

## TABLE OF CONTENTS

|  |    |
|--|----|
| ABBRVIATIONS AND ACRONYMS  | IV |
| CHAPTER 1: INTRODUCTION AND BACKGROUND   | 1  |
| 1.1 Background   | 1  |
| CHAPTER 2: SURVEY METHODOLOGY  | 4  |
| 2.1 Goal   | 4  |
| 2.2 Objectives   | 4  |
| 2.3 Methodology  | 4  |
| CHAPTER 3: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK                            | 8  |
| 3.1.1 The National Health Policy   | 8  |
| 3.1.2 National Health Sector Strategic Plan II (HSSP II) for 2005/06 – 2009      | 8  |
| 3.1.3 The Constitution of the Republic of Uganda                                 | 9  |
| 3.1.4 The National Environment Policy for Uganda (1994).                         | 11 |
| 3.1.5 The National Environment Management Act Cap 153 LOU                        | 14 |
| 3.1.6 The Food and Drugs Act Cap 278 LOU   | 19 |
| 3.1.7 National Drug Policy and Authority Act, Cap. 206 LOU                       | 20 |
| 3.1.8 Agricultural Chemicals (Control) Act No 1, 2007                            | 22 |
| 3.1.9 The Occupational Safety and Health Act No 9 2006                           | 23 |
| 3.1.10 Uganda National Bureau of Standards Act Cap 237 LOU                       | 27 |
| 3.1.11 External Trade Act, Cap 88 LOU  | 28 |
| 3.1.12 The Public Health Act Cap 281 LOU   | 29 |
| 3.1.13 The Public Health Act: Building Rules                                     | 30 |
| 3.1.14 The Specified Goods (Conveyance) Act Cap 349 LOU                          | 31 |
| 3.1.15 Inland Water Transport (Control) Act Cap 356 LOU                          | 31 |
| 3.1.16 Roads Act Cap 345 LOU   | 31 |
| 3.1.17 The Investment Code Act Cap 92 LOU  | 32 |
| 3.1.18 The Mining Act, 2003  | 32 |
| 3.1.19 The Land Act Cap 227 LOU  | 32 |
| 3.1.20 The Ratification of Treaties Act Cap 204 LOU                              | 32 |
| 3.2 International Instruments  | 33 |
| 3.2.1 The Universal Declaration of Human Rights                                  | 33 |
| 3.2.2 The Codex Alimentarius Commission And The FAO/WHO Food Standards Programme | 33 |
| 3.2.3 Other Arrangements: The FAO/WHO Food Standards Programme                   | 34 |

|   |    |
|---|----|
| CHAPTER 4: FINDINGS AND OBSERVATIONS                                      | 36 |
| 4.1 Legislation   | 36 |
| 4.2 Institutional Weaknesses  | 40 |
| 4.2.1 Incomplete elements of the system                                   | 40 |
| 4.2.2 Inadequate Facilities, equipment, transportation and communications | 41 |
| 4.2.3 Inadequate laboratory services                                      | 42 |
| 4.2.4 Inadequate Working documents and procedures                         | 44 |
| 4.2.5 Deficiencies in professional capacity                               | 45 |
| 4.3 Market Situation  | 45 |
| 4.4 Gender disparities  | 52 |
| 4.5 General awareness   | 53 |
| 4.6 Inadequate Research capability  | 55 |
| CHAPTER 5: HARMFUL CHEMICALS IN PRODUCTS                                  | 57 |
| 5.1 Mercury   | 57 |
| 5.1.1 Human Exposed to Mercury  | 58 |
| 5.1.2 Movement of mercury in the body (Toxicokinetics)                    | 60 |
| 5.1.3 Health Effects  | 60 |
| 5.1.4 Death   | 62 |
| 5.2 Lead  | 62 |
| 5.2.1 Exposure  | 64 |
| 5.2.2 Movement of Lead in the body  | 66 |
| 5.2.3 Health Effects  | 66 |
| 5.3 Hydroquinones   | 67 |
| 5.3.1 Dermal effects; sensitization                                       | 67 |
| CHAPTER 6: CONCLUSION AND RECOMMENDATIONS                                 | 69 |
| 6.1 Conclusion  | 69 |
| 6.2 Recommendations   | 70 |
| 6.3 Way Forward   | 72 |
| 6.3.1 Action 1: Management systems  | 75 |
| 6.3.2 Action 2: Research  | 75 |
| REFERENCES  | 77 |
| ANNEX 1: BANNED PRODUCTS IN THE EAST AFRICAN REGION                       | 79 |

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**ABBREVIATIONS AND ACRONYMS**

|          |  |
|----------|--|
| ARSO     | Africa Regional Organization for Standardization.        |
| CAS      | Chemical Abstract System                                 |
| DDD, DDE | Degradation products of DDT                              |
| DDT      | Dichlorodiphenyltrichloroethane                          |
| EA       | Environmental Audit                                      |
| EIA      | Environment Impact Assessment                            |
| EPA      | Environment Protection Agency                            |
| FAO      | Food and Agricultural Organisation                       |
| GLP      | Good Laboratory Practice                                 |
| GAL      | Government Analytical Laboratory                         |
| HIV/AIDS | Human Immune Virus/Acquired Immune Deficiency Syndrome   |
| HSSP     | National Health Sector Strategic Plan                    |
| IEC      | Information, Education and Communication                 |
| IPCS     | International Programme for Chemical Safety              |
| ISO      | International Organisation for Standardisation           |
| LOU      | Laws of Uganda   |
| MDGs     | Millennium Development Goals                             |
| MRL      | Maximum Residue Limit                                    |
| NAPE     | National Association of Professional Environmentalists   |
| NDA      | National Drug Authority                                  |
| NDQCL    | National Drug Quality Control Laboratory                 |
| NEAP     | National Environment Action Plan                         |
| NEMA     | National Environment Management Authority                |
| NFA      | National Forest Authority                                |
| PCE      | Policy Committee on Environment                          |
| PEAP     | Poverty Eradication Action Plan                          |
| PHC      | Primary Health Care                                      |
| POPs     | Persistent Organic Pollutants                            |
| SAICM    | Strategic Approach to International Chemicals Management |
| SOPs     | Standard Operating Procedures                            |
| TORs     | Terms of Reference                                       |
| UNBS     | Uganda National Bureau of Standards                      |
| UNEP     | United Nations Environment Programme                     |
| UWA      | Uganda Wildlife Authority                                |
| WHO      | World Health Organisation                                |
| WTO      | World Trade Organisation                                 |

## EXECUTIVE SUMMARY

Modern living has brought humanity to rely on chemicals in their daily living. There are more than six million known different chemicals. Of these there are between 60,000 and 70,000 chemicals in common use in commerce. Between 500 and 1,000 new chemicals are introduced for commercial use every year. Chemical industry is one of the most important industrial and commercial sectors. It outstrips such enterprises as iron and steel, aeronautics and telecommunications in terms of monetary value. It continues to grow and diversify. As a result, there is an enormous volume and variety of chemical products in commerce.

There is therefore a steady growing concern over safety from the dangerous aspects of these consumer products. In particular, there is concern that some of these consumer products in the market that are widely consumed have chemicals that are potentially harmful to the health and well being of people. Most notably among the possible harmful products are cosmetics that are widely used to bleach the skins of women, some of which products are believed to contain harmful chemicals such as mercury, which is known to be a poisonous chemical and therefore harmful to the environment.

This is a report of the study commissioned by National Association of Professional Environmentalists (NAPE) to establish on the one hand the impacts of hazardous consumer products on human health and the environment, and on the other hand, the state of manageability of the same. It is a readiness assessment – Uganda's readiness to handle the situation. The report covers in particular concerns about the protection of consumers from dangerous aspects of food, drugs cosmetic and other consumer products.

### Methodology

**Document reviews:** - Documentary and literature review were undertaken. The purpose of this was to identify gaps, areas of weaknesses and strengths to build upon. Policies, laws, and the institutional frameworks are the infrastructure for the management of impacts. Relevant policy documents, action plans, and other materials were reviewed. These include Government policies, laws and institutional set ups in subjects of use, manufacture, handling, storage, and waste disposal of consumer products.

**Market Survey:** - In order to get a deeper understanding of the people's experiences, thoughts in-depth interviewing were carried out in all the

accessible selected test population. The following aspects were being considered among others:

- Experience with consumer products
- General health and other social services accessed
- Common beliefs
- Health demoting behaviours and habits
- Awareness of laws and dangers of chemicals consumed or used
- Level of inspection and contact with competent authorities

The method of data collection was unstructured discussions, not longer than one and a half hour, with a probing question at the beginning. The venue was in the interviewee's respective place of work or home. The in-depth interviews were undertaken with individuals.

**Site Examinations:** - The general areas of the survey were examined by a walk-through tour with a view to assess the values that are being affected and to estimate the extent of damage in the event of further commercial development activities. Consultations and interviews with the community members, entrepreneurs and officials were then carried out in order to expand the observations and make inferences.

**Sampling methodology:** - The survey was based on a probability sample, stratified by district and size of establishment. The sampling frame for selection of Establishments was the Business Register UBOS, 2007. Structural information on businesses is central to the collection of business statistics. The number of sample size of establishments, allocated from each stratum, was proportional to the employment size. The activities indicated by employment size bands taken were 1-5; 6-10; the bigger districts of Kampala, Entebbe and Mukono and smaller business had higher chance to be selected.

**Sample Size:** A sample size of 96 establishments was considered sufficient to achieve the purpose of the survey.

**Data Analysis and Management:** - This having been a baseline survey meant to assess the impacts of chemical in consumer products on people and the environment, rigorous statistical techniques were not employed. Instead simple additions were employed to assess the number of responses to each particular question in the questionnaire and to build the picture of the situation. Salient phrases and quotations on emerging themes were reproduced verbatim and

integrated in the report. Case study scenarios to demonstrate the impacts were reproduced in the report as appropriate.

## Findings and Observations

### Legislation

**Satisfactory provisions:** When Uganda's legal framework is examined against the *Codex Alimentarius*, it is found that the provisions that exist in the many laws cited above and especially in the:

- *Food and Drugs Act Cap 278 LOU;*
- *National Drug Policy and Authority Act, Cap. 206 LOU;*
- *Public Health Act Cap 281 LOU;*
- *National Environment Act, Cap 153, LOU;*
- *Uganda National Bureau of Standards Act Cap 237 LOU*

Contain these crucial provisions and so constitute a major satisfactory effort towards the requirements of the *Codex Alimentarius*.

### ***Inadequate linkages:***

Other than NEMA, the institutions set up in the legislations are by large compartmentalized without legal requirement for them to consult or work together on any subject. The cooperation that exists is informal. As a result they have inadequate linkages, poor communication and coordination between them and this leads to unharmonised and incompatible data and contributes to ineffective enforcement. Consumer protection as the subject of concern on the other hand demands multi-sectoral and multidisciplinary and synergic action. This situation calls for legal and administrative improvement of linkages and therefore calls for a major exercise to identify, revise, amplify, consolidate, harmonise and make specific the necessary linkages in the laws.

### ***Patchy coverage:***

Despite the good effort and intentions resulting in existence of reasonable provisions, the old of the laws carry the thinking of the 1950s; a time when the technology, environment and health effects had not become so prominent and were apparently innocent. Correspondingly the legislation is, in many areas, outdated and patchy in dealing with present problems in consumer protection.

***Inadequate coordination:***

Consumer protection management operations involve many independent participants usually operating in a situation of urgency. They therefore need a high level of co-ordination. This system is inadequate. Consequently it is necessary to develop a system with high ability to co-ordinate these operations.

***Lack of specificity and explicitness:***

The core national laws that are in place are “framework” or “umbrella” laws that were designed to deal with the general subject of chemical safety from hazardous chemicals and so are general in nature. While some legislation needs to be enabling and bringing out principles of chemical safety as the current laws are, there is also need for explicit, detailed and specific legislation targeted on exceptionally toxic chemicals such as pesticides, asbestos, carcinogens, heavy metals, allergens, PCBs, benzene on one hand, and also targeting various subject areas such as food, drugs, cosmetics.

There are no substance and subject specific provisions, regulations, standards, and guidelines and manuals dedicated to various subjects of consumer protection management. While the current effort goes a long way to meet the general requirements of the *Codex Alimentarius*, this leaves matters to be subjectively interpreted or extrapolated and so leaves consumer concerns unfulfilled.

***Institutional Weaknesses***

The national competent authority especially for an importing country should have the ability to enforce and take action on any part of the chain based on adequate legislation. It should take all necessary steps to insure the integrity, impartiality and independence of official inspection systems and officially recognized inspection systems and to ensure that the inspection programme contained in national legislation is delivered to a prescribed standard. The main competent authorities are the Ministry of Trade, Tourism and Industry; The Ministry of Health; The Ministry of Agriculture, Animal Industry and Fisheries; The Ministry of Gender, Labour and Social Development; and the NDA, UNBS, NEMA. All these are inadequately funded, inadequately staffed, inadequately equipped and so they lack the capacity to implement the laws in place.

***Deficiencies in professional capacity***

There is weakness in professional capacity stemming from two sources. First, the majority of trained personnel have a discipline bias and tend to focus



only on their particular areas of specialisation. They are compartmentalised. As a result, there is a need to re-orient them to enable them to apply their knowledge of their respective disciplines to consumer protection management in a more holistic manner. Second, current University and other tertiary programs lack critical concerns in the subject as a result; the training they provide to personnel is inadequate.

When a trace analysis laboratory is set up, its staff should spend some of their training period attached to a well-established laboratory where experienced advice and training is available. If the laboratory is to be involved in the analysis for a wide range of trace substances, it may be necessary for the staff to gain experience in more than one expert laboratory. This situation has not been satisfied.

***Inadequate research capability:***

Research capability is inadequate. Chemicals in reference to their toxicology, chemical safety, and the environmental effects constitute by far the most insidious, most varied and most devious aspects of research in economy, safety and health facing the general and working population. It should be diligently pursued.

There is need therefore for a realistic, far-reaching and forcefully influential national policy on chemicals research. This should be followed by institutional adjustments, well supported at cabinet level, financed and charged with the responsibility of translating this policy into action with a view to deliver safe environment to the people. The successful solution to chemicals problem should be based on scientifically derived criteria and applied through technological, administrative and legal measures. This approach is elaborate and expensive but worth the effort.

Despite some effort from NEMA, the level of awareness is low and this is why the poor handling, the misuse and high incidence of accidental poisoning among the public and commerce in products containing dangerous chemicals remain unchanged. The current attitude of the public towards chemicals especially cosmetics and pesticides indicates no respect for the dangers posed by them. The obtaining attitude is that these materials are harmless as a result the handling is careless.

Consequently the necessary strategy for consumer protection is to develop alertness and involvement of all people concerned with the subject through creation of attitude and practice changing awareness. Following this, multilevel

courses on chemical safety are given to key grades of people in commerce and industry e.g. instructors, supervisors, managers, workers and consumers themselves. This requires a concerted effort from all the key players.

### ***Gender disparities:***

The most vulnerable groups are the children and women. Of the 96 respondents, 89 (93%) indicated that their clients for cosmetics are women. The victims of harmful chemicals – skin irritation, sculp dehairing, - have all been women (100%). The victims of acid attacks are 98% women. Accidental poisoning has all been children. 96% of the proprietorship of saloons and beauty shops are women. 96% of the employment in saloons and beauty shops is women. Many women with HIV/AIDS use skin bleaching creams to remove the characteristic AIDS black spots on their skins so that they cannot be identified.

### **Conclusion**

A variety of hazardous chemicals are used in products imported into Uganda every year. The storage, transportation, manipulation, use and disposal of these chemicals are carried out without correct skills and equipment. As a result, the population is exposed to chemicals, dangerous consumer products at home, and in the general environment. Of particular interest to this report are the children and other vulnerable groups. The following factors contribute:

- i. The subject of consumer protection, particularly chemical safety from commercial products, which does not clearly appear in the mainstream of concerns in the country's activity programmes at this moment in time. The subject is marginalized and so out of focus.
- ii. Owing to financial limitations, the administrative and technical measures necessary for consumer safety are scanty, inadequately manned and inadequately equipped. Vital information on what chemicals are present in the products in the market, who is storing them, in what premises, incidence of their health outcomes and levels in products, the working and general environment is grossly inadequate.
- iii. Legislation on the importation and use of chemicals is not explicit and largely fragmented such that extremely dangerous chemicals

have found their way into the country without corresponding checks. The invasion of dangerous chemicals has therefore occurred without corresponding management to minimise the risks.

- iv. The programme to control the use of hazardous chemicals in consumer products is not perceivable. The subject of chemical safety is multi-disciplinary in nature and different government departments have inputs to it. These inputs have been so uncoordinated and restricted that consultancies are lacking and control measures frustrated.

The population is largely unaware of the dangers of the chemicals present in the products they use and are ignorant of their roles in the control of the use of these chemicals. They also lack the required skills for the safe handling of the chemicals and dealing with emergency arising from harmful effects of chemicals. The most vulnerable group at risk is the consumer in the rural and urban setting. This group is least organised, least informed, least equipped, least supervised and largely not accessible.



## CHAPTER 1: INTRODUCTION AND BACKGROUND

This is a report of the study commissioned by NAPE to establish on the one hand the impacts of hazardous consumer products on human health and the environment, and on the other hand, the state of manageability of the same. It is a readiness assessment – Uganda's readiness to handle the situation. The report covers in particular concerns about the protection of consumers from dangerous aspects of food, drugs and cosmetic products.

### 1.1 Background

Modern living has brought humanity to rely on chemicals in their daily living. Indeed chemicals are a necessary evil. There are more than six million known different chemicals (CAS, NY). Of these there are between 60,000 and 70,000 chemicals in common use in commerce. Between 500 and 1,000 new chemicals are introduced for commercial use every year. Chemical industry is one of the most important industrial and commercial sectors. It outstrips such enterprises as iron and steel, aeronautics and telecommunications in terms of monetary value. It continues to grow and diversify. As a result, there is an enormous volume and variety of chemical products in commerce.

Uganda like many developing countries imports chemicals on their own, and in many consumer goods and products to meet the demands of her rapidly growing population, currently estimated at 30 million. (UBOS 2007))

#### ***Chemical usage in Uganda:***

A variety of chemicals are used in economic activities in Uganda and they can be grouped as follows:

- i. Petrochemicals (petrol, diesel, greases, oils etc)
- ii. Fertilizers (organic/inorganic e.g. ammonium nitrate, super phosphate)
- iii. Pesticides (herbicides, insecticides, rodenticides etc.)
- iv. Industrial Chemicals (acids, alkalis, oxides, salts etc)
- v. Synthetic Organic chemicals (PVC, PCBs, polyester etc)
- vi. Cosmetics (toilet soaps, perfumes, hair conditioners etc)

- vii. Pharmaceutical (human and veterinary drugs)
- viii. Solvents and paints (cleaning and polishing chemicals)
- ix. Natural and synthetic rubber.

### ***Why the concern:***

All chemicals are toxic depending on the dose and susceptibility of the exposed subject. Yet a majority of chemicals in use have not been investigated enough to determine their toxicological properties. Adequate information and complete assessment of human health hazards due to chemicals is available for only less than 2% of the chemicals. Partial information is available for 14% (IPCS, 2003). Correspondingly the necessary controls for them are inadequate.

