, in manufacture of paints, explosives, vitamins, drugs, disinfectants.	Irritation of the upper respiratory tract and skin; acute exposure leads to headaches, nausea, diarrhoea
Carbon disulphide (CAS 75-15-0)	In manufacture of dyes, paints, soil disinfectants, varnishes, solvent for waxes, camphor, resins, vulcanized rubber; textiles, explosives.	Irritation to skin, eyes and mucous membranes; acute exposures lead to suicidal tendencies, defective memory, impotence.
Benzene (CAS 74-43-2)	A constituent in motor fuels, solvent for paints, rubber; in manufacture of detergents, explosives, drugs.	Can cause irritation to skin, eyes; acute exposure leads to headaches, nausea, coma and may result in death.

Name of Chemical (CAS Number)	Uses	Nature of Hazards
Tritium (CAS)		
Carbon - 14 (CAS)		
Krypton - 85 (CAS)		
Strontium - 90 (CAS)		
Caesium - 137 (CAS)		

- Information on chemical (whether locally produced or imported).
- Source of chemical.
- Licensing importation or local production of chemical.
- Sufficiency of product labelling.
- Safety of procedures when chemical is to be locally manufactured.
- Storage of the chemical, by-products and main products.
- Transportation of chemical, by-products and main products.
- Restrictions on who can distribute/market chemical, when, where and how.
- Restrictions on who can use/handle chemical,when, where and how.
- Additional precautions, if any, under "normal" use.
- Disposal of expired chemical, waste, by-products and main products.
- Ministry/Department/Agency to monitor, supervise and enforce compliance to regulations.

2.4 ACHIEVEMENTS

(a) NEAP Process

This involved the identification of chemicals that are used in Uganda.

During the NEAP process the environmental impact of mining, industry, hazardous materials and toxic chemicals were analysed.[1] The objective of the exercise was to examine Uganda's current status of pollution of environment arising

[1] See NEAP Topic Paper on Industry, Mining, Toxic Chemicals and Hazardous Substances, 1994.

from the mining industry and other activities that involve the use or production of hazardous materials and toxic chemicals. The findings of this exercise are presented in **Table A.**

It was found that all processes involving processing solid raw materials generated toxic organic and inorganic dusts which lead to a high incidence of lung disorders. In relation to the working environment the following recommendations were made:

(i) further staffing of the Department of Occupational Health and Hygiene with skilled manpower;
(ii) establishing and equipping laboratories for working environment monitoring and, for medical examinations of workers;
(iii) provision of adequate transport for factory inspectors to visit and inspect factories;
(iv) the Labour Law Review exercise should be completed soon so as to put in place the laws to protect the working environment; and,
(v) Government should ratify the given International Labour Organization Conventions and translate them into national law.

Recognising the fact that some chemicals though toxic, were limited in circulation, emphasis was placed on the very hazardous and widely distributed chemicals - the pesticides.

It was noted that pesticide misuse was bringing about negative health and environmental impact such as acute and chronic poisoning, allergies, tumours, genetic disorders immune system disorders in man; and, destruction of soil biota, soil micro-structure, aquatic ecosystems, and general threat to the gene pool of Uganda's biodiversity.

Measures in place were identified, namely: distribution of agricultural chemicals through Ministry of Agriculture officials and co-operative societies; and through legislation such as the Control of Agricultural Chemicals Statute 1989. It was observed that the Control of Agricultural Chemical Statute was not comprehensive and laid emphasis on crop protection and not on storage, waste disposal and overall use of agricultural chemicals.

It was recommended that further legislative efforts and administrative measures were needed for better management of chemicals as a whole without limitation to sectors, and that the Control of Agricultural Chemicals Statute be amended to include protection of health and the environment.

Tools for the prevention of adverse effects from chemicals were identified and these are:

(i) putting in place an awareness campaign information dissemination programme to target all vulnerable groups;
(ii) drawing out codes of practice detailing skills in the application, storage, protective clothing, waste management and good practices during application;
(iii) carrying out a research programme to identify vulnerable components of the ecosystems;
(iv) monitoring of chemical levels, that is, the level of pollution in the air, water, food and soil; and,
(v) equipping existing laboratories for trace analysis.

A strategy for chemical safety was charted out and the principal tools to be applied are:

- taking a critical attitude towards unnecessary use and over-use of any kind of chemicals;
- to focus on the use of the least toxic alternative chemicals during the production, trade and use of chemicals;
- to ensure that pre-marketing testing of chemicals has been done and authentic results of their health and environmental effects are publicly available before the chemical is put to the market;
- adequately considered siting and planning of land-use for chemical industries, storage, transport routes and sites for big consumers or polluters such as energy production plants;
- licensing the production, the dealers and if appropriate, the user;
- to ensure careful design of factories that have chemical processes, ensure effective process control and maintenance of the factory;
- to adequately manage transport systems where chemicals are passed including maintenance of good conditions of routes and vehicles;
- to control emissions from sources and ensure correct disposal, incineration and handling of wastes;
- to limit exposure to chemicals in the various settings: ambient and working environment, in water, soil, food and consumer products;
- to ensure that hazardous materials are labeled so that adequate danger symbols on them are visible, clear and appropriate; and,
- to ensure that all people involved in production, transport, storage, trade or use of chemicals are adequately trained and made aware of the dangers involved, and how to mitigate them.

In order for these tools to be effective there is need for a well established infrastructure, adequate legislation, capable laboratories and adequate finance and harmonisation of the role and tasks of the different institutions.

It was recommended that the laws should be over-hauled so as to create a comprehensive legislation allowing for co-ordination. They should establish administrative organs to ensure compliance and outline the duties of the various stake-holders.

The lack of implementation of Uganda's laws relating to chemicals was attributed to lack of references and standards which would provide the technical means for practical implementation, monitoring and surveillance of chemicals would enable the institutions involved observe trends and patterns; establish a data base and have a basis for compliance with regulations and laws.

Non-compliance with the law was also attributed to lack of motivated skilled manpower, educative programmes and sensitisation of the whole public. Policy implementors such as licensing officers, physical planners, customs officers, industrialists, among others, were not sensitized on chemical safety. It was proposed that a National Chemical Safety Authority be formed to: screen chemicals; carry out comprehensive assessment of their effects; advise on their suitability; control their entry, exit and disposal; and monitor their use within Uganda and inform the public. It is recommended that such an authority is not necessary given the existence of NEMA.

Cooperation with international organisations such as the International Programme on Chemical Safety (IPCS), International Register of Potentially Toxic Chemicals (IRPTC) and International Occupational Safety and Health Information Centre (CIS) was recommended.

A policy was recommended and this was aimed at:

(i) encouraging a better understanding of the dangerous effects of chemicals through provision of information;
(ii) developing and strengthening technical capacity for monitoring and control of harmful effects of chemicals;
(iii) supporting training for production of competent manpower to effect action to prevent harmful effects from chemicals; and,
(iv) encouraging inter-sectoral co-ordination in dealing with matters of chemical safety.

The legislation was found to be out-dated, lacking in institutional arrangements and redundant due to lack of standards. It was therefore, recommended that the legal framework in which standards for safeguarding and enhancing the environment are set, should be developed and that all concerned departments would coordinate activities so as to achieve a harmonious action.

Hazards were associated with petroleum works and refineries; chemical works and chemical production plants; stores and distribution centres for chemicals; and, large fertilizers stores and works in which chlorine is used in bulky quantities.

It was found that there is lack of a major and well-defined and systematic hazard preparedness system. It was observed that government should strengthen the Factories Inspectorate and the Department of Occupational Health and Hygiene, the Fire Brigade and the water authority, as well as establish a group of experts to advise on emergency preparedness.

Chemical and biological weapons were recognised as being hazardous materials and it was recommended that Uganda should co-operate with other countries so as to achieve a global ban on these weapons.

As a result of the NEAP process, a basic framework legislation in the management of the environment was enacted. The National Environment Statute No. 4 of 1995 which established the National Environment Management Authority (NEMA) provides *inter alia*, for the management of chemicals in Uganda.

(b) NEMA Activities

The principles of management of chemicals now laid out in the National Environment Statute are also considered. The need for specific legislation is highlighted. This specific legislation should be detailed and provide for all aspects of control such as:

- pre-marketing testing;
- classification of toxicity;
- registration;
- product analysis;
- import control;
- licensing of manufacture;
- licensing of formulation;
- licensing of dealers;
- certification of applicators;
- mandated users;
- residues in food;
- monitoring of food;
- monitoring of environment;
- waste management; and,
- organisational aspects.

Excutive Summary

The terms of reference (see Appendix) were used in the preparation of the draft Regulations on toxic and hazardous chemicals.

Methodology

The following methods were adopted to conduct the study:

(a) Review of existing legislation relevant to toxic and hazardous chemical and materials management in Uganda.

(b) Consultations with responsible ministries/bodies such as the National Environment Management Authority and the lead agencies such as Uganda National Bureau of Standards, Ministry of Agriculture, Occupational Health Department (Ministry of Labour), Ministry of Health (Virus Research Institute - Entebbe), and, Makerere University.

(c) Comparative studies of regulatory controls which have been adopted in some developed countries, for example, in the European Union regarding the manufacture, use and disposal of commonly known toxic and hazardous chemicals.

(d) Market surveys of local shops and stores in the country involved in the sale of chemicals as drugs and agricultural chemicals, which fall under the category of toxic and hazardous chemicals

(e) Evaluation of information from importers/users of chemicals, that is, laboratories, research institutes, and petroleum products importing companies, such as, Shell.

(f) Interview of users of chemicals, that is, farmers, traders, hair salon owners.

(g) Assessment of literature available in institutional libraries, such as, NEMA library, Makerere University, as well as United Nations publications (International Register of Potentially Toxic Chemicals, IRPTC).

Coverage

In order to cover a wide spectrum of chemicals, the classified chemicals based on their uses is adopted. Chemicals are classified in the following categories:

- petrochemicals;
- mining and explosive industry chemicals
- agricultural chemicals (pesticides, fertilizers, plant growth regulators);
- laboratory and industrial chemicals;
- plastics and rubber product chemicals;
- cosmetics, detergents and perfumes;
- pharmaceuticals (human and veterinary drugs);
- adhesives, paints, polishes, lubricants;
- food additives, preservatives, contaminants;
- textile, leather and wood product processing chemicals;
- aerosols and air pollutants;
- radioactive materials;

In the scope of this study explosives are not included.

The main disadvantage with the above classification is that a chemical may have several uses.

Study Findings and Recommendations

Given the wide scope of chemicals, it is necessary to consider the different chemicals separately. Most countries do not have a single law regulating the management of chemicals.

The practice is to formulate a simple framework law on chemical substances and products which is then supplemented by separate statutory instruments for the different categories of substances and products. Alternatively, the different categories can be catered for in one set of regulations divided into parts, with each part providing for a different category.

CHAPTER THREE

REVIEW OF EXISTING LEGISLATION, POLICIES AND INSTITUTIONAL ARRANGEMENTS

INTRODUCTION

The state of affairs indicates that the management of chemicals in Uganda has not been proper. A review of existing legislation indicates that the management of chemicals has been impeded by deficiencies in the law and other factors which hinder law enforcement.

Generally, the main impediments include: lack of serious political commitment, inadequate or un-coordinated legislation; uncoordinated efforts; insufficient information on chemicals in use; lack of health or environmental monitoring; lack of trained staff, equipment and other resources; absence of labelling or foreign labellings; faulty packaging or repackaging; lack of poison centres or accident preparedness; inappropriate transport; unsafe storage; easy accessibility by children or inexperienced adults; dangerous methods of use; excessive use or misuse; lack of or failure to use protective equipment or clothing; and, lack of disposal facilities for waste chemicals.

EXISTING LEGISLATION

The production, transportation, use and disposal of chemicals is regulated by national and international legal instruments. Due to the cross-sectoral nature of chemical management the law is fragmented into several pieces of legislation such as the Constitution of Uganda 1995, principle legislation such as National Environment Statute 4/1995, Water Statute 9/1995, Factories Act. Cap 198 and subsidiary legislation made thereunder.

Table B gives an overview of existing legislation; however, the salient provisions of the law will be discussed in subsequent Sections.

3.1 THE NATIONAL ENVIRONMENT STATUTE 4/1995

A chemical is defined as a substance in any form whether by itself or in a mixture or preparation whether manufactured or derived from nature and for the purposes of this Statute to include industrial chemicals, pesticides, fertilizers and drugs. The guidelines and measures should include *inter alia*, registration, labelling, packaging, advertising, control of importation and exportation, distribution, storage, transportation, monitoring of effects, disposal, restriction and banning of toxic and hazardous chemicals and materials. The discharge of hazardous chemicals, substances, materials or oil into the environment is prohibited except in accordance with prescribed guidelines.

The *polluter-pays-principle* is applied by requiring the polluter to pay the cost of removal by any Government agency or organization or third party, and to mitigate the impact of the discharge according to provisions of S.57(4). The Authority is empowered to seize the production facility, motor vehicle or vessel until mitigation measures are taken.

Any person who fails to manage any chemical in accordance with Section 56 commits an offence and on conviction is liable to imprisonment for a term of not less than 36 months or to a fine of not less than 360,000/=, and not more than 36,000,000/= or both. Part XV of the Statute provides for the international obligations of Uganda. The Minister is empowered where any convention or treaty has been ratified by Uganda, by Statutory order with approval of Parliament to do the following:

(i) set out provisions of the convention or treaty;
(ii) give the convention or treaty or any part of these the force of law;
(iii) amend any enactment (not the Constitution) so as to give effect to the Convention or treaty; and,
(iv) make any provision to give effect to the convention or treaty or enable Uganda to perform its international obligations.

The Minister is also given power to make regulations on the recommendation of any Minister, the Policy Committee or the Board. Since there are no regulations on the management of toxic and hazardous chemicals and materials, there is need for these to be drafted.

Section 52 makes it a mandatory requirement for the Authority in consultation with the lead agency to identify materials and processes that are dangerous to human health and the environment. In identification, the Authority will:

(i) establish and maintain a list of all chemicals produced and distributed domestically which information can be obtained from producers, importers, government bodies, research institutes, industry associations, chemical retailers and users, and public interest groups; and,

(ii) identification of hazard by examining:

- inherent physical and chemical properties such as flammability, explosiveness and reactivity with other chemical-toxicity to human beings, including ability to cause irritation, tissue damage, cancer, genetic changes or birth defects; and,
- impact on the environment including toxicity to animals and plants, persistence, biodegradability, accumulation and chemical reactions.

A duty to manage and minimise wastes so as not to cause ill health to the person or damage to the environment is imposed on all persons generating wastes (S.53). It should be noted that Draft Waste and Hazardous Waste Management Regulations, 1997, have been made under this Section and Section 54 which relate to the management of hazardous wastes.

Section 55 prohibits the importation of the following hazardous wastes:

- extremely hazardous waste;
- corrosive waste;
- carcinogenic waste;
- flammable waste;
- persistent waste;
- toxic waste;
- explosive waste;
- radioactive waste;
- wastes reactive otherwise than as described in the foregoing paragraphs of this subsection;
- any other category of waste the Authority may consider necessary.

Section 56 provides:

(1) The Authority shall, in consultation with the lead agency, establish criteria for the classification of toxic and hazardous chemicals and materials in accordance with their toxicity and the hazards they present to human health and to the environment.

(2) The Authority shall, in consultation with the lead agency, on the basis of the criteria established under Sub-Section (1) issue guidelines and prescribe measures for the management of toxic and hazardous chemicals and materials.

(3) The guidelines issued and the measures prescribed by the Authority under Sub-Section (2) shall include guidelines and measures on -

(a) registration of chemicals and materials;
(b) labeling of chemicals and materials;
(c) packaging for chemicals and materials;
(d) advertising of chemicals and materials;
(e) control of imports and exports of toxic and hazardous chemicals and materials;
(f) distribution, storage, transportation and handling of chemicals and materials;
(g) monitoring of the effect of chemicals and their residue on human health and the environment;
(h) disposal of expired and surplus chemicals and materials;
(i) restricting and banning of extremely toxic and hazardous chemicals and materials.

