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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

REGIONAL AFRICA

REGIONAL AFRICA LEATHER AND FOOTWEAR INDUSTRY SCHEME

US/RAF/92/200/11-51

MISSION REPORT (*)

in Ethiopia, Kenya, Tanzania and Zimbabwe

Based on the work of

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* *This report has been reproduced without formal editing*

EXECUTIVE SUMMARY

1. INTRODUCTION

1.01 The Hides & Skins, Leather and Leather Products Improvement Project has been regionally based in Nairobi for about seven years and has established its position and importance in the field. Some parts of the project have been involved in improving effluent treatment plants of the tanneries as well as other environmental improvements in the tanning industry.

1.02 The tanneries in the target countries have different levels of effluent treatment systems in use. Some have only very preliminary treatment stages, but some factories have very advanced treatment systems.

1.03 The clean technology approach is only used in selected tanneries and even in those it is practised only to a limited extent.

1.04 This study aims at collecting information on environmental aspects related to the leather industry in project countries with special emphasis on Ethiopia, Kenya, Tanzania and Zimbabwe. The information collected will be analyzed and an audit/assessment of the tanning industry impact on the environment will be prepared. Potential, future areas of activity will be discussed.

2. ENVIRONMENTAL LEGISLATION

2.01 In most countries environmental legislation is presently being developed. The stage of development varies country by country, but in general the trend in developing the environmental legislation is to accumulate all legislation dealing with environment under one collective act.

2.02 Presently the environmental legislation regarding effluent treatment varies from very advanced to non-existing. In some countries, according to the present legislation, the tannery does not have to take any preventive measures to protect the environment. Most tanneries have, however, installed some for of end-pipe treatment for their effluent.

2.03 As an example, Zimbabwe has had effluent standards for a long time and due to the shortage of water resources in the country the standards are very strict. This has been one of the reasons that many of the tanneries in Zimbabwe discharge their effluent to the municipal sewage network and they only have to do the preliminary treatment.

3. AUTHORITIES AND INSTITUTIONS

3.01 In general there is a government authority responsible for pollution control in all countries visited. New environmental authorities with wide responsibilities are being established or are under discussion in all countries.

3.02 Usually other institutes are also involved in this sector. The Bureau of Standards or equivalent members of International Standards Organization prepare standards for both specific aspects of effluent control and for quality control of production and final products. Industries themselves have also established organizations like the Leather Research Institute in Zimbabwe which can centrally have good laboratory facilities and product development related services. In the field of environment there are also NGO organizations which are active.

3.03 Water pollution control is usually based on water legislation and controlled by a Pollution Control Department in the Ministry of Water. In countries like Ethiopia and Tanzania where water pollution has been very limited, the authorities controlling the water pollution are not yet well established.

3.04 Air pollution control usually falls under the health authorities and their interest is naturally mainly geared towards the health aspects of air pollution with less emphasis on the deterioration of nature caused by air pollution.

3.05 Solid waste management has received less attention than water pollution control. The authorities concerned are usually not very clear since solid waste management is not very well organized and poor solid waste management can involve contamination of ground water, soil and vegetation or even endanger human health or well-being of animals. Solid waste management is very often left to local municipal councils to solve and they have very limited resources for proper solid waste management systems.

4. CLEAN TECHNOLOGY

4.01 Some attempts towards clean technology options are being made among the tanning industry in the target countries. However, generally speaking the tanning industry is very conservative and does not have the resources needed for research and development of production. They have also realized that the human resources available are limited. Usually clean technology options call for specific knowledge and very good process control methods.

4.02 As an example, one tannery in Kenya has studied the possibilities to recycle lime precipitated chrome, but they have not yet started practical operation. During the last three years, Imponente Tanning in Zimbabwe has developed their own low chrome processing. It took a great deal of time and effort as they did not receive much support from anywhere. They used to have chrome concentrations of 1,6% in float, but they have been able to come down to a level of 0,3 to 0,5%. They are continuing their efforts to improve their process and now they also have some support from chemical suppliers.

4.03 In most cases the process development efforts are based on recommendations made by chemical suppliers. Only the larger international chemical suppliers can give good technical support and even some of them do not fully appreciate the clean technology processes. There is also a general feeling that most tanneries are favouring the traditional processes rather than clean technology options because they are used to the traditional processes. There is a shortage of know-how, skilled labour force and methods of applying new process technologies.

5. EFFLUENT TREATMENT

5.01 The level of effluent treatment varies considerably. Some tanneries have hardly any treatment, while others have very advanced treatment plants. In most tanneries the chrome waters are separated inside the tannery, but separation is often very inefficient due to overflows, spillage and production practices.

5.02 Where chrome waters are separated from the rest of the effluent, the chrome waters are precipitated by adding lime and the separation takes place in settling tanks. The chrome sludge is dried in drying beds and disposed to the factory site or outside the plot. In one tannery in Ethiopia the chrome waters were disposed into large ponds which had enough capacity to evaporate the water and the sludge was disposed by occasionally emptying the dried sludge from the pools. In this case the climate is favourable for this type of operation.

5.03 In many tanneries the final disposal of chrome sludge is a problem and in very few cases - if any at all - the final disposal is done properly. Proper disposal is very site specific and should be looked at case by case.

5.04 In some tanneries the sulphide waters are also separated inside the tannery and the sulphides are oxidized as the first step of treatment. If the sulphide waters are not separated, some form of sulphide oxidation is usually applied as a first step of the treatment process.

5.05 Usually all the effluent streams meet after these preliminary stages, which include, on top of the above-mentioned, some form of screening and sometimes presettling.

5.06 The effluent is mixed and goes through an activated sludge process or lagooning. The activated sludge process can produce very high quality effluent. The efficiency of the lagooning is not well established. It is known that lagoons cannot operate satisfactorily in climates prevailing in Europe, but it might be possible to apply them in a tropical climate. However, the removal of chrome and sulphides may be difficult.

5.07 Sometimes final polishing ponds or similar arrangements are applied as a final stage of treatment. Usually these do not improve the final effluent quality much, e.g. because the ponds are not cleaned often enough and sometimes the formation of sulphides can even decrease the quality of final effluent. In one tannery the final effluent was chlorinated, but during the visit it was agreed with the tannery and concerned authorities that the chlorination be stopped immediately. Chlorination can form very toxic compounds which are harmful to human health and the environment.

5.08 The major problem in effluent treatment plants in the target countries is the proper operation of the plants. Another problem is the disposal of sludge from the mixed stream effluent treatment.

5.09 Joint treatment with municipal waste waters is practised on larger scale only in Zimbabwe. The effluent discharge limits are very strict in Zimbabwe and it would be very expensive to treat the effluent to such a level at the tannery alone. Also for the tanneries which are situated in industrial areas of urban centres this is the only practical solution.

5.10 In cases where the effluent is discharged into the municipal sewage network, only preliminary treatment is applied. In the case of joint treatment, the removal of solids, chrome and sulphides are the major efforts at the tannery. Process-wise this is not an easy exercise and operational difficulties are common, disposal of sludge is usually somewhat problematic and in some cases the dimensioning of the pretreatment facilities has not coped with other developments in the tannery.

6.HUMAN RESOURCES AND FACILITIES

6.01 The government authorities (Ministry of Environment or a body directly under it) in charge of controlling effluent discharges and water pollution have - in all target countries - very limited resources. There are few qualified people and sampling possibilities as well as laboratory capacities are limited.

6.02 "The polluter pays" principle is followed and, therefore, there is no immediate need to increase the capacity of the government institutions. The activities of government institutions could be more geared towards controlling and supervising the institutions and private laboratories giving controlling services against payment to the tanneries.

6.03 There are existing institutions like Leather Research Institute in Zimbabwe or Tanzania Bureau of Standards and similar organizations who have already some facilities and experience in dealing with tanneries. However, at the moment these institutions are not fully equipped nor do they have all the human resources needed.

6.04 The tanneries are lacking the human resources needed for proper operation of the existing effluent treatment plants. In some tanneries the effluent treatment plants are non-operational and in the need of major, intermediate repair. In most tanneries the possibilities for process control are also very limited because of lack of human resources and facilities.

7. RECOMMENDATIONS

7.01 UNIDO

7.01.1 In order to improve the development of clean technology options, it is recommended that UNIDO support the water balance studies aiming at lower water consumption levels and improved chemical utilization processes. Low chrome processes and good housekeeping practices should be emphasized. The use of solvents and other toxic chemicals should be critically analyzed and whenever possible minimized.

7.01.2 Modern production technologies which seriously take environmental considerations into account should be imported to the tanning industry in the region by UNIDO. One form of technology transfer in this field could be to arrange seminars in each target country to which relevant authorities, concerned industrialists and public, NGO and private institutions active in the field would be invited. These seminars would be arranged on a regional basis with the aim of stressing clean technology options and introducing the economic benefits that the tanneries could gain by investing in clean technology options.

7.01.3 UNIDO should support improvements (human resources and facilities) of the institutions and private authorized organizations controlling the effluent treatment plants of the tanneries.

7.01.4 In order to improve the operation of existing effluent treatment plants, UNIDO together with the tanneries should organize training courses for operators and responsible industrialists on operation and maintenance of the effluent treatment plants. These training courses should be organized on a country basis with a very practical approach.

7.01.5 The training of operators should be organized in each country at the carefully selected tannery which could act as a reference treatment plant. The training should include the basic information on treatment processes and very practical effluent treatment plant operation component. This training should also include follow-up from the trainers side to each tannery participating the training at the concerned tannery effluent treatment plant in order to give in-depth training to the operators at their own treatment plant.

7.01.6 UNIDO should prepare a tanning and leather industry environmental programme for selected countries in Africa. The programme could include the countries which are covered by the UNIDO Regional Africa Leather and Footwear Industry Scheme (RALFIS). The programme should include clean technology and end of pipe treatment for the tanning industry and should also look into the handling of sludge and waste disposal problems of the footwear and leather products industries. The programme should cover all the aspects of the industry, including legislation, human resources development and infrastructure improvements in the monitoring and on the industrial side.

7.02 GOVERNMENT

7.02.1 The governments concerned should consider gearing the efforts of the pollution control authorities towards controlling the institutions and private organizations offering services to the tanneries in respect to their effluent treatment plant operation and efficiency control.

7.02.2 The governments should authorize selected institutions and private organizations to control the effluent treatment of the tanneries.

7.02.3 As an experiment in Zimbabwe, it is recommended that at the college level a special training effort for skilled tannery work force should be tested. Mhuriimwe Colleges Association would be willing and suitable for this pilot plant project.

7.02.4 The pollution charges could be implemented or at least their applicability tested in selected cases. The basic principle of pollution charges in the case of tanneries could be implemented in such a way that it would encourage the industry to improve the level of effluent treatment. The pollution charge would be based on the combination of environmental effects of different polluting compounds present in the treated effluent. The calculation basis should be different for discharges into municipal sewers and direct discharge into recipient.

Because of many uncertainties in implementing this principle in developing countries, further development work is needed before pilot scale testing can begin.

1. INTRODUCTION

1.1 Background

The project is part of the regional programme US/RAF/88/100 for the development of the leather and leather product industry in ten African countries. The programme provides the participating countries in East - Africa with a leather sector development framework and is expected to be the vehicle to improve the performance of the leather and allied industries and to furnish the sector with a platform to achieve higher levels of added value operations.

The implementation of the programme commenced in 1989 and the first phase of the programme with complementary project components is near completion by the end of 1993. The programme is executed by UNIDO with a field office in Nairobi. At the country level the programme is coordinated by a network of national experts maintaining liaison with the competent Government counterpart Agency and industry associations/institutions.

The programme has been evaluated and found successful in many areas of quality and productivity. The private industry has been assisted through a revolving fund with dual benefits; for technical development as well as creating an element of self sustainability within the industry. On top of the technical and institutional improvements the programme has had a successful environment improvement component.

Based on the recommendations of the in-depth evaluation and requests from the participating countries a second phase of the programme has been designed.

1.2 Scope of the report

This project aims at assessing the tanning industry impact to the environment in four selected African countries; Ethiopia, Kenya, Tanzania and Zimbabwe. The assessment is based on literature survey and field work. In the field concerned governmental and municipal authorities, industries, different types of institutions and private people were visited. The report describes the environmental legislation and concerned authorities, discusses clean technology options which could be applied and describes the present effluent treatment situation in the project countries. Present human resources and facilities related to the environment in the tanning industry are discussed and finally conclusions are drawn and recommendations given.

2. ENVIRONMENTAL LEGISLATION AND INSTITUTIONS

2.1 General

The environmental legislation is fairly new development in programme countries. There has been clauses in different acts related to environmental issues already for long in most countries. However, only during recent years systematic approach to collect all environmental issues under one legislative framework or umbrella has taken place.

This process of renewing the legislation is actually still in progress in all visited countries in one form or another. The main clauses related to environment have usually been in health and water legislations. In some countries the legislation has given very few regulations related to environment. In this kind of situation the tanning industry has not invested much for their effluent treatment and even less care has been taken of the operation of the treatment plants.

Today the environmental requirements for tanneries are not at all clear in the programme countries. The new acts are not in force and in many cases even government authorities to guide and issue clear regulations do not exist or they have not clear enough laws to guide the development.

However, the general ideas towards better environment, cleaner technology and environmentally sound practises elsewhere in the world are quite well known both by the authorities and industries. The industry is also much concerned about environment since today they cannot sell on a long term basis their products in the world market if it is known that the production is a major polluter. There are financial constraints but the ground for positive development is very favourable.

The development of legislation is progressing also fairly well. The modification of legislation takes time since changes need to be discussed politically and formalities must be carefully checked as well.

2.2 Selected Programme Countries

2.2.1 Ethiopia

Ethiopia has been taken as an example and a more detailed study of the existing situation was prepared. Some of the future trends are also discussed.

The following chapter has been adcpted and modified from a recent study prepared by a legal expert in Water Supply and Sewerage Authority, Ethiopia.

2.2.1.1 Legal and institutional aspects of environmental protection

A. INTRODUCTION

The concept of environmental protection is a relatively new concept which dates from the 1970's and which emanated in the industrialized countries of the North. The concept evolved initially around industrial pollution, free disposal of industrial waste, the protection of the ozone layer of the atmosphere, and the conservation of the fauna and flora presently available in the sea. This concept has today been expanded to include even the developing countries and has increasingly been described as being a global concern.

The Earth summit held in Brazil in 1992 highlighted international concern for the environment and recommended to participating countries courses of action to include the environment dimension in all development policies.

This global concern for the environment is being tackled through appropriate political, economic and legal thinking at the international level. At the domestic level each nation is expected to frame its own thinking and to frame laws and institutions as well as to set courses of action to deal with the issue.

Institutional Development

The protection of the environment cannot be guaranteed through the issuance of laws only. It can be achieved only when government institutions and people become aware of the importance of the environment.

In the last few years, environmental issues in Ethiopia have become more urgent as people worry about diminishing resources for firewood, diminishing water supply and less available land for agricultural production. The causes and the remedies are, however, not thought of systematically.

Any environment oriented strategy must take into account the range of specialized concerns and define a coherent framework of action.

In this context, the participation of the people is essential and the government should establish the structures for including the people in any environment protection scheme. In Ethiopia, environmental issues are primarily rural issues and farmers should be made aware that the farm sector can be made more productive through better environmental protection policies. The emphasis should be reversed from the hitherto customary habit of thinking of the development process as being concerned with the input of more resources, more labour and more inputs and turned more into linking more inputs with conserving the environment into which these inputs are added.

The proliferation of government institutions involved in the rural sector will sometimes become an impediment to the formulation and setting-up of conservation strategies. A way should be found therefore by which environmental issues can be addressed without extensive bureaucratic entanglement. The planned establishment of an Environment Protection Agency in Ethiopia will help a great deal in solving this particular problem and it is hoped that this Agency will establish simplified structures for its relations with other government agencies and simplify the intervention at various levels of environmentalists.

Between the government institutions and the public lie local structures such as peasant associations, development committees and industrial entities which may be described as the representatives of the gross-roots community in its organized form.

All the above actors in the environment scene can play a useful role to the extent that present research programmes identify adequately the precise environmental needs.

Environmental and Economic Issues

The economic component of all environmental protection measures is an important consideration to bear in mind as the situation in a country like Ethiopia with scarce financial and trained human resources permits certain forms of measures only.

Environmental Issues and Education

The dissemination of information to the general public on environmental issues is a necessary component of effective legal enforcement.

Regional Balance of Environment Protection Policies

In view of the present government's priority policy of enhancing regional development and reversing the hitherto followed policy of concentrating capital and human resources within the nation's capital, environmental protection policies should as much as possible keep this policy in mind and maintain regional balance in the areas they choose for intervention. Environmental protection policies are often tied in with other projects, of course, and the opportunity for their independent determination of the area in which they are going to intervene will be limited but when this occasion arises this government policy should be kept in mind.

The Government's New Economic Policy and its Implications for Environmental Protection

The reversal of the previous socialist-oriented economic policy and its replacement by a free enterprise system has become the declared goal of the present government since the early days of its accession to power in 1991.

This policy decision demands that a vigorous public awareness campaign should be conducted to make the public understand that free enterprise does not mean anarchy and that the government's regulatory role will continue to be necessary where the interest of the general public is threatened. Unlimited private exploitation of resources will, therefore, continue to be curbed with regulations to protect the environment.

B. GENERAL LEGISLATIVE FRAMEWORK

The Role of the National Constitution

Often countries put in their constitution which is their highest legal document, matters which they think are of the highest importance. The case of resources and environmental protection have now become an increasingly frequent provision found in constitutions. Their presence in the constitution makes the task of the legislator simpler and draws attention to their urgency.

Domestic Legislation

In Ethiopia, there is little legislation at the domestic level that address itself directly to the protection of the environment.

Whatever legal provisions may be available are found in laws which were issued for other more general purposes but which have some incidental provisions relating to this subject. Until, therefore, a clearly designated piece of legislation addressing this issue is promulgated all protective measures that are intended to be taken have to get their legal source from these dispersed provisions.

Legislative Possibilities

1. Upgrading the present dispersed legislation to include in all the laws environment related provisions. This is not a very practical approach as it will involve the revision of many laws and will make the task of the legislator very burdensome.

2. Enacting a comprehensive environment related legislation. This seems to be the choice adopted by the present government as a comprehensive environment protection law and an implementing agency to go with it are in the process of materializing. This choice has the advantage of making the law accessible to everyone but may have the slight drawback of not addressing all environment protection issues in sufficient detail. On the other hand this drawback may be remedied through subsequent detailed regulations that will be issued by the implementing agency.

This by the way is not a completely new approach as there were attempts previously to set comprehensive environmental policies notably through the office of the National Committee for Central Planning, the Valleys Development Studies Authority, the Water Resources Commission, the Ethiopian Standards Authority.

Legal Sanctions Generally Available for Enforcing Environment Protection Laws

Any law is obviously ineffective without accompanying provisions for its enforcement. Enforcement mechanisms are called sanctions or remedies.

Remedies are the measures that are taken to correct the damage to the environment and are usually measures used by private individuals.

Sanctions or penalties are the punitive measures that are taken against those who violate the law and cause damage to the environment. They are measures taken always by the government.

The Dual Aspect of the Legislative Process

In any study or research into a given country's legal provisions pertaining to a given problem the following should be kept in mind:

1. At the highest level of the legal hierarchy is found what is known as the enabling legislation which is the law issued by the highest law making authority of the country and establishes the basic law and the main government organ that is responsible for a certain action.

2. After the enabling legislation is issued, it is usually followed by what is called subsidiary legislation which is issued by the government organ created under section 1 and consists of detailed regulations for the day to day implementation of the enabling legislation.

The Issuance and Implementation of Laws in a Federal State

As the likely future shape of the Ethiopian State is going to be federal, the legal structure will be as follows:

1. Policy decisions and the basic enabling legislation will come from the central government.

2. Operational regulations will come from the regions.

Implementation of Statutory Regulations

At this level grass-roots public authorities should be advised to take the following measures:

1. The designation of an agent to control and to sustain the protective measure;

2. The setting down of certain forms of incentives for the population for its cooperation;

3. Penalties against those persons who violate the rules laid down for the specific environment protection activity.

The Relationship Between International Legislation and National Legislation

1. International legislation can be useful at the national level and should be consulted as it can provide useful forms of action at the national level.

2. International legislation can also be useful when cross-boundary environmental impact study is being conducted. It can provide mechanism for joint action.

Environmental Concerns that are Usually Addressed by the Law

Environmental concerns are naturally as inexhaustible as nature's varied resources, so there can not be one exhaustive list to which the law on the environment should address itself.

The following is a sample of some of the problems that can be dealt with:

- Water pollution control
- Toxic material disposal
- Prevention of radiation
- Prevention of excessive or harmful noise
- Prevention of erosion
- Solid waste disposal
- Prevention of air pollution
- Protection of endangered species
- Control of disaster
- Control of drought
- Protection of archaeologically and historically valuable sites
- Protection of human settlements

Administrative Decisions and Judicial Review

The relationship between the two should always be clearly kept in mind in any review of the law relating to environmental protection. Decisions are always made by the government administration when an issue related to protection arises. Whatever decision is taken nevertheless may affect the rights of private citizens. Whether these decisions are legal, meaning consistent with present legislation, or just, meaning that they don't cause unnecessary harm, is determined by judicial authorities. Whether it be the

state that is suing an individual or the individual suing the state, the judiciary bears the ultimate responsibility in determining who is at fault and what measures are appropriate for correcting the situation.

The establishment of an independent judiciary by the present government and the traditional custom in Ethiopia to take all conflicts to the courts should make it clear that the court system is part of the Environment Protection Law and one should not believe that the government agency responsible for this area is the supreme organ in this area.

The courts have a role to play and they can play a useful role. In this context, they should not be considered as impediments. If they are properly staffed and oriented to the subject they can be good tools for the enforcement of the law and protect both the rights of individuals and the powers of the government.