As a result, the use of chemicals in consumer products has taken place without adequate and systematic information on their possible effects on human health and the environment. Subsequently, the world has been shocked from time to time by appearance of diseases of complex clinical pictures, which after a time have been traced back to chemicals.

In the case of Uganda, reports have been common in the local press of people dying after consuming food (chapatti, cassava) fried mistakenly in hair-do oils instead of cooking oil. People have mistakenly cooked maize seed chemically treated with preservatives and died as a result. People (especially children) have mistakenly drunk insecticide and died as a result. A spectacular case was when Ugandans (some very prominent) died as a result of drinking *Waragi* contaminated with methanol. During the month of August 2009, a number of clustered deaths due to unknown causes were reported in different parts of the country mainly from Gulu, Kasese, Kampala, Wakiso and Mpigi districts. The media continues to report more deaths attributed to consumption of contaminated alcohol (waragi). In the same month in Jinja a man died after taking expired drugs. Other common cases include diazinon and dithane poisoning.

These deaths are unnecessary as they are avoidable. Each death is a signal that the Government and civil society organisations should intervene with a solution to arrest this trend urgently. The Ugandan population is largely unaware of the dangers of chemicals so they have neither respect for them nor knowledge of how to deal with them appropriately.

There is therefore a steadily growing concern over the safety of Ugandans

and the environment from the dangerous aspects of these consumer products. In particular, there is concern that some of these consumer products on the market that are widely consumed have chemicals that are potentially harmful to the health and well being of people. Most notably among the possible harmful products are cosmetics that are widely used to bleach the skins of women, some of which products contain harmful chemicals such as mercury, which is known to be a very poisonous chemical to humans and harmful to the environment.

The role of ensuring the safety of people lies upon Government. Government is responsible for putting in place the necessary policies, legislations, institutional frameworks and other arrangements for the safety of her people and the environment. While the population is growing rapidly and industry is also growing rapidly, it appears that the ability of Government to provide safety to its people is not correspondingly growing and it is therefore inadequate. Of particular concern is the fact that the existing policies, laws, regulations, bye-laws and the institutional frameworks on the use, manufacture, handling, storage, and disposal of consumer products are inadequate. Consequently, consumers in Uganda are not adequately protected from harmful aspects of these chemicals.

Civil Society such as NAPE has to scale up the scope, reach, and impact of their advocacy regarding the risk factors of chemical use.

## CHAPTER 2: SURVEY METHODOLOGY

This chapter describes the objectives of the study and methodology of data collection and analysis. The study adopted a descriptive and explanatory design. It made use of available qualitative and quantitative data, both primary and secondary and generated more.

### 2.1 Goal

The goal of this study is to analyse the existing mechanisms for consumer protection of chemicals in Uganda and recommend adequate measures to address measures to address the problems arising out of use of chemicals. This calls for urgent public awareness creation and preventive measures including policy and regulatory reforms. Hence better laws on consumer products and increased awareness on hazardous consumer products are the goals.

### 2.2 Objectives

1. Study and assess policies, laws, regulations and conventions concerning production, importation, manufacture, consumption/use and disposal of consumer products specifically food stuffs, human drugs and cosmetics.
2. Conduct a market survey to identify consumer products especially human drugs, cosmetics and food stuffs that are of potential harm to environment and consumers especially the children, people with HIV/AIDS, pregnant women and elderly
3. Provide suggestions and recommendations regarding practical and sustainable measures to address the identified gaps in the policies/regulations and impacts on the consumers and the environment.

### 2.3 Methodology

In carrying out this assessment, qualitative methods of data collection and analysis were adopted. The methods of data collection included interviews and document review.

*Document reviews:* - Documentary and literature review were undertaken. The purpose of this was to identify gaps, areas of weaknesses and strengths to build upon. Policies, laws, and the institutional frameworks are the infrastructure for the management of impacts. Relevant policy documents,



action plans, and other materials were reviewed. These include Government policies, laws and institutional set ups in subjects of use, manufacture, handling, storage, and waste disposal of consumer products.

The range of the documents reviewed includes international documents and conventions. The purpose of this was to obtain reference point with which to judge Uganda's effort.

Further more, a literature survey was undertaken. This included in particular, UNEP materials on chemical safety, WHO health statements on named chemicals, and EPA (USA) materials. The purpose of this was to obtain world experience on the subject with which to assess the impacts and threats facing Uganda.

*Market Survey:* - In order to get a deeper understanding of the people's experiences, thoughts in-depth interviewing were carried out in all the accessible selected test population. The following aspects were e considered among others:

- Experience with consumer products
- General health and other social services accessed
- Common beliefs
- Health demoting behaviours and habits
- Awareness of laws and dangers of chemicals consumed or used
- Level of inspection and contact with competent authorities

The method of data collection was unstructured discussions, not longer than one and a half hour, with a probing question at the beginning. The venue was in the interviewee's respective place of work or home. The in-depth interviews were undertaken with individuals.

**Premises visits:** - Inspection type field visits to the premises of dealers of the products supported with administration of an in-depth questionnaire described above. Further more, some samples were procured and submitted for analysis.

**Site Examinations:** The general areas of the survey were examined by a walk-through tour with a view to assess the values that are being affected and to estimate the extent of damage in the event of further commercial development activities. Consultations and interviews with the community members, entrepreneurs and officials were then carried out in order to expand the observations and make inferences.

**Laboratory Analysis:**

Sample of water, fish and soil were submitted to the Government Analytical Laboratory and the results were submitted for this study.

**Sampling methodology:** - The survey was based on a probability sample, stratified by district and size of establishment. The sampling frame for selection of Establishments was the Business Register UBOS, 2007. A Business Register is a record of all active business establishments in a given area (or in the whole country) in a given period. Essentially, it contains structural information about each business that includes among others, name, economic activity, location and employment by gender, among other variables. Structural information on businesses is central to the collection of business statistics. This is because the information enables one to identify and describe more precisely each business participant in the economy. The study covered only four types of industries namely pharmacies, drug shops, saloons and markets. The number of sample size of establishments, allocated from each stratum, was proportional to the employment size. The activities indicated by employment size bands taken were 1-5; 6-10; the bigger district and smaller business had higher chance to be selected.

**Sample Size:** - The sample for the Study was estimated using the following formula:

$$n = \frac{z^2 pq}{d^2}$$

Where  $p=0.3$ ;  $q= (1-p) =0.6$ ;  $d=+/-5\%$  and  $z=1.96$ . This sample was intended to estimate the proportion of exposed population ( $p$ ) to which a 5% margin of error ( $d$ ) with 95% confidence limits ( $z$ ). A design effect of 1.5 was taken into consideration.

A sample size of 96 establishments was considered sufficient to achieve the purpose of the survey.

The table below gives the distribution of sampled Establishments

| Nature of premises       | Size of staff |      |     | Total |
|--------------------------|---------------|------|-----|-------|
|                          | 1-5           | 5-10 | 10+ |       |
| Pharmacies               | 5             | 1    | 0   | 6     |
| Drug Shops               | 11            | 3    | 0   | 14    |
| Saloons and beauty shops | 24            | 11   | 9   | 44    |
| Markets                  | 19            | 4    | 9   | 32    |
| Total                    | 69            | 19   | 18  | 96    |

**Training of Data collectors:** The data collectors or field research assistants were trained in Kampala for 2 days. The training focused on the objectives of the survey. The field research assistants were also instructed in the general principles and guidelines of conducting research including building rapport, asking and recording responses.

**Data Analysis and Management:** This having been a baseline survey meant to assess the impacts of chemical in consumer products on people and the environment, rigorous statistical techniques were not employed. Instead simple additions were employed to assess the number of responses to each particular question in the questionnaire and to build the picture of the situation. Salient phrases and quotations on emerging themes were reproduced verbatim and integrated in the report. Case study scenarios to demonstrate the impacts were reproduced in the report as appropriate.

## CHAPTER 3: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

The purpose of this chapter is to analyse the existing policy, legal and administrative framework for chemicals management.

### 3.1.1 The National Health Policy

In 1989 the first National Health Policy was finalized. It has since been revised. The health policy is in line with the Primary Health Care (PHC) of the Alma-Ata declaration of 1978. The PHC strategy seeks to integrate health development into the overall development through the following principles:-

- a) Equity: - Individuals to have equitable access to all means of achieving health.
- b) Participation: - Individuals and communities to participate in the decision-making, planning and implementation of activities aimed at improving their health.
- c) Multi-sectoral: - All sectors concerned must participate.
- d) Appropriate Technology: The employment of technology: The employment of technologies most suited for the communities.

The concern over hazardous chemicals in consumer products and their effects on health is not perceivable. Consequently the content of the health policy needs to be improved.

The approach of the policy goes some way to fulfil the critical cross-sectoral, multidisciplinary, participatory and consultative and holistic method of tackling consumer protection desire. However the level of participation and consultation at its formulation was not as high as that in the National Environment Management Policy. Integration here is therefore unsatisfactory. Consumer protection is not explicit.

### 3.1.2 National Health Sector Strategic Plan II (HSSP II) for 2005/06 – 2009

The country recently developed the **National Health Sector Strategic Plan II (HSSP II) for 2005/06 – 2009** to consolidate and extend issues in HSSP I. The overriding priority of the HSSP II is to fulfil the health sector contribution to the Poverty Eradication Action Plan (PEAP) and the Millennium Development Goals (MDGs). HSSP II emphasizes the role of communities and households

and seeks to foster a sense of individual ownership of health services. HSSP II specifically targets the poor, the orphans; children, women, the elderly, refugees and internally displaced persons among others. The HSSP II was developed as an implementation strategy for the National Health Policy.

This policy does not link to environment issues. It is also not explicit on consumer protection.

### 3.1.3 The Constitution of the Republic of Uganda

The parent legislative framework, which also drives the national policies, is the Constitution of the Republic of Uganda of 1995. This has several objectives and articles referring to environment:

Objective XII: *“The State shall protect important natural resources, including land, water, wetlands, minerals, oil, fauna and flora on behalf of the people of Uganda.”*

Objective XXI: *“The State shall take all practical measures to promote a good water management system at all levels.”*

Objective XXVII

- i. *The state shall promote sustainable development and public awareness of the need to manage land, air, water resources in a balanced and sustainable manner for the present and future generations.*
- ii. *The utilization of natural resources of Uganda shall be managed in such a way as to meet the development and environmental needs of the present and future generations of Ugandans and in particular, the State shall take possible measures to prevent or minimize damage and destruction to land, air and water resources resulting from pollution or other causes.*
- iii. *The State shall promote and implement energy policies that will ensure that peoples basic needs and those of environmental preservation are met*
- iv. *The State, including local governments, shall –*
  - a. *Create and develop parks, reserves, and recreation areas and ensure the conservation of natural resources,*

- b. *Promote the natural use of natural resources so as to safeguard and protect the bio-diversity of Uganda.*

Article 34 (4): *Children are entitled to be protected from social or economic exploitation and shall not be employed in or required to perform work that is likely to be hazardous or to interfere with their education or to be harmful to their health or physical, mental, spiritual, moral or social development.*

Article 39: *Every person has a right to a clean and healthy environment.*

Article 40(1): *Parliament shall enact laws –*

(c) *to provide for the right of persons to work under satisfactory, safe and healthy conditions;*

Article 245: *Parliament shall by law provide for measures intended: -*

- a) *To protect and preserve the environment from abuse, pollution and degradation;*
- b) *To manage the environment for sustainable development; and*
- c) *To promote environment awareness*

As regards support for the institutions responsible for service delivery, The National Objective V of the Constitution states:

*Fundamental and other human rights and freedoms:*

- i. *The State shall guarantee and respect institutions which are charged by the State with responsibility for protecting and promoting human rights by providing them with adequate resources to function effectively.*
- ii. *The State shall guarantee and respect the independence of non-governmental organisations, which protect and promote human rights.*

The Constitution emphasizes the respect for human rights and freedoms, affirms the equality of all persons, prohibits discrimination on the basis of sex, age, ethnic or other social status, and obligates the State to institute affirmative action measures in favour of poor and vulnerable persons for purposes of redressing structural and social inequalities.

It can be seen that the spirit and objectives of the Constitution are strong and adequate in protecting the citizens and uphold their rights and freedoms.

### 3.1.4 The National Environment Policy for Uganda (1994).

This is a clear national policy and programme on the environment as a specific subject.

The Overall Policy Goal: *“The overall policy goal is sustainable social and economic development, which maintains or enhances environmental quality and resource productivity on a long-term basis that meets the needs of the present generations without compromising the ability of future generations to meet their own needs.”*

Specifically, the policy seeks to meet the following objectives:

- Enhance the health and quality of life of all people in Uganda and promote long-term, sustainable socio-economic development through sound environmental and natural resource management and use;
- Integrate environmental concerns in all development policies, planning and activities at national, district and local levels, with full participation of the people;
- Conserve, preserve and restore ecosystems and maintain ecological processes and life support systems, especially conservation of national biological diversity;
- Optimise resource use and achieve a sustainable level of resource consumption;
- Raise public awareness to understand and appreciate linkages between environment and development; and
- Ensure individual and community participation in environmental improvement activities.

The policy is implemented by NEMA. It makes specific effort towards the control of pollution and concerns on consumer protection are within this aspect. It states under its section 3.9:

#### ***Control of Pollution and Management of Domestic and Industrial Waste and Hazardous Materials***

*Economic activities of industrial production, mining, agriculture, health, transport*

and education services, among others, are the main sources of pollution in the country. Environmental standards and laws on pollution management are still inadequate and/or non-existent in some areas. In addition, Uganda like most other developing countries does not yet have in place adequate waste disposal facilities.

### **Objective:**

To control the pollution of water, land and air from domestic, industrial and other emissions and discharges, and promote environmentally sound management of wastes and hazardous materials.

### **Guiding principles:**

- Discharges of substances that can be harmful should be minimized and where possible prevented;
- Pollution minimisation and prevention should be coordinated by a single agency;
- The “polluter pays” principle should be adopted whereby polluting industries and municipalities should pay a fee based on the location, nature, volume and chemical composition of the effluent which they discharge;
- Clear linkages to other sectoral policies including those on water resources, human settlements, health and disaster prevention and preparedness, should be established; and
- Adequate regulation of agricultural (crops and livestock) chemicals and other hazardous materials should be established and enforced.

### **Strategies**

- i. Establish environmental standards for permissible levels of pollution;
- ii. Strengthen institutional and technical capacities for waste management and enhance institutional coordination;
- iii. Develop and institute specific safety and health codes of practice and guidelines based on the hazard levels of various industry types;
- iv. Encourage better understanding of the effects of hazardous materials



*through provision of information in a form understandable to users; provide information on the appropriate methods and technologies for the treatment and disposal of wastes;*

- v. Formulate a national strategy on medical waste management and disposal and in particular carry out urgent rehabilitation of medical waste incinerators;*
- vi. Establish a system for monitoring compliance with water, land and air pollution control standards and regulation;*
- vii. Develop and strengthen technical capability for the monitoring and control of hazardous materials;*
- viii. Develop a national emergency/disaster preparedness plan and programs;*
- ix. Promote efficient waste minimisation including the efficient recycling of wastes;*
- x. Train and encourage farmers and extension workers in the safe use of agro-chemicals;*
- xi. Prepare environmental guidelines/legislation for the management of hazardous installations;*
- xii. Require waste generators to pre-treat their effluent according to established standards before discharge;*
- xiii. Establish safe limits for the location of water wells, boreholes and dams in the vicinity of major sanitary landfill sites;*
- xiv. Maintain an up-to-date register of toxic, hazardous and radioactive substances;*
- xv. Prescribe minimum standards of environmental safety of mining operations, including the development of mine contingency plans;*
- xvi. Stipulate procedures for the reclamation and restoration of land, top soil and vegetation of mined out areas and monitor the recovery of such areas;*

- xvii. *Prescribe regulations for the disposal of mine tailings and dumps in approved sites; and*
- xviii. *Maintain regular environmental audits to ensure the adoption of environmentally sound practices.”*

From the above, it can be seen that the policy covers all the general principles for the management of hazardous chemicals including in consumer products. This policy was developed (NEAP Process, 1991-1994) with cross-sectoral concerns in mind. The process was holistic, multi-disciplinary, multi-sectoral, consultative and participatory.

All the necessary linkages with other lead agencies are provided for in it. Its problem is lack of explicitness and specificity on consumer protection owing to the fact that it was meant to be a framework policy. It needs to be supported by specific and detailed sectoral and subject policies.

### **3.1.5 The National Environment Management Act Cap 153 LOU**

This Act, formerly known as the *Environment Management Statute No 4, 1995*, is currently the most significant law on the environment and the use of chemicals. It prohibits the discharge of hazardous substances into any part of the environment except with the guidelines of the National Environment Management Authority; prohibits pollution contrary to established standards; prohibits the illegal traffic of hazardous wastes; and gives any person generating hazardous wastes the duty of the management of his or her wastes. This is a fairly new law whose effect is just beginning to be felt.

According to it:

- No person shall discharge any hazardous substance, chemical, oil or mixture containing oil in any waters or any other segment of the environment except in accordance with guidelines prescribed by the authority (Section 56).
- No person shall pollute or lead any other person to pollute the environment contrary to any of the standards or guidelines prescribed or issued under the Act. (Section 57).
- Every developer of a project dealing in the processing and manufacturing industry whose activities include chemical works and mineral processing; waste disposal including major atmospheric emissions; offensive odours; sewage disposal; and any development which is out of the character of the surrounding will be required to

undergo an Environmental Impact Assessment (EIA) procedure before such a project can be executed (Sections 20-23). There are guidelines for carrying out the impact assessment and persons certified by the Authority must do the assessment. The assessment must be submitted to the Authority or a line agency for approval.

- Every person has the duty to manage any waste generated by his activities or the activities of those persons working under his direction in such a manner that he does not cause ill health to the person or damage the environment (Section 53).
- No person shall dispose of any waste whether generated within or outside Uganda except in accordance with this statute and as may be prescribed (refer to Part VI of the Act: Establishment of Environmental Standards).

Currently, many environmental standards have been prescribed, including standards for discharge of effluent into water; control of noxious smells, noise and vibrations. As a result of these, no person is allowed to pollute the environment contrary to the set standards.