The draft Waste and Hazardous Wastes Regulations, 1997, make provision for the disposal of expired and surplus chemicals and materials which have then become wastes; so it will be unnecessary repetition to make provisions for chemical wastes in the proposed regulations. The Statute (Section 57) creates duties on people discharging hazardous substances, chemicals, oils or a mixture containing oil into any waters or other segment of the environment. It creates a criminal offence on the person discharging the material and it creates mitigation duties and measures for accidental discharge and how to handle such accidents.

NEMA is required to prescribe measures for the covering of toxic and hazardous chemicals and materials.

The regulation of oils needs to be provided for in a separate instrument because of their nature in Uganda. The measures which are prescribed under section 57 of the National Environment Statute are not unique to oils.

The management of toxic and hazardous chemicals and materials need a separate set of regulations. S. 82 provides for the protection of proprietary information.

3.2 NATIONAL DRUG AUTHORITY, ATOMIC ENERGY BOARD, UGANDA OIL BOARD

National Drug Authority: The National Drug Authority is charged with the implementation of the National Drug Policy.

The other functions are:

- to deal with the development and regulation of the pharmacies and drugs in the country;
- to approve the National List of Essential Drugs and supervise the revisions of the list in a manner provided by the Minister;
- to estimate drug needs to ensure that the needs are met as economically as possible;
- to control the importation, exportation, and sale of pharmaceuticals;
- to control the quality of drugs;
- to promote and control local production of essential drugs;
- to encourage research and development of herbal medicines;
- to promote rational use of drugs through appropriate professional training;
- to establish and revise professional guidelines and disseminate information to health professionals and the public;
- to provide advice and guidance to the Minister and bodies concerned with drugs on the implementation of the National Drug Policy;
- to perform any other function that is connected with the above.

The National Drug Authority is faced with logistical problems which hinder its performance. The Authority has failed to control the illicit supply of drugs by un-authorised persons such as hawkers and street vendors.

Uganda Oil Board: This Board has not yet started functioning..

3.3 THE PHARMACY AND DRUGS ACT 39/1970

This Act prohibits the use of the terms APharmacist" and APharmacy" by a person not being pharmacist and requires the supervision of a pharmacist where drugs are sold in pharmacies, dispensaries or drug stores.

The Chief Pharmacist is required to cause a list of all pharmacists who are registered to appear in the Gazette and the same should be done for all persons whose names are deleted from the Register. The governing body of the pharmaceutical society is responsible for the conduct of the qualifying examination for membership of the society, maintenance of a register of pharmacists, supervision and regulation of training, maintenance of libraries and research in the subject of pharmacy and chemistry.

The supply of syringes is restricted to registered medical practitioners, dentists, veterinary surgeons, pharmacists or licensed persons except under orders signed by registered medical practitioners or veterinary surgeons.

On the proof of any complaint made against a pharmacist, the Disciplinary Committee may reprimand the Pharmacist, order the payment of a fine to the Board or order the cancellation or suspension of the pharmacist's certificate of registration subject to an appeal by the affected pharmacist to the High Court.

Save for the out-datedness of the fines provided under this Act, the other provisions are apparently in touch with current trends; however, although the provisions of the law are clear as to what should be done, it should be noted that it has not been implemented.

Accordingly un-authorized persons, such as, hawkers and street vendors, supply drugs, yet the list of registered pharmacists is not easily accessible to the public and disciplinary proceedings are rarely taken against those who flaunt the provisions of the law.

3.4 CONTROL OF AGRICULTURAL CHEMICALS STATUTE 8/1989

All agricultural chemicals are to be handled in accordance with regulations made under this Statute. All standards and requirements are to be specified in the regulations. The Statute establishes an Agricultural Chemicals Board consisting of the Commissioner for Agriculture, Head of Agricultural Research, Dean of the Faculty of Agriculture and Forestry, Makerere University, Chairman of Agricultural Chemicals Technical Committee, an advocate, a representative of the chemical industry, a representative of farmers, the Government Chemist, Commissioner for Veterinary Services, Chief Forest Officer, Director of Medical Services, a public officer appointed by the Minister responsible for the environment and another responsible for the National Bureau of Standards.

The Board is charged with ensuring that agricultural chemicals are properly managed through registration, labelling, issuance of licences regulating quality and importation.

3.5 INVESTMENT CODE STATUTE 1/1991

This law relates to local and foreign investments in Uganda. Among the functions of the Investment Authority established by this Statute is the promotion , facilitation and supervision of investments in Uganda.

Chemical industries and pharmaceutical industry are listed among the priority areas of investment under the Statute.

An investor may be required to take necessary steps to ensure that the operations of his business enterprise do not cause injury to the ecology or environment. On failure to implement this provision when included as a condition of the investment licence the Uganda Investment Authority may give written notice to the investor and on failure to comply with the notice, the licence is revoked. This not being a mandatory requirement under this Statute may not impress upon the investors the need to ensure that adverse effects do not arise; however, the position is made clear by the provisions of the National Environment Statute. The need to carry out an environmental impact assessment (EIA) in now a condition preliminary to project implementation.

3.6 UGANDA OIL BOARD STATUTE 2/1994

It is not yet clear whether this Board has properly carried out its functions. It is apparent that the provisions remain on paper.

3.7 UGANDA NATIONAL BUREAU OF STANDARDS ACT 1/1983

The Bureau is further required:

- to formulate national standard specifications for commodities and codes of practice;
- to promote standardisation in commerce, industry, health, safety and social welfare;
- to determine, review, modify or amend standard specifications and codes of practice;
- to endorse or adopt any international or other country's specification with or without any modification as suitable for use in Uganda;
- to require certain products to meet certain standards in their manufacture, or production, composition treatment or performance and to prohibit substandard goods where necessary;
- to enforce standards in protection of the public against harmful ingredients, dangerous components, shoddy materials and poor performance;
- to promote trade among African countries and the world through the harmonisation of standard specifications;
- to provide for the testing of locally manufactured or imported commodities so as to confirm whether the commodities conform to standard specification.
- to make arrangements or provide facilities for the examination, testing or analysis of commodities and any material or substance from which or with which and the manner in which they may be manufactured, produced, processed or treated.

Every person to whom a permit for standards mark has been granted is required to observe the conditions of the permit, failure of which would lead to withdrawal, suspension, revocation or cancellation of the permit by the National Standards Council.

In the event of non-compliance fines ranging from ten thousand (10,000/') shillings to thirty thousand shillings and/ or imprisonment terms ranging from fifteen months to twenty four months, are imposed.

Any person who makes a representation comparing a standard specification which has been declared, commits an offence.

As relates to other laws, there exists a problem of enforcement. Much as the Act also covers toxic and hazardous chemicals ("commodity" in the Act means - any article, product, or thing which is or will ultimately be the subject of trade or use), little is done about the manufacture and supply of chemicals which at times is contrary to established standards.

3.8 NATIONAL AGRICULTURAL RESEARCH ORGANIZATION STATUTE 19/1992

Under this Statute, the research mandate of the various institutes established is expressly spelt out and research on chemical management in Uganda can only be implied from the general provisions of the Statute.

Kawanda Agricultural Research Institute (KARI) is responsible for research on perennial cash and food crops, farming systems, soils crop protection, plant introduction and quarantine service.

Namulonge Agricultural and Animal Production Research Institute (NAARI) is to undertake research in annual industrial and food crops; crop/livestock management systems and pasture. Serere Agricultural and Animal Production Research Institute (SAARI) is responsible for cereals, root crops, legumes and oil seeds for semi-arid areas; semi-arid production system; seed research and production, pastures, range management and livestock management systems.

The Forestry Research Institute Kifu (FORI) deals with research on natural forests, plantation forests, forest products and utilisation and agroforestry. The Livestock Health Research Institute Tororo (LIRI) is responsible for research on animal health, animal breeding and theruigenology and animal diseases. The Fisheries Research Institute Jinja (FIRI) is to undertake research in freshwater fisheries, fish technology, aquaculture and fish production systems.

Food Science and Technology Research Institute (FOSRI) is to deal with research on food preservation, processing, storage, marketing and dietetics.

Agricultural Engineering and Appropriate Technology Research Institute is to deal with research on farm mechanisation, crop processing and storage, soil and water engineering.

3.9 PETROLEUM (EXPLORATION AND PRODUCTION) ACT 7/85

The Act prohibits the exploration or development operations on petroleum without a licence. It is necessary for one to apply for a petroleum production licence which application should be accompanied by a report on the petroleum reservoir, among other things, which contains particulars of chemical composition, physical properties, petrophysical properties, geological data, particulars of production, equipment and storage facilities, transportation safety measures, necessary measures to be taken for the protection of the environment among other factors.

Obligations and duties are imposed on the licensee to ensure control of flow or prevent escape of any mixture of water or drilling fluid and petroleum, prevent pollution and where it occurs to disperse it in an environmentally acceptable manner. Since petroleum exploration in Uganda, has not been actively pursued it is not easy to determine how practicable this Act is in terms of management of petro-chemicals.

3.10 EMPLOYMENT DECREE 4/1975

The employment of young persons in any sector which is injurious to health, dangerous or unsuitable, is prohibited.

The Decree does not, however, go further to establish exactly what constitutes unsuitable employment. There is a requirement for medical examination before contracting an employee for any of the employment specified in the schedule in the Decree. It should be noted that most of the employment scheduled relates to hazardous and toxic chemicals, for example, Taxidermy and hide processing, textile dying and bleaching, pesticide work, fertilizer manufacturing, ore extraction, clothes dry-cleaning, among others.

As to how many employers ensure that the medical examination is provided, remains a difficult question to answer. There seems to be a problem of non-compliance with the provisions of the law.

3.11 NATIONAL DRUG POLICY AND AUTHORITY STATUTE 13/1993

Part III provides for control of drug supply. The importation or sale of drugs not appearing on the National Formulary is prohibited. Drugs specified in Schedules 1, 2 and 3 are classified drugs, those in Schedule 4 are exempted drugs, while those not classified or exempted are restricted drugs. Provision is made for people who can supply and dispense of restricted drugs (S.14).

The supply or dispensing of restricted drugs shall be in distinctly labelled containers, and the particulars are required to be entered into the Prescription Book. Restricted drugs can only be supplied from premises which have been issued certificates and licensed to deal in drugs.

In case of classified drugs, there is need for prescription and supply should only be by responsible persons and entries of the supply shall be made in the Classified Drugs Book. Impure drugs should not be supplied.

The manufacture and storage of drugs is also restricted, there being restriction on the manufacture or preparation of drugs not included on the National Formulary, and the requirement for their manufacture to be by a pharmacist or under his/her supervision. Classified drugs [Class B and Class C [Group II)] are to be kept under lock and key separately from other drugs.

3.12 NATIONAL MEDICAL STORES STATUTE 12/93

This Statute establishes a corporation, namely, National Medical Stores, which is to ensure the security, safety and efficient storage, administration, distribution and supply of medicines and medical supplies among other functions. The Corporation is to advise the National Drug Authority on estimation of drug needs, distribution and use of medicines in the public health service.

3.12 THE WATER STATUTE 9/1995

A Water Policy Committee is established with the several functions, some of which are as below:

- to co-ordinate the preparation, implementation and amendment of the Water Action Plan and recommend the same to the Minister to advise the Minister at his/her request, on issues of policy relevant to investigations, use, control, protection, management or administration of water sources;

- whether on request or otherwise, to review the law relating to water and advise the Minister on required amendments or better administration of that law.

The Minister is empowered to prescribe water which may not be discharged, trades which may not discharge waste or classes of premises or particular premises from which waste

may not be discharged except in accordance with a waste discharge permit.

Pollution of water is prohibited unless authorised under the Statute. The Minister is empowered to make regulations.

The Water Statute does not adequately cater for the management of toxic and hazardous chemicals and materials. More emphasis is placed on waste discharge which is already adequately provided for by the National Environment Statute, and the regulations on the management of waste and hazardous wastes.

3.13 WORKMEN'S COMPENSATION ACT CAP. 197 AS AMENDED BY ACT 5/1969

The employer is required to defray the reasonable expenses incurred by a workman as a result of the accident which would entitle the workman to compensation, where a workman suffers disablement or death as a result of a scheduled disease then compensation is required to be paid.

The Third Schedule comprises a description of disease and the nature of occupation likely to bring it about. Considering the fact that this Act was enacted in 1949, there is need to update it in light of the given scientific advancements which have led to new revelations into occupational diseases. This will help in determining how toxic and hazardous chemicals should be managed so as to prevent or reduce risks of occupational diseases.

3.14 FACTORIES ACT CAP 198

The interpretation of a factory is so broad as to mean any premises in which persons are employed in manual labour in any process for or incidental to the making of any article,

or of part of any article, altering, repairing, ornamenting, finishing, cleaning or washing, breaking up or demolition of any article or adapting for sale of any article.

There is a requirement for registration of factories by the Chief Inspector, after a notice of occupation of the factory has been served by the Chief Inspector.

Vessels containing dangerous liquids likely to scald, corrode or poison, are required to be securely covered or securely fenced and a warning notice be placed so as to prevent accidents. Where dangerous fumes are liable to be present, then adequate means of egress are to be provided and no person is to be allowed to enter unless the safety precautions laid down are complied with. Similar provisions are made with regard to explosive or inflammable dust, gas, vapour or other substances.

There is a mandatory requirement for prevention of fire and safety provisions in the case of fire. The Minister is empowered to require medical supervision in cases of illness or where there may be a risk of injury to employees.

An inspector is empowered to take samples for analysis. The administration of this Act is vested in the Labour Commissioner. The Act establishes a Factories Advisory Board for the purpose of giving advice and assistance in regard to matters affecting safety, health and welfare in factories. Despite the clear provisions of this Act, a problem of enforcement still remains. The law is also out-moded, and has to be brought in line with current legislation, for example, the National Environment Statute, most especially with regard to standard management of chemicals, wastes, among others. In addition, although chemicals are mentioned, none is listed which makes it rather difficult for implementing officers to determine what is dangerous in light of the provisions of this Act.

3.15 PETROLEUM ACT CAP 97

Petroleum can only be imported, unloaded, landed, loaded, trans-shipped or transported by other means, or kept, in accordance with the provisions of rules made under this Act. The Minister is empowered to make rules:

(i) defining, classifying or categorising the kind of petroleum to which the rules shall apply;
(ii) prohibiting or regulating the use of petroleum;
(iii) restricting and regulating the importation, landing, loading, shipping, transportation, storage of petroleum, and prescribing a system of licensing.
(iv) providing for notice to be given by type of ownership or importer;
(v) sampling of petroleum landed;
(vi) providing licensing of premises;
(vii) regulating the description and construction of vehicles to be used in the conveyance of petroleum;
(viii) prohibiting or restricting the carriage of goods and passengers in vehicles carrying petroleum;
(ix) prescribing quantities to be conveyed;
(x) prescribing precautions to be observed in the conveyance, the manner of packing and mode and time of transit; and,
(xi) prescribing apparatus for testing appointing officers for testing, fixing fees and provision and providing for inquiries into the circumstances of accidents and giving notice of all such accidents.

Contravention of rules in respect of storage, conditions of licence, transportation, shipment, and notice of port

authorities, are provided for. It should be noted that no regulations were drafted under this Act which has rendered it unoperational.

3.16 PHOSPHOROUS MATCHES ACT CAP. 98

Any person who manufactures, imports or sells white (yellow) phosphorous matches commits an offence on conviction, shall be liable to a fine not exceeding two thousand shillings or in default of payment to imprisonment for a period not exceeding six months, and the matches or materials shall be forfeited.