Human Rights Dimension of Environmental Protection Law

Although damage to the environment can be caused by both private individuals or industries and the state, the one that causes more damage in the context of the developing countries is the state. Development projects are undertaken by and large by the state which has the greatest means at its disposal to alter the environment and in the process cause damage to it.

The state has the duty, therefore, of including the notion of protection in the economic and social goals it sets for the country. Human rights be they political or economic rights are, therefore, part of its concern in a modern developing country. The whole process of protection should be understood, therefore, as being part of this human rights concern as the role that the state plays in protecting the environment can not be separated from its duty to the people to enhance their economic and social well-being.

The government's decision in the charter of 1991 to adhere to all International Human Rights Convention should, therefore, be considered as part of the general law applicable to the environment.

C. PRESENT LEGISLATIVE AND INSTITUTIONAL SYSTEM

Forests

The State Forests Proclamation issued under Proc. No. 225/1965 and two related laws issued with it are the main laws in the area of forest protection. The Ministry of Agriculture is the executing agency of the laws. The purpose of the law is clearly stated and a great deal of provision on protection of forests, the conservation of soil and the water regime is included.

Mining

Under Proclamation 282/1971 the Ministry of Mines and Energy is empowered with the implementation of resource conservation measures in this area.

Marine Pollution

Proclamation 8/1987 creating the Ministry of Transport and Communications and Proclamation 139/1978 establishing the Marine Transport Authority give these two government agencies the power to establish regulations for the prevention of marine pollution.

Air Pollution

Proclamation 201/1980 establishing the Meteorological Service Agency has a few provision on the prevention of air-pollution although its treatment of this subject is scanty. Additionally the health related issues are dealt with Ministry of Health.

Population Policy

The Proclamation stated above relating to the Ministry of Agriculture has a few provisions on population management policies and the Ministry of Urban Development and Housing has provisions on urban population management.

Noise Pollution

There is no legislation in this country addressing this issue comprehensively. The Civil Code of Ethiopia issued under Proclamation 165/1960 and the various Road Transport Regulations and health and safety regulations may provide some dispersed answers to questions arising in this area.

Protection of Antiquities

Antiquities are protected by Proclamation 229/1966 and Proclamation 36/1985 which provide for mechanisms of issuance of permits for archaeological studies, and measures to be taken by the state for the preservation or restoration of antiquities.

Fisheries

Apart from a Decree 13/1989 relevant to Fish Marketing Corporation Ethiopia has no laws addressing fisheries. In the absence of such a law, existing fisheries are under the unofficial control of Fishermens' Association which set their own regulation for their locality.

Water Resources

Hitherto water resources have not been the subject of a comprehensive law on their ownership, exploration or conservation.

Up to the present day, the various customary uses of water, such as providing for safe drinking water, undertaking water related construction or research into the energy, agricultural, industrial uses or water were done by different agencies.

The country has now drafted a Water Resources Code and detailed Regulation to go with it.

The objectives of the Code are the following:

It is the declared policy of the government to pursue a rational and economical policy with respect to water.

Water resources are declared to be the collective property of the people.

The main uses to which water can be subjected and to which the code addresses itself are:

The construction of water works

The withdrawal of water from a water source

The discharge of waste into water

The Establishment of Water Districts

Water districts corresponding to the main river basins of the country as opposed to administrative regions are established as areas over which the competent government authority will exercise its powers.

The Establishment of District Water Authorities

Each water district will be administered by an authority corresponding to it for purposes of implementing the provisions of the Code. These Authorities have regulatory responsibilities.

The Necessity of Permits

Under the Code, all the declared uses to which water can be put can be undertaken only by the application for and the issuance of a valid permit. Thus all industrial, agricultural, mining, transportation or recreational activities that use water require a valid water permit.

Compilation of Inventory of Water Resources

The implementing agency has the responsibility for identification of quality and quantity of water resources and establishing data on needs and on consumption of water.

Appeals Procedure

An administrative appeal procedure is provided for a person who is refused a permit by the implementing agency for the withdrawal of water, for water works construction or for a waste discharge activity.

Control of Harmful Effects of Water

The implementing agency is empowered with the capacity to issue regulations for the avoidance of damage from floods, soil erosion, siltation, sewerage, salinization and other causes.

In addition to the above draft law the civil code of Ethiopia has provision on the ownership and use of water and should be consulted for additional information on water law.

These provisions are found beginning with Article 1228. Under Art. 1235 the pollution of water by the construction of any work such as a sewer or latrine is prohibited. Under Art. 1236 is treated the case of irrigation and the rights of downstream users of water. Art. 1252 provides that irrigation canals can be constructed only after the payment of fair compensation to the owner of land. Art. 1239 together with Arts. 1247 and 1250 treat of the compensation due to persons who cannot use their land due to the construction of drainage works on the land. Art. 1254 provides for the payment of compensation to owners whose land is crossed by pipes.

On the manner in which the amount of compensation is determined Art. 1240 states that it must be equitable and Art. 1254 states that the considerations to be taken into account in determining the amount of compensation are the value of the land and the inconvenience caused to the owner.

D. OTHER ISSUES

Land Ownership and Land use Rights in Ethiopia

Land in Ethiopia is state-owned. Individuals hold land on a possessory title. On the other hand, there are areas where besides being the owner of land, the state exercise direct control over it. Therefore, although in both cases the owner of the land is the state, land is either controlled by the state or it is controlled by the individual.

This state of the land has been endowed with legal sanction by Proclamation 31/1975 issued to deal with Government Ownership of Rural

Land and Proclamation 47/1975 issued to cover Government Ownership of Urban Land.

Under Art. 3(1) of the first Proclamation, all rural land shall be the collective property of the Ethiopian people. Under Art. 4 any person who wishes to personally cultivate land shall be given rural land. Art. 6 prohibits the transfer of land by sale, succession, mortgage or lease thus ensuring the government's sole right over these issues. In the area of compensation for incursions into the possessory right of individuals the Proclamation under Art. 7(2) states that the government shall pay fair compensation for property found on the land but that the amount of compensation shall not take the value of the land into account.

Proclamation No. 47/1975 providing for the ownership of Urban Land sets out by defining urban land as land found within the boundaries of a Municipality or a town. Article 3(1) proclaims that all urban land shall be the property of the government. Article 4 states that no urban land may be transferred by sale, mortgage, succession or otherwise thus defining the governments absolute right over it. Article 5 introduces the possessory right of individuals by stating that any person may be granted the possession of urban land up to 500 sq. meters for the purpose of building a dwelling house. In the area of the rights of the individual over his possession Article 8(2) provides that the Ministry concerned shall give compensation in kind when it expropriates for public purpose urban land held by a person.

The Law on Expropriation in Ethiopia

The Civil Code of Ethiopia of 1960 provides starting with Article 1460 that the owner may be compelled to surrender the ownership of land for public purposes. Under Article 1472 equitable compensation shall be paid to the owner (under the present circumstances, to the possessor) and the amount of such compensation shall be fixed by arbitration. Article 1477 grants to the individual the right of appeal to the courts if he is not satisfied by the arrangement made for his case. Article 1486 states that although compensation will be payable, the long process of expropriation proceedings shall not be necessary for measures taken by the government which do not impair the normal use of land such as the installation of underground pipes, aerial lines or poles.

2.2.1.2 Development needs

In Ethiopia, the problem of environmental legislation is not non-compliance or evasion but the non-existence of a comprehensive environmental legislation and mechanism to enforce it. Whatever legal provision may be available are found in laws which were issued for other more general purposes but which have some incidental provisions relating to the environment.

After the participation of the 1992 Rio Earth Summit, the government took measures to address the environmental problems of the country. Soon after this, the Ministry of Natural Resources Development and Environmental Protection was established. Its establishment proclamation No. 26/1993 gave it the power to formulate policies and strategy regarding the country's environmental protection. An important responsibility given to the Ministry with regard to the environment is the conduct of studies which will assist in controlling the impact of the depletion of natural resources on the environment as well as to combat water, soil and air pollution. The Ministry has also power to prescribe the quality standards for waters to be used for various purposes as well as treatment standards for sewage. The Ministry, which is a new one, has not yet issued legislation regarding water pollution.

The Environmental Protection Agency was established also in 1993. It is aimed to be a regulatory body working fairly independently according to the guidelines given by the legislation and the Ministry.

The Regional Governments are also expected to play a more important role on regional level in the future.

Legislation

The legislation is being developed but the resources available within Ethiopia for this process are fairly limited. There is a clear need to involve experiences and application approaches from other countries into the development process. Very important would be to compare and analyze the legislative developments taking place at the same time in neighbouring countries.

The role of UNIDO in this process could be giving its input from the industry and international point of view. However, national and other international organizations should have the leading role in developing the environmental legislation.

Institutions

There is a great need to develop both private and government institutions playing part in protecting the environment. In the private sector there are only few individuals or small companies who have some level of understanding on environmental issues. In some industries the technical staff know about the environmental problems but they lack to a large extent the practical experience in operating and managing the environmental protection systems like effluent treatment plants.

The government institutions are very recently established and they lack human resources, physical facilities and experience.

2.2.2 Kenya

2.2.2.1 Legislative Framework

The legislative system of Kenya is closely related to that of British system. The water act was originally mainly aimed at other than pollution related purposes. Presently the water legislation is in the process of being amended but the final form is not confirmed yet. There will be much more emphasis on the water pollution control than in the present water act.

Solid waste management and air pollution control have received fairly little attention until recently. The process of developing these legislations is in progress. Appendix 2 shows how scattered the environmental legislation is presently.

From the point of view of industries this situation means that they have to prepare themselves for the possible future requirements which cannot be produced from any existing legislation or standards. Therefore they have to be aware of the international development in the field of environment.

2.2.2.2 Authorities and Institutions

Since the legislation is in the process of being developed the roles of different authorities are not very clear. A task force called National Environmental Action Plan is reformulating the whole structure of environmental authorities and institutions. The new structure is expected to go through some form of discussions before being implemented.

At the moment the key roles within the environmental authorities are with National Environmental Secretariat as a coordinator and Ministry of Water Development and Ministry of Health. At the local level the most important authority is the Municipality.

For the tanneries the Ministry of Water Development and the local Municipality are the authorities regulating and supervising their activities from the environmental point of view. Effluent treatment is the main concern of the authorities.

The private sector can offer very limited consultancy and laboratory services for the industry. There is a potential to develop these activities but there are several obstacles still. The volume of request is limited and very specific, technical experience is lacking and resources to develop the sector are very limited. Therefore there is a clear need for the international community to support this development process.

2.2.3 Tanzania

2.2.3.1 Legislative Framework

The situation in Tanzania is to some extent similar to that of Kenya but there are several differences as well. The present environmental legislation is scattered over a huge number of degrees and acts (see appendix 3). In practise there has not been any real environmental legislation in force. The control of industrial pollution has not been of major importance in water or any other act.

During the last few years there has been a growing awareness towards the need for more clear and environmental oriented legislation. Presently great efforts are being made towards developing the environmental legislation.

It is fully understood that the development process of the legislation takes several years to be applied. Therefore efforts are made also to apply degrees and acts of the existing legislation related to pollution control by emphasising this aspect of pollution control more strongly than previously. It is hoped that the transition period will be shorter and the environment will be less polluted.

2.2.3.2 Authorities and Institutions

The development of authority organizations follows the development of legislation. The Ministry of Environment and National Environmental Management Council (NEMC)are the major authorities dealing with environmental issues. However, the Ministry of Water, Energy (MAJI)and Minerals and the Ministry of Health are still involved with environment in their respective fields.

The development of the legislation will restructure the authority organizations in the near future. For the time being the NEMC will be the main government authority guiding and supervising the industries in respect of their pollution control measures.

The Tanzanian Bureau of Standards is well equipped and they have fairly good laboratory facilities. Their human resources are capable of handling variety of environmental issues. They are also used to work with industries and they have a mechanism to charge for their services as well. Therefore there is a potential to develop this institution towards environmentally oriented institution.

2.2.4 Zimbabwe

2.2.4.1 Legislative framework

The present environmental legislation dates back to 1970's and new legislation is to be implemented in the very near future.

The main concept is to prepare an environmental impact assessment on every major activity conflicting even to a smaller extent with the environment. On the basis of the assessment the operational permits can be issued. However, this approach is being discussed in public and based on the outcome of the public discussion the legislative framework will be finalized.

The effluent standards presently applied in Zimbabwe are very strict (see appendix 4). This is based on the limited and fairly scarce water resources of the country.

2.2.4.2 Authorities and Institutions

The developments in the environmental legislation have a great impact on the development of the authority organizations. The present authorities are clearly better established than in many other East-African countries.

The municipalities are fairly strong authorities in questions related to the control of environmental issues. In bigger municipalities they also have reasonable resources for these purposes.

The private sector in Zimbabwe is much more developed than elsewhere in East-Africa and this fact gives an additional resource base for improving the pollution control system of the country.

3. CLEAN TECHNOLOGY

3.1 Clean Technology Definition

Clean technology definition covers vide range of industrial activities among all types of industries. This report is limited to leather industry and tanning processes and therefore the clean technology term is limited to cover only aspects relevant in this field.

Leather industry and tanning process is regarded to generate substantial amount of pollution. Bulk of the pollution is in liquid and solid form. Chemicals introduced in the process contribute additional toxicity to the waste. Chrome is generally regarded the most difficult single polluting agent in tannery wastes. High of organic matter and sulphides may cause bad odours and complicates the treatment of effluents.

3.2 Clean Technology Development Trends

3.2.1 General

Tanning process has been used in its present form for many years. During last twenty years or so there has been an increasing pressure to develop cleaner and more environment friendly tanning methods.

In tanning there are three major production stages:

- beamhouse operations
- tanning
- finishing

The beamhouse operations are soaking, removal of meat, tissue and fats (fleshing) and the removal of hair by liming. The bating is the part of this stage. Tanning includes pickling and tanning. Finishing includes retanning, dying and application of fat. All stages include washing between the steps. Tanning may be vegetable, synthetic, chrome or combination of these. By far, the most common method is chrome tanning.

The industry, chemical producers, research institutes and different international organizations have developed the tanning process. As a result several new modifications have been tested and implemented. Some of these have been successful but some have failed.

The requirements for process development are very strict since environmental improvements achieved must not deteriorate the final product. In an optimum case even the final product can be improved with the process modifications implemented.

One specific feature in the leather industry is that some of the characteristics of the final product can be seen only on a long term basis and these are difficult to test.

The internal measures to control the pollution have proved to be more economical than external measures in most fields of industries and in most cases. However, usually even the most effective internal measures do not reduce the pollution to completely acceptable level.

3.2.2 Process Technology

Decrease in the use of chemicals and water and the change of chemicals are the main ways towards the cleaner technology. Additionally change of machinery and new modes of operation can reduce the pollution from the process.

The internal measures can be implemented through selected operational and/or process modifications or through reconstructing the whole production line.

In general terms the internal measures can involve the following.

a) Water conservation

Water conservation has important secondary benefits, in addition to reducing demand on the water supply. Lower water consumption implies

smaller sized plants (especially treatment plant), reduced consumption of chemicals and likely lower operation costs, including the cost of energy.

Variations in water consumption range from less than 25 l/kg of raw hide to greater than 80 l/kg for apparently similar technologies. A working figure of 50 l/kg is generally accepted. There is often considerable scope for improvement in efficiency of water use through:

- increased volume control of process waters
- batch versus running water versus counter current flow washes
- low float modification of existing equipment
- low float techniques using updated equipment
- reuse of wastewaters in less critical processes
- recycling of individual process liquors

b) Unhairing and liming

Traditional soaking and unhairing account well over 50 % of the BOD load in typical tannery effluents. There are no easy solutions to this problem but some of the approaches to reduce the pollution from this stage include.

- hair save operation
- sulphide substitution or volume reduction
- recycling of lime/sulphide liquors
- sulphide stripping and re-use
- protein precipitation

c) Chrome tanning

Most chrome tanning technologies are inherently inefficient due to the low levels of chrome fixed in the tanning bath, coupled with bleeding out of the chrome in subsequent processes. Developments to reduce chrome discharge focus on:

- high chrome exhaustion
  - short float
  - increased temperature
  - increased time of tanning
  - increased basification
  - decrease in neutral salts
- chrome tannage recycle
  - recycling of used chrome liquors to tannage
  - recycling of used chrome liquors to pickle
- chrome precipitation and recovery
  - the hydroxide sludge mechanically dewatered and the cake so formed then being redissolved with sulphuric acid and re-used
  - the liquor left settle overnight, chrome free supernatant discharged and remaining hydroxide sludge redissolved with acid in situ and re-used.

d) In house management

Continuous production process control, process development, in house water management, chemical usage, control and development of daily operation are some of the important issues that the factory and production managers must follow up very carefully in order to achieve economic, effective and environmentally sound tannery operation.

It is clear that existing old factory building, equipment and many other factors limit the possibilities to apply new ideas. However, the effect of internal measures is very big. By experience the pollution load has decreased considerably at the same time as the production capacity has increased.

3.3 Applicability in Africa

Most factories in the target countries of this project use traditional tanning methods and conventional well tested processes. This may be due to the fact that the infrastructure supporting industries is not as well developed as in some other parts of the world. Therefore it is more difficult to get support from suppliers and there is not enough technical knowhow readily available for factories.

The products have mainly been semi finished leather products and the pressure towards environmentally sound production has been less than in industrialized countries. All these factories have formulated the history of tanneries in Africa.

The attitudes within the tanning industry towards clean technology varies. The awareness of clean technology varies. The awareness of clean technology in Ethiopia is hardly existing, Kenyan tanneries test some ideas, Tanzania is just about to restart the tanneries and they follow fairly closely the development in Kenya even though in the starting phase processes are rather conventional. In Zimbabwe some tanneries have done on long term basis their own process development work and e.g. in reducing the chrome concentration in the effluent they have gained good results.

The attitudes in the management of tanneries vary case by case. In general terms the attitudes are positive but obviously the top management in many tanneries do not see the advantages of clean technology and the potential savings in the production. Many managers have an understanding that clean technology processes are more expensive, maybe more difficult to operate and may lead more easily quality problems in final product. These aspects are important but the positive factors like savings in chemicals, energy, water and especially in effluent treatment are not so well know by the managers.

The exchange of information between the tanneries is very weak and therefore new ideas do not easily spread within the industry.

This shows that clean technology methods can be applied in African countries but it will need still quite a lot of effort and change of attitudes.

3.4 Development needs

The clean technology options can offer good possibilities for tanneries to decrease their pollution towards the environment. Internal measures are cost effective and give a positive input towards developing the industrial activities.

Technology transfer from industrialized countries in the field of clean technology should be strongly increased. This involves many activities:

- technical knowhow
- management development
- improved operational practises
- human resources development
- improved communication

Clean technology options have been applied in industrialized countries and these should be introduced to tanneries in Africa as well. However, its should be clearly noticed that the industrial infrastructure cannot be changed suddenly and therefore introduction of clean technology options should take place step by step.

Development of management, operations, human resources and communications should be linked with introduction of clean technology. The factory is one complete entity which is as weak as its weakest link.

4. EFFLUENT TREATMENT

4.1 Common Effluent Treatment Methods

The effluent from the tannery can come out as one stream where all process waters are mixed or as several streams with different characteristics. In cases where internal measures to limit the pollution load are effective it may be an advantage for effluent treatment to have only one effluent stream. Where clean technology processes and effective internal measures have not been implemented it may be best to split the effluent stream inside the factory into two or three streams. Most common solution is to have two streams where chrome waters form one stream and the rest of waters the other stream. Additionally sulphide rich waters may be separated as the third stream. The separation of streams inside the process enables pollutant specific primary treatment for each stream. On the other hand this system easily brings additional phases and extra costs to overall treatment system.

4.1.1 Primary

Primary treatment means mechanical purification of water. Settling and screening are the most common methods. In some situations very good results can be achieved by flotation. Grit removal may be required in municipal effluent treatment plants, but not very often in industrial effluent treatment.

There has been new developments mainly in screening and flotation technology during recent years. These two can offer very good applications to leather industry. Screening can remove most of solid particles up to diameters less than one mm. if so designed. Proper screening can greatly exchange the smooth operation of further steps of effluent treatment plant.

Flotation can be applied in primary treatment in stead of settling. It has an application for final or polishing stage as well. When flotation is applied in primary phase it should preceded by screening. Flotation unit can be easily constructed to balance the flow as well. Flotation is very effective in removing fine solids and by adding chemicals the process can be further intensified.

In leather industry where internal measures to reduce sulphides are not completed an additional step of primary treatment may be required. In case where sulphide construction is high these must be removed before entering any biological step. Usually sulphides are removed simple aeration. In cases where internal measures are well accomplished the low sulphide concentrations can be discharged directly without pretreatment into the activated sludge process provided that aeration capacity is big enough.

The selection of primary treatment methods must be well coordinated with the production. The flow equalization and p-adjustment may be need already before primary treatment or as part of it.

More emphasis should be placed on primary treatment including flow equalization since well functioning primary treatment can make big saving and facilitate smooth operation of following step of treatment.

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third stream. The separation of streams inside the process enables pollutant specific primary treatment for each stream. On the other hand this system easily bring additional phases to overall treatment system.

4.1.2 Secondary treatment

Secondary treatment in leather industry is usually biological process. Chemical precipitation can be used for chrome waters. Effluents containing high concentrations of organic matter are not well suitable for chemical treatment.

There are many biological processes but the activated sludge process with its many modifications is most common. Trickling filters and other attached growth reactor types are used to some extent as well. Biological lagoons or stabilization pounds can be used mainly regions where climate is favourable for this process.

Secondary treatment methods are widely used in effluent treatment. However, the number of applications in leather industry is limited and many factories have their own specific features which make them unique. The solutions cannot be readily copied and this calls for careful consideration in design and continuous research efforts.

4.1.3 Tertiary treatment

In cases where effluent treatment requirements are very strict where may be a need for tertiary treatment. Tertiary treatment means usually further polishing step after the secondary treatment. The methods applied include flotation, settling, sand filtration land treatment and more complicated methods like ultra filtration, reverse osmosis, other membrane technology methods, magnetic separation, electricity based methods and resin based technologies. A lot of effort has been put on membrane technology development during recent years and there are several promising applications to be foreseen.