Of particular concern are the *“The National Environment Standards (Discharge of Effluent into Water Or on Land) Regulations,”* 1998 (Under section 27 and 108 of the National Environment Act). According to this:

- i. Section 4.(1) *Every industry or establishment shall install anti-pollution equipment for the treatment of effluent and chemical discharge emanating from the industry or establishment.*
- ii. Section 4.(2) *An installation made under sub-regulation (1) shall be based on the best practicable means, environmentally sound practice or any other guidelines as the Executive Director may determine.*
- iii. Section 5.(1) *A lead agency applying the standards established under these regulations shall, as required by section 78 of the National Environment Act,:*
  - *Keep a record of the parameters of the discharges;*
  - *Submit the record referred to in paragraph (a) to the Executive Director and any other appropriate lead agency, every three months from the commencement of the activities for which the permit was issued;*
  - *Report to the Executive Director any abnormal discharge of effluent.*

- iv. Section 5. (2) *The Executive Director, on receiving the record under subregulation (1) may issue such guidelines, as he or she considers necessary under the circumstances.*
- v. Section 6.(1) *Any person who contravenes any provision of these Regulations commits an offence and is liable, on conviction, to the penalty prescribed under section 99 and any other provision of the National Environment Statute, 1995.*
- vi. Section 6.(2) *The Executive Director may, in addition to the penalty under sub-regulation (1) give direction on steps to be taken to mitigate the damage done as a result of the contravention and the person liable shall comply with the direction.*

Any person who wishes to pollute beyond the permitted standards will have to seek a pollution license, which costs scheduled fees.

Other guidelines under the Act include the

- i. *“The Environmental Impact Assessment Regulations (1998)”* under section 107 of the Act;
- ii. *“The National Environment (Waste Management) Regulations 1999”* under sections 52 and 107 of the Act;”
- iii. *“Environmental Audit Guidelines For Uganda (2006)”* under section 107 of the Act;
- iv. *“The National Environment (Minimum Standards for Management of Soil Quality)*
- v. *“The National Environment (Waste Management) Regulations 2001”* under sections 30 and 107 of the Act.
- vi. *“The National Environment (Conduct and Certification of Environmental Practitioners) Regulations 2003”* under section 107 of the Act.

The central agency set up under this law is the National Environment Management Authority (NEMA). NEMA, now a thirteen-year-old institution, is set up as a semi-autonomous agency of Government taking into account the country's environmental management needs, history and situation after extensive

consultations. NEMA is created and established under the Ministry of Water, and Environment. According to the Act,

*“The authority shall be the principal agency in Uganda for the management of the environment and shall co-ordinate and supervise all activities in the field of the environment.”*

The functions of the Authority are:

- a) to co-ordinate the implementation of Government policy and the decision of the Policy Committee;
- b) to ensure the integration of environmental concerns in overall national planning through co-ordination with the relevant ministries, departments and agencies of Government;
- c) to liaise with the private sector, intergovernmental organizations, non-governmental agencies and governmental agencies of other states on issues relating to the environment;
- d) to propose environmental policies and strategies to the Policy Committee;
- e) to initiate legislative proposals, standards and guidelines on the environment in accordance with this Act;
- f) to review and approve environmental impact assessments and environmental impact statements submitted in accordance with this Act or any other law;
- g) to promote public awareness through formal and non-formal education about environmental issues;
- h) to undertake such studies and submit such reports and recommendations with respect to the environment as the Government or the Policy Committee may consider necessary;
- i) to ensure observance of proper safeguards in the planning and execution of all development projects, including those already in existence that have or are likely to have significant impact on the environment determined in accordance with Part V of this Act;

- j) to undertake research and disseminate information about the environment;
- k) to prepare and disseminate a state of the environment report once in every two years;
- l) to mobilise, expedite and monitor resources for environmental management.
- m) to perform such other functions as the Government may assign to the Authority or as are incidental or conducive to the exercise by the Authority of any or all of the functions provided for under this Act.

Under the provisions of this law, stored agricultural or any other chemicals and ashes from incineration plants etc. that may contain hazardous chemicals must be disposed of appropriately as hazardous wastes.

Sections 80 and 81 set up Environment Inspectors to secure compliance with the legal provisions relating to environment with powers similar to those of the Occupational Safety and Health Inspectors. The scope of inspection covers both the biosphere and biota<sup>1</sup>:

- Air (Air quality standards - SS 25)
- Water (Water quality standards - SS 26)
- Soil (Soil quality standards - SS 31)
- Biodiversity (Guidelines - SS 42)
- Pollution (SS 58, 59, 60, 61.) Waste management (SS 33, 54, 55)  
Disaster preparedness (SS 67) Management of River banks (SS 35, 36)

Use of wetlands (SS 37) Land use management (SS 39, 40, 41) Conservation of biological resources (SS 42, 43, 44, 45, 46) Restoration orders (SS 68, 69, 70.) Records (SS 78)

This law covers the main concerns about the environment. However, having been designed as a framework law, it is general in approach. It is neither substance nor subject specific. Its focus is the general environment. It therefore does not

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<sup>1</sup> Environment is made up of the atmosphere, waters, soils (the biosphere); and the living organisms, animal and plant life, they sustain (biota). The biosphere and its biota are essential natural assets on which economic growth is based since they are directly used and indirectly service man and his interests. These should not be damaged by pollution beyond their natural ability to regenerate.

adequately cater for the consumer concerns over safety from chemicals in products they buy. It leaves a gap in the management of safety in consumer products.

### 3.1.6 The Food and Drugs Act Cap 278 LOU

The quality of the food, we eat, the drugs and cosmetics we use are under the purview of this Act. Under this Act, the sale of food or drugs that are unfit for human consumption is prohibited and offences are created:

*Section 2 (1) No person shall add any substance to food, use any substance as an ingredient in the preparation of food, abstract any constituent from food or subject food to any other process or treatment so as in any such case to render the food injurious to health, with intent that the food shall be sold for human consumption in that state.*

*Section 2(2) No person shall add any substance to, or abstract any constituent from, a drug so as to affect injuriously the quality, constitution or potency of the drug, with intent that the drug shall be sold in that state.*

*Section 2(3) Subject to this section, no person shall:-*

- a) Sell for human consumption, offer, expose or advertise for sale for human consumption, or have in his or her possession for the purpose of such sale, any food rendered injurious to health by means of any operation described in subsection (1); or*
- b) Sell, offer, expose or advertise for sale or have in his or her possession for the purpose of sale, any drug injuriously affected in its quality, constitution or potency by means of any operation described in subsection (2).*

*Section 2(4) Any person who contravenes any of the foregoing provisions of this section commits an offence and is liable on conviction to a fine not exceeding two thousand shillings or to imprisonment for a period not exceeding three months or to both such fine and imprisonment.*

Section 7 gives an authorised officer (defined in section 18) power to seize suspected food or drugs and prosecute the culprit under a magistrate's court. Section 9 gives the authorised officer powers to examine food or drugs in course of transit. Registration of premises used for manufacture, preparation

and handling of food and drugs is required under section 10. Registration can be cancelled or refused under section 12; reporting of cases of poisoning is required under section 13. The authorised officer has power to take samples and subject them to analysis by a public analyst and further has powers to enter premises (section 24) including ships, trains, aircraft, and vehicles e.t.c. for inspection and to restrict movement of imported food or drugs (section 26). Obstructing the activities of the authorised officer is an offence (section 27). The Act sets up a Food Hygiene Advisory Committee.

A variety of regulations and guidelines and standards can be made under section 41 (1) of the Act including regulations for storage and for labelling of food and drugs.

The Act is well intentioned and focussed on consumer protection. It contains all the essential requirements set up by the *Codex Alimentarius*. It however suffers from:

- i. Inadequate penalties for the offences it creates. A fine of two thousand shillings to date is meaningless and does not deter any criminal activities.
- ii. Lack of a list of prohibited chemicals that should be provided under section 41(1) For the purpose of consumer protection, it would be necessary to provide a list of ingredients in cosmetics, which may harm or cause injury to the users under normal conditions of use. The regulations under the Act should therefore require all manufacturers, importers, distributors, wholesalers, and retailers to make sure that they are only dealing with safe products and that the prohibited chemicals are absent.
- iii. Lack of current regulations, standards and guidelines.

### 3.1.7 National Drug Policy and Authority Act, Cap. 206 LOU

This act was enacted principally to establish the National Drug Policy and a National Authority to ensure the availability at all times of essential efficacious and cost-effective drugs to the entire population of Uganda as a means of providing satisfactory health care and safeguarding the use of drugs. Section 12 provides for restricted drugs listed in the First and Second Schedules<sup>2</sup> (Class

<sup>2</sup> MOH (2002) National Drug Policy and Authority Act Cap 206 *First Schedule* Class A drugs or narcotics, *Second Schedule* Class B drugs or controlled drugs, *Third Schedule* Class C licensed drugs, *Fourth Schedule* Exempted drugs and articles, *Fifth Schedule* Diseases as to which publication of descriptive matter is restricted or prohibited, *Sixth Schedule* Preparations that may



B or controlled drugs) and Third Schedule to the Act. It is in the Second and Third Schedules where there are POPs like Aldrin, Endrin, Toxaphene, and Methyl Bromide (Ozone Depleting Substance). Hazardous chemicals in consumer products could have been included here.

The Act provides for the establishment of a national formulary<sup>3</sup> made of the national list of essential drugs and such other drugs as the authority may from time to time approve. No person shall sell or import any drug unless it appears on the national formulary (Section 8). Part III provides for control of drug supply. The importation or sale of drugs not appearing on the National Formulary is prohibited.

Section 13, Sub Section 4(a). *“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”*

Under this Act, no person shall mix, compound, prepare, supply or dispense any restricted drug unless that person is a registered pharmacist, medical practitioner, dentist or veterinary surgeon or a licensed person. However, this section shall not prevent the supply of any drug, other than a drug of class A or B by a licensed seller (Sec. 13).

In its section 30 *-Impure drugs not to be supplied. Any person who—*

*Sells any drug, medical appliance or similar article which is not of the nature, substance and quality demanded or which, unless otherwise agreed at the time of demand, does not conform to the standards laid down in the authorised pharmacopoeia; or*

*Supplies any drug which is unwholesome or adulterated or which does not conform to the prescription under which it is supplied,*

*Commits an offence and is liable to a fine not exceeding five million shillings or to imprisonment for a term not exceeding ten years or to both.*

In its section 32, *Power to prohibit retail sale of proprietary drugs: The*

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be manufactured by, or under the supervision of, a duly qualified medical practitioner, *Seventh Schedule* Requirements as to the storage of classified drugs, and *Eighth Schedule* Consignment and transportation of classified drugs.

3 The formulary is a continually revised compilation of pharmaceuticals that reflects the current clinical judgment of medical staff

*authority may prohibit the sale by retail of a proprietary drug if, in the opinion of the authority—*

*Claims are made for the drug, whether or not in a statement furnished under section 31, which are unjustified;*

*The use of the drug may endanger the health of the user or there may be other undesirable effects in the use of the drug;*

*Details of the composition of the drug furnished under section 31 differ substantially from those disclosed on an analysis of samples of the drug obtained from retail suppliers; or*

*Descriptive matter published in relation to the drug differs substantially from that, whether or not in the same language, contained in copies furnished to the authority in relation to the drug under section 31.*

The Act establishes the National Drug Authority (NDA) as a drug regulatory body. The Authority is multisectoral as it consists of a Chairman and 19 members drawn from various disciplines and sectors with special relevance and interest in proper administration and management of drugs. This ensures the necessary multi-sectoral, multi-disciplinary, participatory and consultative approach so necessary for consumer protection.

NDA's role is to ensure that only high quality, efficacious and cost effective medicine (both human and veterinary) is availed to the population of Uganda.

This law takes care of health concerns as well as environmental issues. It further addresses concerns for working together with other agencies. It is however silent on cosmetics and the need to protect consumers from them. The continued appearance of fake drugs and expired drugs in the market indicates inadequate enforcement of this law.

### **3.1.8 Agricultural Chemicals (Control) Act No 1, 2007**

This is the only significant law directly governing the use of chemicals especially pesticides in agriculture in Uganda. Consequently it is relevant on concerns about on pesticide residues in food. Under this Act,

- No person shall manufacture, package, store, display, distribute, knowingly transport, be in possession of, advertise any agricultural chemical except in accordance with the Act.

- No person shall pack, label, or advertise any agricultural chemical 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.
- No person shall import into or sell within Uganda and use such chemicals without registration.

It sets up a multisectoral Agricultural Chemicals Board and requires registration of agricultural chemicals by this Board. It also sets up inspectors with powers to seize chemicals that are not used in accordance with the Act. The Act is implemented by the Department of Crop Protection in the Ministry of Agriculture, Animal Industry and Fisheries.

This law has made strong effort to ensure safe use of pesticides in particular, however it is not comprehensive, and is largely compartmentalised at operational level. It is crop protective and inadequate in some areas such as minimum standards of storage and chemical waste disposal and therefore needs to take cognisance of other laws and institutions in order to promote overall safe use of pesticides. There is a need to link it with other sector based laws on the environment in order to make it cross-sectoral with a view to achieve its good objective. It should link with the UNBS and spell out permissible pesticide residues in food as this would show concern about consumer protection.

### **3.1.9 The Occupational Safety and Health Act No 9 2006**

The handling of hazardous chemicals during manufacture, storage, transport and sale is in the purview of this Act. The purpose of the Act is to improve the working conditions of work people and in particular their safety, health, and the hygiene of their working environment - to ensure that they work in an environment, which is reasonably free from all hazards that can lead to injury and poor health.

The objectives of the Act are to:

- i. Secure the necessary safety, health and welfare of persons at work
- ii. Protect the workplace for persons other than persons at work against contamination arising out of or in connection with the activities of persons at work;

- iii. Control the keeping and use of chemical substances which may be explosive or highly flammable or toxic, otherwise dangerous substances, or generally preventing the unlawful acquisition, possession and use of such chemical substances at work;
- iv. Control the emission into the working environment of dangerous levels of physical forms of energy such as radiation, heat, noise and vibration, and light that are likely to cause damage or harm to the health of its occupants;
- v. Secure for every worker accessible health care that is mainly preventive and promotive but also curative and rehabilitative within or as near as possible to the workplace;
- vi. Encourage the worker to participate on his own safety and health care;
- vii. Ensure that new work and processes, machinery, substances of an undertaking be they indigenous or imported, are assessed for safety, health and environmental effects before they are allowed to be used;
- viii. Provide appropriate and practical guidance in form of guidance notes, codes of practice, and regulations;

It provides for the safety and health, of persons at work such as in factories, plantations and other workplaces where hazardous work may be found. It expands the scope of application beyond the “*factory*” into any “*work place*” where workers may be present for the purpose of work and may sustain injury and or disease in the course of their work. Pharmacies, salons, beauty shops and markets are therefore covered. It expands coverage of persons who may be injured beyond the “*employee*.”

It covers and protects both employed persons and self-employed persons. It further covers any person who may be legitimately present in the place of work at the time of work and so may be exposed to injury or disease; It also covers the general public in the “*area under the influence*” of the undertaking and defines it as

*“area under the influence of” includes any area where the fall of the contaminant released directly or indirectly from the undertaking may come to rest or be present and cause its deleterious effect whether in its original form or in a chemically modified form through natural processes having been carried there*

*by prevailing wind, rain water run-off or by any other natural agent and any area where dangerous levels of the contaminant may be present and cause its effects having been taken there through the effluent or other waste disposal methods used at the undertaking;”.*

It covers all branches of economic activity excluding domestic premises. This brings to its purview work in forest establishments, farms, and hotels without exception.

It spells out measures to be carried out before anyone operates a factory. This includes measures such as, the labelling of dangerous materials, guarding of dangerous machines, the training of persons to work at any dangerous machine, which may cause injury, disease and death, and the institution of organisational measures that are necessary to monitor and deal with safety and health at work. The Act spells out the duties and obligations of both employers and the employees in ensuring safety and health for all persons at workplaces. It points out the methods and measures that should be put in place to ensure safety, health and environment at work. It also creates inspectors who have the following powers in regard to workplaces:

- Enter freely without previous notice at any hour of day or night. any premises that they have reasonable cause to believe is liable to inspection.
- Carry out any examination, test or inquiry they consider necessary.
- Interrogate, alone or in presence of witness.
- Require the production of any necessary documentation.
- Enforce the posting of notices.
- Issue improvement orders
- Take or remove samples for analysis.
- Seize any item or stop any process not in compliance.
- Temporarily close a workplace when there is cause to believe that imminent danger exists if the premises continue to operate in the obtaining dangerous circumstances.
- Cause arrest of any person committing an offence.

The Act, in Section 13, puts the responsibility of protection of the worker and the general environment to the employer and he or she must take all measures to protect the worker and the general public from the dangerous aspects of his or her undertaking.

In its section 18,

“18. (1) *Where there is major handling of chemicals and such dangerous substances which are liable to be airborne or released into rivers lakes or soil and are a danger to the animal and plant life, it shall be the duty of the employer to arrange for equipment and apparatus used to monitor the air, soil, and water pollution and arrange for actual monitoring of these areas, with a view to render them safe from the dangerous undertaking.*

*(2) Records of such monitoring mentioned in sub-section (1) shall be kept and made available to the Inspector.”*

In its Section 95, it requires the employer to take all preventive measure including administrative and technical measures to prevent or reduce contamination of the working environment to the level of exposure limits specified by the Commissioner. In section 96 it requires the provision of chemical data sheets containing essential information regarding the identity of the chemical, its hazards, safety precautions, emergency procedures and its supplier. Under section 97 an employer shall ensure that the packages of hazardous chemicals are labelled and that the appropriate chemical data sheet is available in the workplace.

This Act provides for the safety, health and welfare of people at work in Uganda and establishes procedures for the administration of these matters.

This Act operationalises Articles 34(4); 39; and 40(1) (a) of the Constitution. It repeals the *Factories Act Cap 220*. It is administered by the Minister responsible for labour.

This Act covers the essential requirements of the *Codex Alimentarius*<sup>4</sup>. However it is general in addressing chemical safety. It is not subject specific on food, drugs and cosmetics. It has no linkages with other lead agencies that deal with consumer protection. It is compartmentalised, has no regulations and

4 The Codex Alimentarius Commission implements the Joint FAO/WHO Food Standards Programme, the purpose of which is to protect the health of consumers and to ensure fair practices in the food trade. The *Codex Alimentarius* (Latin, meaning Food Law or Code) is a collection of internationally adopted food standards presented in a uniform manner. It also includes provisions of an advisory nature in the form of codes of practice, guidelines and other recommended measures to assist in achieving the purposes of the *Codex Alimentarius*. According to the Commission, codes of practice provide useful checklists of requirements for national food control or enforcement authorities and so has developed many for the use of member countries. The publication of the *Codex Alimentarius* is intended to guide and promote the elaboration and establishment of definitions and requirements for foods, to assist in their harmonization and, in doing so, to facilitate international trade.

standards.

### **3.1.10 Uganda National Bureau of Standards Act Cap 237 LOU**

This law sets up the Uganda National Bureau of Standards (UNBS) whose objectives are to formulate and promote the use of National standards and to develop quality control and quality assurance systems that will enhance consumer protection, public health and safety, industrial and commercial development and international trade, among others. Its functions are:

- i. Promotion of standardisation in commerce, industry, safety, health and social welfare,
- ii. Requirements for certain products to meet certain standards in their manufacture, or production, composition treatment or performance and to prohibit substandard goods where necessary,
- iii. Enforcement of standards in protection of the public against harmful ingredients, dangerous components, poor quality materials and poor performance,
- iv. Making arrangements or provision of facilities for the testing or analysis of commodities and any material or substance, and the manner in which they may be manufactured, produced, processed or treated.
- v. Endorsement or adoption of any international or other countries' specification with or without any modification as suitable and desirable for Uganda,

Persons or institutions to whom permits have been issued by the regulatory body –UNBS in the form of a standards mark are required to observe the conditions for the permit, failure of which may lead to withdrawal, suspension, revocation or cancellation of the permit by the regulatory agency.