No subsidiary legislation was drafted under this Act.

3.17 PUBLIC HEALTH ACT CAP. 269

No person is allowed to cause a nuisance according to the provisions of Part IX. As to what constitutes a nuisance, among others listed, is any factory or trade premises not ventilated so as to destroy or render harmless and inoffensive any gases, vapours, dust or other impurities, or so over-crowded as to be injurious or dangerous to the health of those employed therein. Among the matter not to be deposited in sewers or drains are chemical refuse, petroleum spirit, and carbide of calcium. Contravention of this provision attracts a fine not exceeding two hundred shillings and to a further fine not exceeding one hundred shillings for each day on which the offence continues after conviction.

Local authorities have a duty to take all lawful, necessary and reasonably practicable measures to prevent pollution of water supplies and food. This Act lays emphasis on the prevention and suppression of infectious diseases and epidemic or endemic diseases. It does not make indication as to how the chemical refuse and related matter can be appropriately managed so as to protect public health. This Act only lists petroleum spirit and calcium carbide as chemicals, but does not list what constitutes chemical refuse. In addition the Act does not prohibit the contamination of sewers and drains with chemicals.

3.18 FOOD AND DRUGS ACT CAP. 271

The preparation and sale of injurious food and adulterated drugs is prohibited. The same should not be offered, exposed or advertised for sale, and any person found in possession of them commits an offence.

The absence of fraud, lack of knowledge and exercise of reasonable diligence are defences. The other offences provided for under this Act are:

(i) false labelling or advertisement of food or drug;
(ii) sale or preparation of sale or possession, for purpose of sale of food unfit for human consumption;
(iii) preparation or manufacture or storage of ice cream, sausages, potted, pressed, pickled or preserved food, intended for sale without registration;
(iv) sale of milk from diseased cows (suffering from tuberculosis, acute mastitis, actinomycosis, suppuration, comatose or anthrax). All animals intended for slaughter are to be examined by a registered veterinary surgeon.

Powers of inspection, taking samples and seizure are vested in the authorised officers. The Act provides for the establishment of a Food Hygiene Advisory Committee which may advise the Minister.

The Minister is *inter alia* empowered to make regulations regulating the addition of any specified substance to food intended for sale and under Food and Drugs (Prohibition of the Use of Cyclamate) Regulation SI 165/1971 and Food and Drugs (Prohibition of the Use of Violet No. 1) Regulation SI 241 1974. The use of cyclamate and violet No. 1 was prohibited.

The Minister has not made most of the regulations he is empowered to make under the Act and as such the provisions have not been easy to enforce. Another problem has been with poor law enforcement, with emphasis being made only to cater for a few items, for example, meat supplies/handling.

With the given increase in local investment, many food producers have come into the market and since there is insufficient manpower, inspections are not adequately carried out (limited inspection average). The lack of well trained technical staff is a persistent problem affecting law enforcement.

3.19 EXPLOSIVES ACT CAP 309

This Act restricts the manufacture of unauthorised explosives solely for the purposes of chemical experiments and practical trials. The manufacture of authorised explosive is restricted to explosives factories.

The Act further delimits the storage or possession of unauthorised explosives and restricts the storage of authorised explosives; save for the manufacturers, any other person who seeks to deal in explosives including importation, exploration and use, requires a permit.

Before a licence can be granted to the manufacturer, the application should specify the situation and extent of area, materials to be used, the nature of the manufacturing process, the quantity of explosives and the proposed maximum number

of persons to be employed. It should be noted that there is no requirement for the manufacturer to state exactly what measures are in place to deal with accidents, how the workers will be protected from exposure to hazardous and toxic chemicals, and how by-products will be handled.

Provision is made for local authorities or any person who can show a substantial interest in opposing the grant of a licence to do so. Inspectors may enter and inspect the factories at any time. The Act imposes on every occupier of a factory the duty to make special rules for regulating employees so as to ensure safety.

The penalties provided for are as minimal as they are unrealistic because they range from fines of one thousand shillings (1,000/-) to ten thousand shillings (10,000/-).

Although the Minister is empowered to make regulations, none have been made under this Act.

In brief, the implementation of this Act is very limited in that, compliance with its provisions is left to occupiers and there are no substantial guidelines and standards which can be followed.

3.20 ROADS ACT CAP 345

This Act provides basically for the establishment of road reserves and for the maintenance of roads. It does not in any way regulate the transportation of toxic and hazardous chemicals in Uganda.

3.21 SPECIFIED GOODS (CONVEYANCE) ACT CAP. 344

This Act provides for the control of the means of conveyance of certain goods to and from Sudan, the Democratic Republic of Congo, and Rwanda.

Petroleum products and lubricants are listed among the goods for which routes for conveyance in or out of Uganda, are to be prescribed by Statutory instrument.

Other toxic and hazardous chemicals have not been listed in the Schedule which leaves the transporters freedom to utilise any route, thus, exposing the environment to more danger.

3.22 INLAND WATER TRANSPORT (CONTROL) ACT CAP 348

This Act requires any person interested in conveying goods by means of a ship on inland waters of Uganda, to apply for a licence.

The Board is empowered to attach to any licence the condition that certain classes or descriptions of goods shall or shall not be carried or any other conditions deemed necessary, in public interest.

Whether the transportation of toxic and hazardous chemicals on inland waters should be regulated under this law, is another question. What about to over-land transportation of toxic and hazardous chemicals?

3.23 THE RATIFICATION OF TREATIES ACT 5/1998

Where a treaty relates to armistice, neutrality or peace or in a case of a treaty, in respect of which the Attorney General has certified in writing that its implementation in Uganda, would require a Constitutional amendment and then Parliament by resolution shall ratify it. All other treaties are to be ratified by the Cabinet.

The instrument of ratification of a treaty shall be signed, sealed and deposited by the Minister responsible for Foreign Affairs who will also be the depository in Uganda of all treaties.

There is a requirement for all treaties ratified by the Cabinet to be laid before Parliament in the shortest time possible. The Minister responsible for foreign affairs is empowered in consultation with the Attorney General by Statutory instrument to make rules.

Since there are several international instruments relating to the management of toxic and hazardous chemicals and materials, there is a need for reference to be made to this Act when making recommendations relating to the need to ratify these treaties.

CHAPTER FOUR

INTERNATIONAL LAW ON TOXIC AND HAZARDOUS CHEMICALS

There are several international instruments concerning the management of toxic and hazardous chemicals and materials. A number of them relate to the general environment and the majority of these relate to the work-place. Under international law there has development on treaty law (Conventions) and soft law (guidelines). It is very essential to review both types of law because the international guidelines have greatly influenced the development of conventional law.

4.1 CONVENTION ON THE PRIOR INFORMED CONSENT PROCEDURE FOR CERTAIN HAZARDOUS CHEMICALS AND PESTICIDES IN INTERNATIONAL TRADE

The Convention prohibits the export of hazardous chemicals and pesticides which have been banned, or severely restricted in at least two countries, except where the importing country expressly agrees. The exporter is required to provide extensive information on the potential hazards on health and the environment.

The global production of 22 pesticides and 5 industrial chemicals deemed too dangerous to be used by farmers, should be stopped. The pesticides are 2,4,5 - T, Aldrin, captafol, cholrdane, chlordimeform, chlorobenzilate, DDT, Dieldrin, Dinoseb, 1, 2 - dibromoethane (EDB), Fluoroacetamide, HCH, Heptachlor, Hexachlorobenzene, Lindane, Penta-chlorophenol, mercury compounds, certain formulations of Monocrotophos, Methamidophos, Phospha midon, methylparathion and parathion.

The 5 industrial chemicals covered are Crocidolite, Polybrominated Biphenyls (PBBs), Polychorinated Biphenyls (PCBs), Polychlorinated Terphenyls (PCTs) and Tris (2,3 dibromopropyl) phosphates.

Although the convention can only enter into force after ratification by 50 countries, an interim procedure on the voluntary implementation of the Convention exists. Since Uganda has already adopted the prior informed consent procedure for the trans-boundary movement of hazardous wastes (draft regulations) the same can be adopted for the movement of toxic and hazardous chemicals.

4.2 CODE OF ETHICS ON THE INTERNATIONAL TRADE IN CHEMICALS 1994

This code which is a complement to the amended London Guidelines for the Exchange of Information on Chemicals in International Trade, addresses private sector parties which can enter into voluntary commitment to increase chemical safety and to enhance the sound management of chemicals through information exchange. It provides for procedures to monitor voluntary compliance by the parties with the standards of conduct set out in the principles and guidance.

Private sector parties are encouraged to make a commitment to undertake self-regulatory measures and make a declaration to that effect which should be communicated to UNEP and other companies/enterprises. Self-regulatory measures that can be adopted are: reducing risks; testing and assessment; quality assurance; classification, packaging and labeling; provision of information; education and training of employees, chemical handlers and consumers; advertising, marketing, and monitoring and follow-up.

In Uganda, it would be relevant for Government to adopt the London Guidelines and then encourage the private sector members to adopt the Code of Ethics on the International Trade in Chemicals, as implementation will promote safety.

4.3 LONDON GUIDELINES FOR THE EXCHANGE OF INFORMATION ON CHEMICALS IN INTERNATIONAL TRADE 1987 (AMENDED 1989)

These guidelines address governments in order to assist in the process of increasing chemical safety through the exchange of information on chemicals in international trade. Governments are encouraged to exchange scientific, technical, economic and legal information. Importation and exporting countries are required to co-operate in the exchange of information on banned or severely restricted chemicals in international trade.

States are encouraged to strengthen their existing infrastructure and institutions by establishing and strengthening legislature and regulatory systems and

mechanisms for control and management of chemicals; creating national registers of toxic chemicals and preparing and updating manuals, directories and documentation, for better utilisation of facilities for information collection and dissemination.

These guidelines do not apply to: pharmaceuticals, including narcotics, drugs and psychotropic substances, radioactive materials, food additives and chemicals imported for research purposes or as personal or household effects in reasonable quantities. Uganda should adopt the provisions of these guidelines to enhance the proper management of chemicals in Uganda.

4.4 VIENNA CONVENTION FOR THE PROTECTION OF THE OZONE LAYER

The Parties are under obligation to take appropriate measures in accordance with the provisions of the Convention to protect human health and the environment against adverse effects arising from human activities which modify or are likely to modify the ozone layer. This is to be done through:

- cooperation by means of systematic observations, research and information exchange;
- adoption of appropriate legislative and administrative measures;
- cooperation in the formulation of agreed measures, procedures and standards; and,
- cooperation with competent international bodies.

Uganda has ratified this Convention 15th September, 1988, and currently, the draft Management of Ozone depleting substances Regulations have been made under the National Environment Statute. There is need for exchange of information with other countries on what Uganda has done so far.

4.5 MONTREAL PROTOCOL ON SUBSTANCES THAT DEPLETE THE OZONE LAYER

The protocol gives in great detail, control measures relating to CFCs, Hallons, fully halogenated CFCs, Carbon Tetrachloride, 1,1,1-Trichloroethane (methy/ chloroform), Hydro-chlorofluoro carbons, Hydrobromofluoro-carbons, methy/bromide. The special situation of developing countries is catered for by entitling them to a grace period of ten years to comply with the control measures set out.

Annextures A, B and C provide a list of ozone depleting substances, and Annex C further provides a list of products containing controlled substances. Uganda ratified this Protocol on 15th September, 1988. Since the management of ozone depleting substances has already been provided for in draft regulations made under the National Environment Statute, it is not necessary to regulate ozone depleting chemicals alongside toxic and hazardous chemicals.

4.6 BASEL CONVENTION ON THE CONTROL OF TRANS-BOUNDARY MOVEMENTS OF HAZARDOUS WASTES AND THEIR DISPOSAL

Parties to this Convention undertake to take appropriate measures to:

- ensure that the generation of hazardous wastes is reduced to a minimum;
- ensure the availability of adequate disposal facilities;
- prevent pollution due to hazardous wastes;
- ensure that the trans-boundary movement of hazardous wastes is reduced to a minimum;
- prevent importation of hazardous wastes;
- require information about any proposed trans-boundary movement of hazardous wastes; and,
- cooperate in activities with other parties.

All the Parties have an obligation to take appropriate legal, administrative and other measures to implement and enforce the provisions of the Convention. Uganda has already prepared Draft Waste and Hazardous Wastes Management Regulations under the National Environment Statute.

4.7 CONVENTION CONCERNING SAFETY IN THE USE OF ASBESTOS

State Parties are required to make national laws and regulations to prescribe the measures to be taken for the prevention and control of, and protection of workers against health hazards. An adequate and appropriate system of inspection, appropriate penalties and compliance by employers and workers, are necessary for the enforcement of the laws and regulations.

Uganda ratified this Convention in 1990, and has already placed a ban on the use of asbestos.

It should be noted, however, that the asbestos materials which had already been imported into Uganda have not been disposed of in an environmentally sound manner. It is not clear as to how asbestos materials which have not yet become wastes are to be managed. Therefore, provision should be made in the law indicating how asbestos materials are to be regulated. There are, however a number of conventions regulating chemicals in the working environment as listed below.

- Convention concerning the use of White Lead in painting.
- Convention concerning the Protection of Workers against Ionizing Radiations.
- Convention concerning Protection against Hazards of Poisoning arising from Benzene.
- Convention concerning Prevention and Control of Occupational Hazards caused by Carcinogenic Substances and Agents.
- Convention concerning the Protection of Workers against Occupational Hazards in the Working Environment due to Air Pollution, Noise and Vibration.
- Convention concerning Occupational Safety and Health and the Working Environment.
- Convention concerning Occupational Health Services.
- Convention concerning Safety in the Use of Chemicals at Work.

Uganda has not ratified these treaties and, therefore, is not bound by them. It is important that Uganda ratifies these Conventions and adopts their provisions into national law. These treaties are open for accession to all member state of the International Labour Organization (ILO) and the depositary is the Director General, ILO.

CHAPTER FIVE

REVIEW OF NON-REGULATORY MECHANISMS

Not all important aspects of chemicals management are covered by legal instruments. There are a number non-regulatory mechanisms that apply to the management of chemicals. These mechanisms when chosen and applied carefully, can lead to a reduction on the need for and costs of enforcement, and the introduction of environmentally sound chemicals, technology and related processes.These mechanisms can be in the form of economic incentives or voluntary agreements.

Positive economic incentives include:

- reduced taxes or customs duty on the purchase of clean equipment or re-modelling a facility for cleaner production;
- award of bonuses for environmentally sound management of chemicals;
- deposit-refund systems in which money is returned when pollution is avoided;
- protection from competition for a certain period of time if a new chemical is notified properly;
- transfer from government to industry of certain technology developed in the public sector;
- provision of subsidies for the development and use of technology that prevents pollution by reducing the source of harmful contaminants.

Negative economic incentives include:

- charges or taxes for using or emitting certain harmful chemicals;
- government levies on certain products to fund research;
- creation of a Apollution-added tax" similar to the value added tax;
- security bonds for enterprises that handle chemicals.

As regards voluntary agreements, governments can enter into agreements with industries and facilities to control emissions of chemicals. Under these agreements, companies can carry out environmental audits to check compliance with legal requirements and can also in conjunction with others in the industry take steps to regulate themselves by establishing a code of ethics.

The introduction of product stewardship which involves companies incorporating management principles of risk assessment, risk communication and risk reduction can also assist in the management of chemicals.

The adoption of voluntary international guidelines and codes of conduct relating to chemical management is another non-regulatory mechanism.

RECOMMENDATIONS

The Regulations shall portray the following principles:

(i) Prevention of the effects of chemicals on the environment and the public.
(ii) Preventive measures will be put in place where chemicals are suspected to be hazardous.
(iii) The duty to prevent the harmful effect of chemicals from arising shall lie on any person who manufactures, sells, handles or imports chemical products.
(iv) The "polluter pays principle" will be applied.
(v) Authorities monitoring operations shall have powers to intervene with coercive measures to ensure effectiveness.