The tannery effluents requiring tertiary treatment can be treated by sand filtration or flotation/settling or by combining these. Flocculant aids like polymers or other chemicals can be added to enhance the process. Land treatment can be applied in selected cases but fairly high salinity of treated effluent limits this application.

4.1.4 Jointly with Municipalities

Tanneries which are situated in the vicinity of severed areas or in severed industrial areas have a possibility to discharge their effluents to common sewerage system. This is usually good solution but in all cases some pretreatment is needed. The chrome sulphides and organic matter concentrations are too high for common sewerage system.

Chrome is heavy metal and it may cause toxicity problems for the biological treatment process of municipalities and heavy metal concentrations in excess sludge ma become to high for safe disposal.

Sulphides may cause toxicity problems and very severe corrosion problems for the sewerage network.

Organic matter may start decomposing in the network generating explosive gases bad smell and potential blockage.

Pretreatment methods which can be applied are the same as for primary treatment and selection depends greatly on the requirements for effluent to be discharge to the common sewerage system.

4.2 Present situation and required treatment level

In most countries there are limitations for effluent discharge. However, some of the limits are not very applicable and they are usually very weakly enforced.

4.2.1 Ethiopia

Clear regulation or exact limit values for effluent discharges do not exist. There is a very rapidly growing awareness towards improved environment and more stick limitations can be foreseen. However, presently most tanneries do not properly treat the effluents.

Some reconstruction of existing effluent treatment facilities are in progress and new tanneries are constructing effluent treatment systems prior to start the production.

4.2.2 Kenya

Water legislation requires effluent treatment and requirements for municipal effluents are applied to industries. These are not very easy to apply to tanneries and practice the effluent treatment plants do not produce very high level of treatment.

These usual treatment system consist of flow separation inside the factory and removal of chrome by precipitation, sulphide oxidation and biological removal of organic matter. The treatment plants have usually several problems. Capacity may be too small, operational problems (mechanical failures) are common, chemical dosage systems are not precise enough, oxygen transfer capacity in the activated sludge process and sulphide removal processes are not good enough. These are some typical examples but plant by plant there are further more plants specific problems as well.

4.2.3 Tanzania

Only small scale tanneries are operational and their effluent treatment systems are poor. Three bigger real industrial size tanneries are about to restart the full production and simultaneously with the production line reconstruction the effluent treatment plants are reconstructed as well.

There are temporary standards for effluent discharges in Tanzania (appendix 1) but in practice these are very difficult to apply directly for tanneries.

Very strict application of standards would make the operation of tanneries practically impossible. Therefore it would be important to prepare new guidelines for tannery effluent discharges.

4.2.4 Zimbabwe

Tanneries in Zimbabwe have usually effluent treatment plants and some of the tanneries have implemented successfully internal measures to reduce the pollution loading. The effluent treatment plants have in many cases operational problems due to various problems. There is a shortage of spareparts and often the delivery time for spareparts is long, operational control of effluent treatment plants is not properly executed, there are design faults, malfunctioning of equipment, effluent treatment plant does not have any feedback to the production process and overall management of effluent system causes problems.

The effluent standards in Zimbabwe are very strict because of scarce water resources of the country. The enforcement of the standards has some shortcomings but in general the tannery effluents in Zimbabwe go through reasonably good purification process.

4.3 Development Needs

The development needs vary greatly from country to country and from tannery to tannery. Therefore many of the development needs are site specific.

There is an urgent need in some tanneries to improve the existing effluent treatment facilities. There are some factories in operation which in practise do not have any form of effluent treatment and the whole effluent treatment system should be constructed.

Almost in all tanneries there is a need to improve the operation of the effluent treatment facility. This activity should include a wide variety of actions. The monitoring practises, spareparts and chemicals handling and storing procedures should be improved, basic and continuous training should be organized and the overall management of the effluent treatment system and its relation to the production should be reorganized.

The handling and final disposal of sludges and especially chrome sludges needs in most cases much improvements and more attention should be given to this important issue.

5. HUMAN RESOURCES AND PHYSICAL FACILITIES

5.1 Expertise Required

The human resources in the fields of effluent treatment and environment are very limited in all programme countries. Most of the experts also lack the practical experience needed.

Properly trained middle level technicians and foremen are very few. Therefore either untrained people with no or very little skills or on the other hand overtrained people with no or very little motivation try to manage these tasks.

5.1.1 Authorities

Authority organizations have usually few very well educated experts who are in high positions in the organization. The major part of the staff are not very well trained and they don have enough experience to work effectively. This means that too many tasks are loaded to few people who should be administrating the organization and at the same time be the top experts. This situation means that the organizational structure is wrongly formed and the organization is extremely inefficient.

The main shortage of properly trained staff is on the middle management level and on the other hand on experts with good training and high practically oriented motivation and experience.

The training programmes available produce in many cases experts with fairly deep but narrow expertise area. In most countries especially the experts working in the authority organizations should have much broader knowledge area.

5.1.2 Industries

The industries require operational staff who have strong enough theoretical training. Practical experience is very important. This kind of combination is not very common and on top of this fact the work with effluent is not among the positions mostly wanted.
Even in the industries the biggest demand is on middle level and on skilled labourers. To some extent the industries can train themselves the skilled labourers for their own needs but even for this purpose more middle level experienced staff would be needed.

The staff needed by the industries should know as much as possible about that specific field of industry. The practical experience should be from the tanning industry as well. The staff working at the effluent treatment plant

are often transferred from the production line. This could be even an advantage but the major problem is usually the very scarce knowledge on effluent treatment.

5.2 Training Possibilities

5.2.1 Skilled Labourers

Skilled labourers are mainly needed in the industries. The training is done usually by the industries themselves. There are a number of vocational training institutes in the countries but too often the training at this level is poor. This is mainly due to shortage of funds allocated for vocational training.

It is very difficult to introduce major changes in vocational training system for the needs of one field of industry alone. However, leather industry is one of the major industries in most programme countries and therefore they can have reasonably strong influence in developing the vocational training system of the country.

The tanning industry has formed associations in many countries and one of the activities for these associations could be the vocational training with special emphasis on tanning industry including the effluent treatment works.

5.2.2 Technicians

Both authorities and industries would need more technicians. The level of training should be improved as well. This is one of the biggest challenges for the countries and their industrial development.

The technicians working in the industries should work as foremen and middle level managers who should be able to guide the daily work and they should also be able to solve problems needing immediate action. These are very demanding tasks.

The authorities would need technicians in the field work carrying out inspections, taking samples, working in the laboratories and preparing reports. They can hardly specialize on one field of industry alone and this makes their training difficult.

The development of the technician training in a country is depending on the available resources. At the moment it looks like more emphasis should be placed on the quality of training rather than on the quantity of training.

The possibilities of the leather industry to influence the training programmes and the technician training system are limited. However, because of its importance in the programme countries leather industry can certainly have a strong influence if they join their forces for combined effort.

5.2.3 Engineers and Managers

This level of training takes place in programme countries in universities. The training programmes follow the British education system and the level of education towards B.Sc degree is reasonably good. There are very few changes in the countries to proceed to M.Sc level in a specific field like environment. There are M.Sc programmes in many universities in the world but these programmes do not usually take into account the specific features prevailing in developing countries.

In the field of management the situation is slightly better but on the other hand the managerial problems in many developing countries are so huge that even well trained, experienced managers have great difficulties in coping with them.

The demand for this level of experts is not very big in programme countries but the requirements regarding the qualifications are very high. This makes the training issue even at this level complicated and difficult to solve.

5.2.4 Further Training and Short Courses

Further training is to a large extent missing form of training in the programme countries. There are professional seminars but hardly any well prepared training occasions where specific technical issues are discussed.

This field is very important because the formal education programmes cannot fulfil the requirements of industries nor authorities very well. It would be a big advantage for the sector if proper further training occasions would be available locally.

There are number of occasions in industrialized countries for the tannery and environment operations but again these are not directly applicable in developing countries.

5.3 Facilities Required

The human resources development requires educational facilities but because these can be used for many purposes these facility requirements are not dealt with in detail here.

There is a clear need for specialised educational facilities like laboratories but these are existing in most countries. Some of them need rehabilitation and renewal of equipment. The major problem with the leather training and research institutes is the shortage of operational funding.

5.3.1 Authorities

5.3.1.1 General Facilities

The authorities are responsible for all environmental issues in a country. The leather industry is only one field of industry and from this point of view general facilities like offices etc. should be regarded as a contribution from the government.

5.3.1.2 Monitoring Equipment and Laboratories

The authorities are expected to collect data and give information on the state of the environment and the pollution loading from different polluters and towards different recipients. Large portion of the data can be collected from the data analyzed for various purposes and projects but for the purpose of systematic approach and reliability the authority should have the possibility for their own active data collection.

The leather industry is among the most important fields of industries in most programme countries. The pollution load is also very high. The development of the industry calls for cooperation with authorities among other things. In organizing the monitoring and environmental data collection there would be a good possibility to save both authority and industry expenses with join efforts, create good development atmosphere and get good image.

There are a number of both government owned and private laboratories and these can be used as a good starting point in the countries to develop the monitoring system and laboratory facilities.

5.3.2 Industries

A factory must have production facilities and usually these include general facilities like offices and laborato general store and other related auxiliary buildings or rooms.

5.3.2.1 Workshops and Stores

The effluent treatment system needs chemicals and some equipment which should be stored separately from the production chemicals. A workshop is also needed for maintenance and repair of the equipment. These facilities can be combined often with similar activities needed for the production process but it must be kept in mind that effluent treatment facilities require additional space and resources in workshop and storage systems.

One of the problems in maintaining and repairing of pumps and other more special effluent treatment equipment is that there is very little support available in the country from suppliers. However, it is not economically

viable to prepare for all repair possibilities in the factory workshop but a better solution is to increase the sparepart stock at the factory.

5.3.2.2 Operational Monitoring

The effluent treatment plant needs daily monitoring in order to operate properly. The requirement for monitoring programme is very plant specific but in tanneries there is no such a simple effluent treatment plant that would not need a daily monitoring.

Many of the monitoring activities are simple and easy to execute but some are complicated needing support from laboratory and experts. This is obviously one of the key issues in proper operation of the effluent treatment plants. Many plants do not have any operational monitoring programme or it does not cover the operations properly.

The expertise inhouse or available in the country is not strong enough to give guidance in operational problems, the laboratory services may not be available, the laboratory results are not reliable, intercalibration of laboratories is missing and many other similar problems makes the operational monitoring difficult and easily leads to poor operation of the effluent treatment plant.

The fully equipped laboratory and monitoring expertise in every factory is a very expensive solution for any country. Therefore it would be important to join the efforts in this respect.

5.4 Development Needs in Human Resources

Even though there is a shortage of human resources within authority organizations this problem is not directly connected to tanneries and therefore this problem is more concern of the nation than tanning industry.

The basic education at the university level is functioning but there is a clear need to increase the further education and special short course training activities. It would be an ideal solution to mix the participants from authorities and industries in the same training occasion in order to further improve the cooperation and active development atmosphere in the sector. This would be an additional result on top of improvements in professional skills.

Major efforts are needed in the middle level training improvements. To a large extent these efforts are interlinked with the general development of the middle level training in the country. However, the leather sector should be active as a pressure group to develop the education systems.

Whatever is the middle level education system there is a need for further training for the specific needs of the leather sector. It would be an optimum situation if graduated technicians from different disciplines could join after few years of working experience higher leather technician

programme for one or two years. This type of training is expensive and the demand for graduates is limited. Therefore it should be organized on a regional basis. Some of the existing institutions could be developed for this purpose.

In the level of skilled labourers the efforts towards on the job training and factory specific training should be emphasized in addition to improving the formal vocational training programmes.

5.5 Development Needs in Facilities

The facilities discussed here do not include any facilities related to effluent treatment or clean technology. The emphasis here is on facilities related to human resources development and monitoring and operational improvement of the effluent treatment facilities.

The facilities needed for formal education system development have been left outside the discussion as well since the leather sector can be regarded rather as an important pressure group than an investor in this process.

The authorities need improved offices, laboratories, transportation facilities and access to proper literature. However, the resources for development are limited and therefore the actual role and duties of the authorities should be clarified before any major investments are made for authority organizations.

The facilities of industries also need to be improved. The industries can allocate reasonable financial resources for this purpose.

The industries would need advise from experts especially in respect of improving the monitoring systems of their effluent treatment plants. The facilities needed are factory specific as well as the monitoring programmes.

A completely missing service for industries is a laboratory supported advisory type of guidance to improve the operational efficiency of the effluent treatment plants. This would be a very important service since the investments made on effluent treatment are extensive and inefficient treatment will lead to unnecessary additional investments. In cases where operational difficulties lead to poor final effluent quality the authorities will require actions to correct the situation.

This service could be organized on a countrywise basis. The approach should be different in each country. The basic principle in financing this activity should be based on the service charges. Another important feature should be the strong involvement of the leather industry in the administration of the institute giving the service.

In Ethiopia there is no evident institution which could be developed for this purpose. The administrative structure is also experiencing extensive

changes at the moment and therefore the establishment of the operational monitoring guidance service needs further studies.

In Kenya there are several options and before the final decisions further studies and discussions are needed. However, it looks like the option applied in training of shoe factory workers supported by UNIDO could be followed. This means that by the support of UNIDO an institute which is owned jointly by industries could be established. The industries should bear the operational costs of the institute.

In Tanzania there is an existing institute in Mwanza which could be developed but the ownership of the institute should first be clarified. Another well equipped institute is the Tanzanian Bureau of Standards. They could start the operations fairly easily and they have a system of charging for their services as well. The charges may not cover all expenses but it could be developed. The Tanzanian Bureau of Standards would also need support in developing their expertise and human resources but they have a good starting point. The involvement of the industries in the administration of the Tanzanian Bureau of Standards should be solved as well.

In Zimbabwe there are several options as well. The Leather Research Institute would be a natural choice and it would be fairly easy to start the activity. The expertise and human resources need to be enforced and the charging and administrative systems should be cleared. Another possibility could be the Bureau of Standards of Zimbabwe. In Zimbabwe it could be possible that even both institutes would be developed to serve the leather industries.

6. UPGRADING NEEDS AND RELATED COSTS

The development of the industries will require well functioning infrastructure. This is one of the bottlenecks in most programme countries. The telecommunication, roads, water supply and sewerage and international trade (customs clearance, import limitations etc.) are examples of infrastructure that are in the need of urgent upgrading.

The development of the infrastructure is regarded a duty of the government and these issues are not dealt with in this study.

6.1 Environmental Legislation and Authorities

The environmental legislation and administrative structures are developing in all programme countries visited. This is strongly influencing the upgrading needs. The expenses related are not estimated since it is an ongoing process and the involvement of UNIDO is not considered.

6.2 Clean Technology

In the field of clean technology very little has been done so far in the programme countries. Therefore there are extensive possibilities and challenges in this field. The uptake of clean technology concept means rebuilding of every tannery in smaller or bigger extent depending on the present status.

The clean technology option involves training, changes in management practises and introduction of new way of thinking in the production process on top of the necessary physical changes in the production process.

The clean technology option must be approached step by step to make it successful. The physical changes can be introduced fast but necessary changes in human behaviours take longer time and require intensive long term efforts.

The involved costs vary greatly from factory to factory. Some improvements do not require any investments on equipment but some are very expensive. As an example the change towards low chrome process may be possible to start by process operation modifications but if the process will be fine-tuned it requires sophisticated control system which may require major changes of process equipment.

The investments of a factory on a five year period may be from few thousand to millions of USD.

The role of UNIDO should be advisory in this respect and one possibility would be to recruit an expert specializing on this field and work in the project office. The expert should be supported by short term specialists. The expense to UNIDO would be in the order of one million USD annually.

6.3 Effluent Treatment

The effluent treatment will need still big investments during next few years to develop the effluent treatment to a reasonable level. It must be kept in mind that the life time of effluent treatment equipment is fairly short (5 to 15 years) and therefore there is a continuous investment need in this sector.

The required investment varies from factory to factory very greatly. The investment need estimate for effluent treatment has not been within the scope of this study but alone in four visited countries it is in the order of 10 to 50 million USD.

The role of UNIDO in financing the effluent treatment plants has been more of advisory and lending agency type and it has been very successful in its operations. There is still a lot to do and with an input of about 10 %

of the investments the input of Unido could be in the order of one to five million USD annually in the programme countries during the next five to ten years.

Efficient operation of effluent treatment facilities is one of the most problematic issues within the pollution control of tanneries in the programme countries. The basic investment is correct but often there are several minor deficiencies in the system which together with unskilled operators make the operation poor, unnecessarily expensive and the final treated effluent still highly polluted. The improvement calls for human resources development, operational guidance support services, improved management systems and improvements in design and construction practises.

6.4 Human Resources and Facilities

The upgrading needs in education programmes in vocational, college and university levels are not estimated in this study. M.Sc level and above is expected to be organized during next years outside the programme countries. In the countries and in the region the major activities would be on further training activities.

The estimated number of postgraduate level students needed in industries and authorities in the programme countries is from one to five for each country. Totally this would mean some 30 students. As an annual training expense this comes to a figure of about 0,5 million USD.

The major training effort should be made on regional and country basis through short courses and further training occasions.

For one week short courses arranged on a country basis the expense with all costs included is about 50 000 USD. There should be some 20 to 50 such courses in the programme countries. Taking 30 courses annually the total expense is about 1,5 million USD.

On a subregional basis (two to five countries) some five two week courses should be arranged making the total cost of about 0,5 million USD.

These training activities should be organized jointly with others like industries and authorities themselves and other national and international organizations. UNIDO could have the coordinating role. The financing should be divided in such a way that the recipient organizations would cover a substantial part of the training. Training occasion should not give extra financial benefits to the participants or their employers.

The establishment of laboratory supported environmental guidance centres requires big investments on facilities and human resources and also a long term commitment. It is very difficult to give exact figures and the situation is different in each programme country. This activity should be developed stepwise. It could be started first in one or two countries to test different

approaches. In order to make some results the funds allocated should be during first years one to two million USD and the total funding need can be expected to be in the order of 10 to 15 million USD during some four to eight year period. The responsibility in the financing should be divided here as well and the running costs should be covered by the industries.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 Legislation and Authorities

The environmental legislation and authority organizations are in an extensive development stage in most programme countries. UNIDO should follow up the situation carefully and give guidance to the industries in their efforts to influence the development process.

UNIDO could act as a communicator between industries and authorities. For this purpose each country office should form good working relationship with new environmental authority organizations.

7.2 Clean Technology

The idea of clean technology has been introduced only in very few limited cases to the tanneries of the programme countries. Major efforts by UNIDO should be executed in this field. It is recommended that a full time expert would be placed in the regional office in Nairobi. The expert should be supported be short term specialists from selected fields.

7.3 Effluent Treatment

There are still major investments to be made in the effluent treatment. Millions of dollars are needed and it is recommended that UNIDO will continue the successful line of operation it has gained recently and if possible increase this effort. The role of UNIDO is to give expert assistance, arrange partial or full financing in the form of subsidized loans and assist in managing and coordinating the construction of effluent treatment facility.

Additionally it is recommended that UNIDO would give expert assistance in operational and managerial problems of the operation of effluent treatment plants.

7.4 Human Resources and Facilities

The human resources development will require extensive and long term efforts. The human resources development should follow the overall development in the sector.

The educational system needs improvement at least at some level in all countries. This is regarded as a duty of the government and this training issue is not dealt with in this study.

It is recommended that UNIDO would support formal postgraduate training through individual scholarships in the fields of leather technology and management.

For middle level technicians and factory managers and engineers regional and in country short courses should be organized.

The further training of skilled labourers should be organized on the job or within the production unit.

A major input from UNIDO could be geared towards establishing laboratory supported guidance centres in programme countries. The tanneries in each country could get support and advise in the operational problems of their effluent treatment facilities.

It is recommended that UNIDO will start supporting the establishment of the environmental guidance centres. The approach can start step by step taking first two to three countries. The operational expenses of these centres should be covered by the leather industry.