Section 21(1) prohibits any person to import, distribute, sell, manufacture or have in possession for sale or distribution any commodity for which a compulsory standard specification has been declared unless such commodity conforms to the compulsory standard or unless the commodity bears a distinctive mark.

UNBS is a member of the International Organization for Standardization (ISO) and also a member of the Africa Regional Organization for Standardization (ARSO). UNBS is the National contact point for FAO/WHO Codex Alimentarius Commission, which is responsible for the Worldwide Food Standards Programme. It is also the enquiry point responsible for World Trade Organization (WTO) with respect to the Agreements on Technical Barriers to Trade (TBT) and on

## Application of Sanitary and Phyto-sanitary Measures (SPS).

UNBS has adopted the ISO 9000 Quality Management and Quality Assurance series of International Standards as Uganda Standards and US ISO 9000 for quality management systems (QMS). The UNBS has established a method of assessment and certification of QMS in the manufacturing and service industries. This is an essential mechanism to build quality at every stage and assure the production of goods and services of consistent quality.

The certification and registration of quality management system by UNBS demonstrates that the management practices of an enterprise have been audited by an independent third party and found satisfactory.

Because of the above named roles, UNBS occupies a critical position in the struggle for consumer protection. However, much as it has made efforts to fight fake products in the Uganda market, this effort is a drop in the ocean. The implementation of its mandate is inadequate. This is an administrative problem and not legal.

### 3.1.11 External Trade Act, Cap 88 LOU

This is an Act to make provisions for the regulation of external trade and other matters incidental thereto and connected therewith.

Section 3 provides for the restriction on certain imports in the following ways;

- Subsection (1) *“The Minister may from time to time by statutory order prohibit the import of any class of goods without a license granted under this section”*
- Subsection (2) *“No license shall be granted by the Minister for the import of any import restricted goods if in his or her opinion the import of the goods would or would be likely to prejudice any agreement or arrangement in respect of external or internal trade or currency entered into or approved by or on behalf of the Government”*.
- Subsection (3) *“The Minister shall make any license granted under this section subject to such conditions as he or she shall think necessary in order to ensure conformity with any agreement or arrangement in respect of external or internal trade or currency entered into or approved by or on behalf of the Government”*.
- Section 8 gives powers to the Minister, by statutory order to prohibit absolutely, or reserve exclusively to any person, the import or export of



any goods or limit the import or export of any goods from or to any country if in his or her opinion such action is in the interest of Uganda or, as the case may be, any other part of the Commonwealth and may, for the same reason, make by statutory order, any such imports or exports subject to such conditions as he or she may think fit.

This Act is relevant as it can be used effectively to prevent entry of unfit consumer products from entering Uganda. However this has not happened yet. It requires the production of regulation and guidelines to make it usable for this purpose. It is not adequately enforced owing to administrative weaknesses.

### **3.1.12 The Public Health Act Cap 281 LOU**

The Act provides for prevention of diseases to the public arising from poor sanitation, and pollution of the environment. Consumer products that contain hazardous chemicals therefore cause disease also fall under this Act.

It regulates the use of chemicals for public health and sets up the Health Inspectorate to ensure compliance. It also sets up the drainage and Sanitation Rules, which specifically mention technical aspects of waste disposal. This is the most far-reaching Act in this subject. The Public Health Act prohibits throwing or emptying any matter likely to injure public sewers or drain or interfere with the free flow of the contents of sewers into a public sewer.

Any chemical refuse or waste steam, or liquid of a temperature higher than 100° F, which is dangerous or can cause a nuisance or is prejudicial to health, is prohibited.

*Section 12: "Powers of medical officer of health to inspect premises and persons.: A medical officer of health may at any time enter and inspect any premises in which he or she has reason to believe that any person suffering or who has recently suffered from any infectious disease is or has recently been present, or any inmate of which has recently been exposed to the infection of any infectious disease, and may medically examine any person in the premises for the purpose of ascertaining whether the person is suffering or has recently suffered from or is a carrier of any such disease and may cause a post-mortem examination to be made on any corpse for the purpose of ascertaining if the cause of death has been any infectious disease."*

A person who contravenes any of the provisions is guilty of an offence and is liable on conviction to a fine not exceeding Shillings 1000 for each day on which the offence continues after conviction. The fine of shillings 1000 (about 0.6 of a US Dollar) is ineffective and so is currently under review.

- Under Section 82, an owner or occupier of a premise is entitled as of right to have his drains made to communicate with any available public sewer and discharge soil and waste water and storm water from those premises.
- No entitlement is given to discharge any liquid from a manufacturing process or any liquid from a factory except by agreement with the local authority.
- Section 105 imposes a duty on the local authority to take measures to prevent any pollution dangerous to health of any water supply which the public has a right to use for drinking or domestic purposes.
- Section 139 prescribes for contravention of any provision of the Act by a company. The Manager or Secretary may be held liable for such contravention.
- Under Rule 15 of the Public Health Rules (Statutory Instrument 269-11) no person is allowed to cause or permit discharge or overflow from any septic tank or any like receptacle of sewage or drainage to communicate in any way with a public sewer.
- Under Rule 76, no person is permitted to construct or carry out any drainage work unless in possession of a license from the licensing authority (the Kampala City Council). The Act is enforced by the local authorities and urban authorities.

*(The Drainage and Sanitation Rules apply to municipalities, towns, trading centres and factories wherever situated. The Rules provide how to connect to a public sewer and spell out specifications and detailed requirements.)*

### **3.1.13 The Public Health Act: Building Rules**

These provide standards for buildings and may be used to ensure correct management of ventilation, gaseous, liquid and solid emissions into the

environment from buildings in connection with chemicals.

Under Rule 6, every person who intends to erect or make any alterations to a building shall give notice to the local authority in writing of his intentions. This should specify the class or nature of the building and its use, materials to be used sanitary fittings, water fittings, and machinery intended to be installed. Elevation drawings are required.

The Public Health Act is a fairly old law and has no mechanisms in it for cross linkages with other agencies, collaboration, or multisectoral approach to chemical safety matters. The Ministry of Health is revising it and it is very important that it should be properly enforced after its revision. The Ministries of Justice, health and Local government take the lead in this revision. However this is the time to ensure the necessary coordination and integration aspect into it. Other sectors including CSOs concerned with consumer protection should now become participants.

#### **3.1.14 The Specified Goods (Conveyance) Act Cap 349 LOU**

This law provides for the control of the means of conveyance of certain goods to and from neighbouring countries in the region including Kenya, Rwanda, the Democratic Republic of Congo and Sudan. The law specifies only petroleum products and lubricants among goods listed for which specific conveyance from or through the country is prescribed by statutory instrument.

This Act does not mention food, drugs and cosmetics and yet this is an essential avenue for controlling dangerous imports. It has no mechanism for cross cutting issues. It is a compartmentalised Act. It is also a potentially usable law.

#### **3.1.15 Inland Water Transport (Control) Act Cap 356 LOU**

The law provides for regulation of use of inland waterways by way of licensing all parties using the waterway for conveyance of goods. The law makes for provisions for institution of a Board, which oversees the safety of the waterways. The Board has the powers to classify and recommend goods, which may or may not be transported on the waterway. This however has not been done for hazardous consumer products.

#### **3.1.16 Roads Act Cap 345 LOU**

The Act provides for the establishment of road reserves and for maintenance of the roads. It is silent on issues concerning transportation and illegal dumping

of toxic/dangerous or hazardous chemicals. It needs to be specifically adjusted for this purpose.

### **3.1.17 The Investment Code Act Cap 92 LOU**

The law relates to all investments in Uganda for both local and foreign investors and establishes a body to oversee them – the Uganda Investment Authority. This promotes, facilitates and supervises all the investments as they are undertaken. Chemical and pharmaceutical industries are among the priority investments identified in the Act. Investors are advised to ensure that their operations do not cause harm to the environment. Upon infringement on this basic requirement, the Authority will put the complaint in writing, failure of which may lead to the cancellation of the licence to operate.

### **3.1.18 The Mining Act, 2003**

The Mining Act requires duty holders- persons holding exploration licences or a mining lease to ensure that their activities are carried out after carrying out an Environment Impact Assessment (EIA) (S 108(1)), an annual environment audit (EA) (S.108 (3)) and only commence the activities to be undertaken after securing a certificate of approval of the said activities from the Lead Agency –NEMA. If there was mining of any of the toxic metals in Uganda, this Act would be the basis for controlling pollution from such activity. It is however not prepared for this role.

### **3.1.19 The Land Act Cap 227 LOU**

The Land Act sets out clearly the obligations of the duty holders that “utilisation of the land shall be managed and utilised in accordance with the Forests Act, the Mining Act, the National Environment Act, the Water Act, the Uganda Wildlife Act and any other law (S 43)”. This is a welcome legal mention of the necessary cross-sectoral collaboration in tackling environmental land issues. This would only address waste disposal in so far as preventing soil pollution from hazardous chemicals. It does not address the subject of consumer protection beyond this. Yet it is known that root crops and vegetables grown on soils pollutes with toxic metals contain dangerous amounts of those metals.

### **3.1.20 The Ratification of Treaties Act Cap 204 LOU**

This law provides modalities for Uganda to ratify international instruments some of which require constitutional provisions while others do not. Cabinet

approves those instruments, which are in line with the Constitution of Uganda. In line with this, Uganda has ratified the essential international instruments.

## **3.2 International Instruments**

### **3.2.1 The Universal Declaration of Human Rights**

Article 25, paragraph 1 of the *Universal Declaration of Human Rights* provides that each person has the right to a standard of living that ensures the health and well-being of the self and one's family, especially for medical care as well as for the necessary social services. It adds that every person has the right to security in case of unemployment, sickness, disability (...) or in case of loss of earnings due to circumstances beyond the person's control. Uganda is a member to this instrument and so Ugandan consumers have a right to protection against harmful commercial products.

### **3.2.2 The Codex Alimentarius Commission And The FAO/WHO Food Standards Programme**

This is the main authority on the consumer protection subject. The Codex Alimentarius Commission is an intergovernmental body with over 170 members, within the framework of the Joint Food Standards Programme established by the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO), with the purpose of protecting the health of consumers and ensuring fair practices in the food trade.

The Codex Alimentarius Commission implements the Joint FAO/WHO Food Standards Programme, the purpose of which is to protect the health of consumers and to ensure fair practices in the food trade. The *Codex Alimentarius* (Latin, meaning Food Law or Code) is a collection of internationally adopted food standards presented in a uniform manner. It also includes provisions of an advisory nature in the form of codes of practice, guidelines and other recommended measures to assist in achieving the purposes of the *Codex Alimentarius*. According to the Commission, codes of practice provide useful checklists of requirements for national food control or enforcement authorities and so has developed many for the use of member countries. The publication of the *Codex Alimentarius* is intended to guide and promote the elaboration and establishment of definitions and requirements for foods, to assist in their harmonization and, in doing so, to facilitate international trade.

Uganda is a member of this organisation and the UNBS is the focal point.

### 3.2.3 Other Arrangements: The FAO/WHO Food Standards Programme

At international level, considerable effort has been undertaken to ensure the chemical safety of food supplies. Two joint FAO/WHO committees have, over a period of three decades, evaluated a large number of food chemicals including Genetically Modified foods. The Joint FAO/WHO Expert Committee on Food Additives (JECFA) evaluates food additives, contaminants and veterinary drug residues, and the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) evaluates pesticide residues. Recommendations are made on the acceptable daily intake (ADI), on maximum residue levels (MRLs) and maximum levels (MLs). Based on these recommendations, the Codex Alimentarius Commission and governments establish food standards and safe levels for these substances in foodstuffs. Moreover, the Joint UNEP/FAO/WHO Food Contamination Monitoring Programme (GEMS/Food) provides information on the levels of contaminants in food and on time trends of contamination, enabling preventive and control measures.

Further more, there are European Union (EU) Regulations on consumer products and on POPs. Uganda trades with the European countries and exports agricultural products to them. Any inaction on Uganda's part could have adverse impacts because the presence of residues of pollutants in the export products may adversely affect our access to the European market with dire consequences to our economic growth.

On the general subject of chemical safety, Uganda has in the past participated in meetings of the United Nations such as the United Nations Conference on Human Environment held in Stockholm in 1972, the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992 and the recently held World Summit on Environment and Development (Rio+10) held in Johannesburg.

Uganda is a party to the Rotterdam Convention on the Prior informed Consent procedure, the Stockholm Convention on Persistent Organic Pollutants and has signed and ratified the Vienna Convention on the Protection of the Ozone Layer, Montreal protocol on substances that deplete the ozone layer, the Basel Convention on the control of transboundary movement of hazardous wastes, the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change.

While Uganda is signatory to several conventions and agreements related to the management of chemicals, the national implementation of the principles of these agreements can not be said to be excellent. Areas where there has been

some amount of activity has been the Basel Convention, Montreal Protocol, as well as the Framework Convention on Climate Change.

Some areas of activity can be mentioned: Uganda (with international and donor support) has undertaken projects to phase out and recycle refrigerants; undertaken the training of target groups on hazardous waste management; has just completed the preparation of the National Implementation Plan for POPs under the Stockholm Convention (2008); and right now under one of the main priorities for UNEP Chemicals at present, Strategic Approach to International Chemicals Management (SAICM) Uganda is preparing and inventory.

## CHAPTER 4: FINDINGS AND OBSERVATIONS

### 4.1 Legislation

For the purposes of this section, *legislation* includes acts, regulations, requirements or procedures, issued by public authorities, related to foodstuffs, drugs and cosmetics and covering the protection of public health, the protection of consumers and conditions of fair-trading.

Legislation also includes provisions as appropriate for the registration of establishments or listing of certified processing plants, establishment approval, licensing or registration of traders, equipment design approval, and penalties in the event of non-compliance, coding requirements and charging of fees.

The effectiveness of controls related to food, drugs and cosmetics depends on the quality and completeness of legislation. Legislation should provide authority to carry out controls at all stages of production, manufacture, importation, processing, storage, transportation, distribution and trade. According to the *Codex Alimentarius*, legislation for consumer protection should provide the competent authority with the ability to:

- i. Appoint authorised officers;
- ii. Require prior notification of the importation of a consignment of a foodstuff;
- iii. Require documentation;
- iv. Inspect, including the authority to enter premises within the importing country, physically examine the food and its packaging; collect samples and initiate analytical testing; inspection of documentation provided by an exporting country authority, exporter or importer; and verification of product identity against documentary attestations;
- v. Apply risk-based sampling plans, taking into consideration the compliance history of the particular food, the validity of accompanying certification, and other relevant information;
- vi. Charge fees for the inspection of consignments and sample analysis;
- vii. Recognize accredited or accredit laboratories;
- viii. Accept; reject; detain; destroy; order to destroy; order reconditioning, processing, or re-export; return to country of export; designate as non-food use;



- ix. Recall consignments following importation;
- x. Retain control over consignments in transit during intra-national transport or during storage prior to import clearance; and,
- xi. Implement administrative and/or judicial measures when the specific requirements are not satisfied.

In addition, the legislation should make provisions for:

- i. Licensing or registration of importers;
- ii. Recognition of verification systems used by importers;
- iii. An appeal mechanism against official actions;
- iv. Assessing the control system of the exporting country; and
- v. Certification and/or inspection arrangements with competent authorities of exporting countries.

*Satisfactory provisions:* When Uganda's legal framework is examined against the *Codex Alimentarius*, it is found that the provisions that exist in the many laws cited above and especially in the:

- *Food and Drugs Act Cap 278 LOU;*
- *National Drug Policy and Authority Act, Cap. 206 LOU;*
- *Public Health Act Cap 281 LOU;*
- *National Environment Act, Cap 153, LOU;*
- *Uganda National Bureau of Standards Act Cap 237 LOU*

Contain these crucial provisions and so constitute a major satisfactory effort towards the requirements of the *Codex Alimentarius*. Other laws:

- *The Control of Agricultural Chemicals Act No 1 2007;* and
- *Occupational Safety and Health Act No 9 2006*

Also contain serious measures that can be used for the management of concerns about consumer protection. A major effort has also been made by NEMA to develop standards for priority areas as required by the Environment Act. In so doing, NEMA has put in place standards against which to judge pollution status as laid down in the laws. These efforts together go a long way to meet the concern of consumer protection and the environment. However the national laws fall short of prohibiting, eliminating or outright banning of hazardous chemicals in consumer products. The *East African Community Customs Act*, which prohibits some chemicals would have rescued the situation however it does not also specify the chemicals such as cadmium,

lead, mercury, hydroquinones etc that also need to be prohibited.

*Significant level of effort:* Government has made significant effort. Government has the fundamental responsibility to ensure by official inspection and certification the conformity of foodstuffs, drugs and cosmetics to regulatory requirements. This is achieved through technical, legislative and administrative measures. The object of legislation is to provide the basis and the authority for operating a consumer product import and control system. The legal framework allows for the establishment of the competent authority (ies) and the processes and procedures required to verify the conformity of imported products against requirements.

*Presence of linkages:* The necessary multi-sectoral linkages and coordination in the environment sector are reasonably achieved. *The National Environment Management Act* takes into account the need for a holistic approach from the point of view of the environment. This law created a multi-sectoral coordinating mechanism vertically and horizontally. To do this it established *The Policy Committee on the Environment (PCE)* for high-level policy and political oversight of the Authority and to provide multi-sectoral coordination at the highest possible level of Government and in addition provide the highest forum for conflict resolution in case it occurs between sectors. It makes formal arrangements for formalised working relationship with the respective ministries, districts and communities. NEMA, NFA, and UWA work cross-sectorally and with districts and communities. These arrangements however have not focussed on consumer concerns.

*Inadequate linkages:* Other than NEMA, the institutions set up in the legislations are by large compartmentalized without legal requirement for them to consult or work together on any subject. The cooperation that exists is informal. As a result they have inadequate linkages, poor communication and coordination between them and this leads to unharmonised and incompatible data and contributes to ineffective enforcement. Consumer protection as the subject of concern on the other hand demands multi-sectoral and multidisciplinary and synergic action. This situation calls for legal and administrative improvement of linkages and therefore calls for a major exercise to identify, revise, amplify, consolidate, harmonise and make specific the necessary linkages in the laws.

*Patchy coverage:* Despite the good effort and intentions resulting in existence of reasonable provisions, the older of the laws carry the thinking of the 1950s; a time when the technology, environment and health effects had not become so prominent and were apparently innocent. Correspondingly the legislation is, in

many areas, outdated and patchy in dealing with present problems in consumer protection.

*Inadequate coordination:* Consumer protection management operations involve many independent participants usually operating in a situation of urgency. They therefore need a high level of co-ordination. This system is inadequate. Consequently it is necessary to develop a system with high ability to co-ordinate these operations.