They shall provide for all aspects of control which are:

- pre-marketing testing;
- classification of toxicity;
- registration;
- product analysis;
- import control;
- licensing of manufacture;
- licensing of formulation;
- licencing of dealers;
- certification of applicators;
- mandated users;
- residues in food, etc.;
- monitoring of food;
- monitoring of environment;
- waste management; and,
- organisational aspects.

Note: Standards will have to be developed, that is, whether health based scientific criteria or normative standards.

TABLE A

INDUSTRY	ACTIVITIES	EFFECTS	OBSERVATIONS	RECOMMENDATIONS
Gold processing	- Use of mercury	- Pollution of water leading to acute poisoning of fish and fish eating birds; and erosion of the gastro-intestinal tract, psychic and emotional disturbances, injury to the kidney and death.	- Government control of gold mining is inadequate. - Mercury is used by unskilled ignorant, disorganised and unsupervised persons.	- Adequate knowledge of toxicology of mercury should be passed to the target groups. - Important, marketing and use of mercury should be controlled. - An inventory of all mines in Uganda should be made.
Breweries	- Bottle washing using caustic soda; - Discharge of effluent constituting of yeast, alcohol, fermenting barley and other organic solids.	- pH levels and Biological Oxygen Demand (BOD) are high which bring about depletion of oxygen and death to aquatic life.	There is no chemical treatment of this waste prior to discharge.	
Textiles	- Caustic soda used for maceration. - Bleaching using hydrogen peroxide and sodium silicate. - Azo and diazo compounds, phenolic compounds aromatic hydrocarbons used for dyeing.	- Pollution of water with chemicals which cause carcinogenicity in mammals.	- No assessment of the effects of this waste has been carried out.	There is need for analysis on the effects of this waste so that preventive and curative measures can be adopted.
Sugar	- Decolouring sugar using sulphur. - Alcohol manufacturing. - Use of solvents when cleaning machinery.	- Untreated waste-water containing cane-wash, cellulose matters, molasses wastes and alcohol is released into water leading to organic pollution and loss of aquatic life.		
Leather Tanning	- Preservation of skins and hides using Arsenic, DDT, Zinc chloride and Dichlorobenzenes. - Disinfection using chlorine and sodium fluoride. - Soaking skins and hides using caustic soda and sodium sulphide. - Picking using sulphuric acid and hydrochloric acid. - tanning using chromium.	- These pollute water and destroy aquatic live (protozoa, protophyta, fungi, algae, bacteria). - In man, causes allergic contact dermatoses, skin irritations, perforation of the nasal septum, chrome ulcerations, obstructive lung disease, lung cancer, acute hepatitis, jaundice and liver necrosis.	- There is no chemical treatment of this waste prior to discharge. - People handling these chemicals are ignorant of their toxicology.	

Table A (continued)

INDUSTRY	ACTIVITIES	EFFECTS	OBSERVATIONS	RECOMMENDATIONS
Soft drinks	- Disinfection of bottles using sodium hydroxide. - Waste water containing sugar, food colourings, vegetable matter is discharged.	- Depletion of oxygen available in water, thereby altering the characteristics of aquatic habitats.	- None of the factories treats its waste. - The inadequately designed septic tanks and/or soak aways are not effective.	
Oil and Soap	- Neutralising of acids in extracted oil using sodium hydroxide. - Bleaching/decolourising oil using activated carbon. - Manufacture of soap stock by adding sodium hydroxide.	- Depleting of oxygen, thus, harming aquatic fauna and flora.	- None of the factories treats its waste.	
Meat and Fish Processing	- Salting of fish; - Washing of meat, offal, bones, fat.	- Chlorination of water and depletion of oxygen due to high suspension of solids.	The effluent is discharged in public sewers untreated.	
Battery manufacture	Lead is used.	- In fish Lead causes acute poisoning; - In man, brings about epileptic convulsions, delirium, hallucinations, kidney failure, sterility, miscarriages and brittleness of bones.	The effluent concentrated in acid and lead is discharged untreated.	
Machinery/car repair	- Use of motor oils, lubricants, grease and hydraulic transmission fluids for repairs.	- The lead and poly chlorinated biphenyls are carcinogenic in mammals.	The liquid wastes are discharged in the public sewers.	
Clay/Brick	- Clay contains SiO_2	- Brings about obstructive lung disease, chronic bronchitis and emphysema.		
Asbestos cement manufacture	- Used for making asbestos cement roofing sheets and drainage pipes. The asbestos waste arising has been improperly dumped, yet it contains anthophylite, chrysotile, amosite and crocidolite.	- Causes the growth of scary tissue in the lung (pulmonary fibrosis), lung cancer (mesothelioma) and bronchial carcinoma.		

TABLE B

Legal Instrument	Objective of Legislation	Chemical Use Categories Covered	Responsible Ministries or Bodies	Sections Which Address	Enforcement Ranking
National Drug Policy and Authority Statute 13/1993	- To establish a national drug policy and a national drug authority to ensure the availability of drugs so as to safe-guard the appropriate use of drugs among others. The national drug policy is: to ensure that essential drugs are made available; to promote rational use of drugs; to improve government regulation and control on manufacture, production, importation, exportation, marketing and use of drugs; to fight against drug and substance abuse.	Pharmaceuticals including: narcotics; controlled drugs; licenced drugs exempted drugs.	- National Drug Authority - Minister responsible for Health.	Ss. 3,6,9,1312.21,39-50	Fair
Control of Agricultural Chemicals Statute 8/1989	- To control and manufacture, storage, regulate the trade in use importation, exportation and distribution of agricultural chemicals through labeling, advertising, classification and licensing.	Agro-chemicals like pesticides, herbicides, chemical fungicides, insecticides, nematoides, acaricides, bactericides, rodenticide, molluscides, avicides, fertilizers, growth regulators.	- Ministry of Agriculture. - Agricultural Chemicals Board.		
National Environment Statute 4/1995	- Establishment of guidelines for management measures and classification of toxic and hazardous chemicals and materials.	- Industrial chemicals, pesticides, fertilizers, drugs, toxic and hazardous chemicals and materials.	- NEMA - Ministry of Land, Water and Environment	2,3,15,20,56,57,68-72,103.	
The Ratification of Treaties Act 5/1998	- Provides for the procedure for ratification of treaties in accordance with Article 123 of the Constitution.	All	- Attorney General - Parliament - Cabinet- - Minister responsible for Foreign Affairs.		
The Water Statute 9/1995	- To provide for the use, protection and management of water resources and supply.	All	- Ministry of Water, Land and Environment.		

Table B (continued)

Legal Instrument	Objective of Legislation	Chemical Use Categories Covered	Responsible Ministries or Bodies	Sections Which Address	Enforcement Ranking
Workmen=s Compensation Act Cap. 197 as amended by Act 5/1969	- Provides for the employer=s liability for compensation for death or incapacity resulting from accident.	Industrial chemicals	- Labour Commissioner.		
Uganda National Council for Science and Technology Statute 1/1990	- To establish a National council for Science and Technology.	All	- Ministry of Finance, Planning and Economic Development.		
Factories Act Cap 198	- Provides for the health, safety and welfare of persons employed in factories and other places. - Lays down general provisions on health relating to cleanliness, overcrowding, ventilation, lighting, drainage of floors and sanitary conveniences.	Industrial chemicals,Chemical by-products such as air emissions.	- Labour Commissioner - NEMA - Factories Inspectorate in Ministry of Tourism, Trade and Industry.		
Petroleum Act Cap 97	- Makes provision for restricting and regulating the import, transport and storage of petroleum which includes any inflammable liquid made from petroleum, coal, schist, shale, peat or any bituminous substance or from any product of petroleum.	Petroleum products			
Phosphorous Matches Act Cap. 98	- Prohibits the manufacture, importation and sale of white phosphorous matches.				
Atomic Energy Decree 12/1972	- To establish an atomic energy control board. - to make provision for the control of atomic energy and radio-active materials and protection of the public from dangers arising from the use of materials capable of producing ionising radiation.	Radioactive materials.	- Atomic Energy Control Board.		

Table B (continued)

Legal Instrument	Objective of Legislation	Chemical Use Categories Covered	Responsible Ministries or Bodies	Sections Which Address	Enforcement Ranking
Public Health Act Cap. 269	- Aims at preservation of public health.	All chemical refuse, gases, vapours, petroleum spirit and calcium carbide.	- Local authorities - Advisory Board of Health - Ministry of Health		
Food and Drugs Act Cap. 271	- Makes provision for the prevention of adulteration of food and drugs and matters incidental thereto.	Food additives, drugs.	- Ministry of Health - Food Hygiene Advisory Committee - Uganda National Bureau of Standards - Local Authorities.		
Explosives Act Cap 309	Relates to the manufacture, storage, sale, transport, importation, exportation and use of explosives.	Gun-powder, nitroglycerine, dynamite, gun-cotton, blasting powders, fulminate of mercury.	Ministry of Defence		
Roads Act Cap 345	Provides for the establishment of road reserves and for the maintenance of roads.	None	Ministry of Works, Transport and Communication.		
Specified Goods (Conveyance) Act Cap 344.	Provides for the control of the means of conveyance of certain goods to and from the Republic of Sudan, Congo and Rwanda	Petroleum products and lubricants excluding high octane aviation spirit.	Ministry of Works, Transport and Communication.		
Rivers Act Cap 347	Regulates dredging in rivers and the use of steam vessels on rivers.	None	Ministry of Water, Lands and Environment.		
Inland Water Transport (Control) Act Cap 348	Restricts and controls the carriage of goods and passengers by water within Uganda.	All	Ministry of Works, Transport and Communications.		
The Draft Waste and Hazardous Waste Management Regulations	- To regulate the management of wastes and hazardous wastes including:sorting, disposing, internal movement, transportation, packaging, labeling, trans-boundary movement, notification procedures, environmental impact assessment.	All wastes and hazardous wastes.	NEMA, Uganda Revenue Authority, District Environment Officers, Local Authorities.		

TABLE C

INTERNATIONAL INSTRUMENTS	OBJECTIVES OF INSTRUMENT	RELEVANT NATIONAL ACTIVITIES	PRIMARY NATIONAL RESPONSIBLE AGENCY	CHEMICAL USE/ CATEGORIES COVERED
London Guidelines for the Exchange of Information on Chemicals in International Trade 1987 (as amended in 1989) (voluntary)	- Intend to increase chemical safety through the exchange of information on chemicals in international trade.	No national activity. NEMA intends to establish contacts with industry and private sector.	NEMA	All chemicals excluding pharmaceutical including narcotics, drugs and psychotropic substances.
Convention on the Prohibition of the Development, production, stockpiling and use of chemical weapons and on their Destruction 1994.		Uganda became a party.	Ministry of Defence	Chemical weapons.
Agenda 21	- To promote and ensure environmentally sound management of toxic chemicals including prevention of illegal international traffic in toxic and dangerous products.	- Enactment of National Environment Statute.	NEMA	All
Declaration of the United Nations on the Human Environment Stockholm, 1972 (voluntary)	- To prevent or discharge of toxic substances into the environment.			All
World Charter for Nature 1982	- To avoid discharge of pollutants into natural systems.			NEMAAll Lead Agencies
Convention concerning Prevention and Control of occupational hazards caused by carcinogenic substances and Agents.	- To protect workers against hazards arising from occupational exposure to carcinogenic substances and agents.			Carcinogenic substances agents.
Convention concerning the protection of Workers against occupational hazards in the working environment due to air pollution, noise and vibration.	- To protect workers against occupational hazards in the working environment.			All vapours, dusts.
Convention concerning Occupational Safety and Health and the Working Environment.	- Preventing accidents and injury to health by minimising the causes of hazards inherent in the working environment.			All
Convention concerning Occupational Health Services.	- Aims at establishing and maintaining a safe and healthy working environment and the adoption of work to the capacity of workers in light of their state of physical and mental health.			All

Table C (continued)

International Instruments	Objectives of Instrument	Relevant National Activities	Primary National Responsible Agency	Chemical Use/ Categories Covered
Convention concerning safety in the use of chemicals as at work.	- To ensure the enhancement of the existing legal framework for occupational safety by regulating the management of chemicals in the work place with the broad purpose of protecting the environment and public with the specific objective of protecting workers from harmful effects of chemicals.			All
Convention concerning the use of White Lead in Painting.	- To protect workers from exposure to white lead and lead sulphate and of all products containing these pigments. It became operational on 31st August, 1923.		Ministry of Labour, Trade Unions. Relevant National activity - enactment of Factories Act Employment Decree establishment of occupational Health Department in Ministry of Labour.	White lead and lead sulphate.
Convention concerning the Protection of Workers against ionizing radiations.	- To protect workers as regards their health and safety against ionising radiations.			
Convention concerning protection against hazards of poisoning arising from benzene.	- Aims at protecting workers from hazards arising from the production, handling or use of aromatic hydrocarbon benzene.	Aromatic hydrocarbon benenze.	Ministry of Gender, Labour and Social Welfare, Trade Unions.	

TABLE C

LEGAL INSTRUMENT	OBJECTIVE OF INSTRUMENT	PRIMARY NATIONAL RESPONSIBLE AGENCY	RELEVANT NATIONAL ACTIVITY	CHEMICAL USE/ CATEGORIES COVERED
Convention on the Prior informed Consent procedure for certain hazardous chemicals and pesticides in international trade.	- To promote shared responsibility and cooperative efforts among parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm. - To contribute to their environmentally sound use by facilitating information exchange about their characteristics by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties.	NEMA	Signed Final Act on 11th September, 1998	Pesticides and industrial chemicals.
Code of Ethics on the International trade in Chemicals (voluntary) 1994	Sets forth principles and guidance for private sector parties, governing standards of conduct in the production and management of chemicals in international trade with the purpose of reducing risks to human health and the environment.	- NEMA - Uganda Manufacturers Association.		All chemicals except: - Pharmaceuticals including narcotics, drugs and psychotropic substances; - Radioactive materials; - Chemicals imported for the purpose of research on analysis in quantities not likely to affect the environment or human health; - chemicals imported as personal or household effects in reasonable quantities; - Food addictive.
Vienna Convention for the Protection of the Ozone Layer (1985)	- To raise international cooperation in protecting the ozone layer from depletion.	NEMA		All chemical substances thought to have the potential to modify the chemical and physical properties of the ozone layer. (Listed in Annex I).
Montreal Protocol on substances that deplete the ozone layer (1987)	- To provide in detail for the technical issues relating to ozone depleting substances.	NEMA	Regulations have been drafted under National Environment Statute.	All chemical substance thought to have potential to modify the chemical and physical properties of the ozone layer.
Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their disposal.	- To provide for proper management of hazardous wastes and other wastes including their trans-boundary movement and disposal.	NEMA	Regulations have been drafted under the National Environment Statute.	Hazardous wastes contained in the Annextures to the Convention.

REFERENCES FOR FURTHER READING

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3. Bull, D. "A Growing Problem: Pesticides and the Third World Poor" Oxfam, Oxford, 1982.

4. Development/Environment trends in Asia and the Pacific: A regional Overview. Committee on Industry, Technology, Human Settlements, ESCAP, Bangkok, 1983.

5. Flyer "UNEP in the United Nations System"

6. The "Dirty Dozen" Campaign. Pesticide Action Network(PAN) International

7. Wasswa, J., Kiremire, B., Ngambeki, D. "A Chemical and Socio-Economic Investigation of the Effect of Industries in the Lake Victoria Crescent on the Quality of Water in Lake Victoria and on the Plants Grown on Soils Dregded from Nakivubo Channel", Makerere University, May 1998.