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1. Ethiopia

2. Kenya

3. Tanzania

4. Zimbabwe

5. Multinational

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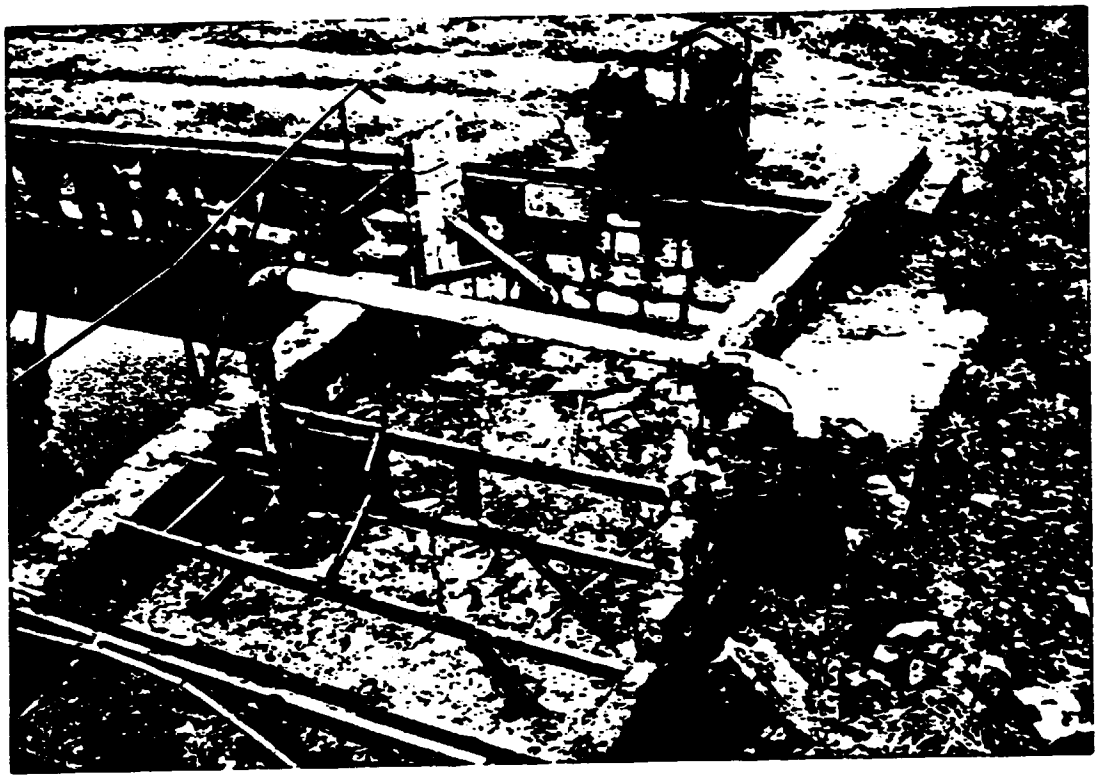
ANNEX

1. ETHIOPIA

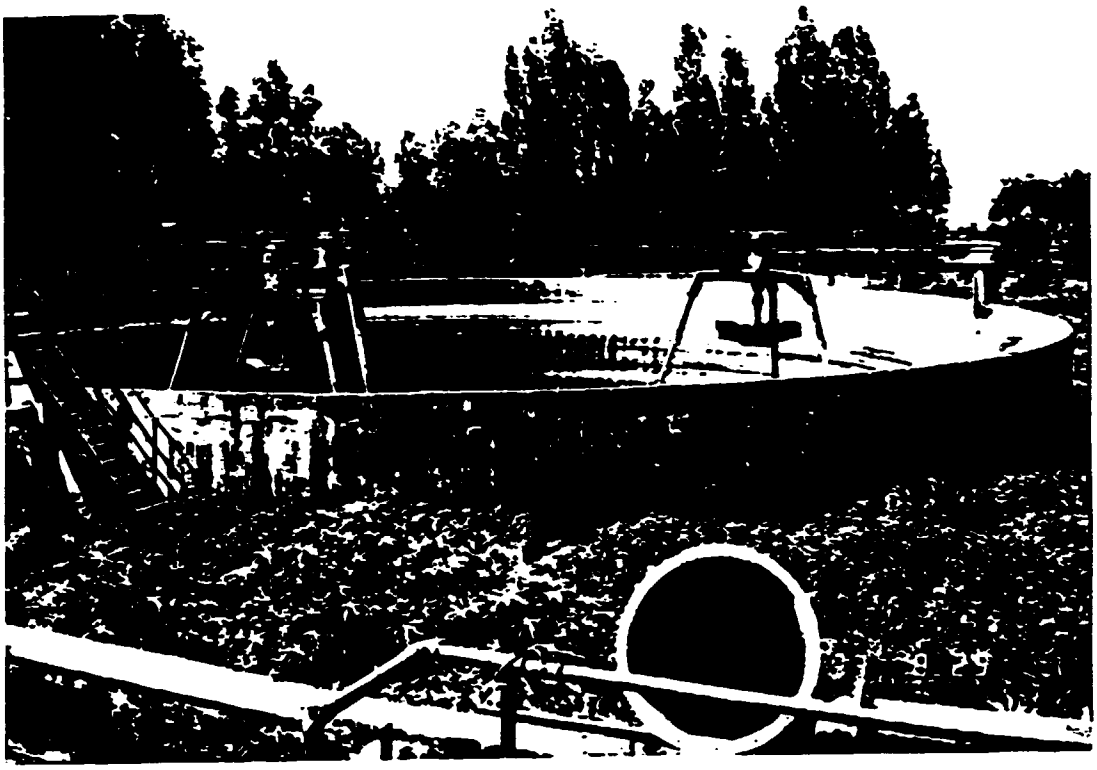
1. Traditional leather production

2. Evaporation of chrome waters is one possible solution in favourable climatic conditions

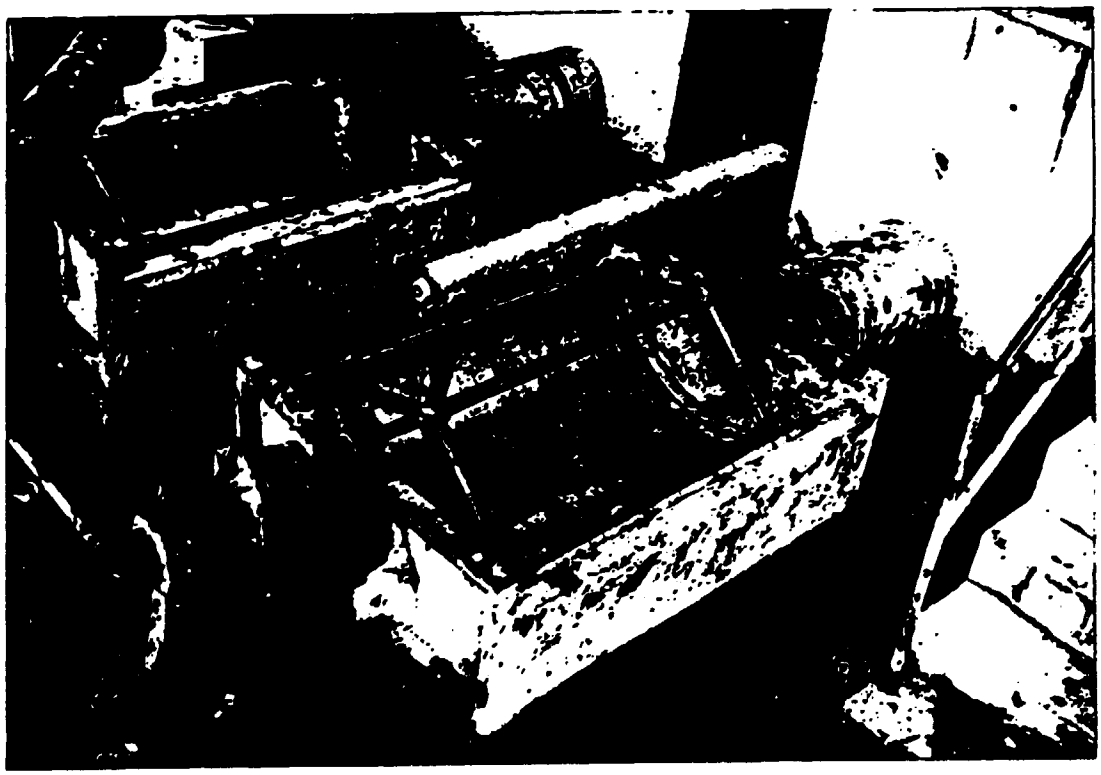


3. Damaged effluent treatment

4. Untreated effluent and poor solid waste management



5. Old activated sludge basin which is possible to maintain by renewing the aerators and pumps



6. This type of screens cause easily flooding and screenings are difficult to handle

TABLE OF CONTENTS - ANNEX A

Environmental Activities Reformed by Technology Policy & Research Department

1. Collection of environmental data & establishment of Data Base System.
   - Environmental data were collected from 104 factories and accordingly a data base system is already established.
2. Organizing and participating in environmental seminars, work shops and conferences.
   2.1 A seminar on Industry and Environment was organized and conducted on Nov. 1991 which was sponsored by ARU-NCI cooperation programme.
   2.2 Participated in regional & international seminars & workshops such as:-
      2.2.1 Environmental awareness building workshop, 26-30 Nov. 1990 Kenya.
      2.2.2 Regional meeting on management of industrial waste water 10-14 Dec. 1990 France.
      2.2.3 Hazardous waste management policies and strategies for East African Countries 3-7 June 1991 Mauritius.
      2.2.4 Seminar on pollution control in Leather Industry, 8-11 June 1992 Kenya.
      2.2.5 Seminar on the Energy Policy and the Environment, 9-11 Nov. 1992 World Bank, Ethiopia.
3. Preparing Environmental Papers.
   - Country papers & reports were prepared and presented when the above workshops were conducted.

.../

- Environmental awareness building papers were prepared and despatched to various industry and published in industries newsletter & magaziness etc.

4. Preparing Draft Environmental Policy and Guidelines.
   - A draft industrial environmental policy and guideline was prepared and commented by selected industrial establishments.
   - Chairman of the Environmetal Institutional and related technical committee for developmental sector (Industry, mining, energy, construction, etc...)

5. Coordinating environmental research activities undergoing in various industrial establishments.
   - Caustic soda recovery project;
   - utilization of breweries effluents;
   - development of bio earth for fertilizer;
   - recycling of salt used by tanneries;
   - utilization of cotton wastes;
   - utilization of rape seed oil cake for fuel and animal feed;
   - bio gas project;
   - bio mass project;
   - utilization of tyre product wastes.

6. Coordinating & sponsoring environmental and projects.
   - Bsc. thesis on waste water management;
   - Doctoral thesis on treatment of industrial waste water in stabilisation ponds.

.../

7. Establishing relations with national and international environmental concerning institutes, and collecting various environmental documents.
   - UNEP
   - UNIDO

8. Establishing environmental and energy development sector under the department.

9. Preparing a project proposal on industrial impact assessment and effective preventive mechanisms.

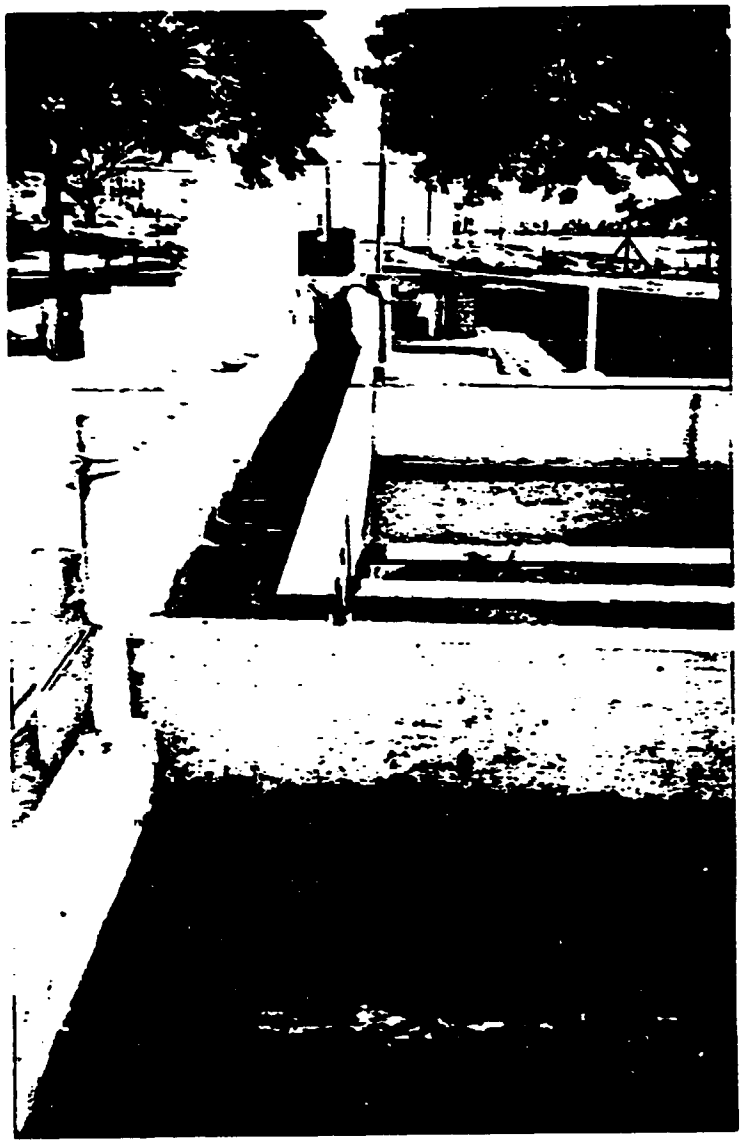
ANNEX

2. KENYA

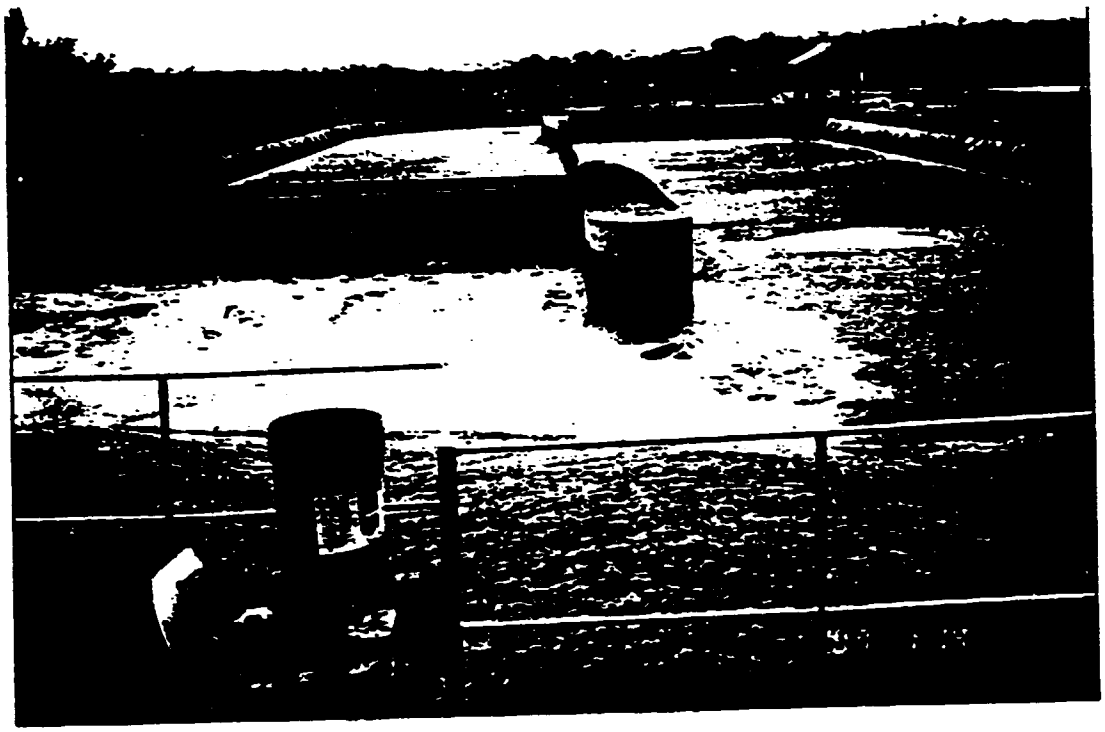
1. Well organized chemical storage

2. Lagoons are not well organized hydraulicly and the effect on purification is minor

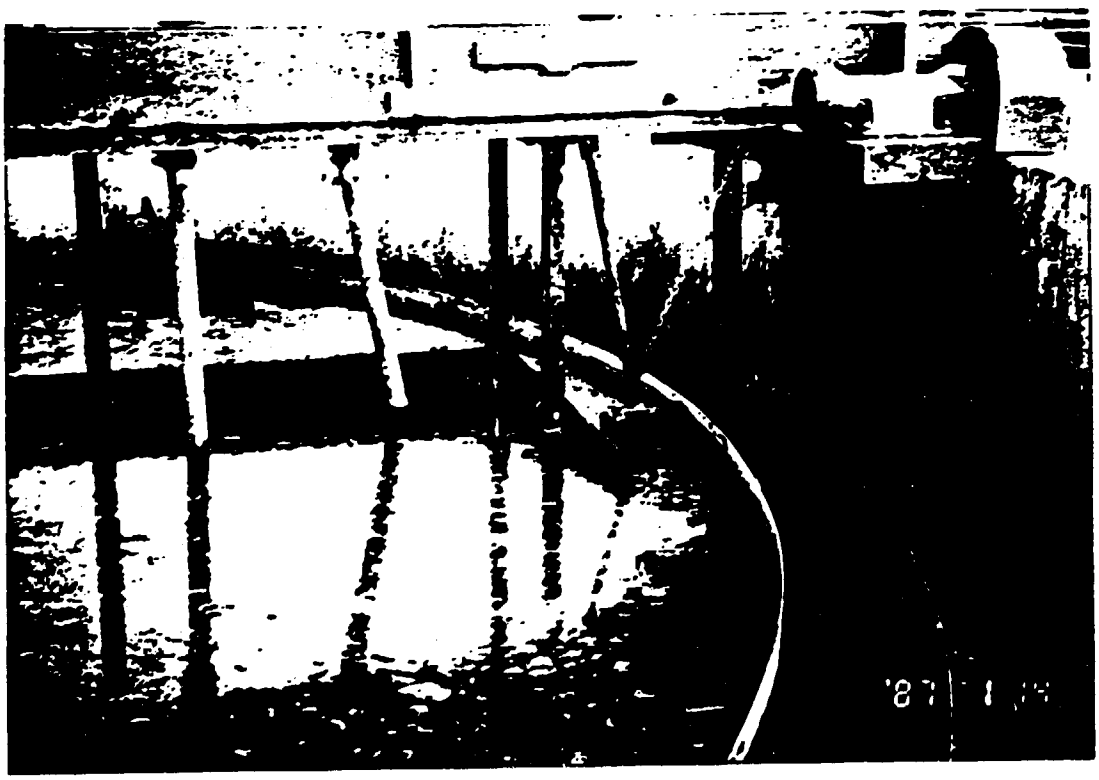
3. Well organized hydraulic flocculation



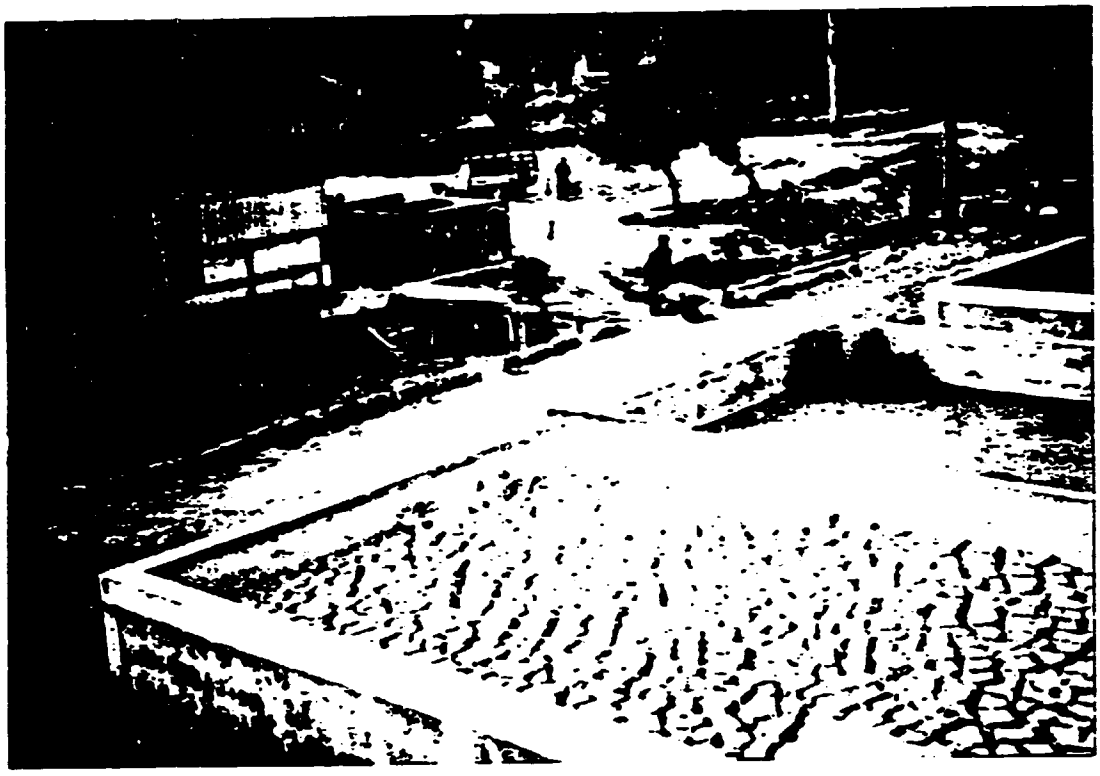
4. Effluent treatment plant can be nicely placed (below)



5. Oxidation ditch is good application but here the bioprocess does not work properly due to many operational problems



6. Final clarifier has problems due to unsatisfactory operation of activated sludge process and flow conditions



1. Chrome sludge and other sludges can be well dried with drying beds in favourable climate

Disposal of solid wastes is a problem

LAWS OF KENYA

The Water Act

CHAPTER 372

Revised Edition 1972 (1962)
Printed and Published by the Government Printer
Nairobi

REPUBLIC OF KENYA

KENYA GAZETTE SUPPLEMENT

BILLS, 1993

NAIROBI, 27th August, 1993

CONTENT

PRINTED AND PUBLISHED BY THE GOVERNMENT PRINTER, NAIROBI

Environment KENYA

REPUBLIC OF KENYA

DEVELOPMENT PLAN

1989–1993

Two hundred shillings only

Printed by the Government Printer, Nairobi

industrial expansion has brought about extensive positive externalities, certain diseconomies have occasionally set in in the process, including water, air and noise pollution and solid waste accumulation.

8.27 Water pollution from industrial activities includes toxic wastes emanating from chemical and pharmaceutical industries, research laboratories, textile mills, agro-chemical industries, coffee and paper pulping factories, sisal decorticating mills, sugar milling factories and tanneries among others. Over and above toxic emissions, some of these plants also discharge waste water rich in organic matter which on decomposition not only reduces the oxygen content in water courses thus blighting aquatic fauna and flora, but also increases plant nutrients hat cause eutrophication. In practically all cases, water pollution is accompanied by excessive emission of heat which drastically changes the ecology of the receiving water body.

8.28 Atmospheric pollution is caused by vapours and gases from furnaces, industrial process wastes and automobile exhausts. The Mombasa Oil Refinery emits about two tonnes of sulphur dioxide daily into the atmosphere. The building and construction industry is also responsible for considerable dust nuisance. In the major urban areas and particularly in Nairobi, vehicular traffic accounts for over 90 per cent of air pollution.