*Lack of specificity and explicitness:* The core national laws that are in place are “framework” or “umbrella” laws that were designed to deal with the general subject of chemical safety from hazardous chemicals and so are general in nature. While some legislation needs to be enabling and bringing out principles of chemical safety as the current laws are, there is also need for explicit, detailed and specific legislation targeted on exceptionally toxic chemicals such as pesticides, asbestos, carcinogens, heavy metals, allergens, PCBs, benzene on one hand, and also targeting various subject areas such as food, drugs, cosmetics.

There are no substance and subject specific provisions, regulations, standards, and guidelines and manuals dedicated to various subjects of consumer protection management. While the current effort goes a long way to meet the general requirements of the *Codex Alimentarius*, this leaves matters to be subjectively interpreted or extrapolated and so leaves consumer concerns unfulfilled.

*Lack of mainstreaming strategy:* The above situation calls for mainstreaming of consumer protection into all other main laws and development of dedicated explicit subject specific regulations, standards, and guidelines on the subject covering their entry, transport, storage, handling, use, and disposal within the existing framework laws.

Main streaming here means effective integration of crosscutting policy themes such as protection against toxic chemicals, rights, environment, HIV/AIDS etc. in a manner that ensures that they are integral to all development decisions and interventions in whichever lead agency they originate from. Mainstreaming is both a strategy and an action. This is the way to go.

To achieve this requires a serious study and review of the entire environment related laws in order to mainstream concerns over consumers. In particular, the *Control of Agricultural Chemicals Act* and the *Occupational Safety and Health Act*, which contain serious measures of management of toxic chemicals, should move further and have definite standards, and regulations and guidance documents

on consumer protection under their own provisions as output of mainstreaming exercise. They need technical assistance to do this.

*Lack of provisions on Genetically Modified (GM) Products:* Of all the present legislation, none mentions GM products. This implies that there is no direct legal protection on this subject.

*Inadequate enforcement:* A serious concern is the inadequate enforcement of the currently available laws (and policies). This is partly due to the provisions in laws that set up the weak and compartmentalised institutions. It is necessary to build a well funded; multisectoral, multidisciplinary, consultative and participatory approach into the law. There is a need to increase the number of inspectors in each relevant institution so that they are enough for the size of task at hand and to make them independent enough to make judgement.

## **4.2 Institutional Weaknesses**

The national competent authority especially for an importing country should have the ability to enforce and take action on any part of the chain based on adequate legislation. It should take all necessary steps to insure the integrity, impartiality and independence of official inspection systems and officially recognized inspection systems and to ensure that the inspection programme contained in national legislation is delivered to a prescribed standard.

The main competent authorities are the Ministry of Trade, Tourism and Industry; the Ministry of Health; the Ministry of Agriculture, Animal Industry and Fisheries; the Ministry of Gender, Labour and Social Development; and the NDA, UNBS, NEMA. All these are inadequately funded, inadequately staffed, inadequately equipped and so they lack the capacity to implement the laws in place.

### **4.2.1 Incomplete elements of the system**

According to the *Codex Alimentarius*, the elements of a control programme should include, as appropriate:

- i. Inspection;
- ii. Sampling and analysis;
- iii. Checks on hygiene, including personal cleanliness and clothing;
- iv. Examination of written and other records;
- v. Examination of the results of any verification systems operated by the establishment;

- vi. Audit of establishments by the national competent authority;
- vii. National audit and verification of the control programme.

Administrative procedures should be in place to ensure that controls by the inspection system are carried out: However the extent of fulfilment of these requirements is poor as seen in the laws and institutions they set up.

- i. Regularly in proportion to risk;
- ii. Where non-compliance is suspected;
- iii. In a co-ordinated manner between different authorities, if several exist.

As is mentioned later, coordination and collaboration among agencies is inadequate.

Controls should cover, as appropriate:

- i. Establishments, installations, means of transport, equipment and material;
- ii. Raw materials, ingredients, technological aids and other products used for the preparation and production of foodstuffs;
- iii. Semi-finished and finished products;
- iv. Materials and objects intended to come into contact with foodstuffs;
- v. Cleaning and maintenance products and processes, and pesticides;
- vi. Processes used for the manufacture or processing of foodstuffs;
- vii. The application and integrity of health, grading and certification marks;
- viii. Preserving methods;
- ix. Labelling integrity and claims.

The elements of the control programme should be formally documented including methods and techniques. Viewing all these requirements in totality, it appears that the competent authorities are unable to satisfy the consumer's demands for protection service in this area.

#### **4.2.2 Inadequate Facilities, equipment, transportation and communications**

Of all the lead agencies, no one has adequate facilities. Inspection staff should have access to adequate facilities and equipment to undertake inspection procedures and methodologies. Reliable transportation and communication systems are essential to ensure delivery of inspection and certification services when and where they are needed and for the transmission of samples to laboratories.

Communications facilities should be provided to ensure adequate compliance action and to address potential recalls. Consideration should be given to developing electronic information exchange systems, in particular to facilitate trade, protect consumer health, and to combat fraud.

The inadequate funding extended to the institutions denies them access to the facilities that would make them effective.

### **4.2.3 Inadequate laboratory services**

The ultimate goal of protecting consumers and at the same time have fair practice in international trade depends, among other things, on the reliability of analytical results. This in turn, particularly in food, drugs and cosmetic analysis, depends not only on the availability of reliable analytical methods, but also on the experience of the analyst and on the maintenance of good practice in the analysis of trace substances.

Trace or residue analysis consists of a chain of procedures, most of which are known, or readily understood, by a trained chemist, but because the analyte concentrations are in the range  $\mu\text{g}/\text{kg}$  to  $\text{mg}/\text{kg}$  and because the analyses can be challenging, attention to detail is essential. The analyst in charge should have an appropriate professional qualification and be experienced and competent in residue analysis. Staff must be fully trained and experienced in the correct use of apparatus and in appropriate laboratory skills.

The performance of laboratories is reviewed against the ISO17025: 2005. The laboratory requires adequate clean controlled atmosphere, reliable supplies of electricity and suitable quality water. Adequate supplies of reagents, solvents, gas, glassware, chromatographic materials, etc., of suitable quality are essential. Chromatographic equipment, balances, spectrophotometers etc. must be serviced and calibrated regularly and a record of all servicing/repairs must be maintained for every such item of equipment.

Calibration is essential for equipment performing measurements. Calibration curves and comparison with standards may suffice. Regular calibration and re-calibration of measuring equipment must be done where the possible change in nominal value may significantly contribute to the uncertainty of the measurement. Balances and automated pipettes/ dispensers and similar equipment must be calibrated regularly. The operating temperatures of refrigerators and freezers should be continually monitored or be checked at specified intervals. All records

should be kept up-to-date and retained.

All laboratories require reference standards of known and acceptably high purity.

Analytical standards should be available for all parent compounds for which the laboratory is monitoring samples, as well as those metabolites that are included in MRLs. All analytical standards, stock solutions and reagents should be properly labelled including preparation date, analyst's identification, solvent used, storage conditions employed, and those compounds whose integrity could be influenced by derivative processes must be clearly labelled with an expiry date and stored under appropriate conditions. Reference standards must be kept under conditions that will minimise the rate of degradation, e.g. low temperature, exclusion of moisture and light. Equal care must be taken that standard solutions of pesticides are not decomposed by the effect of light or heat during storage or become concentrated by solvent evaporation.

Laboratories also require Standard Operating Procedures (SOPs). SOPs should be used for all operations. The SOPs should contain full working instructions as well as information on applicability, expected performance, internal quality control (performance verification) requirements and calculation of results. It should also contain information on any hazards arising from the method, from standards or from reagents. SOPs are not readily observable currently.

Inspection services should utilize laboratories that are evaluated and/or accredited under officially recognized programmes to ensure that adequate quality controls are in place to provide for the reliability of test results. Validated analytical methods should be used wherever available.

Inspection systems' laboratories should apply the principles of internationally accepted quality assurance techniques to ensure the reliability of analytical results.

The leading laboratory for aquatic foods is at Jinja Fisheries Research Institute, which is dedicated to fisheries research. This laboratory was strengthened in 2004 to monitor the quality of fish being exported to Europe. The particular area of strengthening was monitoring for organochlorines and mercury with a view to satisfy the stringent standards required by the fish market in the European Union. It has carried out routine quality assurance monitoring for DDT, DDD, DDE and mercury in fish for export.

There are several analytical laboratories in the country. The leading ones are the Government Analytical Laboratory (formerly the Government Chemist) at

Wandegeya, Kampala. The laboratory of the National Bureau of Standards, the analytical laboratory of the Department of Chemistry at Makerere University, Kampala and that of the Directorate of Water Development. These are of reasonable capability. Chemiphar is the only private commercial laboratory in the trace analysis category.

When examined against these standards, all these laboratories are inadequate in modern equipments and are manned by unmotivated scientists without the necessary funding. With the current inadequate funding of laboratories, and the unreliable power supply to them, the available laboratories have difficulties in measuring up to the above named requirements. Working together with USAID, there are activities to improve the ability of the National Drug Quality Control (NDQCL) Laboratory with equipment that would best serve the needs of the NDA for testing anti-malarial medicine and insecticides. This can be extended for other drugs as well.

#### **4.2.4 Inadequate Working documents and procedures**

According to the *Codex Alimentarius*, the working documents also include any checklists of elements to evaluate. Such checklists may cover:

- i. Legislation and policy;
- ii. Establishment structure and working procedures;
- iii. The adequacy of inspection and sampling coverage and inspection standards;
- iv. Sampling plans and results;
- v. Certification criteria;
- vi. Compliance action and procedures;
- vii. Reporting and complaint procedures;
- viii. Training of inspectors.

While the above named institutions are established with reasonable functions on paper, the institutional execution of these functions is inadequate. There is inadequacy in providing effective programs and activities to implement safety, health and environment measures, particularly in activities related to consumer protection. This calls for renewed effort on chemical safety in the institutions with special reference to consumer protection.

The main constraint and requirement for this is funding for awareness campaign as well as for human resource capacity building.

The country's ability to plan, implement, and evaluate activities in consumer protection is relatively weak. Institutional set-ups are very sectoral with



inadequate coordination, which leads to rivalry, waste and duplication of effort. Moreover, the present institutional arrangements do not facilitate the interdisciplinary approach required for improved consumer protection and natural resource management.

Further more, widespread local participation in consumer protection management has been traditionally weak. Gender, cultural and traditional values have not been interpreted into policies, planning and the decision making process in general.

#### 4.2.5 Deficiencies in professional capacity

Official inspection services should have, or have access to, a sufficient number of qualified personnel as appropriate in areas such as: food science and technology, chemistry, biochemistry, microbiology, veterinary science, human medicine, epidemiology, agronomic engineering, quality assurance, audit and law. Personnel should be capable and appropriately trained in the operation of food, drugs, cosmetics inspection and control systems. They should have a status, which ensures their impartiality, and have no direct commercial interest in the products or establishments being inspected or certified.

The main institutions set up under the core cited laws are: NDA, UNBS, NEMA. The others are ministries and Departments.

There is weakness in professional capacity stemming from two sources. First, the majority of trained personnel have a discipline bias and tend to focus only on their particular areas of specialisation. They are compartmentalised. As a result, there is a need to re-orient them to enable them to apply their knowledge of their respective disciplines to consumer protection management in a more holistic manner. Second, current University and other tertiary programs lack critical concerns in the subject as a result; the training they provide to personnel is inadequate.

When a trace analysis laboratory is set up, its staff should spend some of their training period attached to a well-established laboratory where experienced advice and training is available. If the laboratory is to be involved in the analysis for a wide range of trace substances, it may be necessary for the staff to gain experience in more than one expert laboratory. This situation has not been satisfied.

### 4.3 Market Situation

**Labelling:** Product labelling is the primary means of communication between the

producer and seller of product on one hand, and the purchaser and consumer of the other. It is therefore crucial. Of the 96 places surveyed, 83 places (87%) had satisfactory labels.

The remaining 13% didn't. The labels were falling off and some were in Arabic or Chinese characters and therefore were not communicative to the clients. This situation indicates foul play. Lack of labels may be a result of smuggling and requisite disguise of contents.

**Awareness of laws:** Of the 96 respondents, all the 96 (100%) knew that there are laws governing their activities. The main provision they know is the one requiring them to have a valid operating licence. However when pushed to identify the law, only 5 interviewees, all from top pharmacies, (5.5%) could identify one law (National Drug Policy and Authority Act, Cap. 206 LOU). The rest could not state any law thereby revealing significant ignorance of the laws in the sector.

**Inspections:** Of the 96 interviewees, 11 persons (12%) recalled having been visited once by inspectors in the last 12 months. The inspectors sited were from NDA and UNBS asking for expired articles on sale. 18 persons (19%) recalled having been visited one time in the last three years. The main visit recalled is by 53 interviewees (55%) from the Ministry of Trade, Tourism and Industry (MTTI) asking for the trading licence. Inspection concern is only the licence. This situation reveals inadequate policing of enterprises by relevant authorities. For a normal and stable situation, the formula<sup>2</sup> for effective inspection is:

***3 inspections per year × 10% of all sites of interest***

Owing to inadequate funding and staffing, inspection in Uganda has not been regular and adequate. Consequently all of interest areas require to be inspected in order to establish a competent baseline database. For a difficult phenomenon and vulnerable sites, funds permitting, there should be as many as 20 inspections per year.

**Knowledge of hazards:** Of the 96 interviewees, 80 persons (83%) professed knowing that there is danger in the products they sell. The rest (17%) argue that they the sellers stock safe products with no danger to the individual consumer, the public or the environment. Cosmetic dealers (60%) pointed out skin colouration and bleaching, scalp corrosion and falling off of natural hair as the main incidents. No one accepted knowledge of any consequences beyond their premises. This situation demands further investigation.

**Levels in food:** The extent of sampling was not comprehensive owing to analytical

time required and the costs involved. Table 2 below shows the levels of named pesticides as currently known while Table 3 shows the recommended biological levels for comparison.

Table 2: Pesticide residues levels expressed in mg/kg milk fat

| Compound                       | Kampala City<br>(samples = 60) | Iganga District<br>(samples = 83) | Overall<br>(samples = 143) |
|--------------------------------|--------------------------------|-----------------------------------|----------------------------|
| <b><math>\alpha</math>-HCH</b> |                                |                                   |                            |
| Mean $\pm$ SEM                 | 0.46                           | 0.01 $\pm$ 0.001                  | 0.10 $\pm$ 0.005           |
| Median                         | 0.46                           | 0.01                              | 0.01                       |
| Range                          | -                              | 0.006-0.012                       | 0.006-0.46                 |
|                                |                                |                                   |                            |
| <b><math>\beta</math>-HCH</b>  |                                |                                   |                            |
| Mean $\pm$ SEM                 | 0.06 $\pm$ 0.017               | 0.07 $\pm$ 0.036                  | 0.07 $\pm$ 0.004           |
| Median                         | 0.04                           | 0.04                              | 0.04                       |
| Range                          | 0.005 – 0.13                   | 0.008 - 0.25                      | 0.005 – 0.025              |
|                                |                                |                                   |                            |
| <b>Lindane</b>                 |                                |                                   |                            |
| Mean $\pm$ SEM                 | 0.87                           | 0.01                              | 0.44                       |
| Range                          | -                              | -                                 | 0.01 – 0.87                |
|                                |                                |                                   |                            |
| <b>Dieldrin</b>                |                                |                                   |                            |
| Mean $\pm$ SEM                 | 0.06 $\pm$ 0.006               | 0.07 $\pm$ 0.0009                 | 0.07 $\pm$ 0.008           |
| Median                         | 0.04                           | 0.05                              | 0.04                       |
| Range                          | 0.01 – 0.19                    | 0.007 – 0.37                      | 0.007 – 0.37               |
|                                |                                |                                   |                            |
| <b>p,p'DDE</b>                 |                                |                                   |                            |
| Mean $\pm$ SEM                 | 2.84 $\pm$ 0.255               | 2.00 $\pm$ 0.211                  | 2.35 $\pm$ 0.201           |
| Median                         | 2.55                           | 1.44                              | 1.86                       |
| Range                          | 0.63 – 13.58                   | 0.20 – 13.93                      | 0.20 – 13.93               |
|                                |                                |                                   |                            |
| <b>p,p'DDD</b>                 |                                |                                   |                            |
| Mean $\pm$ SEM                 | 0.04                           | 0.09 $\pm$ 0.027                  | 0.08 $\pm$ 0.038           |
| Median                         | 0.04                           | 0.08                              | 0.05                       |
| Range                          | -                              | 0.04 – 0.15                       | 0.01 – 0.15                |
|                                |                                |                                   |                            |
| <b>o,p'DDT</b>                 |                                |                                   |                            |

|                        |              |              |              |
|------------------------|--------------|--------------|--------------|
| Mean ± SEM             | 0.07 ± 0.006 | 0.06 ± 0.011 | 0.06 ± 0.022 |
| Median                 | 0.06         | 0.03         | 0.05         |
| Range                  | 0.01 – 0.22  | 0.01 – 0.49  | 0.01 – 0.49  |
| <b>p,p'DDT</b>         |              |              |              |
| Mean ± SEM             | 0.76 ± 0.079 | 0.44 ± 0.051 | 0.57 ± 0.024 |
| Median                 | 0.60         | 0.26         | 0.37         |
| Range                  | 0.07 – 3.23  | 0.03 – 2.77  | 0.03 – 3.23  |
| <b>Sum DDT</b>         |              |              |              |
| Mean ± SEM             | 3.97 ± 0.353 | 2.71 – 0.284 | 3.24 – 0.64  |
| Median                 | 3.59         | 1.87         | 2.55         |
| Range                  | 0.88 – 18.52 | 0.26 – 18.72 | 0.26 – 18.72 |
| <b>p,p'DDT/p,p'DDE</b> |              |              |              |
| Mean ± SEM             | 0.27 ± 0.017 | 0.24 ± 0.015 | 0.25 ± 0.012 |
| Median                 | 0.23         | 0.21         | 0.22         |
| Range                  | 0.09 – 0.86  | 0.04 – 0.82  | 0.04 – .86   |

SEM = Standard Error of the Mean

The DDT levels found in the milk survey are high compared to internationally acceptable levels. The trend has been high most of the time. Early data (Ministry of Veterinary Services, Livestock and Animal Resources, 1972) gave toxaphene levels of 0.25 - 3.75 ppm in whole milk and 6.5 to 87.0 ppm in fat tissues of cattle meat.

Another serious attempt (biological monitoring) to measure organochlorine pesticides in human beings was made by the East African Pesticide Research Network<sup>14</sup> (1991-1994) in collaboration with KEMRI (Nairobi, Kenya), Occupational Health and Hygiene Department (Kampala, Uganda), the Tropical Pesticide Research Institute TPRI (Arusha, Tanzania) and the International Development Research Centre (IDRC) of Canada. This focussed on stool, urine and blood samples from workers (applicators of pesticides) in farms. This work was published as theses for the award of doctor of philosophy for the researchers in the three countries. High levels were found as follows: dieldrin in blood 200 µg/l. A blood lindane 20 µg/l; endrin concentrations up to 50 mg/l; DDT at DDT or DDE serum concentrations up to 250 µg/l.