8. Wasswa, J., Kiremire, B., Ngambeki, D. "A Chemical and Socio-Economic Investigation of the Effect of Industries in the Lake Victoria Crescent on the Quality of Water in Lake Victoria and on the Plants Grown on Soils Dregded from Nakivubo Channel", Makerere University, May 1998.

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10. D'itri, P.A., D'itri, F.M. AMercury Contamination: A Human Tragedy"John Wiley and Sons, New York, 1977.

11. Wasswa, J., Kiremire, B., Ngambeki, D. "A Chemical and Socio-Economic Investigation of the Effect of Industries in the Lake Victoria Crescent on the Quality of Water in Lake Victoria and on the Plants Grown on Soils Dregded from Nakivubo Channel", Makerere University, May 1998.

12. Essential Drug List for Uganda 1996, The National Drug Authority,1996.

THE REPUBLIC OF UGANDA

STATUTORY INSTRUMENTS

1998 NO.....

THE DRAFT TOXIC AND HAZARDOUS CHEMICALS AND SUBSTANCES (MANAGEMENT) REGULATIONS, 1999

(Under Section 56 and 108 of the National Environment Statute, 1995)

IN EXERCISE of the powers contained in Section 56 and on the Minister by section 108 of the National Environment Statute, 1995 and on the recommendation of he Policy Committee on Environment and the Board, these regulations are made this ..... day of ..... 1999.

PRELIMINARY

Citation

1. These Regulations may be cited as the Toxic and Hazardous Chemicals and Substances (Management) Regulations, 1998

Interpretation

2. In these Regulations unless the context otherwise requires-

"Chemical" means the facility where chemical substances are produced, manufactured, processed and packaged.

"Executive Director" means the Executive Director appointed under section 12 of the Statute and includes, for the purpose of these regulations, any person who has been authorized by the Executive Director to act on his behalf or has been delegated to perform the functions of the Authority under subsection (2) of section 7 of the Statute.

"exporter" means any person who arranges for toxic and hazardous chemicals to be exported.

"Export" means to send toxic and hazardous chemicals out of Uganda to any other country for any purpose.

"hazardous chemical" means a chemical with a potential to cause injury.

"importer" means any person who arranges for toxic and hazardous chemicals to be imported into Uganda.

"import" means to bring toxic and hazardous chemicals into Uganda for any purpose.

"inspector" means an inspector designated as such under section 80 of the Statute.

"person" means any natural or legal person.

"prior informed consent" means the consent that must be given by the "uthority for any transboundary movement of toxic and hazardous chemicals prescribed under the Regulations.

"restricted toxic and hazardous chemical" means for which most uses have been prohibited by the Executive Director.

"Statute" means the National Environment Statute, No. 4 of 1995.

"Statute" means the National Environment Statute 1995 and may, where the context so requires, include any other enactment.

"Storage" means keeping in stock toxic and hazardous chemicals as a business or profession.

"Technical Committee" means the Technical Committee on the Licencing of Pollution established under section 11 of the Statute.

"toxic chemical" means a chemical with a potential to cause serious acute chronic effects, even death, when inhaled, swallowed or absorbed through the skin.

"Transboundary movements" means the movement of toxic and hazardous chemicals into/from or through Uganda from to or through any area under the jurisdiction of any other state.

"Transit" means the passage from one border to another border through the national territory of Uganda.

"Uganda Revenue Authority" means the Uganda revenue "uthority established under Statute No. 6 of 1991.

Purpose and Scope

3 (1) The purpose of these regulations is:

(a) to provide for the coordinated and cross-sectoral management of toxic and hazardous chemicals;
(b) to provide for the classification and labeling of toxic and hazardous chemicals.
(c) to protect human health and the environment from the harmful effects of the chemicals;
(d) to establish criteria for the classification of toxic and hazardous chemicals and materials.
(e) to provide for the notification and assessment of any new chemicals placed on the market and to prescribe measures to regulate the production, transport, storage, distribution, use, disposal and labeling of such chemicals;
(f) provide for the substitution of less harmful chemicals whenever possible;
(g) give legal effect to the established classification, guidelines and measures issued or prescribed under these Regulations;
(h) give legal effect to Sections 56 and 108 of the Statute.

Classification of toxic and hazardous chemicals

4. For the purposes of these Regulations, the toxic and hazardous chemicals are classified on the basis of use, source, nature of hazard and the Chemical Abstracts Service (CAS) number as set out in the First, Second Third and Fourth Schedules respectively.

Technical Committee

5 (1) The Technical Committee established under Section 11 of the Statute shall be responsible for:

(a) vetting all import and export of toxic and hazardous chemicals;
(b) recommending and providing guidelines for the distribution, use, disposal, and transportation of chemicals specified under these Regulations;
(c) recommending policy on chemicals management;
(d) resolving inter-agency conflicts;
(e) collecting data and statistics and analyzing such data and statistics which will have been provided in records kept in accordance with the provisions of Sections 78 and 79 of the Statute;
(f) generally to coordinate, supervise and monitor the activities of all lead agencies involved in the management of chemicals and products;

(2) In the exercise, by the Technical Committee of its functions under these Regulations, a lead agency shall not be released from performing its duties as prescribed by law subject to paragraph (b) of sub-section (4) of Section 7 of the Statute.

(3) Each lead agency charged with the management of chemicals as classified under regulation 4 of these Regulations shall, within six (6) months one hundred and eighty days (180) of the making of these regulations submit a detailed report of their activities under these Regulations and thereafter submit, every six months, a detailed report of its activities.

(4) The report under sub-regulation (3) shall comply with the format specified in the Fifth Schedule.

Exposure

6. The owner or occupier of every industry or manufacturing process that manufactures or uses toxic and hazardous chemicals as classified under these Regulations shall ensure that exposure to chemicals is in accordance with these Regulations and **Factories Act** and the rules and regulations made under that Act.

General Prohibition

7 (1) No person shall import, export, manufacture, formulate, sell, use, transport, store or distribute any toxic and hazardous chemical without a licence issued by the Authority.

(2) Any person who contravenes sub-regulation (1) commits an offence.

Transfer of Licences Without Approval Prohibited

8 No person to whom a licence has been issued under these Regulations shall lend, hire, sell, transfer or otherwise dispose of that licence without the approval of the Authority which approval shall be endorsed on the licence.

Registration of Chemicals

9 (1) No person shall import, manufacture, formulate, offer, sell, use, advertise transport, store or distribute any toxic and hazardous chemical unless it has been registered in accordance with these Regulations.

(2) The Authority shall keep an up-to-date register of toxic and hazardous chemicals and shall use it in the course of inspection to be conducted in respect of the importation, manufacture, storage, use, transportation, sale and disposal of those toxic and hazardous chemicals.

(3) A toxic and hazardous chemical shall be exempted from registration if it is of a type or kind set out in the Third Schedule and meets the conditions relevant to that substance as set out in that Schedule;

(4) A certificate of registration issued under these Regulations shall unless earlier suspended or revoked, be valid for a such period as is prescribed under these Regulations.

(5) Any person who contravenes this regulation commits an offence.

Application for registration

10. (1) A person intending to register a toxic and hazardous chemical in accordance with regulation 9 shall submit an application for registration to the Technical Committee in the Form A set out in the Fourth Schedule.

(2) An application for the registration of a toxic and hazardous chemical shall be accompanied by six (6) copies of the proposed label of the chemical.

(3) The Authority shall on registration of a toxic and hazardous chemical, issue a certificate of registration which shall be Form B set out in the Fifth Schedule.

Provision of samples

11. (1) The owner or occupier of any industry or manufacturing process that manufactures or uses toxic and hazardous chemicals as classified under these Regulations shall, when requested to do so by the Authority, provide -

(a) a sample of the chemical substance;
(b) a sample of the technical grade of its active ingredient;
(c) a sample of the laboratory standard of its active ingredient; and
(d) any other sample as may be required by the Authority.

(2) Any person who contravenes this regulation commits an offence.

Licence to manufacture or formulate toxic

12. (1) A person intending to manufacture or formulate a toxic and hazardous chemical shall apply for a licence to the Authority in Form A set out in the Fourth Schedule and the application shall be accompanied by the fee prescribed in that Schedule.

(2) The Authority shall consider each application for a licence to manufacture or formulate toxic and hazardous chemicals within ninety (90) days from the date of receipt of the application.

(3) The Authority shall issue a licence to manufacture or formulate toxic and hazardous chemicals in Form B set out in the Fifth Schedule on payment of the fee prescribed in that Schedule.

(4) A licence issued under sub-regulation (3) shall be valid for three (3) years and may be renewed.

(5) Any person who manufactures a toxic and hazardous chemical without a licence commits an offence.

(6) The Authority shall in considering an application submitted under sub-regulation (1) satisfy itself that -

(a) the chemical to which the application relates is registered under the Regulations;
(b) the applicant has adequate and appropriate facilities and equipment to manufacture or formulate toxic and hazardous chemicals without causing significant damage to public health and the environment;
(c) the applicant has personnel with technical competence to manufacture or formulate the chemical;

(d) the personnel involved in the manufacture or formulation of chemicals are provided with-
  (i) adequate protective and safety clothing;
  (ii) adequate appropriate equipment or facilities; and
  (iii) proper training and information.

(7) The following conditions in addition to those in sub-regulation (6) shall attach to licences for the manufacture or formulation of toxic and hazardous chemicals-

(a) the premises are well supplied with first-aid facilities to the satisfaction of the Authority to cater for accidental poisoning;
(b) the general health of the persons working on the premises is adequately catered for;
(c) the quality of the chemicals are within the prescribed limits;
(d) the manufacture or formulation of the chemical has not been restricted or banned in other countries;
(e) the personnel involved in the manufacture or formulation of chemicals undergo such medical check-up as may be commensurate to the risks faced by the employees and the medical report of fitness shall be submitted to the Authority.

Licence to store chemicals

13 (1) A person intending to store toxic and hazardous chemicals shall apply for a licence in Form A set out in the Fourth Schedule and the application shall be accompanied by the fee prescribed in that Schedule.

(2) The Authority shall consider each application for a licence to store chemicals within ninety (90) days from the date of receipt of the application.

(3) The Authority shall issue a licence to store toxic and hazardous chemicals in Form B set out in the Fifth Schedule on payment of the fee prescribed in that Schedule.

(4) Any person who stores toxic and hazardous chemicals without a licence commits an offence.

(5) A licence for storage of toxic and hazardous chemicals shall be valid for such a period as the Authority shall determine and may be the Authority shall determine and may be the Authority shall determine and may be renewed for a further period.

(6) The Authority shall in considering the application satisfy itself that -

(a) the premises shall be of a suitable design, lay out and construction to ensure the health of workers and avoid contamination of the environment;
(b) the premises are adequate for storing the category of toxic and hazardous chemicals;
(c) the persons working in the premises wear adequate protective clothing;
(d) the personnel involved in the storage of toxic and hazardous chemicals are provided with proper training and information;
(e) suitable emergency plans and responses are in place.

(7) The following conditions shall attach to licences for the storage of toxic and hazardous chemicals -

(a) An inspector may at any time subject the personnel involved in storage of the chemical to such medical check-up as may be commensurate to the risks faced by the employees and the cost of such examination shall be borne by the licensee.
(b) The premises shall be labeled in such a manner as may be directed by the Authority.
(c) Any other condition which the Authority considers relevant for the storage of toxic and hazardous chemicals.

Licence to sell toxic and hazardous chemicals

14. (1) A person intending to sell toxic and hazardous chemicals shall apply for a licence in Form A set out in the Fourth Schedule and the application shall be accompanied by the fee prescribed in that Schedule.

(2) The Authority shall consider each application for a licence sell toxic and hazardous chemicals within ninety (90) days from the date of receipt of the application.

(3) The Authority shall issue a licence to sell toxic and hazardous chemicals in Form B set out in the Fifth Schedule on payment of the fee prescribed in that Schedule.

(4) Any person who sells toxic and hazardous chemicals without a licence commits any offence.

(5) A licence issued under sub-regulation (3) shall be valid for such a period as the Authority shall determine and may be renewed for a further period.

(6) The Authority shall in considering the application satisfy itself that;

(a) the personnel involved are provided with sufficient training and understanding of the nature of the chemicals and of the risks involved in their handling and use;
(b) the premises shall be of suitable design, lay out and construction to ensure the health of workers and to avoid contamination of the environment;
(c) the premises are adequate for the sale of the category of chemicals as applied for;
(d) the persons working in the premises wear adequate protective clothing;
(e) suitable emergency plans and responses are in place;
(f) the premises are labeled in such a manner as may be directed by the Authority;
(g) any other condition which the Authority shall consider relevant for the sale of toxic and hazardous chemicals.

Licence for transportation or distribution of chemicals

15 (1) A person intending to transport or distribute toxic and hazardous chemicals shall apply for a licence in Form A set out in the Fourth Schedule and the application shall be accompanied by the fee prescribed in that Schedule.

(2) The Authority shall consider each application for a licence to transport or distribute toxic and hazardous chemicals within ninety (90) days from the date or receipt of the application.

(3) The Authority shall issue a licence to transport or distribute toxic and hazardous chemicals in Form B set out in the Fifth Schedule on payment of the fee prescribed in that Schedule.

(4) A licence for transportation or distribution of chemicals shall be valid for such a period as the Authority shall determine and may be renewed for a further period.

(5) Any person who transports or distributes toxic and hazardous chemicals without a licence commits an offence.

(6) The Authority shall in considering the application satisfy itself that -

(a) the applicant has adequate and appropriate facilities and equipment to transport or distribute toxic and hazardous chemicals without causing significant damage to public health and the environment;
(b) applicant has capacity to fulfil such other requirements as may be determined by the Authority.

(7) The following conditions shall attach to licences for transportation or distribution of toxic and hazardous chemicals -

(a) the transportation or distribution to toxic and hazardous chemicals shall be conducted without causing significant damage to public health and the environment;
(b) the vehicles, equipment and other means of conveyance for transportation or distribution of the toxic and hazardous chemicals shall be in such a state as not to cause the scattering of or the flowing out of or the emission of chemicals.
(c) the vehicles and other means of conveyance for the transportation or distribution of toxic and hazardous chemicals shall follow the scheduled approved routes and time table;
(d) the personnel involved in the transportation or distribution of the toxic and hazardous chemicals shall be provided with -
  (i) adequate protective and safety clothing;
  (ii) adequate appropriate equipment or facilities for loading chemicals;
  (iii) safe and secure sitting facilities in the vehicles for transporting or distributing chemicals;
  (iv) proper training and information.
(e) the licensee shall ensure that the personnel involved in the transportation or distribution of toxic and hazardous chemicals undergo such medical check-up as may be commensurate to the risks faced by the personnel and the medical report of fitness shall be submitted to the Authority;
(f) the vehicles and other means of conveyance for transportation or distribution or toxic and hazardous chemicals shall be labeled in such manner as provided for in these Regulations.

Licence to import or export chemicals

16 (1) A person intending to import or export toxic and hazardous chemicals into or from Uganda shall complete a movement document set out in Form D of the ***Fifth*** Schedule and shall apply for a licence in Form A in the Fourth Schedule and the application shall be accompanied by the fee prescribed in that Schedule.

(2) The importer or exporter shall when filling the movement document state the purpose of the importation or exportation of the toxic and hazardous chemical in the following manner-

(a) 'For sale', where the product is being imported or exported for the purpose of resale whether in the original package or after repackaging;

or

(b) 'For manufacturing purposes', where the toxic and hazardous chemical is being imported or exported for use in the manufacture or formulation or a toxic and hazardous registered chemical;

(c) 'For importer's own use' or 'exporter's own use', where the toxic and hazardous chemical is being imported or exported for the importer's or exporter's own use, together with information respecting where that chemical shall be used and the nature of that use.

(3) The Authority shall consider each application for a licence to import or export toxic and hazardous chemicals within ninety (90) days from the date of receipt of the application.