8.29 Other sources of environmental pollution which particularly affect urban areas include solid waste disposal and industrial noise. The adverse effects on the human environment are compounded by poor working conditions and other health hazards in the working environment which sometimes lead to bodily injuries and even death of workers.

8.30 To reflect the Government's concern with industrial pollution, various incentives will be given during the Plan period to industrialists who employ environmentally sound technologies. Commensurate penalties will be instituted against industries whose activities damage the environment. In addition, Government will introduce a strict zoning system for industries that damage the environment so as to reduce risks to human health and habitat.

c) Forestry Development and the Environment

8.31 As already indicated, the vegetative and forestry resources of the country are limited and though they are potentially renewable, the rate of exploitation is exceedingly high, rendering them practically non-renewable. Where depletion has taken place, rehabilitation of the al-

Once this process has taken place, the soil can no longer conserve moisture effectively and land productivity is considerably reduced.

8.23 Further, the potential for use of water resources for irrigation development is considerable, but it must be properly exploited to avoid environmental damage. Irrigation, while contributing positively to the development of agriculture and livestock, has negative effects which must be anticipated and corrected. These include floods from swollen rivers during the rainy season; salination which has been encountered in irrigation schemes in Perkerra, Mwea and Kano; siltation from soil erosion; leaching from agro-chemicals and excessive growth of algae and aquatic weeds which, if not effectively controlled leads to eutrophication and the destruction of fish resources. Other health hazards associated with irrigation such as malaria and bilharzia have also become manifest.

8.24 In view of these outcomes, Government will put in place both financial and technical resources for developing irrigation technologies that minimise these environmental and health hazards and at the same time establish appropriate water use and conservation practices. Water and soil conservation are critical for balanced development of agriculture and livestock and for the preservation of our beautiful environment. Hitherto, water and soil conservation efforts have received top Government priority as reflected, inter alia, by the establishment of the *Permanent Presidential Commission on Soil Conservation and Afforestation*. Activities such as the construction of cut-off drains, terraces, subsurface dams and gabions have been initiated and extended to local levels.

8.25 During the Plan period, Government will further strengthen these activities with emphasis being placed on promoting voluntary community participation in addition to countrywide education and information programmes to enhance *Wananchi's* efforts in carrying out soil and water conservation activities at the farm level. Government will also continue to provide subsidies for the construction of water and soil conservation works and will impose appropriate penalties under the law on those whose actions are inimical to the national goal of soil and water conservation. Government will also encourage vegetative control of soil erosion where that strategy holds promise.

b) Industrial Development and the Environment

8.26 The industrial sector has hitherto provided a strong impetus to development and as indicated in Chapter 7 of this Plan it will constitute an important engine of economic growth for the future. Whereas

KENYAN LEGISLATION AND INTERNATIONAL CONVENTIONS RELATED TO ENVIRONMENT

A. ENVIRONMENT AND RESOURCE MANAGEMENT LEGISLATION

1902 GOVERNMENT FISHERIES PROTECTION ACT
1906 AKALI WORKS REGULATION ACT
1915 COCONUT PRESERVATION ACT
1915 GOVERNMENT LANDS ACT
1920 ELECTRIC POWER ACT
1921 PUBLIC HEALTH ACT
1923 AGRICULTURAL PRODUCE EXPORT ACT
1926 CROP PRODUCTION AND LIVESTOCK ACT
1929 MALARIA PREVENTION ACT
1930 LAKES AND RIVERS ACT
1932 RABIES ACT
1933 DANGEROUS DRUGS ACT
1937 CATTLE CLEANSING ACT
1937 PLANT PROTECTION ACT
1939 TRUST LAND ACT
1940 MINING ACT
1942 FOREST ACT
1942 GRASS FIRES ACT
1945 SUPPRESSION OF NOXIOUS WEEDS ACT
1948 HIDES AND SKINS TRADING ACT
1948 TOWN AND COUNTRY PLANNING ACT
1948 TROUT ACT
1951 FACTORIES ACT
1952 WATER ACT
1953 HOUSING ACT
1957 PHARMACY AND POISONS ACT
1959 LAND CONSOLIDATION ACT
1962 PREVENTION OF CRUELTY TO ANIMALS ACT
1962 USE OF POISONOUS SUBSTANCES ACT
1963 LOCAL AUTHORITY GOVERNMENT ACT
1965 ANIMAL DISEASES ACT
1965 FOOD, DRUGS AND CHEMICAL SUBSTANCES ACT
1965 LAND (GROUP REPRESENTATION) ACT
1966 IRRIGATION ACT

1957 FERTILIZERS AND ANIMAL FEEDING STUFFS ACT

1957 LAND CONTROL ACT

1957 MERCHANT SHIPPING ACT

1968 FISH INDUSTRY ACT

1968 LAND PLANNING ACT

1971 TIMBER ACT

1972 SEEDS AND PLANT VARIETIES ACT

1972 TERRITORIAL WATERS ACT

1974 HEALTH AND AT WORK ACTS

1974 STANDARDS ACT

1974 TANA AND ATHI RIVER DEVELOPMENT AUTHORITY ACT

1975 CONTINENTAL SHELF ACT

1976 WILDLIFE CONSERVATION AND MANAGEMENT ACT

1979 KERIO VALLEY DEVELOPMENT AUTHORITY ACT

1979 LAKE BASIN DEVELOPMENT AUTHORITY ACT

1982 GEOTHERMAL RESOURCES ACT

1982 NATIONAL MUSEUMS ACT

1982 PESTS CONTROL PRODUCTS ACT

1982 RADIATION PROTECTION BILL

1983 ANTIQUES AND MONUMENTS ACT

B. OTHER RELEVANT LEGISLATION

1920 PUBLIC ROADS AND ROADS OF ACCESS ACT

1923 COCONUT INDUSTRY ACT

1924 CIVIL PROCEDURE CODE

1925 OIL PRODUCTION ACT

1930 PENAL CODE

1936 AGRICULTURAL PRODUCE MARKETING ACT

1937 CHIEFS AUTHORITY ACT

1946 SISAL INDUSTRY ACT

1950 KENYA MEAT COMMISSION ACT

1952 WHEAT INDUSTRY ACT

1954 TRAFFIC ACT

1955 COTTON LINT AND SEED MARKETING ACT

1956 VALUATION FOR RATING ACT

1958 CANNING CROPS ACT

1959 MAIZE MARKETING ACT

1960 COFFEE ACT

1963 REGISTERED LAND ACT

1964 PYRETHRUM ACT

1966 COOPERATIVE SOCIETIES ACT

1966 PIG INDUSTRY ACT

1968 LAND ADJUDICATION ACT

1968 LAND ACQUISITION ACT

1972 DAIRY INDUSTRY ACT

1972 MEAT CONTROL ACT

C. RELEVANT INTERNATIONAL CONVENTIONS RATIFIED BY KENYA

1951 CONVENTION ON PLANT PROTECTION

1954 CONVENTION ON THE PREVENTION OF POLLUTION OF THE SEA BY OIL (AND THE 1962 AND 1969 AMENDMENTS)

1958 CONVENTION ON FISHING AND CONSERVATION OF LIVING RESOURCES OF THE HIGH SEAS

1958 CONVENTION ON THE CONTINENTAL SHELF

1958 CONVENTION ON THE HIGH SEAS

1968 AFRICAN CONVENTION ON THE CONSERVATION OF NATURE AND NATURAL RESOURCES

1972 CONVENTION ON THE PREVENTION OF MARINE POLLUTION BY DUMPING OF WASTES AND OTHER MATTER

1972 CONVENTION ON THE PROHIBITION OF THE DEVELOPMENT, PRODUCTION AND STOCKPILING OF BACTERIOLOGICAL AND TOXIC WEAPONS, AND ON THEIR DESTRUCTION

1973 CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA

1973 INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS

D. RELEVANT INTERNATIONAL CONVENTIONS NOT RATIFIED BY KENYA

1971 CONVENTION ON WETLANDS OF INTERNATIONAL IMPORTANCE ESPECIALLY AS WATERFOWL HABITAT (AND 1982 PROTOCOL)

1972 CONVENTION CONCERNING THE PROTECTION OF THE WORLD CULTURAL AND NATURAL HERITAGE

1974 CONVENTION CONCERNING PREVENTION AND CONTROL OF OCCUPATIONAL HAZARDS CAUSED BY CARCINOGENIC SUBSTANCES AND AGENTS

1976 CONVENTION ON THE PROHIBITION OF MILITARY OR ANY OTHER HOSTILE USE OF ENVIRONMENTAL MODIFICATION TECHNIQUES

1977 CONVENTION CONCERNING THE PROTECTION OF WORKERS AGAINST OCCUPATIONAL HAZARDS IN THE WORKING ENVIRONMENT DUE TO AIR POLLUTION, NOISE AND VIBRATION

1978 PROTOCOL RELATING TO THE INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS (LONDON, 1973)

1979 CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES OF WILD ANIMALS

UNEP/UNDP PROJECTS IN KENYA, 1984-92

(US $ 000)

		UNEP	OTHER	TOTAL
	UNEP NATIONAL PROJECTS	**1,326**	**1,942**	**3,268**
1984 85	Efficient fuelwood use in rural areas	60	55	115
1984 86	Public participation guidelines for conservation	35	49	84
1985 86	Conservation of Dugongs	38	32	70
1985 87	Pollution monitoring & control in Lake Victoria	488	762	1,250
1985 86	Lamu town seawall	19	19	38
1986 86	State-of-the-environment report	213	101	314
1989 91	Guidelines for community water & sanitation	49	64	113
1989 92	Productivity of tropical grasslands	424	860	1,284
	UNEP REGIONAL PROJECTS	**4,011**	**3,772**	**7,783**
1985 87	Integrating environment in training institutions	45	30	75
1985 87	Workshop on youth and environment	43	-	43
1985 87	Environmental education for engineers	62	83	145
1985 87	Training on EIA in project appraisal	63	239	302
1985 89	Find non-chemical alternatives to pesticides	169	134	303
1985 89	Technologies for biological control of pests	132	175	307
1986 87	Evaluation of impact of UNEP program	170	-	170
1986 87	Symposium on climate & health	98	16	114
1986 86	Experts meeting on env education & training	57	-	57
1986 89	Workshop on chemical safety in Africa	60	27	87
1986 89	Training on biofertilizer inoculants	189	65	254
1986 86	State-of-the-environment reporting	150	-	150
1986 86	Promote microbial technologies	70	-	70
1987 88	Desertification assessment & mapping	160	62	222
1987 90	Workshop on hygiene & drinking water control	293	45	338
1987 89	Workshop to integrate env in university courses	10	30	40
1987 87	Employer's meeting on env sound development	171	230	401
1987 90	Env management project for employer's	120	130	250
1987 87	Workshop on env education manual	92	63	155
1987 88	Int. symposium on solid waste management	134	86	220
1987 88	training course on water management	32	50	82
1987 87	Marginal area vulnerability to climate change	262	293	555
1988 88	Productivity of tropical ecosystems	774	1,088	1,862
1988 88	Int. program on exploitation of tropical forests	481	-	481
1988 88	Improve soil fertility & legume production	111	881	992
1989 89	Public participation guidelines for conservation	63	45	108
	UNDP ENV RELATED PROJECTS		**3,119**	**3,119**
1985 90	Forage plant development (FAO)	-	924	924
1986 89	Improve crop protection (FAO)	-	1,328	1,328
1987 91	Animal health service program (GVT)	-	214	214
1987 89	Women in arid & semi-arid areas (FAO)	-	215	215
1987 88	School of Environmental Studies (GVT)	-	310	310
1988 89	Desertification control (UNDP)	-	26	26
1988 89	Policies for arid & semi-arid areas (GVT)		102	102
	TOTAL 1984-92	**5,337**	**8,833**	**14,170**

Hides and skins fetch Shs 1.2bn

KENYA earned over Shs 1.2 billion in foreign exchange from the export of hides and skins in 1991, Taita Taveta District Commissioner Samuel Limo has said.

Addressing a one-week workshop on hides and skins at a Taveta hotel, he said the earnings could be doubled if the half-finished products were sold in processed form.

He called on Kenyans to exploit the Preferential Trade Area market potential instead of relying on Western markets.

By Jeremiah Mnene

Different fashions and designs have boosted the hides and skins market, he said, adding that currently many items in the market were made of pure leather unlike in the past when commodities used to be made of synthetic.

He called on the workshop organisers to advise industrialists on better industrial waste disposal to cut down environmental pollution.

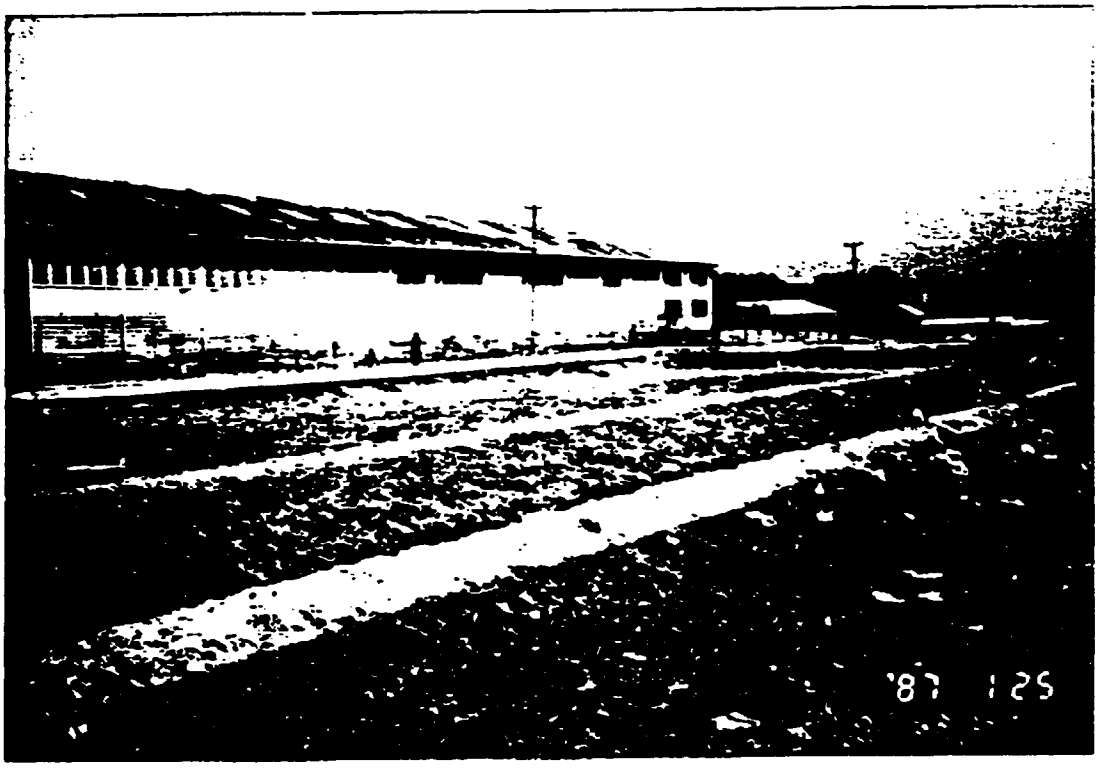
He appealed to the participants to recommend where the government can put up a tannery in Taveta sub-district bearing in mind the impact of industrial pollution on the environment.

Licences will be given to people interested in dealing in hides and skins to encourage competition which will improve the quality of production, the DC said.

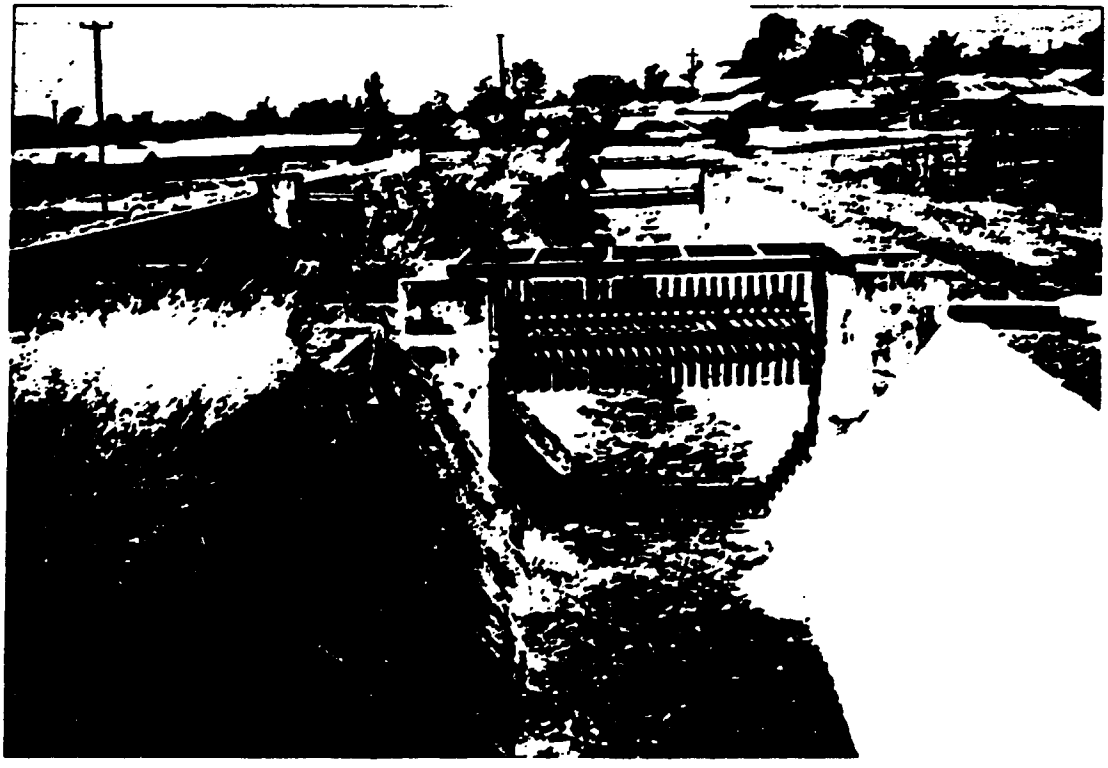
Due to good neighbourlines between Kenya and Tanzania, Kenya's export commodities have been greatly boosted, he said, adding that African countries had the potential to manufacture a variety of products from hides and skins.

He called on industrialists to invest more funds in the industry to enable the government to earn more revenue.

Present during the workshop were the Taveta sub district DO 1, Mr Joseph Imbwanga, assistant director veterinary services in charge of hides and skins, Mr K. M. Rono and the district veterinary officer Dr S. O. Minga.



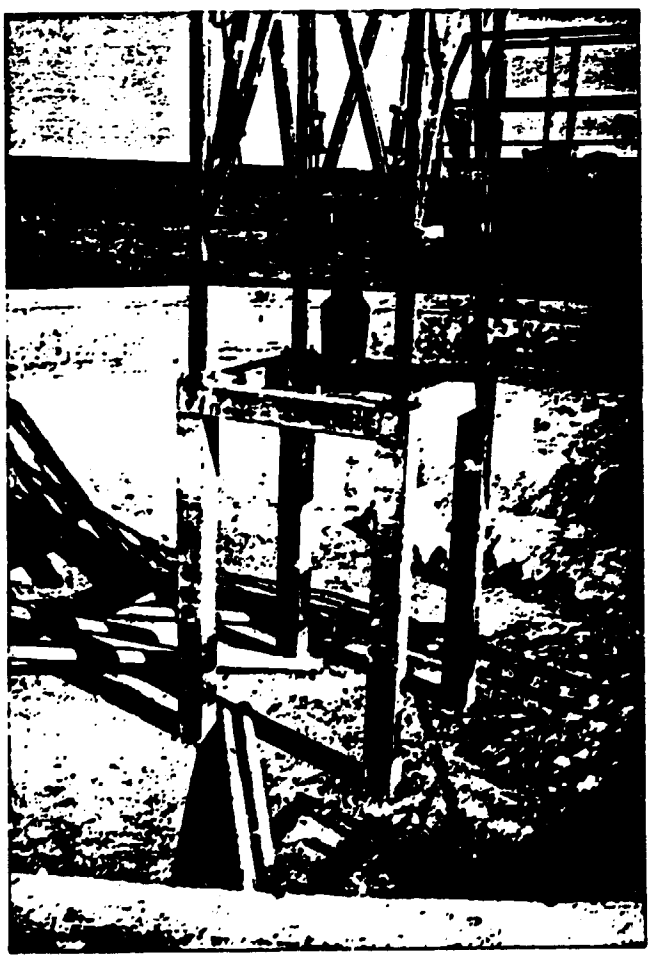
1. To restart the factory the effluent treatment plant must be rehabilitated. The old lagoon system can be used to some extent



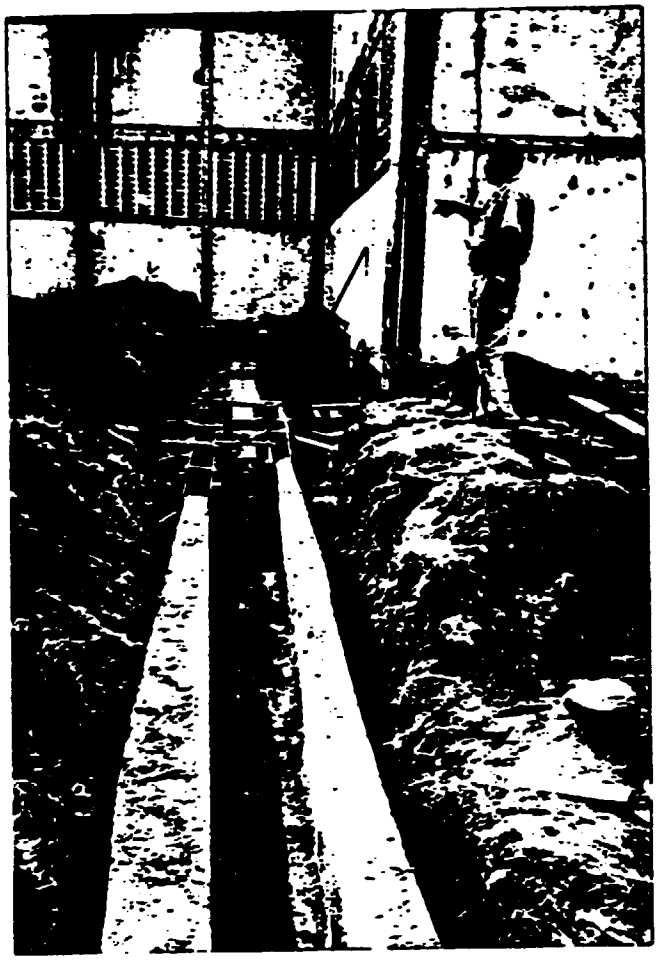
2. Oxidation ditch which has never worked can be maintained but need a lot of work

3. The rehabilitation of the effluent system must start from inside the factory

4. Concrete basin can be utilized well but structures for special type of aerators are better to remove



5. Reconstruction of effluet system has to be well planned



6. Municipal effluent treatment systems are often badly maintained and produce poor quality of final effluent

TZS 94 (Part 1):1980
UDC 628.5/.54:543.06

tbs

Tanzania Standard

Industrial effluents — Sampling and test methods

Part 1

TANZANIA BUREAU OF STANDARDS

tbs

TZS 344:1989
UDC 628.541

Tanzania Standard

Tolerance limits for industrial effluents discharged into inland surface water — Tanning industry.