Organochlorines were found in lower concentrations in the blood or urine of the general population (control group) as follows: lindane blood concentrations up to 1 µg/l, dieldrin up to 10 µg/l, DDT or DDE up to 100 µg/l, and anti-12-hydroxy-endrin up to 1 µg/l. The measurement of unchanged compounds in urine was also applied in monitoring occupational exposure to phenoxy acetic acid herbicides. In field studies, urinary levels of exposed workers have been found to range from 0.10 to 8 µg/l for 2,4-D, from 0.05 to 4.5 µg/l for 2,4,5-T and from below 0.1 to 15 µg/l for MCPA (methyl phenoxy acetic acid).

Ejobi *et al* (1996) confirmed high levels. These values are above FAO/WHO acceptable limits and support the need for action.

The following are the internationally accepted levels:

Table 3: Recommended biological limit values (as of 1996)

| Compound                | Biological index                | BEIs <sup>1</sup> | BATs <sup>2</sup> | HBBLs <sup>3</sup> | BLVs <sup>4</sup> |
|-------------------------|---------------------------------|-------------------|-------------------|--------------------|-------------------|
| DNOC                    | DNOC in blood                   |                   |                   | 20 mg/l,           |                   |
| Lindane                 | Lindane in blood                |                   | 0.02mg/l          | 0.02mg/l           |                   |
| Parathion               | PNP in urine                    | 0.5 mg/l          | 0.5mg/l           |                    |                   |
| Pentachlorophenol (PCP) | PCP in urine<br>PCP in plasma   | 2 mg/l<br>5 mg/l  | 0.3mg/l<br>1 mg/l |                    |                   |
| Dieldrin/Aldrin         | Dieldrin in blood               |                   |                   |                    | 100 µg/l          |
| Endrin                  | Anti-12-hydroxy-endrin in urine |                   |                   |                    | 130 µg/l          |
| DDT                     | DDT and DDE in serum            |                   |                   |                    | 250 µg/l          |
| MCPA                    | MCPA in urine                   |                   |                   |                    | 0.5 µg/l          |
| 2,4-D                   | 2,4-D in urine                  |                   |                   |                    | 0.5 µg/l          |

<sup>1</sup> Biological exposure indices (BEIs) are recommended by the American Conference of Governmental Industrial Hygienists (ACGIH 1995).

<sup>2</sup> Biological tolerance values (BATs) are recommended by the German Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG 1992).

<sup>3</sup> Health-based biological limits (HBBLs) are recommended by a WHO Study Group (WHO 1982a).

<sup>4</sup> Biological limit values (BLVs) are proposed by a Study Group of the Scientific Committee on Pesticides of the International Commission on Occupational Health (Tordoir et al. 1994). Assessment of working conditions is called for if this value is exceeded.

**Levels in the environment:** Samples were taken from Entebbe near the Lake Victoria to check levels in the environment (soil and water.) Table 4 and Table 5 show the levels of chemicals in the samples that were obtained in this survey.

**Table 4: Soil Sample Analysis Results**

| Parameter                                | Dumping Site<br>Sample "A" | Coffee Farm<br>Soil Sample "B" | Green House 8<br>Soil Sample "C" |
|--|----------------------------|--------------------------------|----------------------------------|
| PH                                       | 5.7                        | 5.9                            | 6.3                              |
| Conductivity ( $\mu\text{s}/\text{cm}$ ) | 560.0                      | 558.0                          | 445.0                            |
| $\text{NO}_3$ (mg/kg)                    | 96.0                       | 120.0                          | 96.0                             |
| $\text{NH}_3$ (mg/kg)                    | 40.0                       | 35.0                           | 35.0                             |
| $\text{SO}_4$ (mg/kg)                    | 1.2.0                      | 90.0                           | 80.0                             |
| $\text{PO}_4$ (mg/kg)                    | 89.0                       | 90.0                           | 40.0                             |
| Mg (mg/kg)                               | 59.0                       | 75.3                           | 62.3                             |
| Na (mg/kg)                               | 40.0                       | 50.0                           | 36.0                             |
| K (mg/kg)                                | 35.0                       | 38.0                           | 20.0                             |
| Ca (mg/kg)                               | 62.0                       | 80.0                           | 30.0                             |
| Mn (mg/kg)                               | 2.0                        | 3.2                            | 2.4                              |
| Cl (mg/kg)                               | 74.0                       | 65.0                           | 48.0                             |
| Cu (mg/kg)                               | 1.0                        | 1.3                            | 0.2                              |
| Fe (mg/kg)                               | 0.94                       | 0.72                           | 0.40                             |
| Pb (mg/kg)                               | < 0.001                    | < 0.001                        | < 0.001                          |
| Bulk density (g/<br>$\text{cm}^3$ )      | 2.56                       | 2.18                           | 1.60                             |

|                     |            |             |            |
|---------------------|------------|-------------|------------|
| Organic Carbon (%)  | 6.2        | 9.0         | 2.2        |
| % Sand distribution | 10.0       | 12.0        | 10.0       |
| % Silt distribution | 81.0       | 78.0        | 84.0       |
| % Clay distribution | 9.0        | 10.0        | 6.0        |
| Soil texture        | Brown loam | Medium loam | Silt sandy |

The above results show that there was no lead in the soil and therefore no threat yet to the environment. There is however a threat from nitrates ( $\text{NO}_3$ ), sulphates ( $\text{SO}_4$ ) and phosphates ( $\text{PO}_4$ ). These arise from the use of fertilisers in the farm. This poses a threat of nutrient loading to the Lake Victoria. Nutrients (mostly nitrogen and phosphorous), also associated with domestic wastewaters and leachates from foliage compost, may cause increased primary production in surface water and possible contamination of groundwater. This might contribute to eutrophication and algal bloom in surface waters of Lake Victoria.

**Table 5: Water Sample Analysis Results**

| Parameter                                       | Water sample "A"<br>Dumping site | Water Sample "B"<br>Green House 10 | Water sample "C"<br>Lake shore (Pump side) | NEMA Standard |
|---|----------------------------------|------------------------------------|--|---------------|
| PH  | 5.8                              | 5.9                                | 6.0  | 6.0 – 8.0     |
| Electroconductivity ( $\mu\text{s}/\text{cm}$ ) | 124.0                            | 115.0                              | 108.3                                      | -             |
| Sulphates ( $\text{SO}_4$ ) mg/l                | 30.0                             | 12.0                               | 0.00                                       | 500           |
| Iron (Fe) mg/l                                  | 0.58                             | 0.56                               | < 0.001                                    | 10            |
| Phosphates ( $\text{PO}_4$ ) mg/l               | 1.20                             | 0.34                               | 0.04                                       | 10            |
| Total suspended solids (TSS) mg/l               | 27.0                             | 40.0                               | 3.00                                       | 100           |
| Total dissolved solids (TDS) mg/l               | 161.0                            | 157.0                              | 153.0                                      | 1200          |
| Ammonia ( $\text{NH}_3$ ) < 0.001               | 0.58                             | < 0.001                            | < 0.001                                    | 1             |
| Nitrates ( $\text{NO}_3$ )                      | 12.0                             | 6.60                               | 0.41                                       | 20            |
| Hydrogen Sulphide ( $\text{H}_2\text{S}$ ) mg/l | 1.04                             | < 0.001                            | < 0.001                                    | 1             |
| Potassium (K) mg/l                              | 18.6                             | 9.2                                | 3.5  | -             |
| COD (mg/l)                                      | 154.0                            | 77.6                               | 64.2                                       | 100           |
| BOD <sub>5</sub> at 20°C (mg/l)                 | 96.2                             | 48.5                               | 40.2                                       | 50            |

|                                     |         |         |         |   |
|-------------------------------------|---------|---------|---------|---|
| Dissolved oxygen (DO) (mg/l)        | 3.0     | 6.08    | 6.36    | - |
| Ridomil (melalaxy/ mancozeb) (mg/l) | 0.003   | < 0.001 | < 0.001 | - |
| Sprol (mg/l)                        | < 0.001 | < 0.001 | < 0.001 | - |
| Equation pro (mg/l)                 | < 0.001 | < 0.001 | < 0.001 | - |
| Dithane (mancozeb) (mg/l)           | < 0.001 | < 0.001 | < 0.001 | - |
| Sulphur dust (mg/l)                 | < 0.001 | < 0.001 | < 0.001 | - |

The samples were deliberately taken from near the lake with a view to learn the possibility of threats to the lake. The water sample indicates high levels of BOD<sup>5</sup> and COD beyond NEMA standards. This situation also arises from the drip lines for application of fertilisers in every green house. This water runs off into the lake eventually. The effect of this is to further load nutrients into the lake and this causes algal bloom in the lake and so disorganises the ecological balance in the lake. It is undesirable.

*Fish analysis.* There was no mercury, lead observed in fish. All levels were below detection limit - < 0.001 mg/l



#### 4.4 Gender disparities

The most vulnerable groups are the children and women. Of the 96 respondents, 89 (93%) indicated that their clients for cosmetics are women. The victims

5 Biological Oxygen Demand (BOD): This is the quantity of Oxygen consumed in the biochemical oxidation of organic matter by micro-organisms at a specified time and temperature - usually 5 days at 20°C - BOD<sub>5</sub>. It is a standard test used in wastewater quality determination.



of harmful chemicals – skin irritation, sculp dehairing, - have all been women (100%). The victims of acid attacks are 98% women. Most of the victims of accidental poisoning are children. 96% of the proprietorship of saloons and beauty shops are women. 96% of the employment in women saloons and beauty shops is women. Many women with HIV/AIDS use skin bleaching creams to remove the characteristic AIDS black spots on their skins so that they cannot be easily identified.

The literature review also indicated a gender dimension. The uterus is transparent to chemicals and so chemicals absorbed by a woman have direct access to the foetus where they do their deleterious effects. The thalidomide incident is a case in point. Thalidomide (1958) had a worldwide effect, which is still being felt. Thalidomide was a drug widely administered to pregnant women to control morning sickness, allay anxiety and promote sleep. With shock and dismay it was discovered that thalidomide caused the babies to these women to be born with serious absence of limbs (hand, legs). Thalidomide prevents limb buds to develop in the growing foetus. Damage is on the offspring not the woman who was directly exposed. Thalidomide is *teratogenic*.

Many of the pesticides in use today also attack the reproductive system. They cause modification of ovogenesis (the estrous cycle becomes irregular). Organomercurial pesticides affect endocrinal regulation of ovaries rendering the subject incapable of fertilisation. The named chemicals include dinitrocresol, sevin (naphthyl methyl carbamate), captan, pthalan. Some chemicals cause Prohibition of implantation of embryos in the uterus (organochlorines, carbamates). DDT in also one such pesticide.

These findings indicate the need to target each gender separately in the efforts to manage consumer protection especially in awareness.

#### **4.5 General awareness**

All said and done, it is not the rigorous enforcement based on utilisation of sanctions of the law to the full that counts. This only leads to conflict with the law and is counter-productive. Rather, it is the provision of information, skills and knowledge that lead to sense that really counts.

As indicated above, there are many chemicals in use in food, drugs and cosmetic industry. These are handled during transportation, storage, and application and after use, disposal. The persons handling them are not aware of their dangers to human health or the environment. These chemicals are recognised as being useful, but rarely is the public alerted that they can also be very dangerous. Many

cases of poisoning have been registered and reported in newspapers.

Despite some effort from NEMA, the level of awareness is low and this is why the poor handling, misuse and high incidence of accidental poisoning among the public and commerce in products containing dangerous chemicals remain unchanged. The current attitude of the public towards chemicals especially cosmetics and pesticides indicates no respect for the dangers posed by them. The obtaining attitude is that these materials are harmless and as a result the handling is careless.

Consequently the necessary strategy for consumer protection is to develop alertness and involvement of all stakeholders subject through creation of attitude and practice changing awareness. Following this, multilevel courses on chemical safety are given to key grades of people in commerce and industry e.g. instructors, supervisors, managers, workers and consumers themselves. This requires a concerted effort from all the key players.

A massive awareness campaign should therefore be mounted by all stakeholders including the Ministry of Health, and the Ministry of Tourism, Trade and Industry targeted at the consumer. All available technology including mobile film units should be assembled and despatched for this purpose. All those who distribute or sell consumer products should be equally sensitised and legally charged with the duty to supply information on chemical safety to their customers about the chemicals they sell.

The policy makers should also be sensitised. The policy makers are leaders of Government. Sensitisation is a pre-requisite for them with a view to make them appreciate the concern and need for corrective measures. Seminars are adequate for policy makers. Other sectors that require sensitisation include implementers of policies on chemical safety. These are the licensing officers, physical planners, customs officers, industrialists, and officers of the Uganda Investment Authority etc. Regular workshops and seminars would suffice for this group.

The competent bodies are few, weak and uncoordinated while the consumer protection task is large diverse and urgent. The institutions that should create the awareness have remained operational only in urban areas and have no significant presence in the rural areas where the bulk of consumers are and the commerce in dangerous chemicals is carried out. This itself is a result of lack of capacity. There is a need to assist these entities. The activities required are to: Provide training for NGO leaders and their field staff in relevant areas with a view to mobilise participation, capability and support in the implementation

of consumer protection management activities; and, Integrate them into the coordination mechanism to enable all the stakeholders to effectively participate in elimination of threats to the public and the environment. This requires to be addressed through an IEC programme. This programme should aim at:

- Establishing a system of acquiring knowledge on all hazardous chemicals that can affect health through food, drugs and cosmetics.
- Educating all concerned about the dangers involved in the use of these substances.
- Investigating causes of unsafe handling and use of such chemicals and also in investigating cases of poisoning.

This programme should be envisaged as multi-sectoral, multi-disciplinary, multi-ministerial, public and private partnership since so many economic sectors and ministries are involved between the importation or manufacture and the final use or discarding of the chemicals. The sectors most involved include the agricultural, veterinary, health, industrial and commercial sectors, and their corresponding departments in research and higher learning institutions. Such an approach requires collaboration with NEMA to give more impetus to the screening of all hazardous and highly toxic chemicals. Government should seek funds for this activity.

#### **4.6 Inadequate Research capability**

Research capability is inadequate. Chemicals in reference to their toxicology, chemical safety, and the environmental effects constitute by far the most insidious, most varied and most devious aspects of research in economy, safety and health facing the general and working population. It should be diligently pursued.

There have been some efforts to monitor the presence and effect of POPs and heavy metals in the country. These however are inadequate. There is no concerted research dedicated to establish the full impact of chemicals in the country yet this is crucial in determining informed policy and action in the subject.

There is need therefore for a realistic, far-reaching and forcefully influential national policy on chemicals research. This should be followed by institutional adjustments, well supported at cabinet level, financed and charged with the responsibility of translating this policy into action with a view to deliver safe environment to the people. The successful solution to chemicals problem should be based on scientifically derived criteria and applied through technological,

administrative and legal measures. This approach is elaborate and expensive but worth the effort.

In order to achieve this, as a medium and long-term strategy, there is need to mount a specific research program coordinated by the NEMA.

## CHAPTER 5: HARMFUL CHEMICALS IN PRODUCTS

As indicated in Chapter 1, the number of toxic chemicals is large. It suffices to highlight a few in this report. These are chosen on account of their known heavy toxic punch, widespread use, and seriousness of their environmental impacts.

Lead, Mercury and hydroquinones and pesticides are the main threats to consumer health and safety. Lead is in mainly root crops. An earlier study (Okurut *et al*, MUK 1998) showed unacceptable levels of lead in *Mayuni* (yam) grown in all the swamps surrounding Kampala. Mercury is present in fish as well as being an ingredient in cosmetics. Analysis of fish from GAL over the last 5 years showed low levels of mercury but below maximum acceptable levels. Hydroquinones are present skin lightening creams. The list of cosmetics found in our market that contain harmful chemicals is shown in Appendix 1. These products are not banned by Uganda but are banned in Kenya and Tanzania. Their detailed effects on health and the environment are shown in the Appendix 1.

### 5.1 Mercury

Mercury is a naturally occurring metal found in air, water, and soil. It exists in several forms:

*Elemental or metallic mercury.* This is a shiny, silver-white metal that is liquid at room temperature. It is used in thermometers, fluorescent light bulbs, some electrical switches and rechargeable batteries.

*Inorganic mercury compounds.* Mercury combines with other elements, such as chlorine, sulphur, or oxygen, to form inorganic mercury compounds or “salts,” which are usually powders or crystals. Mercury salts sometimes are used in antiseptic creams and ointments and in preservatives. Mercury salts once were used in non-approved skin lightening creams.

*Organic mercury compounds.* When mercury combines with carbon, it forms organic mercury compounds. Methyl mercury is mainly produced by microscopic organisms in contaminated water and soil. Here it can build up in fish, shellfish, and animals that eat fish.

### 5.1.1 Human Exposed to Mercury

- i. People are exposed to a substance only when they come in contact with it. People may be exposed by breathing, eating, or drinking the substance or by skin contact. When a person is exposed to mercury, many factors determine whether the person will be harmed.

These factors include the dose (how much), the duration (how long), and how one comes in contact with it. One should also consider the other chemicals to which one is exposed, as well as ones age, sex, diet, family traits, lifestyle, and state of health.

- ii. Because mercury occurs naturally in the environment, everyone is exposed to very low levels in air, water, and food. Between 10 and 20 nanograms of mercury per cubic meter ( $\text{ng}/\text{m}^3$ ) of air have been measured in urban outdoor air. These levels are hundreds of times lower than levels still considered to be “safe” to breathe. Background levels in non-urban settings are even lower, generally about 6  $\text{ng}/\text{m}^3$  or less. Mercury levels in surface water are generally less than 5 parts of mercury per trillion parts of water (5 ppt, or 5 ng per litre of water), about a thousand times lower than “safe” drinking water standards. Normal soil levels range from 20 to 625 parts of mercury per billion parts of soil (20–625 ppb; or 20,000–625,000 ng per kilogram of soil). A part per billion is one thousand times bigger than a part per trillion.
- iii. Metallic mercury is used in a variety of household products and industrial items, including thermostats, fluorescent light bulbs, barometers, glass thermometers, and some blood pressure devices. The mercury in these devices is contained in glass or metal, and generally does not pose a risk unless the item is damaged or broken, and mercury vapour is released. Spills of metallic mercury from broken thermometers or damaged electrical switches in the home may result in exposure to mercury vapours in indoor air. People must be careful when handling and disposing off all items that contain metallic mercury in the home.
- iv. It is possible for a person to be exposed to metallic mercury vapours from breathing contaminated air around hazardous waste sites, waste incinerators, or power plants that burn mercury-containing fuels (such as coal or other fossil fuels), but most outdoor air is not likely to contain levels that would be harmful. Exposure to mercury compounds at hazardous waste sites is much more likely to occur from handling contaminated soil (i.e., children playing in or eating contaminated

surface soil), drinking well-water, or eating fish from contaminated waters near those sites. Not all hazardous sites contain mercury, and not all waste sites that do contain mercury have releases of mercury to the air, water, or surface soils.