(4) The Authority shall issue a licence to import or export toxic and hazardous chemicals in ***Form B*** set out in the ***Fourth Schedule*** on payment of the fee prescribed in that Schedule.

(5) A licence to import or export toxic and hazardous chemicals shall be valid for such consignments and for such a period as may be determined by the Authority.

(6) Any person who imports or exports toxic and hazardous chemicals without a licence and without filling in the movement document commits an offence.

(7) The Authority shall in considering the application satisfy itself that;

(a) the applicant is aware of the toxicity and hazardous nature of the chemical and the risk involved in its use and handling;

(b) the applicant is capable of handling the risks arising from the importation or exportation of such chemical;

(c) the applicant has plans and means to dispose of surplus toxic and hazardous chemicals and containers in an environmentally sound manner;

(d) the importation or exportation of the toxic and hazardous chemical has not been restricted or banned in other countries;

(e) the applicant will pay for any damage to human health or the environment arising from the importation of toxic and hazardous chemicals;

(f) the requirements for the prior informed consent procedure where appropriate have been fulfilled.

Customs verification

17. Where a licence is issued under regulation 16, copies of licences, movement and notification documents shall be sent to the Uganda Revenue Authority for the necessary customs verifications and control.

Licence for use of Restricted Chemicals

18 (1) A person intending to use restricted chemicals shall apply for a licence in Form A set out in the Fourth Schedule and the application shall be accompanied by the fee prescribed in that Schedule.

(2) The Authority shall consider each application for a licence to use restricted chemicals within ninety (90) days.

(3) The Authority shall issue a licence to use restricted toxic and hazardous chemicals in Form B set out in the Fifth Schedule on payment of the fee prescribed in that Schedule.

(4) Any person who uses a restricted toxic and hazardous chemical without a licence commits an offence.

(5) The Authority shall in considering the application satisfy itself that -

(a) the persons using the restricted toxic and hazardous chemical have undergone proper training and are well informed about the nature and degree of hazard inherent in that chemical;

(b) the persons using the restricted toxic and hazardous chemical have suitable protective clothing;

(c) the methods proposed to be used in applying the restricted toxic and hazardous chemical meet the Technical Committee's approval;

(d) the applicant has suitable equipment.

(6) The Authority may make all or any of the considerations in sub-regulation (5) conditions for granting the licence.

(7) The licence for use of a restricted toxic and hazardous chemical shall be valid for one (1) year and may be renewed for a further period.

MISCELLANEOUS PROVISIONS

Inspection

19. In addition to the powers contained in Section 81 of the Statute, an inspector may at any reasonable time carry out an inspection on any of the activities licensed under these Regulations.

Activities Prior to Commencement of these Regulations

20. A person who is carrying on any of the activities licensed under these Regulations before the commencement of these Regulations shall apply to the Authority for a licence within one hundred and eighty days from the commencement of these Regulations.

Notification

21. The Authority shall publish its intention to issue a licence by notice in the *Gazette* and in local newspapers of daily circulation thirty (30) days before the issue of the licence.

Labeling of chemicals

22. (1) Each container or package or toxic and hazardous chemicals shall have a label written in English and such other relevant local languages attached to it which shall at a minimum contain the following -

(a) name of the chemical which shall be descriptive of the physical form and the purpose of the chemical;
(b) name and address of the manufacturer of the chemical;
(c) net contents;
(d) normal storage stability and methods for safe storage;
(e) name and percentage of weight of active ingredient and names and percentages by weight of other ingredients;
(f) information detailing the nature and degree of hazard inherent in the chemical including all or some or either of the following as appropriate:
  (i) the words "warning" or "caution";
  (ii) the words "danger! Keep away from unauthorised persons";
  (iii) the word "poison" (marked indelibly in blue or a contrasting background)
  (iv) a pictogram or pictorial symbol indicating whether the chemical is
    "Oxidizing" or
    "Explosive" or
    "Corrosive" or
    "Highly inflammable" or
    "Toxic" or
    "Irritant".
(g) a statement of first aid measures including the antidote when inhaled or ingested and a direction that a physician must be contacted immediately;
(h) adequate directions for handling should be included in accompanying leaflet including safety precautions in transporting, storage and disposal of toxic chemicals and measures for cleaning any equipment used;
(i) directions for the disposal of the container and the toxic chemicals in accordance with the Statute and these regulations;
(j) any other information that the "uthority may deem necessary;
(k) a statement directing the user to read the label which statement shall be in the following form **"READ THE LABEL BEFORE USING".**
(I) a guarantee statement;
(m) the registration number of the chemical which shall be set out in the following manner **"REGISTRATION No".**
(n) a notice to the user of the chemical which notice shall be in the following manner - **"NOTICE TO USER".**

"This chemical is to be used only in accordance with the directions on this label."

(2) The label shall be written in characters that are easily legible.

(3) Conveyances carrying chemicals shall be labeled in accordance with sub-regulation 1(f).

Packaging of chemicals

23 (1) Upon application for a licence to manufacture, distribute, use, transport export or for storage of toxic and hazardous chemicals under these Regulations, the applicant shall provide a sample of the container or packaging material in which the toxic and hazardous chemical shall be transported, exported or stored.

(2) The container or packaging material provided in sub-regulation (1) shall be suitable for the transportation, exportation or storage of the toxic and hazardous chemical for which the application has been made and shall -

(a) not be reactive to the chemical in question and shall be constructed in such a manner as to minimise the degradation or change of the chemical;
(b) be free from the possibility of leakage;
(c) be capable of protecting the health of persons involved in handling the chemical, the neighbouring community and the environment in general;
(d) sufficiently durable so as to contain the chemical safely.

(3) Every container or packaging material which is used shall be labeled in accordance with Regulation 29.

(4) A person who sells or offers for sale a container which has been used for the transportation or storage of chemicals to be used for any other purpose than the storage or transportation of chemicals commits an offence.

Licensing of premises

24 (1) No person shall use any premise, or being the owner or occupier thereof permit or allow the premises to be used, for the purpose of using, manufacturing, formulating, packaging, selling or storing chemicals unless that person is in possession of a licence issued under these Regulations in respect of those premises.

(2) An application for a licence shall be submitted to the Authority in the *Form A* prescribed in the *Fifth Schedule* and shall be accompanied by the fees prescribed in that Schedule.

(3) The Authority shall consider the application submitted in accordance with sub-regulation (2) and it is satisfied that the premises -

(a) are of a suitable design, lay out and construction to ensure health of workers and to avoid contamination of the environment;
(b) have sufficient space for the placement of equipment and storage of materials which is necessary for the health of workers and operators;
(c) have separate areas, either by partition, location or other effective means, for those operations which do not require workers to be exposed to chemicals.

(4) The Authority shall issue a licence in respect of the premises in Form C of the *Fifth Schedule* and shall be accompanied by the prescribed fee in that Schedule.

Environmental Impact Assessment

25(1) No activity relating to toxic and hazardous chemicals shall be licensed under these Regulations unless an environmental impact assessment has been carried out in accordance with the provision of Section 20,21 and 22 of the Statute.

(2) An operator of a toxic and hazardous chemicals plant shall carry out annual audits of the environmental performance of the plant and shall submit his/her reports to the Authority in accordance with the Statute.

Prevention of Pollution

26 (1) Every person who operates a toxic and hazardous chemical plant shall take all necessary measures to prevent pollution of the environment from chemicals including the erection of necessary work and taking of mitigation measures.

(2) In taking measures to prevent pollution the operator of such toxic and hazardous chemical plant shall comply with any direction given by an inspector under Section 81 of the Statute.

Duties of the Authority in relation to trans-boundary movement of prescribed toxic and hazardous chemicals

27 (1) The Authority is hereby designated as the national authority for the operation of the prior informed consent procedure for the import, export, transit or any other trans-boundary movement of toxic and hazardous chemicals prescribed under the Sixth Schedule.

(2) The Authority shall closely liaise with the designated national authorities of other states under any international conventions or arrangements to which Uganda is a party and international organisations with competence in the field of the management of trans-boundary movements of prescribed toxic and hazardous chemicals under any convention or arrangements to which Uganda is a party for the purpose of monitoring and controlling the movements of chemicals in Uganda territory.

(3) The Authority shall disseminate information on toxic and hazardous chemicals to the public.

Notification procedures and prior informed consent

28 (1) The Authority shall notify the designated national authority of the state of import of toxic and hazardous chemicals by sending a copy of the movement document as set out in Form D of the Fifth Schedule and the notification document for the trans-boundary movement of chemicals as Form E set out in the Fifth Schedule and

the comments that the comments that the Authority may have made on the documents.

(2) The Authority shall transmit the documents provided for in sub-regulation (1) to the international body designated under any agreement or arrangement to which Uganda is a party or participant for comments from such a body.

Ports of entry and routes for chemicals

29. A licence issued under these regulations shall only entitle the licensee to transport toxic and hazardous chemicals through the customs points of entry designated under the Seventh Schedule.

Reporting procedures

30(1) Any person who is licensed to carry out any activity under these regulations shall submit bi-annual reports on the conduct of the licensed activity.

(2) Where special reporting procedures are made the condition of any licence under these regulations, such procedures shall take precedence over the provisions of sub-regulation (1).

Duty to keep records

31 (1) The holder of a licence under these Regulations shall -

(a) keep a record of the licensed activities and all transactions related thereto; and
(b) submit the record referred to in paragraph (a) to the Authority every six months from the commencement of the licensed activities.

(2) The Authority may order the holder of a licence under these Regulations to instal, at the expense of the holder of the licence, metering devices and to take samples and analyze them as the Authority may direct.

Register of Licenses

32. The Authority shall maintain a register of holders of licences issued under these Regulations.

Communication of decision on licences

33. Where a person applies for a licence under these Regulations, the Authority shall communicate its decision to the applicant within the prescribed period.

Improvement Notice

34 (1) Where an inspector has reasonable cause to believe that any person is violating these regulations-

(a) issue against such a person an improvement notice in accordance with Section 81 or
(b) take any other measures provided for under the Statute.

(2) An improvement notice issued under sub-regulation (1) shall not prejudice criminal proceedings which may be instituted under any of the provisions of the Statute.

Cancellation of Licence

35 (1) The Authority may on the advice of the Technical Committee suspend or revoke a licence issued under these Regulations if it is satisfied that-

(a) the conditions of the grant of the licence have not been complied with;
(b) the Authority is satisfied that the continued operation of the plant will be injurious to the health of the neighbouring community or to the environment in general.
(c) for any other reason, it is in public interest so to do.

(2) Before revoking or suspending a licence under sub-regulation (1), the Authority shall give the licensee thirty days, notice to show cause why the licence should not be revoked or cancelled and to the Authority's decision in the matter shall be final.

Offences and Penalties

36 (1) Any person who-

(a) contravenes any of the provisions of these Regulations or a condition of a licence after an improvement notice has been issued under Regulation 33;
(b) manufactures or formulates, transports, stores, distributes, uses, imports or exports any toxic and hazardous chemicals contrary to these regulations commits an offence; and is liable on conviction to imprisonment for a term of not less than thirty six months or to a fine of not less than three hundred and sixty thousand shillings and not more than thirty six million shillings or both.

FIRST SCHEDULE

(Regulation 4)

TOXIC AND HAZARDOUS CHEMICALS AND SUBSTANCES (MANAGEMENT) REGULATIONS

Regulation 4

Part A: Classification of Chemicals Based on Use

Class	
a. Petrochemicals	Petrol, diesel, greases, oils
b. Mining and explosives industry chemicals	
c. Agricultural chemicals	Pesticides, fertilizers, plant growth regulators.
d. Laboratory and industrial chemicals	Acids, alkalis, gases, metals, oxides, salts, solvents.
e. Chemicals for plastics and rubber products.	PVCs, polyester.
f. Chemicals for cosmetics, detergents and perfumes.	Soaps, perfumes, hair conditioners
g. Pharmaceuticals	Human and veterinary drugs.
h. Adhesives, paints, polishes, lubricants, building materials	
i. Food preservatives additives and contaminants.	Antioxidants, dyes, aflatoxins.
j. Textile, leather and wood product processing chemicals	
k. Aerosols and air pollutants	Chlorofluoro carbons, carbon monoxide, solvents.
l. Selected radio nuclides	

Part B: Classification of Chemicals by Source

i.	imported
ii.	locally manufactured
iii.	by product of imported or locally produced chemicals
iv.	by product of natural process.

Part C: Classification of Chemical by Nature of Hazard to Human and the Environment

Characterisation of Hazard

1.	Oxidizing chemicals	Substances which produce highly exothermic reaction in contact with other substances, especially flammable or combustible materials.
2.	Explosive Chemicals	
3.	Corrosive Chemicals	
4.	Flammable Chemical	
4 (1)	Extremely flammable	

4 (2) 4 (3)	Highly flammable Flammable	
5.	Toxic Chemicals	
5(1)	Very toxic	Very toxic refers to substances which cause extremely serious acute or chronic effects even death when inhaled, swallowed or absorbed through the skin.
5(2)	Toxic	Toxic chemicals cause serious acute or chronic effects, even death, when inhaled, swallowed or absorbed through the skin.
5 (3)	Harmful	Harmful chemicals can have limited effect on health, if inhaled, swallowed or absorbed through the skin.
6.	Irritant	
7.	Radioactive	

Part D: Classification of Chemicals by CAS Number

CHEMICAL	USE	SOURCE	NATURE OF HAZARD/ TOXICITY

SECOND SCHEDULE

Regulation 5

FORM FOR REPORTING ON ACTIVITIES OF LEAD AGENCY

NAME OF AGENCY	CHEMICAL	CATEGORY OF CLASSIFICATION	SOURCE OF EXPORT OR IMPORT (SPECIFY)	INTENDED USE	MODE OF TRANSPORTATION	SAFETY PRECAUTIONS	LABELING	POSSIBLE MARKET/ USER	MITIGATION MEASURES TO PROTECT HUMAN HEALTH/ ENVIRONMENT

For Official Use

COMMENTS BY TECHNICAL COMMITTEE .....

.....

.....

.....

THIRD SCHEDULE

Regulation 9

LIST OF EXEMPTED TOXIC AND HAZARDOUS CHEMICALS

Chemical	Use	Source	Nature of hazard	Cas No.

FOURTH SCHEDULE

Complete in quadruplicate

FORM A ***Regulation 12,13,14,16 and 18***

APPLICATION FOR REGISTRATION/MANUFACTURE OR FORMULATION/STORAGE/ SALE/ TRANSPORTATION OR/DISTRIBUTION/IMPORT/EXPORT/USE OF A TOXIC AND HAZARDOUS CHEMICAL

Fill in whichever part is applicable. Where the applicant intends to carry out more than one activity relevant parts must be filled

Part 1 - General

1. Name of Applicant(s) .....

2. Address .....
   (Physical, postal)

3. Owner of premises or activity .....

4. Name of supervising chemist under whom activity(s) will undertaken .....

   .....

5. Qualification and experience of the supervising chemist and other key officers (attach a curriculum vitae) .....

   .....

   .....

   .....

6. Registration number(s) of chemical (where applicable) .....

7. Chemical(s) to which the activity relates .....

.....

.....

Part 2 - Manufacture or Formulation

8. Approved Common Name(s) of chemical .....

.....

9. Chemical Name(s) and Structural formula(e) of the active ingredient(s) (where applicable) .....

.....

10. Trade name and local name of the product .....

11. Classification of the Chemical .....

.....

12. Intended use (cosmetic, veterinary, agricultural, forestry, etc) .....

.....

13. Method, rate and frequency of application .....

14. Toxicity of chemical on test animals .....

15. Effect of chemical on the environment .....

16. Antidote .....

17. Expected shelf life .....

18. Registration Number and references of the Chemical in the country of origin .....

.....

19. Package size .....

20. Pack material .....

21. Is the package material lined (Yes/No) .....

22. Is the packaging material approved by the Uganda National Bureau of Standards .....

.....