TANZANIA BUREAU OF STANDARDS

This Tanzania Standard was published under the authority of the Executive Council of Tanzania Bureau of Standards on 1989 - 04 - 19.

The Tanzania Bureau of Standards (TBS) is the statutory national standards body for Tanzania established under the standards Act No. 3 of 1975 amended by Act No. 1 of 1977.

The Chemical Divisional Standards Committee under whose supervision this standard was prepared, consists of representatives from the following organizations:

University of Dar es Salaam (Department of Chemistry)
Tanzana Oxygen Ltd.
Lake Soap Industries Ltd.
Alfi (EA) Ltd.
National Development Corporation
Keko Pharmaceutical Plant
Tanzania and Italian Petroleum Refining Company
Ministry of Trade and Industries
Kibo Paper Industries
National Pharmaceutical Company
Mansoor Daya Chemicals
Tanganyika Tegry Plastics
*Agricultural and Industrial Supplies Company.

The orgnization marked with an asterisk(*) in the above list together with the following were directly represented on the committee entrusted with the preparation of this standard:

Ministry of Water, Energy and Minerals
Government Chemical Laboratory
Southern Paper Mills Co. Ltd. (SPM)
National Urban Water Authority (NUWA)
Ministry of Health and Social Welfare
National Environment Management Council (NEMC)
Tanzania Breweries Ltd (TBL)
University of Dar es Salaam.

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ISBN 9976 64 361 6

TABLE 1 — **Specific tolerances for effluents of chrome tanning industry.**

Characteristics	Tolerance Limit	Method of test
Chlorides as Cl	1000	TZS 94:1989 (Part 3)
Biochemical oxygen demand for 5 days at 20°C, mg/l, *max.*	30	TZS 94:1980 (Part 1) Clause 11
Hexavalent chromium as (Cr), mg/l, *max.*	0.1	TZS 94:1989 (Part 2)
pH	5.5 - 9.0	TZS 94:1980 (Part 1) Clause 6

4.2 Vegetable tanning industry - Effluents from vegetable tanning industry shall comply with the tolerance limits given in table 2.

TABLE 2 — **Specific tolerances for effluents of vegetable tanning industry.**

Characteristics	Tolerance Limit	Method of test
Biochemical oxygen demand for 5 days at 20°C mg/l, *max.*	30 (up to 100)	TZS 94:1980 (Part 1) Clause 11
Chlorides (as Cl), mg/l, *max.*	1000	TZS 94:1989 (Part 3)
pH	5.5 - 9.0	TZS 94:1980 (Part 1) Clause 6
Suspended solids, mg/l, *max.*	100	TZS 94:1980 (Part 1) Clause 7
Colour and odour	Absent	TZS 94:1980 (Part 1) Clauses 5 & 6.

5 SAMPLING

Representative samples of the effluent shall be collected as prescribed in TZS 94:1980 (see clause 2).

6 TESTS

Tests shall be performed according to methods laid down in TZS 94:1980, Part 1 (TZS 94:1989 Parts 2 & 3)

THE UNITED REPUBLIC OF TANZANIA

No. 19 OF 1983

I ASSENT.

J. K. NYERERE,
President

10TH SEPTEMBER, 1983

An Act to provide for the establishment of the National Environment Management Council, to provide for its functions and for other matters related to and incidental to the establishment of that Council

[.....]

ENACTED by the Parliament of the United Republic of Tanzania.

PART I

PRELIMINARY

Short title and commencement

1. This Act may be cited as the National Environment Management Act, 1983, and shall come into operation on such date as the Minister may, by notice published in the *Gazette*, appoint.

Interpretation

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

"beneficial use" means a use of the environment or of any part thereof that is conductive to human benefit, welfare, safety or health;

"Chairman" means the Chairman of the Council;

"the Council" means the National Environment Management Council established by section 3;

"conservation", means any act or a combination of acts, processes or procedures aimed at the protection, development and control of the environment, or the elimination, minimisation or prevention of harm to the environment as a result of biological, chemical, economic, physical or social developmental activity;

"Director-General" means the Director-General of the Council appointed under section 6;

"environment" means the land, water and atmosphere of the earth;

"pollution" means any direct or indirect contamination or alteration of any part of the environment so as—

(a) to affect any beneficial use adversely; or

(b) to cause a condition that is detrimental or hazardous or likely to be detrimental or hazardous to—

(i) human health, safety or welfare;

(ii) animals, plants or microbes; or

(iii) property,

caused by emitting anything.

PART II

THE NATIONAL ENVIRONMENT MANAGEMENT COUNCIL

Establishment of Council

3.—(1) There is hereby established a Council which shall be known as the National Environment Management Council.

(2) The Council shall be a body corporate and shall:—

(a) have perpetual succession and an official seal;

(b) in its corporate name, be capable of suing and being sued;

(c) subject to this Act, be capable of holding, purchasing or acquiring in any other way, any movable or immovable property, and of disposing of any of its property for the purpose of carrying out the functions conferred on the Council by this Act.

(3) The provisions of the Schedule to this Act shall have effect as to the constitution and the procedure of the Council and to other matters in relation to it.

(4) Save for the provisions relating to the appointment of the Chairman, the Minister may, by order published in the *Gazette* amend, add to, vary, revoke or replace any of the provisions of the First Schedule.

(5) The Council may with the approval of the Minister co-opt any additional members for a specified meeting or other purpose but no co-opted member shall have the right to vote.

Functions of the Council

4. The functions of the Council shall be to advise the Government on all matters relating to the environment, and in particular the Council shall—

(a) formulate policy on environmental management and recommend its implementation by the Government;

(b) co-ordinate the activities of all bodies concerned with environmental matters and serve as a channel of communication between these bodies and the Government;

(c) evaluate existing and proposed policies and the activities of the Government directed to control of pollution and the enhancement of the environment and to the accomplishment of other objectives which affect the quality of the environment and, on the basis of that formulate policies and programmes which will achieve more effective management and enhancement environmental quality;

(d) recommend measures to ensure that Government policies, including those for the development and conservation of natural resources, take adequate account of environmental effects;

(e) foster co-operation between the Government, local authorities and other bodies engaged in environmental programmes;

(f) stimulate public and private participation in programmes and activities for the national beneficial use of natural resources;

(g) seek advancement of scientific knowledge of changes in the environment and encourage the development of technology to prevent or minimize adverse effects that endanger man's health and well-being;

(h) specify standards, norms and criteria for the protection of beneficial uses and the maintenance of the quality of the environment;

(i) establish and operate a system of documentation and dissemination of information relating to the environment;

(j) formulate proposals for legislation in the area of environmental issues and recommend their implementation by the Government;

(k) establish and maintain liaison in other national and international organizations respect of issues and matters relating to environmental protection and management;

(l) undertake or promote general environmental educational programme for the purpose of creating an enlightened public opinion regarding the, environment and the role of the puplic in its protection and improvement;

(m) perform such other functions as the Minister may assign to the Council, or as are incidental or conducive to the exercise by the Council of all or any of the preceding functions.

(3) For the purposes of the better performance of its functions the Council shall establish and maintain a system of collaboration, consultation and co-operation with any person or body of persons established by or under any written law and having functions related to those specified in subsection (1) or which relate to environmental management or enviroemental matters generally.

General powers of the Council

5. The Council may, for the purposes of carrying out its functions under this Act, do all such acts as appear to it to be requisite, advantageous or convenient for or in connection with the carrying out of those functions or to be incidental to their proper performance and may carry on any activities in that behalf either alone or in association with any other person or body of persons.

Director of Environment Protection

6.—(1) There shall be a Director-General of the Council who shall be appointed by the President on such terms and conditions as the President may determine and who shall also act as Secretary to the Council—

(2) The Director-General shall be the chief executive officer of the Council and shall, subject to the provisions of this Act and any directions which may be given to him by the Minister or the Council, be responsible for the implementation of all the decisions of the Council and carrying out all day to day activities of the Council.

Duties of the Director

7. Without prejudice to the generality of subsection (3) of section 9, it shall be the duty of the Director, under the direction of the Council,

(a) to consider means and initiate steps for the protection of the environmental and for preventing, controlling, abating or mitigating pollution;

(b) to carry out investigations into the problems of environmental Management,

(c) to obtain the advice of persons having special knowledge, experience, or responsibility in regard to environmental management;

(d) to keep under review the progress made in the pursuance attainment of the objects and purposes of the Act and to publish reports and provide information for the purpose of enhancing public awareness of such progress and of the problems and remedies that exist in relation to the management of the environment;

(e) to promote, encourage, co-ordinate, and carry out short-term and long-term planning and projects in environmental management and protection together with or separate from other public bodies and other organs; and

(f) generally, to administer and give effect to the provisions of this Act and to carry out other functions as may be prescribed by the Council.

8.—(1) The Council may appoint on such terms and conditions as it may determine, such number of persons to serve as officers of the Council as it may consider appropriate or necessary for the performance of the functions of the Council

(2) The Council may engage either temporarily or on such terms as it may think fit persons who are experts in matters relating to the environment.

Delegation of powers of appointment

9. The Council may, subject to such conditions as it may impose, delegate to any person or body of persons the power of appointing persons to any office or offices of the Council.

Boards and other Committees

10.—(1) Subject to the approval of the Minister, the Council may, from time to time establish such committees as it may consider necessary for the purpose of facilitating the carrying out of the objectives of the Council.

(2) The Council shall, prescribe the composition, powers, duties and procedure of all committees and subject to the provisions of this Act, may delegate to any such committee any of its powers or functions.

(3) The Council may appoint on any committee established under this section any person notwithstanding that that person is not a member of the Council but any person so appointed shall have no right to vote:

Provided that in no case shall the number of members of any committee who are not also members of the Council exceed one third of the total number of the members of a Committee.

ouncil may ll for formation

11.—(1) The Council may require in writing any person or body of persons engaged in research, or engaged in an activity affecting or relating to the environment within Tanzania, to furnish to it such information relating to that research or activity as the Council may specify.

(2) Every person or body of persons which is required to furnish information under subsection (1) shall comply with the requirement and any person or body of persons which refuses or fails to comply with that requirement shall be guilty of an offence and shall be liable on conviction to a fine not exceeding five thousand shillings.

nister y give ructions

12. The Minister may give to the Council directions of a general or specific character regarding the performance by the Council, of any of its functions under this Act, and the Council shall give effect to every direction given to it.

PART III

FINANCIAL PROVISIONS

ds of Council

13.—(1) The funds and resources of the Council shall consist of—

(a) such sums as may be provided for that purpose to the Council by Parliament, either by way of grant or loan;

(b) such donations, grants, bequests and loans as the Council may, from time to time receive from any person or organization;

(c) any sums or property which may vest in the Council under this Act or any other written law or which may vest in the Council in any other manner in the performance of its functions.

(2) The funds and resources of the Council shall be applied for the purposes for which the Council is established under this Act.

Power of Minister to impose duty

14.—(1) If the Minister considers it necessary in the public interest he may, after consultation with the Minister for the time being responsible for finance, by order published in the *Gazette*, impose a duty payable to the council by any person or body of persons benefiting from the activites of the council or whose activites affect the activities of the Council, and every such person or body of persons specified in the Order, shall take all necessary measures to pay to the Council such amount of duty and in such manner as may be specified in the order.

(2) Every amount of duty required to be paid under subsection (1) shall be paid by the specified person or body of persons, and the amount so payable shall be a debt due to the Council and may be recovered from the specified person or body of persons as a civil debt by a suit at the instance of the Director-General or any person authorized by him in that behalf.

(3) Where any amount of duty is due from any specified person or body of persons, the Director-General may file in a court of a Resident Magistrate aving jurisdiction over the area in which the specified person or body of persons arries on business, a certificate stating:—

(a) the name and address of the specified persoc or body of persons from whom the amount is due; and

(b) the amount due,

and upon the certificate being lodged in court the certificate shall be deemed to be a plaint duly lodged under Order XXXV of the Civil Procedure Code 1955, and the court shall proceed in the matter in accordance with the provision, of that Order, and in the event of a judgment being given in favour of the plaintiff the court shall pass a decree for payment by the defendant to the Council of the amount found due together with interest on that amount at five per centum per month from the date on which the certificate was filed until payment.

(4) The provisions of subsection (3) shall apply notwithstanding that the amount involved exceeds the pecuniary jurisdiction of a court of a Resident Magistrate.

(5) Every certificate filed in a court of a Resident Magistrate pursuant to the provisions of subsection (3) shall, unless the contrary is proved, be conclusive evidence of the truth of the statements contained in that certificate.

Council may charge fees

15. For the purposes of the better and proper performance of its functions the Council may, subject to any directions which the Minister may give in that behalf, charge fees for any services rendered by it or by any of its committees

Annual estimates

16.—(1) The Director-General shall, in respect of each financial year, cause to be prepared estimates of the expenditure and revenue of the Council and those estimates shall be approved by the Council before the commencement of the relevant financial year.

(2) If in any financial year the Council requires to make any disbursement not provided for or of any amount in excess of the amount provided for in the annual budget for that year, the Council shall at a meeting pass a supplementary budget detailing, that disbursement.

(3) The annual budget and every supplementary budget shall be in such form and include such details as the Minister may direct.

(4) Forthwith upon passing any annual budget or any supplementary budget the Council shall submit to the Minister for his approval that annual budget or that supplementary budget.

(5) The Minister shall, upon receipt of the annual budget or any supplementary budget, approve or disapprove it or may approve it subject to such amendment as he may deem fit.

(6) Where the Minister has approved any annual budget or any supplementary budget, the budget, or, as the case may be, the supplementary budget, shall be binding on the Council which, subject to subsection (7), shall confine the disbursements of the Council within the items and amounts contained in the applicable estimates as approved by the Minister.

(7) The Council may—

(a) with the sanction in writing of the Minister, make a disbursement notwithstanding that the disbursement is not provided for in any budget.

(b) adjust expenditure limits to take account of circumstances not reasonably foreseable at the time the budget has prepared, subject to submitting a supplementary budget to the Minister within two months of the alteration of expenditure limits becoming necessary.

ccounts nd audit

17.—(1) The Council shall cause to be provided and kept proper books of account and records with respect to—

(a) the receipt and expenditure of moneys by, and other financial transactions of, the Council.

(b) the assets and liabilities of the Council, and shall cause to be made out for every financial year a balance sheet showing details of the income and expenditure of the Council and all its assets and liabilities.

(2) Within six months of the close of every financial year a balance sheet showing details of the income and expenditure of the Council—in respect of that financial year shall be submitted for audit by the Tanzania Audit Corporation established by the Tanzania Audit Corporation Act, 1968.

Acts. 1968 No.

(3) Every audited balance sheet shall be place before a meeting of the Council which, if it adopts it shall endorse the balance sheet with a certificate that it has been so adopted.

(4) As soon as the accounts of the Council have been audited, and in any case not later than eight months after the close of the financial year, the Council shall submit to the Minister a copy of the audited statement of accounts together with a copy of the report, made by the auditors on the statement of accounts which he shall then submit before the National Assembly.

SCHEDULE

Section 3 (2)

1. The Council shall consist of—

(a) a Chairman, who shall be appointed by the President;

(b) fifteen members appointed by the Minister upon nomination one each by such Ministries and organizations involved in matters relating to the management or protection of the environment as the Minister may determine;

(c) three other members appointed by the Minister from amongst persons who, in his opinion, have the necessary experience or qualification to enable them to make a useful contribution to the realization of the objectives of, and to the deliberations of the Council.

2. The Members shall elect one of their number to be the Vice-Chairman of the Council, and any member elected as Vice-Chairman shall, subject to his continuing to be a member hold office for a term of one year from the date of election, and shall be eligible for re-election. Vice-Chairman

3.—(1) A member shall, unless his appointment is sooner terminated by the President or, as the case may be, by the Minister or he ceases in any other way to be a member, hold office for the period specified by the President in the case of the Chairman or by the Minister, in the case of any other member, in the instrument of his appointment or if no period is so specified, for a period of three years from the date of his appointment and shall be eligible for re-appointment. Tenure of appointment

(2) Any member appointed under paragraph 1 (a), or (c) may at any time resign his office by giving notice in writing to the President or, as the case may be, to the Minister, and from the date specified in the notice or, if no date is so specified, from the date of the receipt of the notice by the President or the Minister, he shall cease to be a member.

3. If a member of the Council who is a member by virtue of his holding some other office is unable for any reason to attend any meeting he may nominate in writing another person from his Ministry or organization to attend that meeting in his place.

4. Where any member ceases to be a member for any reason before the expiration of his term of office, the appointing authority may appoint another in his place and the person so appointed shall hold office for the remainder of the term of office of his predecessor. Temporary membership

5.—(1) The Chairman shall preside at all meetings of the Council. Presiding of meeting

(2) Where at any meeting of the Council the Chairman is absent the Vice-Chairman shall preside.

(3) In the absence of both the Chairman and the Vice-Chairman at any meeting of the Council, the members present shall, from amongst their number elect a temporary Chairman who shall preside at the meeting.

(4) The Chairman, Vice-Chairman or a temporary Chairman presiding at the meeting of the Council, shall in the event of an equality of votes shall have a casting vote in addition to his deliberative vote.

6.—(1) The Council shall ordinarily meet for the transaction of its business not less than twice during every year and at such additional times as may be fixed by the Chairman or, if he is absent from the United Republic or unable for any reason to act, the Vice-Chairman. Meeting and procedure of the Council

(2) The Chairman or, in his absence from the United Republic, the Vice-Chairman may, and upon application in writing by at least five members shall, convene a special meeting of the Council at any time.

(3) The Secretary of the Council shall give to each member adequate notice of the time and place of each meeting.

(4) The Council may invite any person who is not a member to participate in the deliberations of any meeting of the Council, but any person so invited shall not be entitled to vote.

7. At any meeting of the Council not less than one half of the members in office for the time being shall constitute a quorum. Quorum

8.—(1) Subject to the provisions relating to a casting vote, all questions at a meeting of the Council shall be determined by majority of the votes of the members present. Decisions of Council

(2) Notwithstanding sub-paragraph (1), a decision may be made by the Council without meeting by circulation of the relevant papers among the members, and the expression in writing of the views of the majority of the members.

9.—(1) The Council shall cause to be recorded and kept minutes of all business conducted or transacted at its meeting and the minutes of each meeting of the Council shall be read and confirmed or amended and confirmed, at the next meeting of the Council and signed by the person presiding at the meeting.

(2) Any minutes purporting to be signed by the person presiding at a meeting of the Council shall, in the absence of proof of error, be deemed to be a correct record of the meeting, whose minutes they purport to be.

Vacancies, etc. not, to invalidate proceedings

10. The validity of any act or proceeding of the Council shall not be affected by any vacancy among its members or by any defect in the appointment of any of them.

Orders directions

11. All orders, directions, notices or other documents made or issued on behalf of the Council shall be signed by—

(a) the Chairman of the Council; or

(b) the Secretary or any officer or officers of the Council authorized in writing in that behalf by the Secretary.

Seal of the Council

12. The Seal of the Council shall not be affixed to any instrument except in the presence of the Chairman or the Secretary or some other officer of the Council and at least one member of the Council.

Council may regulate its proceedings

13. Subject to the provisions of this Schedule, the Council may regulate its own proceedings.

Passed in the National Assembly on the sixteenth day of July, 1983.

E. E. KAZIMOTO.
Clerk of the National Assembly

tage with almost all dams little water either safe or nya and Yusta Nyekaa, hiding place for German larios).

must vell'

ed to hike electricity tariffs, it be able on its own to buy) for Pemba.
ıt the chief minister said the ernment had to release some - recently to rescue the cor- ation over IDO consignments. problems of power availabil- continue in the island, he

Lake Victoria alarmingly polluted

By Monica Luwondo

LAKE Victoria pollution is increasing alarmingly endangering both human and water living organism life, it was disclosed in Dar es Salaam yesterday.

In a paper to a seminar organised by the Journalists Environmental Association of Tanzania (JET) and Panos institute, Ndugu Samuel Mkuchu, said factories and industries were the main source of pollution of the lake.

He said industries along the lake shores in Mwanza, Musoma and Bukoba discharge effluents into the lake without proper treatment and the towns' water supplies are from the same source.

"The situation has brought some impact on health to the users and was the source of an outbreak of communicable diseases," he pointed out.

Ndugu Mkuchu, who is principal water officer in the Ministry of Water, Ernergy and Minerals said although there were a number of laws for controlling water quality, their enforcement was difficult.

He said where culprits had been taken to court, the paid very low fines.

He called for review of the statutes and heavy panalties against polluters to reflect the seriousness of the problem.

In another paper to the seminar attended by journalists from the three former East African Community members — Kenya, Uganda and Tanzania — who share the waters of Lake Victoria, Ndugu Peter Chisara, a senior fisheries officer, said human activities also played a major part in polluting the lake.