- v. A person can be exposed to mercury vapours from the use of fungicides that contain mercury. Excess use of these products may result in higher-than-average exposures. A person may also be exposed to mercury from swallowing or applying to his or her skin outdated medicinal products (laxatives, worming medications, and teething powders) that contain mercurous chloride.  
Exposure may also occur from the improper or excessive use of other chemicals containing mercury, such as skinlightening creams and some topical antiseptic or disinfectant agents (mercurochrome and thimerosal). The locally marketed *Mekako* is one such product.
- vi. People at work are mostly exposed from breathing air that contains mercury vapours, but may also be exposed to other inorganic mercury compounds in the workplace. Occupations that have a greater potential for mercury exposure include manufacturers of electrical equipment or automotive parts that contain mercury, chemical processing plants that use mercury, metal processing, construction where building parts contain mercury (e.g., electrical switches, thermometers), and the medical professions (medical, dental, or other health services) where equipment may contain mercury (e.g., some devices that measure blood pressure contain liquid mercury). Dentists and their assistants may be exposed to metallic mercury from breathing in mercury vapour released from amalgam fillings and to a much lesser extent from skin contact with amalgam restorations. Family members of workers who have been exposed to mercury may also be exposed to mercury if the worker's clothes are contaminated with mercury particles or liquid.
- vii. Some people may be exposed to higher levels of mercury in the form of methyl mercury if they have a diet high in fish, shellfish, or marine mammals that come from mercury-contaminated waters. Methyl mercury accumulates up the food chain, so that fish at the top of the food chain will have the most mercury in their flesh. Of these fish, the largest (*Tilapia* and the *Nile Perch* i.e., the oldest) fish will have the highest levels. It is estimated (The Food and Drug Administration (FDA) of USA that most people are exposed, on average, to about 50 ng of mercury per kilogram of body weight per day (50 ng/kg/day) in the food they eat. This is about 3.5 micrograms ( $\mu\text{g}$ ) of mercury per day for an

adult of average weight. This level is not thought to result in any harmful effects. A large part of this mercury is in the form of methyl mercury and probably comes from eating fish. Commercial fish sold for export to the EU that are found to have levels of methyl mercury above an “action level” of 1 ppm cannot be sold to the public. This level itself is below a level associated with adverse effects. However, if the fishing is in contaminated waters and the fisher people eat the fish they catch, they may be exposed to higher levels of mercury. Such a situation requires Public health advisories to issue warnings for local waters that are thought to be contaminated with mercury. These warnings can help non-commercial fishermen and their families to avoid eating fish contaminated with mercury. Foods other than fish that may contain higher than average levels of mercury include wild game, such as wild birds and mammals that eat large amounts of contaminated fish.

### **5.1.2 Movement of mercury in the body (Toxico Kinetics)**

Methyl mercury is the form of mercury most easily absorbed through the gastrointestinal tract (about 95% absorbed). After a person eats fish or other foods that are contaminated with methyl mercury, the methyl mercury enters their bloodstream easily and goes rapidly to other parts of the body. Only small amounts of methyl mercury enter the bloodstream directly through the skin, but other forms of organic mercury (in particular dimethyl mercury) can rapidly enter the body through the skin. Organic mercury compounds may evaporate slowly at room temperature and may enter the body easily if the person breathes in the vapours. Once organic mercury is in the bloodstream, it moves easily to most tissues and readily enters the brain. Methyl mercury that is in the blood of a pregnant woman will easily move into the blood of the developing child and then into the child’s brain and other tissues. Like metallic mercury, methyl mercury can be changed by the body to inorganic mercury. When this happens in the brain, the mercury can remain there for a long time. When methyl mercury does leave the body after a person has been exposed, it leaves slowly over a period of several months, mostly as inorganic mercury in the faeces. As with inorganic mercury, some of the methyl mercury in a nursing mother’s body will pass into her breast milk.

### **5.1.3 Health Effects**

The nervous system is sensitive to all forms of mercury. Methyl mercury and metallic mercury vapours are more harmful than other forms because more mercury in these forms reaches the brain. Very young children are more sensitive



than adults to mercury. Mercury in the mother's body passes to the foetus and may accumulate there. Prolonged exposures to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing foetus. Short-term exposure to high levels of metallic mercury vapours may cause effects including lung damage, nausea, vomiting, diarrhoea, increases in blood pressure or heart rate, skin rashes, and eye irritation. Not enough information is available about people's exposure to all forms of mercury and cancer. The U.S. Environmental Protection Agency has determined that mercuric chloride and methyl mercury may possibly cause cancer in people.

In poisoning incidents that occurred in many countries, some people who ate fish contaminated with large amounts of methyl mercury (The Minamata Disease) or seed grains treated with methyl mercury or other organic mercury compounds developed permanent damage to the brain and kidneys. Permanent damage to the brain has also been shown to occur from exposure to sufficiently high levels of metallic mercury. Whether exposure to inorganic mercury results in brain or nerve damage is not as certain, since it does not easily pass from the blood into the brain.

Metallic mercury vapours or organic mercury may affect many different areas of the brain and their associated functions, resulting in a variety of symptoms. These include personality changes (irritability, shyness, nervousness), tremors, changes in vision (constriction (or narrowing) of the visual field), deafness, muscle incoordination, loss of sensation, and difficulties with memory.

Different forms of mercury have different effects on the nervous system, because they do not all move through the body in the same way. When metallic mercury vapours are inhaled, they readily enter the bloodstream and are carried throughout the body and can move into the brain. Breathing in or swallowing large amounts of methyl mercury also results in some of the mercury moving into the brain and affecting the nervous system. Inorganic mercury salts, such as mercuric chloride, do not enter the brain as readily as methyl mercury or metallic mercury vapour.

The kidneys are also sensitive to the effects of mercury, because mercury accumulates in the kidneys and causes higher exposures to these tissues, and thus more damage. All forms of mercury can cause kidney damage if large enough amounts enter the body. If the damage caused by the mercury is not too great, the kidneys are likely to recover once the body clears itself of the contamination.

Short-term exposure (hours) to high levels of metallic mercury vapour in the air

can damage the lining of the mouth and irritate the lungs and airways, causing tightness of the breath, a burning sensation in the lungs, and coughing. Other effects from exposure to mercury vapour include nausea, vomiting, diarrhoea, increases in blood pressure or heart rate, skin rashes, and eye irritation. Damage to the lining of the mouth and lungs can also occur from exposure to lower levels of mercury vapour over longer periods (for example, in some occupations where workers were exposed to mercury for many years). Levels of metallic mercury in workplace air are generally much greater than the levels normally encountered by the general population. Current levels of mercury in workplace air are low, due to increased awareness of mercury's toxic effects.

Because of the reduction in the allowable amount of mercury in workplace air, fewer workers are expected to have symptoms of mercury toxicity. Most studies of humans who breathed metallic mercury for a long time indicate that mercury from this type of exposure does not affect the ability to have children. Studies in workers exposed to metallic mercury vapours have also not shown any mercury-related increase in cancer. Skin contact with metallic mercury has been shown to cause an allergic reaction (skin rashes) in some people.

In addition to effects on the kidneys, inorganic mercury can damage the stomach and intestines, producing symptoms of nausea, diarrhoea, or severe ulcers if swallowed in large amounts. Effects on the heart have also been observed in children after they accidentally swallowed mercuric chloride. Symptoms included rapid heart rate and increased blood pressure. There is little information on the effects in humans from long-term, low-level exposure to inorganic mercury.

#### **5.1.4 Death**

Inorganic Mercury causes death. A lethal dose of mercuric chloride was estimated to be 10–42 mg Hg/kg for a 70-kg adult (Gleason et al. 1957). Death from oral exposure to inorganic mercury is usually caused by shock, cardiovascular collapse, acute renal failure, and severe gastrointestinal damage. The most common findings in cases reported were gastrointestinal lesions (e.g., mild gastritis to severe necrotizing ulceration of the mucosa) and renal involvement (e.g., albuminuria, anuria, and uremia).

#### **5.2 Lead**

Lead is a heavy, low melting, bluish-gray metal that occurs naturally in the Earth's crust. It is usually found combined with two or more other elements to form lead compounds.

Metallic lead is resistant to corrosion (i.e., not easily attacked by air or water). When exposed to air or water, thin films of lead compounds are formed that protect the metal from further attack. It is easily moulded and shaped and can be combined with other metals to form alloys which are commonly found in pipes, storage batteries, weights, shot and ammunition, cable covers, and sheets used as shield against radiation.

The largest use for lead is in storage batteries in cars and other vehicles. Lead compounds are used as a pigment in paints, dyes, and ceramic glazes. The amount of lead used in these products has been reduced in recent years to minimize lead's harmful effect on people and animals. Tetraethyl lead and tetramethyl lead were until recently used in as petrol additives to increase octane rating. This has been phased out in Uganda Tetraethyl lead may still be used in petrol for off-road vehicles and airplanes. Lead used in ammunition, which is the largest non-battery end-use, has remained fairly constant in recent years. However, even the use of lead in bullets and shot as well as in fishing sinkers is being reduced because of its harm to the environment.

In Uganda, lead can enter the environment through releases from factories that make or use lead, lead alloys, or lead compounds. Lead is released into the air during burning oil, or waste. Before the use of leaded petrol was discouraged, most of the lead released into the environment came from vehicle exhaust.

Once lead gets into the atmosphere, it may travel long distances if the lead particles are very small. Lead is removed from the air by rain and by particles falling to land or into surface water.

Sources of lead in dust we breathe in and soil we grow our food on include lead that falls to the ground from the air, and weathering and chipping of lead-based paint from buildings, bridges, and other structures. Landfills (such as Kitezi) may contain waste from ammunition manufacturing, or other industrial activities such as battery production. Disposal of lead-containing products contribute to lead in municipal landfills. Past uses of lead such as its use in gasoline are a major contributor to lead in soil, and higher levels of lead in soil are found near roadways. Most of the lead in inner city soils comes from old houses with paint containing lead and previous automotive exhaust emitted when petrol contained lead.

Sources of lead in surface water or sediment include deposits of lead-containing dust from the atmosphere, waste water from industries that handle lead (primarily iron and steel industries and lead producers), urban runoff, and mining piles.

Some lead compounds are changed into other forms of lead by sunlight, air, and water. However, elemental lead cannot be broken down. The levels of lead may build up in plants and animals from areas where air, water, or soil are contaminated with lead. If animals eat contaminated plants or animals, most of the lead that they eat will pass through their bodies.

### 5.2.2 Exposure

- i. People living near hazardous waste sites may be exposed to lead and chemicals that contain lead by breathing air, drinking water, eating foods, or swallowing dust or dirt that contain lead. People may be exposed to lead by eating food or drinking water that contains lead. Drinking water in houses containing lead pipes may contain lead, especially if the water is acidic or “soft”.
- ii. People living in areas where there are old houses that have been painted with lead paint may be exposed to higher levels of lead in dust and soil. Similarly, people who live near busy highways or on old orchard land where lead arsenate pesticides were used in the past may be exposed to higher levels of lead. People may also be exposed to lead when they work in jobs where lead is used or have hobbies in which lead is used, such as making stained glass. Foods may contain small amounts of lead. However, since lead solder is no longer used in cans, very little lead is found in food. Leafy fresh vegetables grown in lead-containing soils may have lead-containing dust on them. Lead may also enter foods if they are put into improperly glazed.
- iii. Foods may contain small amounts of lead. Leafy fresh vegetables grown in lead-containing soils may have lead-containing dust on them. Lead may also enter foods if they are put into improperly glazed pottery or ceramic dishes and from leaded-crystal glassware. Lead-soldered cans are still used in imported food from developing countries nations and the lead in the solder is leached into the food. Children may be exposed to lead by hand-to-mouth contact after exposure to lead-containing soil or dust.
- iv. The amount of lead taken into the body through drinking water can be higher in communities with acidic water supplies. Acidic water makes it easier for the lead found in pipes, leaded solder, and brass faucets to be dissolved and to enter the water we drink. Public water treatment systems are required to use control measures to make water less acidic. Plumbing that contains lead may be found in public drinking water

systems, and in houses, apartment buildings, and public buildings that are old.

- v. Breathing in, or swallowing airborne dust and dirt, is another way a person can be exposed to lead. In the recent past, leaded petrol was the single largest source of lead emissions in to the air we breathe. Other sources of lead in the air include releases to the air from industries involved in iron and steel production, lead-acid-battery manufacturing, and nonferrous (brass and bronze) foundries. Lead released into air may also come from burning of solid waste that contains lead, windblown dust, volcanoes, exhaust from workroom air, burning or weathering of lead-painted surfaces, fumes and exhaust from leaded gasoline, and cigarette smoke.
- vi. Skin contact with dust and dirt containing lead occurs every day.
- vii. Recent data have shown that inexpensive cosmetic jewellery pieces sold to the general public may contain high levels of lead which may be transferred to the skin through routine handling. However, not much lead can get into your body through your skin.
- viii. In the home, parents and their children may be exposed to lead if you take some types of home remedy medicines that contain lead compounds. Lead compounds are in some non-Western cosmetics, such as *surma* and *kohl*. Some types of hair tints (colours), cosmetics, and dyes contain lead acetate. It is important to read the labels on hair colouring products, use them with caution, and keep them away from children.
- ix. People who are exposed at work are usually exposed by breathing in air that contains lead particles. Exposure to lead occurs in many jobs. People who work in lead smelting and refining industries, brass/bronze foundries, rubber products and plastics industries, soldering, steel welding and cutting operations, battery manufacturing plants, and lead compound manufacturing industries may be exposed to lead.

Construction and demolition workers and people who work at municipal waste incinerators, pottery and ceramics industries, radiator repair shops, and other industries that use lead solder may also be exposed. Painters who sand or scrape old paint may be exposed to lead in dust.

### 5.2.3 Movement of Lead in the body

Shortly after lead gets into the body, it travels in the blood to the “soft tissues” and organs (such as the liver, kidneys, lungs, brain, spleen, muscles, and heart). After several weeks, most of the lead moves into the bones and teeth. In adults, about 94% of the total amount of lead in the body is contained in the bones and teeth. About 73% of the lead in children’s bodies is stored in their bones. Some of the lead can stay in the bones for decades; however, some lead can leave the bones and re-enter the blood and organs under certain circumstances (e.g., during pregnancy and periods of breast feeding, after a bone is broken, and during advancing age).

The body does not change lead into any other form. Once it is taken in and distributed to the organs, the lead that is not stored in bones leaves the body in urine or faeces. About 99% of the amount of lead taken into the body of an adult will leave in the waste within a couple of weeks, but only about 32% of the lead taken into the body of a child will leave in the waste. Under conditions of continued exposure, not all of the lead that enters the body will be eliminated, and this may result in accumulation of lead in body tissues, especially bone.

### 5.2.4 Health Effects

The effects of lead are the same whether it enters the body through breathing or swallowing. The main target for lead toxicity is the nervous system, both in adults and children.

Long-term exposure of adults to lead at work has resulted in decreased performance in some tests that measure functions of the nervous system. Lead exposure may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people. Lead exposure may also cause anaemia. At high levels of exposure, lead can severely damage the brain and kidneys in adults or children and ultimately cause death. In pregnant women, high levels of exposure to lead may cause miscarriage. High-level exposure in men can damage the organs responsible for sperm production.

Children are more vulnerable to lead poisoning than adults. Children are exposed to lead all through their lives. They can be exposed to lead in the womb if their mothers have lead in their bodies. Babies can swallow lead when they breast feed, or eat other foods, and drink water that contains lead. Babies and children can swallow and breathe lead in dirt, dust, or sand while they play on the floor or ground. These activities make it easier for children to

be exposed to lead than adults. The dirt or dust on their hands, toys, and other items may have lead particles in it.

In some cases, children swallow non-food items such as paint chips; these may contain very large amounts of lead, particularly in and around older houses that were painted with lead-based paint. The paint in these houses often chips off and mixes with dust and dirt. Some old paint contains as much as 50% lead. Also, compared with adults, a bigger proportion of the amount of lead swallowed will enter the blood in children.

Children are more sensitive to the health effects of lead than adults. A child who swallows large amounts of lead may develop anaemia, kidney damage, colic (severe “stomach ache”), muscle weakness, and brain damage, which ultimately can kill the child. At still lower levels of exposure, lead can affect a child’s mental and physical growth. Foetuses exposed to lead in the womb, because their mothers had a lot of lead in their bodies, may be born prematurely and have lower weights at birth. Exposure in the womb, in infancy, or in early childhood also may slow mental development and cause lower intelligence later in childhood. There is evidence that these effects may persist beyond childhood.

### **5.3 Hydroquinones**

Deaths have been reported after ingestion of photographic developers containing hydroquinone in amounts of 3-12 g (80-200 mg/kg body weight). The main symptoms of intoxication by hydroquinone include tremors, vomiting, abdominal pain, headache, tachycardia, convulsions, loss of reflexes, dark urine, dyspnoea, cyanosis and coma.

#### **5.3.1 Dermal effects sensitization**

Hydroquinone, like its monobenzyl ether or monoethyl ether, has been reported to cause severe patchy depigmentation disorders in a confetti-like pattern in a single black man (Markey *et al.*, 1989). These authors also noted that four other cases had been reported. Several cases of brown discoloration of the finger-nails due to hydroquinone-containing skin-lightening creams have been reviewed by Mann & Harman (1983). The colour change is considered to be due to hydroquinone oxidation products resulting from exposure to sunlight.

Skin lighteners often contain hydroquinone (1.5 to 2%) as the bleaching agent, which inhibits the production of melanin. Prolonged use (about three years)

of strong (>5%) hydroquinone bleaching creams has been reported to cause ochronosis and pigmented colloid milium in South African black women (Findlay *et al.*, 1975; Findlay & de Beer, 1980). Sporadic skin reactions have also occurred among amateurs who develop their own films manually (Fisher, 1986).

A 5% cream of hydroquinone caused a high incidence of primary irritant reactions such as erythema and tingling at the site of application.



## CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

### 6.1 Conclusion

A variety of hazardous chemicals are used in products imported into Uganda every year. The storage, transportation, manipulation, use and disposal of these chemicals are carried out without correct skills and equipment. As a result the population is exposed to chemicals dangerous consumer products at home, and in the general environment. Of particular interest to this report are the children and families. The following factors contribute:

- i. The subject of consumer protection, particularly chemical safety from commercial products, does not clearly appear in the mainstream of concerns in the country's activity programmes at this moment in time. The subject is marginalized and so out of focus.
- ii. Owing to financial limitations, the administrative and technical measures necessary for consumer safety are scanty, inadequately manned and inadequately equipped. Vital information on what chemicals are present in the products in the market, who is storing them, in what premises, incidence of their health outcomes and levels in products, the working and general environment is grossly inadequate.
- iii. Legislation on the importation and use of chemicals is not explicit and largely fragmented such that extremely dangerous chemicals have found their way into the country without corresponding checks. The invasion of dangerous chemicals has therefore occurred without corresponding management to minimise the risks.
- iv. The programme to control the use of hazardous chemicals in consumer products is not perceivable. The subject of chemical safety is multi-disciplinary in nature and different government departments have inputs to it. These inputs have been so uncoordinated and restricted that consultancies are lacking and control measures frustrated.
- v. The population is largely unaware of the dangers of the chemicals present in the products they use and are ignorant of their roles in the control of the use of these chemicals. They also lack the required skills for the safe handling of the chemicals and dealing with emergency arising from harmful effects of chemicals. The most

vulnerable group at risk is the consumer in the rural and urban setting. This group is least organised, least informed, least equipped, least supervised and largely not accessible.