23. Sources of raw materials .....

.....

24. Description of manufacturing facilities and equipment .....

.....

25. Description of manufacturing process ..... (Use separate sheet)

26. Findings on environmental impact assessment of the proposed manufacturing or formulation plant.....

..... (Attach environmental impact statement)

27. Precaution and safety measures for handling chemicals .....

Part 3 - Storage

28. Chemical(s) to be stored .....

29. Precautions and safety measures for handling chemicals .....

.....

30. Description of storage facilities .....

.....

.....

.....

(Use separate sheet where necessary)

31. Trade name(s) .....

32. Common name(s) .....

33. Package description .....

34. Package size .....

35. Package material .....

36. Is the package material lined (Yes/No) .....

37. Is the packaging material approved by the National Bureau of Standards (Yes/No) .....

38. Name(s) of chemicals to be sold.....

39. Precautions and safety measures for handling chemicals .....

40. Description of facilities (use separate sheet) .....

41. Description of storage facilities .....

.....

42. Description of disposal methods or mechanisms for unsold chemicals .....

.....

43. Common name(s) .....

44. Description of packaging materials, quality and size .....

.....

.....

Part 4 - Transportation

45. Description of chemical(s) to be transported .....

46. Description of transport facilities ..... (use separate sheet)

47. Process of transportation (e.g. routes to be used) .....

.....

48. Vehicle for transportation of chemical (mention the various modes) .....

Part 5 - Importation

49. Description of chemical to be imported .....

.....

.....

50. State whether chemical has been banned or is severely restricted in any country? .....

.....

.....

51. Name and address of the exporter .....

.....

52. Precautions and safety measures for the handling of the chemical(s) .....

.....

53. Intended port of export of the chemical .....

54. Intended port of entry of the chemical .....

55. Have the Prior Informed Consent procedures been satisfied? .....

Part 6 - Exportation

56. Description of the chemical(s) to be exported .....

.....

57. State whether the chemical is banned or severely restricted in any country? .....

.....

58. Have the Prior Informed Consent procedures been satisfied? .....

59. Precautions and safety measures for the handling of chemicals .....

.....

.....

Part 7 - Restricted Use of Chemical

60. Description of Chemical(s) applied for .....

61. Precautions and safety measures for handling chemicals .....

62. Known hazards of the Chemical .....

The information contained herein is correct to the best of my knowledge and belief.

....

Date of Application Signature of Applicant

for Official Use

Date of receipt of application .....

Date of inspection of premises (attach inspection report) .....

1. Approved ( ) 2. Rejected ( ) 3. Further information required ( )

Fees Paid: ..... Ug. Shs. (In words .....)

NOTE:

1. *A separate application is required for each product.*

2. *Submit six (6) sample labels to be used on the packages with the application form.*

3. *Use additional sheets where necessary.*

FOURTH SCHEDULE

FORM A1 **Regulation 24**

APPLICATION FOR LICENCING OF PREMISES

1. Name of Applicant(s) .....

2. Address .....
(Physical, postal)

3. Owner of premises or activity .....

4. Name of supervising chemist under whom activity(s) will be undertaken .....

.....

5. Qualification and experience of the supervising chemist and other key officers (attach a curriculum vitae) .....

.....

.....

.....

6. Registration number(s) of chemical (where applicable) .....

7. Chemical(s) applied for .....

.....

I certify that the information provided is correct and complete.

....

Date Signature of Applicant

FOR OFFICIAL USE ONLY

Date of receipt of application .....

Date of inspection of premises .....

FIFTH SCHEDULE

FORM B **Regulation 10**

Fees Paid: ..... *Ug. Shs.*

CERTIFICATE/LICENCE OR REGISTRATION/REGISTRATION/MANUFACTURE OR FORMULATION/ STORAGE/SALE/TRANSPORTATION OR DISTRIBUTION/IMPORT/ EXPORT/RESTRICTED USE OF A TOXIC AND HAZARDOUS CHEMICAL

Certificate or Licence Number .....

It is hereby certified/licenced that the toxic and hazardous chemical described herein has been registered under the National Environment Statute and is subject to the conditions indicated.

Certificate/Licence to .....
(State purpose of certificate/licence)

Approved common name .....

Trade name under which marketed in Uganda.....

Active ingredient(s) .....

Formulation .....

Condition(s) under which chemical is registered .....

..... (Please attach separate sheet where applicable)

CAS Registration No. .....

Registered in the name of .....

of (Address) .....

Date of Registration ..... Date of Expiration .....

.....
EXECUTIVE DIRECTOR
National Environment Management Authority

NB. This licence is not transferable to any other person without the approval of the Authority.

FIFTH SCHEDULE

FORM C **Regulation 31**

LICENCE FOR PREMISES

Licence Number .....

This licence is granted to:

Name .....

Postal Address .....

Location of Premises .....

To use/sell/store/manufacture/formulate (*delete what is not applicable*) chemicals subject to due compliance with the conditions attached hereto.

The special conditions attached to this licence are: .....

.....

This licence remains valid from ..... to .....

Granted .....

....

Date EXECUTIVE DIRECTOR
National Environment Management Authority.

This licence is not transferable to any other person without the approval of the Authority.

FIFTH SCHEDULE

FORM D **Regulation 16**

MOVEMENT DOCUMENT FOR TRANSBOUNDARY MOVEMENT OF TOXIC AND HAZARDOUS CHEMICALS

Notification for shipment was issued at:

Date of issuance .....

9 Notification for a single shipment
9 Notification for multiple shipments for the period .....

This shipment is number ..... of total shipments included in the general notification number: .....

1. EXPORTER

Name: Telephone:
Address: Telefax:
E-mail:

Contact person (name, postal address, telefax, e-mail)

2. MANUFACTURER OR FORMULATOR(S) OF CHEMICAL

Name: Telephone:
Address: Telefax:
E-mail:

Contact person (name, postal address, telefax, e-mail)

Physical location of premises:

3. IMPORTER OF CHEMICALS

Name: Telephone:
Address: Telefax:
E-mail:

4. TOXIC AND HAZARDOUS CHEMICAL(S)

Description of the chemical:

Chemical Name(s) and Structural Formula of the active ingredient(s)

Trade and Approved common name(s)

Classification of the chemical:

Use:

Name of hazard:

Source:

CAS No.:

Registration number and reference of the Chemical in the country of origin:

Registration Number in Uganda:

Estimated quantity (kg or L) per shipment: 9 1st 9 2nd
9 3rd 9 4th 9 5th

Description of Packaging:

- Size
- Material
- Lining

Number of packages

Precaution and safety measures for handling the chemicals, including emergency provisions in case of accidents:

State whether the chemical has been banned or severely restricted in country of origin or other countries:

Purpose of the importation or exportation

9 sale

9 manufacturing

9 importers or exporters own use

5. ITINERARY

Country of export:
Point of exit (*when designated*):

Transit countries:	Point of entry (*when designated*):
1)	Point of exit (*when designated*):
2)	Point of entry (*when designated*):
	Point of exit (*when designated*):
3)	Point of entry (*when designated*):
	Point of exit (*when designated*):
4)	Point of entry (*when designated*):
	Point of exit (*when designated*):

Country of import:

Point of entry (*when designated*):

6. CARRIER OF THE TOXIC AND HAZARDOUS CHEMICAL OR AGENT

1) Name:	E-mail:	Date of transboundary movement started:
Address:		
Telephone:	Telefax:	Signature of the carrier(s) or agent:

Contact person (name, address, telephones)
Means of transportation: Licence (when applicable):

9 sea 9 air
9 road 9 rail

2) Name: Address: Telephone: Telefax: E-mail	Date of trans boundary movement Started: Signature of the carrier(s) or agent:
Contact Person (name, address, telephone, telefax, e-mail):	
Means of transportation: 9 sea 9 air 9 road 9 rail	Licence (when applicable):
3) Name: Address: Telephone:	Date of trans boundary movement started Signature of the carrier(s) or agent:
Contact Person (name, address, telephone, telefax, e-mail):	Licence (when applicable):
Means of transportation: 9 sea 9 air 9 road 9 rail	

7. DECLARATION OF THE IMPORTER/EXPORTER

I/We . . . . . being the exporter/importer hereby declare/guarantee that the information contained in this document is correct and true.	Signed (importer/exporter) Date:
I/We . . . . . being the exporter/importer hereby declare/guarantee that there are no objections from all the country of import/export and local authorities through which the chemical will be transported.	Signed (importer/exporter) Date:
(*Attach copies of no objections/consent*)	Date of consent of Exporting State: Date of consent of Transit State: Date of consent of Transit State: Date of consent of Transit State:

FIFTH SCHEDULE

To be filled in Quadruplicate *Regulation 27*

Form E

NOTIFICATION DOCUMENT FOR TRANSBOUNDARY MOVEMENT OF TOXIC AND HAZARDOUS CHEMICALS
(for transit purposes only)

1. NOTIFIER[1]

Name: Telephone:
Address: Telefax:
E-mail

Contact Person (name, address, telefax, e-mail)

2. MANUFACTURER/FORMULATOR(S) OF CHEMICAL

Name: Telephone:
Address: Telefax:
E-mail

Contact person (name, postal and physical address, telephone, telefax, e-mail)

Physical location of premises

3. TOXIC AND HAZARDOUS CHEMICALS

Description of the chemical

Chemical Name and structural formulae of the active ingredients

Trade and approved common name

Classification of the chemical:
- use

- nature of hazard
- source
- CAS no.

Registration No. And references of the chemical in the country of origin

Estimated quantity (kg or L) of the shipment

Description of Packaging

9 size
9 material
9 lining Number of packages

Precaution and safety measures for handling chemicals including emergency provisions in case of accidents:

4. CONSENT OF THE DESIGNATED NATIONAL AUTHORITY

National Authority and details of approval

5. TRANSIT

Projected length of time the chemical shipment shall be on transit on Uganda territory.

Expected date of Entry Expected date of exit

Means of Transport envisaged

Information relating to insurance (*Guarantee that the person responsible shall fully compensate any damage caused by human health, property or to the chemical in question during transit*)

6. DECLARATION

I/We ..... being the notifier hereby guarantee/declare that the above information is correct and true.

Signed: (Notifier)

SIXTH SCHEDULE

Regulation 27

THE LAST OF CHEMICALS PRESCRIBED UNDER THE CONVENTION ON THE PRIOR INFORMED CONSENT PROCEDURE FOR CERTAIN HAZARDOUS CHEMICALS AND PESTICIDES IN INTERNATIONAL TRADE

1. 2,4,5-T
2. Aldrin
3. Captafel
4. Cholrdane
5. Chlordimeform
6. Chlorobenzilate
7. DDT
8. Dieldrin
9. Dinoseb
10. 1,2-dibromoethane (EDB)
11. Flourosetemadide
12. HCH
13. Heptachlor
14. Hexachlorobenzene
15. Lindane
16. Penta-Chlorophenol
17. Mercury compounds
18. Certain formulations of Monocrotophos
19. Methamidophos
20. Phosphamibon
21. Methylparathion
22. Parathion
23. Crocidolite
24. Polybrominated Biphenyls (PBBs)
25. Polychlorinated Biphenyls (PCBs)
26. Polychlorinated Terphenyls (PCTs)
27. Tris (2,3 dibromopropyl) phosphates.

SEVENTH SCHEDULE

Regulation 28

PORT OF ENTRY

1. Nimule
2. Malaba
3. Mutukula
4. Bwera
5. Katuna
6. Entebbe Airport
7. Bunagana
8. Busia

[1] The Notifier is engaging in transiting of toxic and hazardous chemicals.

ANNEXES

ANNEX I

UNITED NATIONS ENVIRONMENT PROGRAMME
PROGRAMME DES NATIONS UNIES POUR L'ENVIRONMENT

UNEP/UNDP JOINT PROJECT ON ENVIRONMENTAL LAW AND INSTITUTIONS IN AFRICA

WORKSHOP ON DEVELOPMENT AND HARMONIZATION OF ENVIRONMENTAL LAW ON SELECTED TOPICS IN EAST AFRICA

A CONCEPT PAPER

2nd to 10th February 1998
Venue: Sunset Hotel, Kisumu, Kenya

I. INTRODUCTION

This is a synoptic outline for a workshop to discuss the development and harmonization of environmental law on selected topics in the East African Region under the UNEP/UNDP/DUTCH Joint Project on Environmental Law and Institutions in Africa. The purpose is to provide a handy brief on the objectives of the workshop. A brief background, particularly how the workshop falls into the overall picture of the Joint Project, is provided. The section on participants indicates the mode of selection and the role to be played by the individuals. That is directly related to the schedule of the workshop, which outlines the procedure for the participation of those invited.

Finally, the section on the procedure for finalization of the report is outlined.

II. BACKGROUND

The East African Sub-Regional Project is a component of the UNEP/UNDP Joint Project on Environmental Law and Institutions in Africa funded by the Dutch Government. Systematic and essentially national activities are being conducted in Burkina Faso, Malawi, Mozambique and in Sao Tome and Principe. Although South Africa was identified by the Project Steering Committee as a project country, no systematic activities have been done there and no firm decision has been taken by the Government as to whether they will, in fact, be so involved. This uncertainty is occasioned by the broad constitutional, policy and legislative reorientations which have been evolving in the country since 1994.

The activities of the Joint Project in East Africa (Kenya, Tanzania and Uganda) focus on mattes of sub-regional character. The underlying presupposition is that the physical and historical situation in East Africa offered an opportunity to initiate and encourage dealing with environmental issues according to problem-sheds. The historical facts are that (a) there is a history of regional cooperation among the countries from colonial times; and (b) there is shared legal tradition which derives from common law origins. It was resolved by the Project Steering Committee that the two historical facts could be relied upon to support harmonized legislation on selected themes in the commonly shared environment.

Representatives of the three governments met in February 1995 to work out general principles and modalities for their cooperation. Their second meeting was in May 1995 to discuss the general terrain of topics amenable to development and harmonization of laws. The final decision on six priority topics was taken at their third meeting in February 1996.

The six topics which were selected for the Project's activities are: (i) Development and harmonization of EIA Regulations; (ii) Development and harmonization of laws relating to transboundary movement of hazardous wastes; (iii) Development and harmonization of the methodologies for the development of environmental standards; (iv) Development and harmonization of forestry laws; (v) Development and harmonization of wildlife laws; and (vi) Recommendation for legal and institutional framework for the protection of the environment of Lake Victoria. For each of the topics, the delegates worked out generic terms of reference. However, each national team was subsequently to work out country-specific terms of reference to reflect national legal and institutional situations as well as existing priorities.

The respective national consultants were also selected by the National Coordinating Committees (NCC), working in consultation with an officer at the UNDP country office.

The national consultants have now completed their work. In each case, the reports have enjoyed review by the national panels constituted under the aegis of the respective NCCs. Draft reports, as they evolved, were circulated to the consultants in the three countries. In some cases, the consultants were able to take the reports of their counterparts into account in finalizing their reports. Therefore, some degree of harmonization of reports will, presumably, have been done.

The workshop which is proposed herein, will bring together the consultants for each topic for substantive discussions of their reports and to agree on recommendations as to what should be done next and by whom.

III. OBJECTIVES

The objectives of the workshop may be summarized as follows:

(1) to ensure that the recommendations for policies and law for the respective topics are in harmony as far as possible;

(2) to promote the development of legal and institutional machineries which are comparable in all the three East African countries in the absence of an over-arching sub-regional framework;

(3) to harmonize the normative prescriptions and institutional machineries and therefore create an opportunity for harmonized enforcement procedures; and

(4) to create an opportunity for dealing with the respective environmental problems according to the problem-sheds, which are essentially sub-regional.

(5) to make recommendations on how each country should proceed towards implementation of the recommendations.