Ndugu Chisara said agricultural activities, urban population growth and over grazing greatly contributed to the problem.

He said overgrazing and shifting cultivation caused soil erosion, while the use of insecticides and fert lisers endangered life in the lake.

He said population expansion in the towns around the lake created the problem of wastes disposal which finally found its way into lake waters.

He cited Mwanza municipality where wastes are being discharged into the lake directly. He pointed out that it was unfortunate that Mwanza, Musoma and Bukoba water supplies systems depended on the sale lake water.

"If the trend of pollution of Lake Victoria is left un checked it is obvious that the situation will grow to the maginitude of no return", he said.

He made a recall on what happened in great Britains lake of North America in 50's and 60's where by its government spent a lot of money in neutralising the polluted water.

He lastly came out with some suggestions in controlling the lakes water quality, that radio's should prepare some specious programmes aimed at public awareness to target groups like farmers, fishermen, industrialist and public at large.

OTTU membership voluntary

SECRETARY General of the Organisation of Tanzania Trade Unions (OTTU) Bruno Mpangala has said OTTU is an independent organ of the workers and never will it force membership on them, *Shihata reports.*

For that reason, OTTU members are only those who will independently join the organisation, he said.

The OTTU Secretary General said this while responding to Ardhi Institute workers message in which they recommended that OTTU membership should be automatic for all workers.

The workers message read at the best workers presentation ceremony, said automatic OTTU membership for workers would strengthen the trade union as it would collect more money in membership fees.

Masai elde set free by High Court

From Correspondent
Patric Mgawanyi, Arusha

A MASAI elder of Olboroti Village in a Kiteto District became a free man early this week at the on-going three week High Court sessions, after his own plea of manslaughter.

Malessa Ramadhani, (54), was accused of stabbing by knife, one Iddi Shabani, his drinking mate on December 15, 1991 at the Olboroti Village after a quarrel over a local brew. The latter died four days later of wounds inflicted by the knife.

Under the presiding Justice Matias Nchalla, the High Court was told by the defence lawyer Ndugu Mpaya Kamara of Tanzania Legal Corporation, (TLC) that on the said day, Malesa had gone to Amina Ramadhani (not related) to buy and drink local brew but he did not find any.

The accused however, was very thirsty and asked the brew seller to give him water instead but using the uncleaned utensils which were used by the patrons so that at least he could get the smell and the taste of the brew.

Soon the deceased entered the house, and asked for the local drink but Amina told him that there was none left. He asked the accused to share with him what he was drinking.

Incidentally, Malessa's reply did not please the deceased who accused his drinking mate of being greedy and started insulting him.

However, the accused left the house, and the deceeased followed him using the same provoking and abusive language. Upon his reaching his colleague the deceased started the fight.

Apparently, Malessa's opponent seemed to be stronger than him, for he fell down.

The accused stabbed the deceased in the abdomen and as a result the deceased's large intestines gushed out. He was taken to the hospital where he died four days later.

Freeing the accused under Section 38 (1) of the Penal Code

LEGISLATION PERTAINING TO ENVIRONMENTAL MANAGEMENT IN TANZANIA (TO DATE AUGUST 1993)*

LOCAL GOVERNMENT

1. Town and Country Planning Ordinance, Cap. 378, Supp. 61
   Town and Country Planning, Regulations, under Section 78, Cap. 378, Supp. 63.
   Town and Country Planning, Orders, under Section 13, Cap. 378, Supp. 63
   Town and Country Planning, Cap. 378, Supp. 56, Annual Supplement, 1956.
   Town and Country Planning, Orders, under Section 13, Cap. 378, Supp. 57.
   Town and Country Planning, Regulations, under Section 78, Cap. 378, Supp. 58.
   Town and Country Planning, Order, under Section 13, Cap. 378, Supp. 59.
   Town and Country Planning, Order, under Section 13, Cap. 378, Supp. 60.
   Town and Country Planning, Regulations, under Section 78, Cap. 378, Supp. 60.

2. The Decentralisation of Government Administration (interim provisions) Act, 27/72.

   Decentralisation of Government Administration (interim provisions) Amendment, 26/75.

   Decentralisation of Government Administration (interim provisions) Amendment, 12/82.

   Decentralisation of Government Administration (interim provisions) Amendment, 19/92 (in miscellaneous amendments to written laws).

3. Local Government District Authorities Act, 7/82.

   Local Government Laws Amendment, 8/92.

4. Local Government Urban Authorities Act, 8/82.

   Local Government Laws Amendment, 8/92.

5. Townships Ordinance, Cap. 101.

6. Minor Settlements Ordinance, Cap. 102.

LAND USE

1. Land Acquisition Act, 47/67 (repeals and replaces Land Acquisition Ordinance)..

   Land Acquisition Act Amendment, 25/68.

*Prepared by Laura Hitchcock, Conservation Law Advisor, for Division of Environment, Ministry of Tourism, Natural Resources and Environment

2. Regulation of Land Tenure, 22/92.

3. National Land Use Planning Commission Act, 3/84.

4. Natural Resources Ordinance, Cap. 259, Supp. 62.

5. Government Rents (Summary Recovery), 4/65.

6. Land Ordinance, Cap. 113, Supp. 64.

7. Land (Law of Property and Conveyancing) Ordinance, Cap. 114.

8. Land Laws (Miscellaneous Amendments), 28/70. (amends the Land Ordinance and the Land - Law of Property and Conveyancing Ordinance).

9. Land Ordinance Amendment Act, 21/66.

10. Land Ordinance Amendment Act, 10/74.

11. An Act to regulate the Tenure of Land in Village Settlements and for connected matters, Cap. 588.

12. Land (Rent and Service Charge) Act, 13/74.

13. Urban Authorities (Rating) Act, 2/83.

14. Institute of Rural Development Planning, 8/80.

15. Ardhi Institute Act, 35/74.

15. Rural Lands (Planning Utilization), 14/73.

NTIQUITIES

1. National Museum of Tanzania Act, 7/80.

2. Antiquities Act, Cap. 550.

Antiquities Act Amendment, 22/79.

RANSPORTATION

1. Highways Ordinance, Cap. 167, Supp. 58.

Highways Ordinance Amendment, 40/69.

2. Inland Water Transport Ordinance, Cap. 172, Supp. 65.

Inland Water Transport Ordinance, Rules, Cap. 172, Supp. 65.

3. Merchant Shipping Act, 43/67.

Merchant Shipping Act Amendment, 21/80.

UMAN HEALTH

1. Food Control of Quality Act, 10/78.

2. Pharmaceuticals and Poisons Ordinance, Cap. 416.

   Pharmaceuticals and Poisons Ordinance Amendment, 30/67.

3. Pharmaceuticals and Poisons Act, 9/78.

4. Muhimbili Medical Centre Act, 17/76.

5. Disaster Relief Act, 9/90.

LAND MANAGEMENT (Grass Fires, Plants)

1. Fire Inquiry Ordinance, Cap. 33, Supp. 66-74.

2. Grass Fires (Control) Ordinance, Cap. 135, Supp. 57. (under revision).

3. Plant Protection Ordinance, Cap. 133, Supp. 60 (under revision).

4. Natural Resources Ordinance, Cap. 253, Supp. 62.

FISHERIES

1. Fisheries Act, 6/70.

2. Tanzania Fisheries Research Institute Act, 6/80.

3. Territorial Sea and Exclusive Economic Zone Act, 3/89.

WILDLIFE

1. College of African Wildlife Management Act, Cap. 549.

   College of African Wildlife Management Act Amendment, 39/74.

   Also amended by Tanzania Audit Corporation Act, 1/68.

2. Serengeti Wildlife Research Institute Act, 4/80.

3. Wildlife Conservation Act, 12/74.

   Wildlife Conservation Act Amendment, 21/78.

   Wildlife Conservation Act, Subsidiary Legislation, 12/74.

PUBLIC LANDS/PRESERVED AREAS: NATIONAL PARKS, GAME PARKS AND NGORONGORO CRATER

1. Public Land (Preserved Areas) Ordinance, Cap. 338, Supp. 65.
   Public Land Preserved Areas Ordinance Amendment, 28/65.

2. Protected Places and Areas Act, 38/69.

3. National Parks Ordinance, Cap. 412, Supp. 59.

National Parks Ordinance Amendment, 7/67.

National Parks Ordinance Amendment, 50/68 (in written laws miscellaneous amendments).

National Parks Ordinance Amendment, 27/74.

Game Parks Laws Amendments, 14/75 (amends National Parks Ordinance and Ngorongoro Conservation Ordinance).

Game Parks Laws Amendments, Subsidiary Legislation, 14/75.

4. Ngorongoro Conservation Area Ordinance, Cap. 413.

Game Parks Laws Amendments, 14/75 (amends National Parks Ordinance and Ngorongoro Conservation Ordinance.)

5. Public Recreation Grounds Ordinance, Cap. 320, Supp. 60.

Public Recreation Grounds Ordinance, Subsidiary Legislation, Cap. 320, Supp. 61-62.

Public Recreation Grounds Ordinance Amendment, 10/68.

7. Arusha National Park Act, 12/68.

FORESTRY

1. Forestry Ordinance, Cap. 383, Supp. 57.

Forests Ordinance Amendment Rules, 1930, to be read as one with Forest Rules 1953.

2. Tanzania Forestry Research Institute, 5/80.

TOURISM

1. Tourist Agents (Licensing) Act, 2/69.

2. Tanzania National Tourist Board Act,

3. Tanzania National Tourist Board Act Amendment, 18/32.

LIVESTOCK/GRAZING

1. Range Development and Management Ordinance, Cap. 563, Supp. 64.

2. Dairy Industry Act, Cap. 590.

3. Tanzania Livestock Research Organization, 2/80.

4. Cattle Grazing Ordinance, Cap. 155. (repealed?)

INDUSTRY AND INVESTMENT

1. Gemstone Industry (Development and Protection) Act,

11/67.

Gemstone Industry (Development and Protection) Amendment Act, 16/68.

2. Companies Ordinance, Cap. 212.

Companies Ordinance Amendment, 18/75.

3. Tanzania Industrial Studies and Consulting Organization Act, 2/76.

4. Architects, Quantity Sureveyors, and Building Contractors Registration Act, 35/72.

5. National Investment Promotion and Protection Act, 10/92.

6. Small Industries Development Organization Act, 28/73.

7. National Industries (Licensing and Registration) Act, 10/67.

National Industries Licensing and Registration Amendment Act, 13/82.

Also amended by Investment Promotion Centre Act, 10/92.

8. Factories Ordinance, Cap. 297.

LLUTION

1. Public Health (Sewerage and Drainage) Ordinance, Cap. 6

2. Explosives Act, Cap. 538.

3. Petroleum Conservation Act, 18/81.

4. Protection from Radiation Act, 5/83.

5. Fire and Rescue Services Act, 3/85.

6. Standards Act, 3/75.

Standards Act Amendment, 1/77 (in written laws miscellaneous amendments).

7. Tropical Pesticides Research Institute Act, 18/79.

8. Mining Act, 17/79.

9. Mining (controlled areas) Ordinance, Cap. 124. (appears to be still in force from documentation at High Court Library.)

10. Petroleum Exploration and Production Act, 27/80.

TER RESOURCES

1. Rufiji Basin Development Authority Act, 5/75.

   Amended by 10/86 (but this doesn't appear to be the correct amendment number. Perhaps should be 10/81? Check this.)

2. Urban Water Supply Act, 7/81.

3. Water Utilization (Control and Regulation) Act, 42/74.

   Water Utilization (Control and Regulation) Amendment, 10/81.

   Water Utilization (Control and Regulation) Amendment, 17/89 (in written laws, miscellaneous amendments).

ENVIRONMENTAL MANAGEMENT

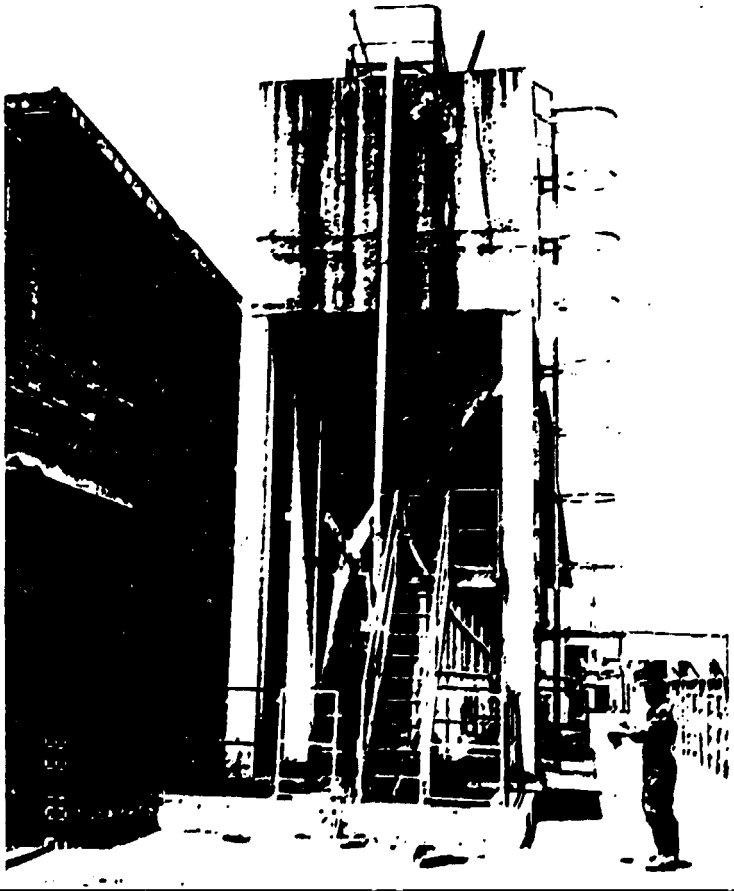
1. National Environment Management Council Act, 19/83.

ANNEX

4. ZIMBABWE

1. Proper factory arrangements mak‹ the effluent treatment easier (above)

2. Joint treatment with municipalities requires only preliminary treatment and this requires much less space than full treatment



CHAPTER 160

WATER

To consolidate and amend the law in respect of the ownership, control and use of water and to fix the terms and conditions governing the appointment of water court judges.

[5th August, 1927.]

Acts 22/1927, 22/1938, 9/1941, 34/1947, 8/1949, 39/1951, 45/1953, 25/1954, 10/1955, 24/1956, 28/1958, 2/1961, 24/1962 (s. 2), 18/1963, 21/1963, 22/1964 (s. 54), 36/1965, 61/1966 (s. 77), 31/1968, 71/1970, 4/1971 (s. 37), 80/1971 (s. 33), 12/1973 (s. 270), 39/1973 (ss. 24 and 52); R.G.N.s 153/1963, 177/1963, 801/1963, 214/1964, 386/1964, 61/1969, 217/1970, 758/1972.

ARRANGEMENT OF SECTIONS

Rhodesia Government Notice No. 687 of 1977

[ACT 41/76

Water (Effluent and Waste Water Standards)Regulations, 1977

IT is hereby notified that the Minister of Water Development has, in terms of section 135 of the Water Act, 1976, made the forllowing regulations:-

Title

1. These regulations may be cited as the Water (Effluent and Waste Water Standards) Regulations, 1977.

Interpretation

2. In these regulations -

"heavy metal" means a metal having a specific gravity greater than 5,0;

"Zone I catchment area" means a Zone I catchment area specified in the First Schedule;

"Zone II catchment area" means a Zone II catchment area specified in the First Schedule.

Prescribed standards of quality for effluent and waste water

3. The standards of quality, prescribed for the purposes of paragraph (a) of subsection (2) of section 101 of the Act, to which effluent or waste water which has been produced by, or results from, the use of water for any purpose, and which is discharged or disposed of into a public stream, private water, public water or underground water, whether directly or through drainage or seepage, shall conform, shall be as set out in the Second Schedule.

Sampling procedure

4. The following requirements shall be complied with in respect of any sample which may be taken or required to be taken of effluent or waste water for the purposes of Part IX of the Act -

(a) a composite sample for the purpose of analysis for all tests, other than those for temperature, pH and disolved oxygen, shall be taken by combining individual samples so that a minimum of five samples of equal volume of not less than five hundred millilitres each

of the effluent or waster water shall be taken, at the point of discharge, at approximately equal intervals of time over a minimum period of approximately four hours within any twenty-four-hour period;

(b) temperature, pH and dissolved oxygen readings shall be taken on individual samples at the time of sampling, and all samples shall comply with the standards specified in respect of temperature, pH and dissolved oxygen in the First Schedule.

(c) where full laboratory facilities do not exist on the site for the determination of dissolved oxygen, the oxygen in the sample may be fixed at the time of sampling by adding the sulphuric acid, the permanganate, the oxalate, the manganous sulphate and the alkaline iodide only:

Provided that -

(i) the stopper of the sample container shall be replaced and the solution shall be well mixed;

(ii) the remaining steps shall be carried out later in the laboratory.

Repeals

5. The Water Pollution Control (Waste and Effluent Water Standards) Regulations, 1971, published in Rhodesia Government Notice No. 609 of 1971, are repealed.

FIRST SCHEDULE (Section 2)
ZONES I AND II CATCHMENT AREAS

1.	Zone I catchment areas	Locality
	The river catchment area of -	
	(a) the Gairezi River and its tributaries.	Inyanga district
	(b) the Pungwe River and its tributaries.	Inyanga district
	(c) the Hondi River and its tributaries.	Inyanga district
	(d) the Nyamkwarara River and its tributaries.....	Inyanga district
	(e) the Inyangombe River and its tributaries to its confluence with the Nyajezi River	Inyanga and Makoni districts
	(f) the Nyajezi River and its tributaries to its confluence with the Inyangombe River.....	Inyanga district
	(g) the Odzi River and its tributaries to its confluence with the Odzani River	Inyanga district
	(h) the Odzani River and its tributaries to its confluence with the Odzi River	Inyanga district
	(i) the Mazonwe River and its tributaries	Umtali district
	(j) the Umvumvumvu River and its tributaries to its confluence with the Nyambewa River.....	Melsetter district
	(k) the Nyambewa River and its tributaries to its confluence with the Umvumvumvu River	Melsetter district
	(l) the Nyanyadzi River and its tributaries to its confluence with the Biriwiri River	Melsetter district
	(m) the Biriwiri River and its tributaries to its confluence with the Nyanyadzi River	Melsetter district
	(n) the Lusitu River and its tributaries	Melsetter district
	(o) the Busi River and its tributaries...	Chipinga district

2. Zone II catchment areas

All river catchment areas other than those specified under Zone I.

SECOND SCHEDULE (Section 3)

PRESCRIBED STANDARDS OF EFFLUENT OR WASTE WATER

1. The water shall not contain any colour or have any odour or taste capable of causing pollution.

2. The water shall not contain any radioactive substances capable of causing pollution.

3. The pH of the water shall be, where discharged or disposed of-
   (a) in a Zone I catchment area, between 6,0 and 7,5;
   (b) in a Zone II catchment area, between 6,0 and 9,0.

4. The temperature of the water at the point of discharge shall not exceed -
   (a) in a Zone I catchment area, 25°C;
   (b) in a Zone II catchment area, 35°C.

5. The water shall contain dissolved oxygen to the exient of at least, where discharged or disposed or-
   (a) in a Zone I catchment area, 75 per centum saturation;
   (b) in a Zone II catchment area, 60 per centum saturation.

6. The chemical oxygen demand of the water, after applying chloride correction, shall not exceed, where discharged or disposed of-
   (a) in a Zone I catchment area, 30 milligrams per litre;
   (b) in a Zone II catchment area, 60 milligrams per litre.

7. The oxygen absorbed by the water shall not exceed, where discharged of disposed of -
   (a) in a Zone I catchment area, 5 milligrams per litre;
   (b) in a Zone II catchment area, 10 milligrams per litre.

8. The total undissolved solids content of the water at the point of discharge shall not be greater than -
   (a) in a Zone I catchment area, 10 milligrams per litre;
   (b) in a Zone II catchment area, 25 milligrams per litre.

9. The total dissolved solids content of the water at the point of discharge shall not -
   (a) in a Zone I catchment area, increase the total dissolved solids content of the receiving water by more than 100 per centum and the total dissolved solids content of the effluent shall not exceed 100 milligrams per litre;

   (b) in a Zone II catchment area, exceed 500 milligrams per litre.

10. The water shall not contain soap, oil or grease in quantities greater than, where discharged or disposed of -
   (a) in a Zone I catchment area, nil;
   (b) in a Zone II catchment area, 2,5 milligrams per litre.

11. The maximum permissible concentrations of chemical constituents permissible in the water which is discharged or disposed of in a Zone I or Zone II catchment area shall be as specified in the following table:

TABLE

MAXIMUM PERMISSIBLE CONCENTRATIONS OF CERTAIN CHEMICAL CONSTITUENCY

Constituent	Maximum concentration in milligrams per litre	
	Zone I catchment area	Zone II catchment area
Ammonia free and saline (as N)	0,5	0,5
Arsenic (as As)	0,05	0,05
Barium (as Ba)	0,1	0,5
Boron (as B)	0,5	0,5
Cadmium (as Cd)	0,01	0,01
Chlorides (as Cl)	50	100
Chlorine residual (as free chlorine)	Nil	0,1
Chromium (as Cr)	0,05	0,05
Copper (as Cu)	0,02	0,5
Cyanides and related compounds (as CN)	0,2	1,0
Detergents (as manoxol OT)	0,2	1,0
Fluoride (as F)	1,0	1,0
Iron (as Fe)	0,3	0,3
Lead (as Pb)	0,05	0,05
Manganese (as Mn)	0,1	0,1
Mercury (as Hg)	0,5	0,5
Nickel (as Ni)	0,3	0,3
Nitrogen total (as N)	10,0	10,0
Phenolic compounds (as phenol)	0,01	0,1
Phosphates total (as P)	1,0	1,0
Sulphate (as SO_4)	50	200
Sulphides (as S)	0,05	0,2
Zinc (as Zn)	0,3	1,0
Total heavy metals	1,0	2,0

12. The water shall not contain any detectable quantities of pesticide, herbicide or insecticide, nor shall it contain any other substances not referred to elsewhere in these standards, in concentrations which are poisonous or injurious to human, animal, vegetable or aquatic life.