## 6.2 Recommendations

- 6.2.1 The authorities (UNBS, NEMA, NDA) and the NGOs, CSOs, should:
- i. Mobilise funds for a more serious laboratory analysis exercise to monitor the presence of hazardous chemicals in products and in the environment. This involves funding the countrywide sampling and analysis of relevant samples.
  - ii. Establish a public education program on the dangers facing the people (eg from consumer products, battery recycling) and the proper handling and disposal of rejected products and used batteries. These organizations should consult with manufacturers and retailers to carry out this initiative.
  - iii. Explicitly prohibit, or otherwise condition, the sale of certain types of arsenic, cadmium, lead, hydroquinones and mercury-containing batteries, etc (i.e. alkaline-manganese, zinc carbon, button cell mercuric-oxide, and other mercuric oxide batteries) in Uganda.
  - iv. Urge the authorities to phase out the use of batteries that contain mercury. Specifically prohibit the sale of any alkaline manganese (except for button cells containing up to 25 mg mercury) and zinc-carbon batteries that contain mercury that was intentionally introduced (as distinguished from mercury that may be incidentally present in other materials used to produce these batteries). Also prohibit the sale of button cell mercuric-oxide batteries. Other mercuric-oxide batteries should be prohibited from being sold unless the manufacturer (1) identifies a collection site.
  - v. Promote the recycling of rechargeable batteries. Public education and participation are keys to the success of any recycling program—and are particularly important with materials like batteries that have not been commonly recycled. A public education program can heighten awareness of the hazards and reasons for a recycling program, involve more individuals and businesses, and increase the number of batteries collected.

- vi. Monitor metallic wastes. The toxic heavy metals, such as cadmium and lead, found in rechargeable Ni-Cd batteries perform critical functions within the battery. Heavy metals are contained within the battery's casing and pose no real risks while the battery is in use. But they can be of concern when discarded with ordinary municipal solid waste, as most batteries are. Ni-Cd rechargeable batteries were estimated to represent approximately 75 percent of the cadmium found in municipal solid waste in 1995.
- vii. Work with local governments. Local governments play an important role in developing and implementing a successful awareness program. Public education efforts are essential to the success of such a. A public education program developed by a local government can heighten a community's awareness of the need to reduce the threat to health and the environment.

Hazardous Materials and toxic chemicals do enter Uganda without any authorities being aware of them. Some are used and disposed in the country while others are transported through it. In all these activities, Government is unaware and so has little control of these activities. This is a dangerous situation to be in. These substances should therefore be subject to registration and screening for workplace safety, public health and for environmental safety. The screening should be carried out by a governmental body equipped with technical and coercive powers. Such a body is yet to be established.

### 1.1.2 The individual consumer

When the consumer has encountered harm from a consumer product, he or she or next of kin should immediately seek three types of help:

- i. *Medical help from the nearest health service.* Chemical poisoning is usually of "acute" nature i.e. it occurs in a short while and the effects are recognisable within a few days., It usually results from ingestion of the chemical or skin entry through the respiratory system

The many signs and symptoms include:

- **General:** Extreme weakness and fatigue functional deterioration.
- **Skin:** Irritation, burning, excessive sweating, staining.
- **Eyes:** Itching, burning, watering, difficulty in seeing or blurred

vision, narrowing or widening of the pupils.

- **Digestive system:** Burning in the mouth, burning in the throat, extreme salivation, nausea, vomiting, abdominal pain, diarrhoea.
- **Nervous system:** Headache, dizziness, confusion, restlessness, muscle twitching, staggering gait or loss of balance, slurred speech, fits, unconsciousness.
- **Respiratory system:** Cough, chest pain, and tightness, difficulty in breathing, wheezing.

Whenever these symptoms are noted, whether at home or in the working environment, ask:

- The person concerned and workmates if any contamination has occurred or if any work with pesticides has taken place.
- What product has been handled and in what quantity.
- When and for how long handling took place.
- What protective clothing has been used.
- If alcohol or medicines had been taken.

Look for:

- Evidence of chemical containers, labels, or equipment used with the poisonous material, and retain them carefully.
- Evidence of exposure, application, spillage on to ground or clothing.
- For defective or faulty equipment or instruction.
- The patient's condition.

Smell: Many chemical formulations have a characteristic smell, which will normally be noticeable if contamination to any great extent has occurred.

If over exposure is suspected, give first aid as described and call or refer to a doctor as soon as possible. It will be important for the doctor to know what chemical the person has been exposed to so that he can do the necessary speedy diagnosis.

### First Aid measures

- Check first for respiration and pulse. If either is absent, start resuscitation.
- Ensure that the First Aider will not be contaminated in the process of

resuscitation.

- If the person is unconscious, make sure that the airway is clear by pulling the chin upwards and backwards.
- Put the person at rest on the side or front downwards, with the head turned one side.
- If the person is to be transported, use this posture in order to prevent vomitus from entering the lungs.
- Never give anything by mouth to unconscious patient.
- Immediately remove any contaminated clothing from the person and wash the skin with soap.

After the above are done,

- ii. *Police help.* Call the police and make a formal statement of the complaint.
- iii. *Legal help.* Call the lawyer to start formal legal proceedings against the supplier.

### 6.3 Way Forward

Government as the leader should have a strategy for re-orienting national and local efforts to address consumer protection problems in a more comprehensive, coordinated and integrated manner. This is the basis for achieving the overall policy goal of “sustainable socio-economic development, which fulfils the vision 2025.” To achieve this, three key initial actions are required:

- i. The review and development of cross-sectoral policies and legislation which are explicit, and subject and substance specific;
- ii. The revision and modernization of sectoral policies, legislation and regulations to ensure harmony in a concerted approach;
- iii. The creation and establishment of an appropriate institutional and legal framework.

The key strategy is risk reduction, risk assessment, characterisation and management.

Chemical Safety requires a multi-disciplinary approach. At national level this cooperation crosses through different institutions and ministries of government. A successful solution to chemical safety must strengthen intersectoral cooperation.

Correspondingly, the main thrust of the effort should be in capacity building with a view to strengthen the horizontal and vertical institutional interphases for the management of consumer products hazards. This is to be done through coordination, awareness, advocacy, training, and equipping the participating institutions.

Besides the infrastructure (policies, laws, institutional frameworks) mentioned above, the following are necessary:

- i. Setting up a coordination mechanism to enable all the stakeholders to effectively participate in elimination of exposure of children to chemical hazards; NAPE should cause this to happen.
- ii. Mobilising the communities, the workers, the employers and the general public, through awareness campaigns, to remove children from handling dangerous chemicals and create the necessary awareness and respect for such chemicals; NAPE can carry this out on her own.
- iii. Providing training for NGO field staff in relevant areas with a view to mobilise participation, capability and support in the implementation of activities; NAPE can carry this out on her own.
- iv. Developing a sound information base on the relevant chemicals by collecting, storing, processing and disseminating information on toxic chemicals especially their transportation, storage and application, and creating a centre of chemical information; NAPE can carry this out in partnership.
- v. Promote awareness about regional and global issues concerning consumer products and hazardous chemicals. An awareness campaign and information dissemination programme should be put in place targeted at vulnerable groups. All the departments of Government mentioned above should be brought together within an appropriate institutional framework to carry out this exercise; NAPE can carry this out in partnership with them.
- vi. Increasing communication and collaboration with counterparts in other countries in the region through existing sub region and regional networks or working groups on issues of common interests;
- vii. Promote the ratification of appropriate and relevant regional and international conventions and protocols and promote the enactment of domestic legislation to implement the said conventions;

- viii. Undertake continuous and periodic evaluation of all aspects of engagement of hazards in the use of hazardous chemicals including production of regular profiles.
- ix. Working together with partners, Codes of Practice should be drawn out by the experts available in the country. These should be targeted to each user of hazardous chemical, public health and the environment. Each code detailing skills in application, storage, protective clothing, waste management and good practices during use. NAPE can cause this to happen.
- x. Carry out more research especially residue analysis to establish the actual state of entry of chemicals into the environment.

Consequently, further actions in a form of a medium term (three year) projects is required in the consumer protection area.

### **6.3.1 Action 1: Management systems**

*Goal:* The main goal of this is to achieve integration and risk reduction through an efficient consumer protection management system.

*Objective:* The main thrust of the effort should be capacity building with a specific view to strengthen the horizontal and vertical institutional inter phases for the management of consumer protection issues. This is to be done through institutional re-alignment, coordination, awareness, advocacy, training, and equipping the participating institutions.

*Output:* The main output is competent institutions effectively linked, coordinated and able to enforce the laws and deliver service at the grass root level; Integrated policies and legislations that mandate the institutions to consult, participate and coordinate; and competent functionally versatile seed manpower to provide continuity.

### **6.3.2 Action 2: Research**

*Goal:* To establish status, trends and ecological characteristics of the regions where chemical products are most intensively used.

*Objective:* The objective of this project should be an integrated and scientific, regionally compliant global assessment of the potential damage and negative

impacts caused by chemicals to the aquatic and terrestrial environments, their resources and amenities; as well as the trans-boundary nature of the problems.

*Output:* The key output of this includes data and information: Levels of presence of chemicals in various eco-systems of the environment; Source characterization; Trans-boundary movement; Impact and toxicological characterization; Priority setting; Management and regulation; Limiting factors; Mode of operations of the project; Stakeholders; Potential case studies and linkages. Under the levels determination, will be articulated residue levels in human populations (body burden), linked ecosystems, and their trends.

### *Activities*

- i. Developing a sound information base on chemicals by collecting, storing, processing and disseminating information on toxic chemicals especially their transportation, storage and application, and creating a centre of chemical information;
- ii. Developing district profiles and national profiles on the use of hazardous materials;
- iii. Undertake continuous and periodic evaluation of all aspects of the use of hazardous chemicals. It is vital to do an ecological reconnaissance to identify vulnerable components of it before going into full use of any chemical. This would avoid unintentional destruction of organisms that are useful to man.
- iv. Carry out sampling and body burden and residue analysis to determine trends in all the critical biota and biospheres.



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## ANNEX 1: BANNED PRODUCTS IN THE EAST AFRICAN REGION

The Kenya Bureau of Standards invoking legal notice number 66 of 1999 and Legal Notice 155 of 1998 (read together with legal notice 75 of 2000), issued a public notice in the media to inform and educate consumers on the harmful effects of mercury, hydroquinone, and hormonal preparations and oxidizing agents contained in some cosmetic products in the market. The action was in line with these legal notices, which empower the Kenya Bureau of Standards to prohibit any goods, which do not comply with Kenya Standards or any other approved standards.

In Kenya, these products have been inappropriately used for skin lightening, purposes. The prohibition/ban is aimed at protecting unsuspecting consumers and discourage dumping of these products in the Kenyan Market.

Hydroquinone, oxidizing agents and hormonal preparations are used for treating various medical conditions. They are therefore classified as drugs and should be applied only upon the advice and direction of a medical doctor.

All skin care preparations like creams, lotions, gels, soaps, etc containing hydroquinone, steroids and hormonal preparations should be registered by the Pharmacy and Poisons Board of the Ministry of Health for medical use. Their use in cosmetics was prohibited through gazette notices 4310 of 14th August 1998 and 7169 of November 2000.

The Government wishes to state that the following products are registered with Pharmacy and Poisons Board to be used as human medicines for various skin conditions:

BETNOVATE  
MEDIVEN  
DIPROSONE  
NERISONE  
DERMOVATE  
HYDROCORTISONE  
OXY 5 AND OXY 10

These products should only be used on the recommendation of a medical doctor and for such period of time as the doctor may prescribe. They should not be sold in the open market but only in registered pharmacies and chemists.

Cosmetic products listed below contain hydroquinone, steroids, mercury and hydrogen peroxide. They have not been registered with Pharmacy and Poisons Board as medicines. They therefore, should NOT BE OFFERED FOR SALE as they have not been registered and approved for use in Kenya.

### **SKIN LIGHTENING CREAMS CONTAINING HYDROQUINONE:**

JARIBU CREAM  
MEKAKO CREAM  
AMIRA CREAM  
TURA SKIN TONING CREAM  
YESAKO MEDICATED BEAUTY CREAM  
RICO COMPLEXION CREAM  
MADONNA MEDICATED CREAM  
MREMBO MEDICATED BEAUTY CREAM  
SHIRLEY CREAM  
KISS -MEDICATED BEAUTY CREAM  
UNO21 CREAM  
PRINCESS PATRA LUXURY COMPLEXION CREAM  
ZARINA MEDICATED SKIN LIGHTENER CREAM  
ENVI SKIN TONER  
VIVA SUPER LEMON  
AMBI SPECIAL COMPLEXION CREAM  
LOLANE CREAM  
NADINOLA CREAM  
GLOTONE COMPLEXION CREAM  
NINDOLA CREAM  
CLAIRE CREME  
MIC SKIN LIGHTENER CREAM  
TONIGHT NIGHT BEAUTY CREAM  
FULANI CREME ECLAIRCISSANTE  
CLERE LEMON CREAM  
CLERE EXTRA CREAM  
BINTI JAMBO CREAM  
BUTONE CREAM  
MALAIKA MEDICATED BEAUTY CREAM  
DEAR HEART WITH HYDROQUINONE CREAM  
MIKI BEAUTY CREAM  
CRUSADER SKIN TONING CREAM  
NISH MEDICATED CREAM  
ISLAND BEAUTY SKIN FADE CREAM

MALIBU MEDICATED CREAM  
PALMER'S SKIN SUCCESS FADE CREAM  
CARE PLUS FAIRNESS CREAM  
TOPICLEAR CREAM  
CAREKAKO MEDICATED CREAM  
BODY CLEAR CREAM  
A3 SKIN LIGHTENING CREAM  
AMBI AMERICAN FORMULA  
DREAM SUCCESSFUL  
SYMBA CREME SKIN LITE 'N' SMOOTH  
Ikb MEDICATED CREAM  
CLEARSTONE SKIN TONING CREAM  
CLEAR ESSENCE MEDICATED FADE CREAM  
AMBI EXTRA COMPLEXION CREAM FOR MEN  
CLEARSTONE EXTRA SKIN TONING CREAM  
O'NYIA SKIN CRÈME  
A3 TRIPPLE ACTION CREAM PEARL LIGHT  
ELEGANCE SKIN LIGHTENING CREAM  
MR. CLERE CREAM  
FAIRLADY SKIN LIGHTENING CREAM  
FADE OUT CREAM  
TOP LEMON PLUS CREAM  
CLEAR TOUCH CREAM  
CRUSADER ULTRA BRAND CREAM  
ULTIME SKIN LIGHTENING CREAM  
RICO SKIN TONE CRÈME  
BARAKA SKIN LIGHTENING CREAM  
PEAU CLAIRE CRÈME ECLAIRCISSANTE  
PRINCESS MEDICATED BEAUTY CREAM  
IMMEDIAT CLAIRE LIGHTENING BODY CREAM

**SKIN LIGHTENING LOTIONS CONTAINING HYDROQUINONE:**

JARIBU SKIN LIGHTENING LOTION  
AMIRA SKIN LIGHTENING LOTION  
A3 CLEARTOUCH COMPLEXION LOTION  
A3 LEMON SKIN LIGHTENING LOTION  
KISS LOTION  
RICO SKIN LIGHTENING LOTION  
PRINCESS LOTION  
PEAU CLAIRE BEAUTY BODY LOTION  
CLEAR TOUCH LOTION

FAIR & WHITE BODY CLEARING MILK  
SIVOCLAIR LIGHTENING BODY LOTION  
EXTRA CLAIR LIGHTENING BODY LOTION  
PRECIEUX TREATMENT BEAUTY LOTION  
CLEAR ESSENCE SKIN BEAUTIFYING MILK  
SKIN LIGHTENING GELS CONTAINING HYDROQUINONE  
ULTRA CLEAR  
TOPICLEAR  
BODY CLEAR

**SKIN LIGHTENING BODY OILS CONTAINING HYDROQUINONE:**

PEAU CLAIRE LIGHTENING BODY OIL  
SOAPS CONTAINING HYDROQUINONE  
M.G.C. EXTRA CLEAR  
TOPICLEAR BEAUTY COMPLEXION SOAP  
LADY CLAIRE  
BLACKSTAR  
AMIRA  
ULTRA CLEAR  
BODY CLEAR MEDICATED ANTISEPTIC SOAP  
IMMEDIATE CLAIRE LIGHTENING BEAUTY SOAP  
CHERIE CLAIRE BODY BEAUTY LIGHTENING & TREATING SOAP

**SOAPS CONTAINING MERCURY AND ITS COMPOUNDS:**

MOVATE  
MEKAKO  
JARIBU  
TURA  
ACURA  
RICO  
FAIR LADY  
ELEGANCE  
MIKI  
JAMBO

**SKIN LIGHTENING CREAMS CONTAINING MERCURY AND ITS COMPOUNDS:**

PIMPLEX MEDICATED CREAM  
NEW SHIRLEY MEDICATED CREAM

**CREAM PREPARATIONS CONTAINING HYDROGEN PEROXIDE(H<sub>2</sub>O<sub>2</sub>):**

JOLEN CREAM

**SKIN PREPARATIONS CONTAINING STEROIDS:**

MOVATE CREAM

SKIN SUCCESS GEL

HOT MOVATE GEL

AMIRA -C

NEU CLEAR GEL

TENOVATE

BODY CLEAR CREAM SPOT REMOVER

TOP GEL PLUS

SOFT AND BEAUTIFUL CREAM

LEMONVATE CREAM

SECRET GEL

TCB GEL PLUS

UNIC CLEAR SUPER CREAM

TOPIFRAM CREAM

SKIN BALANCE LEMON CREAM

PEAU CLAIRE GEL PLUS

DARK & LOVELY GEL

DERMO -GEL PLUS

PEAU CLAIRE CREAM

FASHION FAIR GEL PLUS

HOT PROSONE GEL

SKIN BALANCE CREAM WRINKLE REMOVER

DARK & LOVELY CREAM

VISIBLE DIFFERENCE GEL

SIVOCLAIR CREAM

ACTION DEMOVATE CREAM

REGGE LEMON GEL

ULTIMATE LADY GEL

TOPIFRAM GEL PLUS

AGE RENEWAL CREAM

FAIR & WHITE GEL PLUS

PEAU CLAIR GEL PLUS

FASHION FAIR CREAM

FIRST CLASS LADY CREAM

SKIN SUCCESS CREAM

NEU CLEAR CREAM PLUS  
JARIBU BETA -  $\beta$  CREAM  
BODY TREAT CREAM SPOT REMOVER  
CLAIR & LOVELY GEL  
PEAU CLAIR CREAM  
SOFT & BEAUTIFUL GEL  
ACTION DEMOVATE GEL PLUS  
PROSONE GEL  
SKIN BALANCE GEL WRINKLE REMOVER  
ULTRA-GEL PLUS  
PRO-ONE GEL MCA  
BETALEMON CREAM

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