IV PARTICIPANTS

There will be four (4) broad categories of participants, over a seven days period:

(1) Consultants who worked on each respective topic. These will work as specific sub-regional teams of experts of reach topic and the number per topic varies by the subject and from country to country. The selection of consultants was done so as to ensure complementarity of expertise and, therefore, full coverage of the topic.

A list of consultants by the topics is attached.

(2) National Coordinators for the project will attend from each of the three countries. Since they are in the picture of the project and how the consultancies were carried out at the national level, the coordinators will attend throughout the workshop. They are to carry the national spirit and ownership, ensuring that the workshop recommendations are consistent with national legislative procedures and policies. They can therefore suggest adjustment in the recommendations while maintaining the overall objectives.

The meeting of country representatives in February 1995 had suggested that the national coordinator, who would eventually attend this workshop, should ideally have legal training. However, where the coordinator has no legal training then he/she should be accompanied to this workshop by another government officer who is fully aware of this project and is legally trained.

The rationale for this position is that the coordinator (and such an associate) would be responsible for ensuring that the documents emanating from the workshop are consistent with the national legislative framework, procedures and policies.

This provision should explain instances where the one national coordinator may be accompanied by an additional officer. The national coordinator and his/her associate would also have two procedural functions at the workshop. First, they would be advisors to the meeting of permanent secretaries (see below) on the substance and procedures of the project. Secondly, they will present the status report on the evolution of the project at country level, to the meeting of permanent secretaries.

(3) There will be two principal Facilitators at the Workshop. The two persons will have read all the six reports from the three countries and identified the main features/ typologies which require (i) improvement for internal cogency and/or (ii) harmonization from normative, procedural or institutional point of view.

It is proposed here that while the foregoing preparation should ideally cover all the six topics from the three countries, it may be practical for the respective facilitator to read broadly, but prepare detailed comments on only three topics. We anticipate that two teams of respective consultants on each topic will run concurrently for a maximum of two days for each topic, making a total of three days for the consultants' sessions. Thus, a facilitator would work in details with one group on three teams for the respective three days.

The East African Sub-Regional Project has been an intriguing experiment not only for the project management but also for members of the Steering Committee. The latter group is keen to follow the procedure and see the quality of the outcome. For these reasons, the project management has deemed it fit that the facilitators for each team of consultants should be from the institutions and members of the Steering Committee.

It is with gratitude we record here that Professor David Freestone (The World Bank) and Mr. Jonathan Lindsay (FAO) have accepted to assist as facilitators for the workshop.

(4) A meeting for Permanent/Principal Secretaries responsible for environment from the three countries, was proposed by the 1995 meeting, as a component of the sub-regional workshop. Therefore, there would be only one such officer from each of the three countries, making a total of three.

Their meeting will be attended by the national coordinators as discussed above.

The permanent/principal secretaries are the accounting officers and policy leaders in their ministries. It was deemed essential that they receive a full briefing on the aspirations and activities of the project. In this way they can discuss the deliverables and take decisions and assume actual ownership of the outcome.

Ultimately, their cooperation and support is essential for the national level adoption and enactment of the recommendations of this project.

This explains the necessity of a meeting of these senior officers together with their national coordinators, with pertinent legal backing. It is also essential that this meeting be held towards the end of the workshop, to receive the report or outcome of the sessions of consultants.

The meeting will comprise a briefing on the overall Joint Project by the management, and a report on the national activities by each of the three coordinators; workshop reports from the meeting of consultants on each of the project topics, given by the national coordinators. In other words, each national coordinator will assume the repertory role for two of the six topics.

(5) The overall workshop Chair will be by Director, UNEP Environmental Law and Institutions, Programme Activity Centre.

V. PROGRAMME OF THE WORKSHOP

The Workshop will be divided into two broad categories:

1. Meeting of Experts/Consultants
2. Meeting of Permanent/Principal Secretaries

The duration is from 2nd to 10th February 1998. The daily schedule will be from 0830 hours to 1700 hours, subject to variation by necessity.

Although the records of the proceedings will be kept by the Secretariat, it is proposed that a representative/consultant from one of the countries be the official rapporteur, responsible to the workshops, for the accuracy of the reports. Subject to confirmation by the meeting of consultants, we propose that the country teams be designated as rapporteurs as follows: EIA Regulations (Uganda); Lake Victoria Environment (Tanzania); Hazardous Wastes (Tanzania); Environmental Standards (Uganda); Wildlife (Kenya); and Forestry (Kenya).

Daily meetings of the experts will run on two Tracks, as in table below:

Consultants for each topic will arrive the day before their respective topics schedules on the programme and depart after the end of the second day. The Coordinators as described above will stay from 1st to 10th February 1998.

8th February	Preparation of reports by the Coordinators Arrival of Principal/Permanent Secretaries
9th and 10th - February	Meeting of the Permanent/Principal Secretaries (with Facilitators from FAO and The World Bank and the National Coordinators). The six topics will be paced out over the two days and resolution adopted at the end of the deliberations. A detailed programme of work for the two days will be drawn in consultations with the national coordinators.

Dates	Track I in Topics	Track II Topics
2nd & 3rd February	EIA Regulations	Lake Victoria Environment
4th & 5th February	Hazardous Wastes	Wildlife Legislation
6th & 7th February	Environmental Standards	Forestry Legislation

VI. OUTLOOK

At the end of the meeting of the experts, each consultant will be expected to have a clear picture of what additional amendments or changes they need to do to effect the harmonization. It will be urged that such amendments are completed within approximately two weeks after the workshop.

Secondly, the national coordinators will advise on the approximate schedule for the national consensus-building workshops and implementation of recommendations.

Finally, the consultants will make such other adjustments as may be recommended by the workshop. The national coordinators will advise on when the final reports will be submitted and, therefore, the activities concluded.

The principal/permanent secretaries may, in instances where they deem it practical, advise on when the legislative actions might be taken at national level on each topic.

ANNEX II

UNEP/UNDP JOINT PROJECT ON ENVIRONMENTAL LAW AND INSTITUTIONS IN AFRICA

EAST AFRICAN SUB-REGIONAL PROJECT MEETING OF THE PERMANENT SECRETARIES RESPONSIBLE FOR ENVIRONMENTAL MATTERS

Nairobi, 15 April 1998

REPORT OF THE MEETING OF THE PERMANENT SECRETARIES ON THE DEVELOPMENT AND HARMONIZATION OF ENVIRONMENTAL LAW ON SELECTED TOPICS UNDER THE EAST AFRICAN SUB-REGIONAL PROJECT

BACKGROUND:

The meeting of the Permanent Secretaries responsible for environmental matters in Kenya, Uganda and Tanzania met in Nairobi, Kenya at the UNEP Headquarters on 15 April 1998. The meeting marked a culmination of series of activities executed under the East African Sub-regional Project of the UNEP/UNDP/Dutch Joint Project on Environmental Law and Institutions in Africa which began in 1995. In particular, the Permanent Secretaries met to discuss, evaluate and assess the recommendations made by a series of six sub-workshops held simultaneously and back to back in Kisumu, Kenya from 2-10 February 1998.

The sub-workshops had reviewed and assessed the reports prepared by national consultants on the six priority areas identified earlier on, namely, Environmental Impact Assessment (EIA) Regulations, Hazardous Wastes, Environmental Standards, Lake Victoria Environment, Wildlife laws and Forestry laws. Furthermore, each sub-workshop had made a series of recommendations geared towards assisting the national consultants with mechanisms to strengthen their reports on the basis of discussions and comments made in the relevant sub-workshops.

Based on recommendations made by experts in the six sub-workshops, the meeting of Permanent Secretaries was convened as above stated to review the work of the experts and the recommendations for action. The one day meeting was followed by another day's meeting of the National Coordinators of the Project to finalize the documents, on the basis of instructions given by the Permanent Secretaries.

OPENING OF THE MEETING:

The meeting of the Permanent Secretaries was officially opened by Mr. Donald Kaniaru, Director, UNEP, ELI/PAC, at 9.10 a.m. on 15 April 1998 at UNEP Headquarters. The morning part of the meeting was chaired by Mr. Donald Kaniaru, while the latter afternoon part was chaired by Mr.Patrick Kahangire, Acting Permanent Secretary, Ministry of Natural Resources, Uganda.

In his opening remarks, Mr. Kaniaru expressed his hope that the intervening period had provided appropriate opportunities to the Permanent Secretaries to be briefed on the results of the sub-workshops by their National Coordinators, and that in turn, they had consulted their other colleagues in the relevant Government departments on the issues discussed. In that regard, he called upon the Permanent Secretaries to comment on each of the six areas, principally focusing on updates and actions taken since the sub-workshops in February 1998. He further requested them to endorse or modify or add to the recommendations or specific points made by the consultants to pave the way for targeted implementation.

He concluded by urging that the three Governments should advise the relevant departments dealing with the East African Co-operation Secretariat (EAC) of the evolving need to take up environmental policy coordination questions urgently, and

the possibility of negotiating treaties or protocols to give legal effect to the recommendations made by the consultants. He assured the Permanent Secretaries that once EAC is advised by the Governments, UNEP would be ready to assist by making its expertise available to the EAC and the Governments.

BRIEF ON THE SCOPE OF THE JOINT PROJECT:

The Task Manager of the UNEP/UNDP Joint Project in Environmental Law and Institutions in Africa, Professor Charles O. Okidi, briefed the Permanent Secretaries on the scope, objective and status of the Joint Project including the sub-regional project. He clearly showed them what the Sub-Regional Project has achieved to date and where it stands in relation to the overall Joint Project.

STATEMENTS BY PERMANENT SECRETARIES:

The Permanent Secretaries made statements and, in particular, informed the other participants the role the Joint Project has played in their countries, in particular, in the field of the development of environmental law and institutions including building the capacities of their officials and institutions. Status of development of environmental legislation in each country were narrated in the statements including the constraints faced in the implementation of some of the activities.

The Permanent Secretaries appreciated the Joint Project efforts in organizing several capacity building workshops in the field of environmental law. They were also delighted with the efforts taken by the Project to utilize national experts to undertake review of the six priority areas. The exercise has succeeded in building a cadre of national expertise in the field of environmental law and ensures national ownership of the reports produced and laws and/or implementing regulations prepared.

All of them were thankful to the sponsor of the Joint Project, the Dutch Government, the implementors of the Project, UNEP and UNDP as well as all other supporting partner organizations, IUCN, FAO, and the World Bank. To this end, they unanimously recommended the extension of the Joint Project to permit them to complete the on-going activities and allow the Governments to develop regulations to implement the six areas. They emphasized that the extended period would equally permit them to focus on new priority areas identified by their experts.

PRESENTATION OF THE REPORTS OF THE SUB-WORKSHOPS:

On behalf of the National Coordinator from Tanzania, the National Coordinators from Kenya and Uganda officially presented to the Permanent Secretaries the reports which were adopted by the experts of each Sub-Workshop on the six areas discussed during their meetings held in Kisumu, Kenya from 2 to 10 February 1998. The presentation of each report was followed by discussion of the issues raised and recommendations made. As necessary, an update of the facts or situation since February 1998 in each country was made. For instance, Uganda reported that they had their national consensus building workshop to review the reports and the revised reports have already been forwarded to UNEP. Kenya reported that it was going to hold its national workshop from 26 April to 1 May 1998 to review the consultants' reports and recommendations. Tanzania on the other hand, reported that it held its national workshop on 11 April 1998 whereby the reports were reviewed and recommendations made. As the result of the national workshop recommendations, Tanzania had requested for extension of time to permit the consultant to prepare the report on EIA while the one dealing with the forestry legislation to rewrite it to the required standards.

The reports presented were on the development and harmonization on the following six areas:-

(i) Environmental Impact Assessment Regulations
(ii) Forestry Legislation
(iii) Transboundary Movement of Hazardous Wastes
(iv) Methodology for the Development of Environmental Standards
(v) Management of the Lake Victoria Environment
(vi) Wildlife Legislation.

The presentation of each report was divided into four main sectors. They were namely:-

(i) General overview of the reports as presented by the national consultants in the sub-workshop.
(ii) Reasons justifying the need for sub-regional harmonization of each area presented.
(iii) Common elements to be considered by Governments during the preparation of national legislation in each of the six areas.
(iv) Conclusions made by each sub-workshop, namely, requesting EAC to assist in the preparation of an overarching agreement on the environment with sectoral Protocols on each of the six areas. While requesting UNEP to facilitate the development of the agreement and the protocols, reports urged the donor to favourably consider extending the Joint Project.

RECOMMENDATIONS:

The Permanent Secretaries endorsed all the six reports of the sub-workshops together with the recommendations made

with minor adjustments. They all acknowledged that the reports were a clear testimony of success of the capacity which the Joint Project has built in their countries during the execution of Joint Project activities. They expressed satisfaction with the good quality of the reports which were presented to them. While they agreed that the Joint Project has succeeded in organizing capacity building in a number of areas in environmental management, they recommended more training programmes to include the private sector. Of priority importance, the Permanent Secretaries emphasized a training programme on EIA for the private sector.

While requesting UNEP to assist in the implementation of all the recommendations made, the Permanent Secretaries promised to commit themselves to support implementation of activities at national level. In addition, they promised to ensure that the recommendations they have adopted are forwarded to the EAC for implementation as proposed. They recognized the need for an overarching treaty/protocol on the environment which will facilitate future development of sectoral protocols on different priority areas. To this end, they requested UNEP to facilitate and support EAC and the Governments in the development of the proposed.protocols, at appropriate moments.

To synthesize their endorsement of the recommendations made by their experts, the Permanent Secretaries requested UNEP to assist and support them in the preparation of a Memorandum of Understanding (MOU) on Environment as a matter of urgency. Consequently, the Permanent Secretaries mandated and instructed their National Coordinators to commence preparation of the draft MOU for their consideration. After consultation, the meeting agreed that the first meeting of the National Legal Experts under the sub-regional project will be held from 25 to 26 May 1998 to discuss and review the draft text which would have by then been prepared and circulated to the national experts for their input. The Permanent Secretaries expects the text to be ready for adoption at the latest in July 1998.

Furthermore, as recommended by the experts, the Permanent Secretaries strongly requested the extension of the Joint Project to allow them to complete the activities already under way. Extension would also permit Governments to strengthen and reinforce the completed activities by developing implementing regulations. They hope that the extended period would equally permit them to focus on new priority areas to be identified.

FOLLOW UP:

The Permanent Secretaries instructed the National Coordinators who met for another extra day on 16 April 1998, to finalize and compile documents discussed in their meeting.

They were instructed to prepare the following from the recommendations of the experts on the six areas which had been endorsed and the new recommendations which emanated from the meeting:-

(i) To identify from the reports of the Sub-Workshops recommendations which cut across and common to all the six areas and those recommendations specific only to certain areas. The identification of these issues are attached as *Annex IV.*

(ii) To identify recommendations which are addressed to Governments for their implementation. These are attached as *Annex V.*

(iii) To identify recommendations addressed specifically to EAC for their action and execution. These are enclosed as *Annex VI.*

(iv) To identify those recommendations which requested the support and assistance of UNEP and its affiliates in their implementation. These are enclosed as *Annex VII.*

(v) To prepare for their adoption and signature, by July 1998, a MOU on Environment. MOU, they emphasized, will be benchmark for the success of the activities under the East African Sub-project.

CLOSING REMARKS:

After usual exchange of courtesies and appreciations for the cordial and friendly atmosphere, the meeting was declared closed at 18.00 hours on 15 April 1998.

ANNEX III

UNEP/UNDP/DUTCH JOINT PROJECT ON ENVIRONMENTAL LAW AND INSTITUTIONS IN AFRICA

EAST AFRICAN SUB-REGIONAL PROJECT WORKSHOP ON HARMONIZATION OF DRAFT REPORTS AND LAWS

February 2-10 1998

LIST OF PARTICIPANTS BY SUBJECTS

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