Supplement to the Rhodesia Government Gazette dated the 30th September, 1977
Printed by the Government Printer, Salisbury.

Mr Lnudere   Ref. T&TS/FEM/TAN
Repaired 14/9/12

City of Bulawayo

City Engineer's Department
Municipal Buildings
Selborne Ave Wilson Street
Bulawayo
Zimbabwe

When calling or telephoning about this matter please ask for MR. COWAN.

22nd September, 1981.

The Managing Director,
Zimbabwe Tanning Company (Pvt) Ltd.,
P.O. Box 8230,
BULAWAYO.

Dear Sir,

EFFLUENT : UMTALI LEATHER (PVT) LTD., STAND NO. 6370/1

Permission is hereby given to discharge an effluent into the Municipal sewer which complies with the following requirements:

PH	Greater than	6,5 - 12
Temperature	not more than	45°C
Total solids	not more than	~~6000~~ mg/1
Suspended solids	not more than	600 mg/1
Soap, Oil, grease	not more than	10 mg/1
Dissolved sulphate	not more than	300 mg/1
Chlorides	not more than	4000 mg/1
Chemical oxygen demand	not more than	3000 mg/1
Sulphides	not more than	20 mg/1
Cyanides	not more than	10 mg/1
Iron	not more than	25 mg/1
Zinc	not more than	15 mg/1
Cadmium, Chromium	Individually- not more than	10 mg/1
Copper, Lead, Nickel	Collectively- not more than	20 mg/1
Dissolved sulphate	not more than	300 mg/l

Yours faithfully,

CITY ENGINEER.
JC/MJ.

ALL COMMUNICATIONS TO BE ADDRESSED TO THE DIRECTOR

CITY of GWERU

In calling or telephoning about this matter please ask for

J.G. Nanthambwe

ENGINEERING SERVICES DEPARTMENT
Cnr. 8th Street, Robert Mugabe Way
P.O Box 278 Telephone 4[illegible]
GWERU, Zimbabwe

Your Ref.:

Our Ref: JGN/pm: L5/1

BY SWIFT

13th April, 1993.

The Laboratory Manager
Leather Institute of Zimbabwe
20 Coventry Street
Belmont
BULAWAYO

Dear Sir,

INDUSTRIAL EFFLUENT : ACCEPTANCE LIMITS

Your letter dated 26th March, 1993 refers.

Gweru City Council operates two conventional sewage works which are basically sedimentation and bio-filtration oriented.

The effluent from both works is discharged into Gweru river.

The designs of the works are based on the acceptance of waste water which is within Standard Two of the Central African Standard No. Z21:1972 "Standards for Waste or Effluent Water.

The limits at the point of your discharge into the system therefore are as follows:-

pH - Between 6.0 and 9.0

Temperature - 35°C

Total Undissolved solids - 25mg/l

Total Dissolved solids - shall not exceed : 500mg/l

Chemical Oxygen Demand - shall not exceed : 60mg/l

Dissolved sulphates - Maximum concentration : 200mg/l

2/.....

;OP March 18/93

IMITED
31 DECEMBER 1992
the year ended 31 December 1992 are as follows:

MBER		JANUARY-JUNE	
991 000	%	1992 $000	%
5 756	(100.0)	152 922	(100.0)
2 135	(14.9)	29 035	(19.0)
3 675	(6.3)	14 718	(9.6)
3 460	(8.6)	14 317	(9.4)
5 888	(3.2)	2 808	(1.9)
1 572	(5.4)	11 509	(7.5)
76.9		59.7	
28.7		11.7	
2.7		5.1	

[redacted]

ed by some 8%, substantially due to the impact of the at almost 50% by the year-end resulted in a substantial ing pace with inflation, real disposable incomes fell rst affected by the down-turn (furniture, textiles and oducts and flooring.

reasing by 50,3% to $324,4 million, although this largely s before tax of $63,7 million represents a return of 19,6%

e three years from 1990 to 1992 now coming to

Group
rials under OGIL, and to react quickly and
nicing

ough an improvement over 1991 (8,6% of sales), is only o adequately fund the Group's ongoing programme to requirements in today's highly inflationary environment.

e significantly higher capital expenditure of $19,5 million o avoid excessive use of high cost, short term, bank e year, and the increase in financing costs of $1 million to period.

n and interest rates will remain high until Government signs of the US economy moving out of recession are 's products is therefore unlikely to be higher in 1993 than S are experienced. This will create pressures on margins ocal inflation. Consequently, some reduction in Group

r shareholders, the final dividend for 1992 of 31,4 cents

D J SELLWOOD
MANAGING DIRECTOR

[redacted]

. payable to the shareholders registered in the books of the s and register of members will be closed from the 9 April be posted on or about 7 June 1993.

BY ORDER OF THE BOARD
J D ANDREWS
SECRETARY

s, P Buyssé (Alt. A J Gulliver), P Davidson, J Gondo,

ongogara St/14th Avenue, P O Box FM 430, Famona, Byo

The budget deficit for the first five months of the current fiscal year was $2 billion, which has already exceeded the budget deficit for the whole financial year.

If this rate of expenditure [illegible] ing by foreign companies."

Government spending, the bank said, was still the most important factor fuelling money supply growth, and the rate of inflation.

Companies saluted for top performance

Staff Reporter

THE Industrial Chemical sector recently saluted three companies for their outstanding performance.

Imponente Tanning got the Environmental Award for its new tanning technique that has reduced the level of chromium oxide in their effluent from 1,6 to less than 0,7 percent.

In its citation, the Standards Association of Zimbabwe made the point that it was Imponente's initiative, there being no local regulations. Technical director, Mr Carlos Toughinna confirmed that the technique was developed locally.

Exporter of the Year went for the second year running to Castrol Zimbabwe. The product involved is Petroleum Jelly; the countries exported to are mainly Zambia and Malawi. The Safety Award in a factory employing more than 50 people went to Henkel.

The Inchem awards were presented by the chief executive of the CZI, Mr Mike Boyd-Clark. In his address Mr Boyd-Clark talked of the challenge facing industrialists today, that of massive change. "The traditional skills are coming to the fore again — marketing and quality and financial controls," he said.

Inchem, the Industrial Chemical Association, has been in existence for three years.

ZIMBABWE

PROSPECTUS FOR ENVIRONMENTAL ASSESSMENT POLICY IN ZIMBABWE

PUBLIC BACKGROUND AND DISCUSSION PAPER

SEPTEMBER 1993

Ministry of Environment and Tourism
Fourteenth Floor, Karigamombe Centre, 53 Samora Machel Avenue
P/Bag 7753, Causeway, Harare
Tel. 751720/1/2

ZIMBABWE

PROSPECTUS FOR ENVIRONMENTAL ASSESSMENT POLICY IN ZIMBABWE

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Tel. 751720/1/2

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All communications should be addressed to The Secretary for Environment and Tourism

Private Bag 7753
Causeway, Zimbabwe
Telephone: 794455
Fax No.: 263-4-794450
Your Ref.:
Our Ref.:

ZIMBABWE

MINISTRY OF ENVIRONMENT AND TOURISM
Kaigamombe Centre
53, Samora Machel Avenue
Harare, Zimbabwe

September, 1993

Dear Recipient:

I am pleased to provide this prospectus for your thoughtful consideration and comment. My Ministry assigns high priority to preparing and adopting an environmental assessment and review policy for development in Zimbabwe, in line with the Second Five-Year Development Plan (1991-1995). Such a policy and programme can contribute measurably to the goal of sustainable development that Zimbabwe has embraced through our National Conservation Strategy and the United Nations Conference on Environment and Development process.

If we are to achieve an effective policy that contributes to development that we require for our nation, broad cross-sectoral participation, input and understanding must occur. The purpose of this prospectus is to provide the background on the issues, objectives, and possible timetable for introducing formalised environmental assessment into our Ministry operations and the Government of Zimbabwe more broadly. We welcome your feedback and suggestions and my officials are available to meet with you as you may require to discuss proposals. Moreover, we plan to conduct a national workshop based on this prospectus in November ,1993. Further details on this workshop will be announced in the near future.

Thank-you for your interest and anticipated participation in this policy initiative.

Yours faithfully,

E.T. Mundangepfupfu
SECRETARY FOR ENVIRONMENT AND TOURISM

Prospectus for Environmental Assessment Policy in Zimbabwe
Public Background and Discussion Paper

Introduction

This prospectus has been prepared to provide stakeholders in environment and development a full opportunity to participate in the preparation of an environmental assessment policy for Zimbabwe.

The prospectus suggests goals, principles and objectives for the environmental assessment of development proposals and presents issues that must be addressed in preparing and implementing the requisite policies. Stakeholder evaluation and input for all these topics will be essential to defining effective policy. The process that the Ministry of Environment and Tourism proposes to follow in gaining public inputs and in reaching decisions and implementing an environmental assessment policy is also described. This is intended to make clear the anticipated steps and timetable to be followed which can be adjusted based on public inputs received during consultations.

Organisation of the Prospectus

The prospectus has two parts that are interrelated. Part I contains the overall goals, principles, objectives and issues proposed to be addressed in an environmental assessment policy and programme. Part II sets out an interim policy proposal for Environmental Impact Assessment (EIA) to be applied to development projects, including proposals for prescribed activities and screening guidelines. Subject to public review and input, it is proposed that Part II, or a modified version of same, be implemented on a two year trial basis as a practical step and capacity-building approach to finalizing a more comprehensive EA policy.

Definitions

It is important to define the terms and abbreviations used in this prospectus. *You are encouraged to suggest additions and alterations to these since they will be important to ensure clarity and intent in any policy or programme ultimately implemented.*

"Development proposal" refers to any proposed policy, plan, programme, or project that will apply human, financial or natural resources to meet human needs.

"Environment" refers to the air, land, water, plants, animals, humans and cultural characteristics as expressed physically, socially and economically.

"Environmental assessment" or "EA" refers to the assessment of a development proposal in terms of its effects on the environment.

"Prescribed activity" refers to a development proposal subject to environmental assessment.

"Environmental impacts" refer to the effects an activity has on the environment. These effects may be positive or negative, or produce costs or benefits.

"Environmental impact assessment" or "EIA" refers to an environmental assessment of a development project. The product of the study is an "EIA report".

"PEIA" refers to a preliminary environmental impact assessment study. The product of the study is a "PEIA report".

"DEIA" refers to a detailed environmental impact assessment study. The product of the study is a "DEIA report".

"Residual impacts" refer to those negative environmental impacts that could not be eliminated during the design of a development proposal.

"Ministry" refers to the Ministry of Environment and Tourism.

"Minister" refers to the Minister of Environment and Tourism.

"Permanent Secretary" refers to the Permanent Secretary of Environment and Tourism.

"Proponent" refers to any public- or private-sector agent, body or individual making a development proposal.

"Permitting authority" refers to an agency of government responsible for regulating specific kinds or aspects of development activities.

"Stakeholders" are individuals, communities, government agencies, private organisations, non-governmental organisations or others having an interest or "stake" in EA/EIA policy or in the outcomes of development proposals.

"ZIC" refers to the Zimbabwe Investment Centre.

"NEPC" refers to the National Economic Planning Commission of Zimbabwe.

It is important to explain the distinction being made between EA and EIA and in the areas of policy development to which these terms are being applied. EA is the more comprehensive term and refers to the entire body of process and institutional arrangements created to effect the environmental assessment of development proposals -- be they policies, plans, programmes, or individual projects. EIA is focused more sharply on the process and procedures for conducting environmental assessment of individual

projects only. Therefore, EIA can be thought of as one level of application of EA. In both EA and EIA, development and environment are brought together in a study. Both involve forecasting the likely interactions between development and the environment, and proposing measures to prevent or minimize adverse effects and enhance or optimize environmental benefits. Monitoring and evaluation should characterize both EA and EIA to assess the actual environmental effects as a development proposal is implemented.

PART I: ENVIRONMENTAL ASSESSMENT

Proposed Goals

The fundamental question might be asked: "Why have an environmental assessment policy for development in Zimbabwe?" The answer lies in Zimbabwe's commitment to achieve sustainable development; that is, "development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development). In fact, Zimbabweans have recently considered the social, economic and biophysical features of sustainable development and attached greatest importance to the biophysical aspects of sustainability.[1] Zimbabwe has been an active participant in the United Nations Conference on Environment and Development (UNCED) process, and the Second Five Year Development Plan (1991-1995) specifies that EIA be undertaken before major development projects are implemented. Although Zimbabwe has had EIAs carried out for several projects in recent years, there is no policy and procedure in place for requiring, specifying, reviewing, approving and implementing the results of environmental assessments of development proposals. If development is to be sustainable, certain prevailing environmental management goals must be met:

* the long-term ability of natural resources to support human, plant and animal life must be maintained
* a broad diversity of plants, animals and ecosystems must be conserved
* environmental processes such as recycling of air, water and soil nutrients must be preserved
* irreversible environmental damage must be avoided

[1] See Marongwe, D.A., and G.R. Milne. 1993. "Environmentally Sustainable Development Objectives and Priorities in Zimbabwe." Ministry of Environment and Tourism, Working Paper #1 (in press).

* the basic needs of people for food, water, shelter, health and sanitation must be met

* social and cultural values of people and their communities must be conserved

It is argued here that the case for environmental assessment of development proposals is founded upon these goals and their importance to sustainable development.

Principles and Objectives

Specific principles and objectives have been suggested for EA. The Ministry conducted a three day EA workshop in March 1993 involving natural resources managers, planners and economic analysts in Zimbabwe. This group identified the following principles and objectives for EA/EIA. *These should be treated as initial proposals for your critical consideration and elaboration.*

- Both public- and private-sector development proposals should be made subject to EA.

- Proponents should be responsible for funding and conducting EA/EIA studies.

- Prescribed activities and screening guidelines will be needed for an effective and manageable policy. Basic criteria to be satisfied in identifying prescribed activities and screening guidelines are:

    - The development needs and experience of Zimbabwe should be reflected.

    - The guidelines and requirements of donors should be met.

    - A development proposal should be subject to some level of environmental assessment if it would do any of: disturb the water table; alter the landscape; produce emissions or pollutants to air, water or soil; displace people or alter their environment; reduce biodiversity; disturb archaeological sites, cultural sites or national monuments; affect wildlife or wildlife habitat; pose a threat to human health; or involve handling or disposal of hazardous substances.

- EA/EIA should include the development effects on the biophysical, socio-economic and cultural environment.

- EA/EIA should begin as early as possible in the development planning process or project cycle -- ie. when the proposal is being initially conceived and feasibility is being assessed.

- Those people that could be potentially affected by a development proposal should be consulted during the planning process and participate in reviewing the proposal.

- Information about the development proposal should be readily available to all public and private stakeholders.

- Formal review of an EA/EIA report prepared by a proponent should be assessed as to its adequacy by a qualified, impartial body, independent of the proponent, the professional/technical persons who prepared the EA/EIA and the approving authority.

- The EA/EIA should provide for specifically-identified mitigation measures, management planning for impacts during the development implementation and operational phases, and ongoing monitoring and management of impacts.

- An effective assignment and coordination of roles and responsibilities should be developed for proposal submission, review, referral and approval.

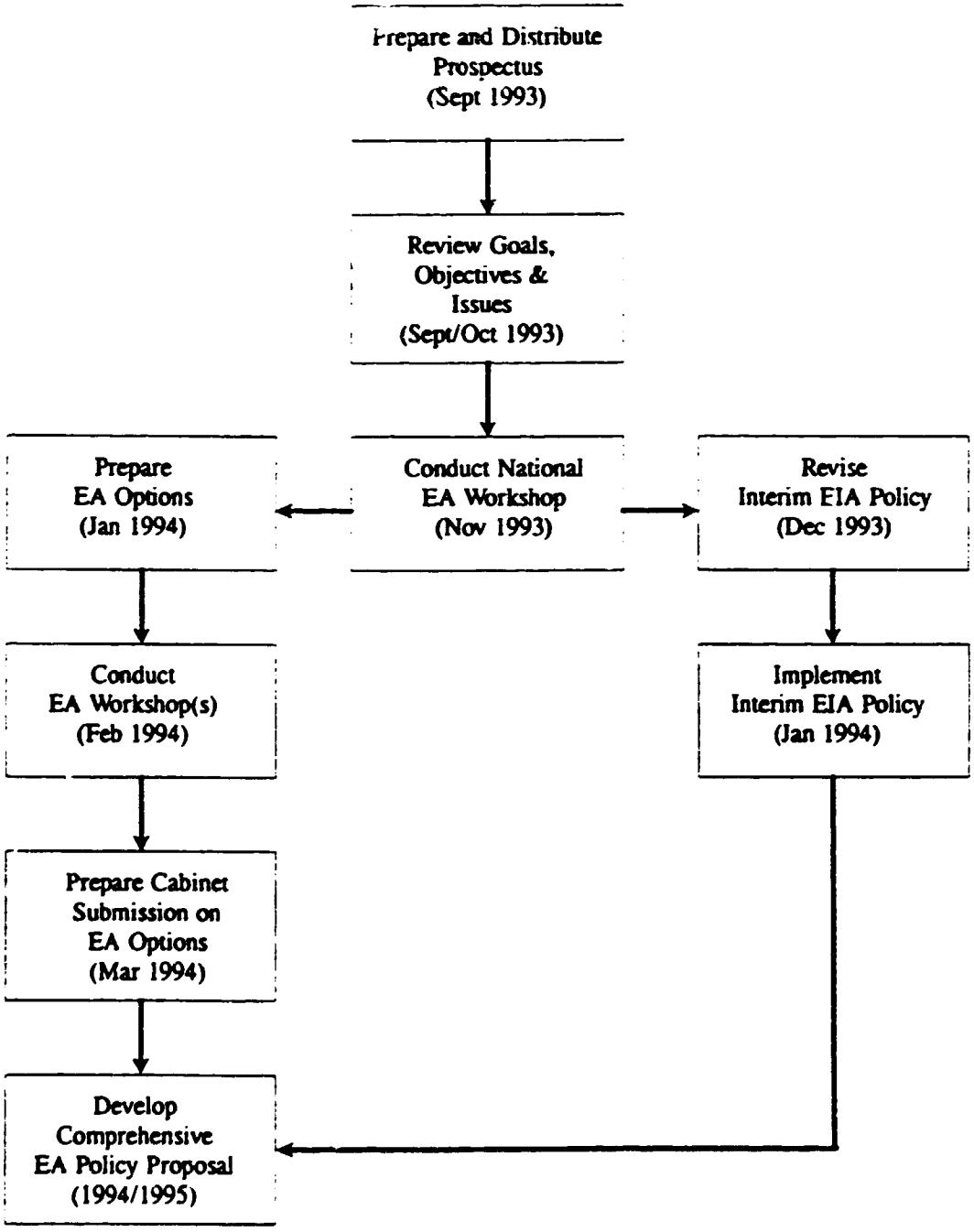
- People and communities that suffer a loss from development should be fairly compensated.

- An environmental licence should be considered for proposals before they proceed as part of the approvals process.

Consultation Process

Full and open consultation with stakeholders is essential to the preparation and successful implementation of an EA policy and programme. Figure 1 illustrates the steps that will be followed to obtain stakeholder inputs and prepare two distinct but interrelated products by March 1994. These products are an Interim EIA Policy for approval and implementation in early 1994 and an EA policy options document for Cabinet review in March 1994. First steps will involve stakeholder receipt and review of this prospectus over the September/October 1993 period. During this time, individual stakeholder information meetings with Ministry staff will also occur as requested and required. In November, 1993 the Ministry intends to hold a National Workshop for Environmental Assessment to discuss and work through the prospectus contents. From this, the proposed Interim EIA Policy can be refined for ministerial review and approval and the background material and inputs can be prepared for defining EA policy options. These initiatives will then provide information for the development of a comprehensive EA policy proposal over the 1994/1995 period.

Figure 1:
EA Programme Development Process



Issues Identification and Resolution

A variety of issues must be dealt with to arrive at an effective EA policy and programme for Zimbabwe. *You are encouraged to evaluate the issues and questions identified below and suggest changes, additions and resolutions to them.*

Development Activities Subject to EA

Care must be taken to ensure that those activities prescribed for environmental assessment and review, and the guidelines prepared to determine the application of environmental assessment are reasonable, include development proposals that truly pose environmental consequences, and are manageable in the review and approval process. In sum, the real needs and capacities of Zimbabwe in environment and development should be reflected in the policy and programme choices made. Part II of this prospectus includes proposals for prescribed activities and screening guidelines for project-level EIA. How can such a listing be modified to account for policy or programme applications of environmental assessment? How applicable and appropriate is this listing for implementation of the Interim EIA Policy over the next two years? Are there project types which should be added or deleted?

Review and Approval of EA/EIA Reports

There are several key questions or issues relating to the review and approval of environmental assessments. Where and to whom, for instance, should a proponent first disclose or submit a development proposal? Who should review the proposals and determine the need to conduct further environmental assessment? Who determines the adequacy of environmental assessments, once conducted, and approves the proposal? Could an Environmental Council have some or all such responsibilities? The Ministry of Environment and Tourism, The National Economic Planning Commission, the Zimbabwe Investment Centre and Local Authorities could all potentially have a role.

Public Participation

The principle of public information and participation has been stated for environmental assessment but who is responsible to ensure public participation occurs and to what level? Where does a proponent's responsibility end? On major development proposals, should formal public hearings be held and who should hold them? Could the Natural Resources Board fulfil a role in this regard or could this be a function of a new Environmental Council? What kinds of information should be publicly available? How can the public ensure that their views are taken into account?

Linking Economic Appraisal and Environmental Assessment

The economic feasibility of public and private sector project proposals is reviewed by government before they can proceed. How can environmental costs and benefits be better estimated and incorporated in development proposal appraisal? Are non-market

values being properly assessed (eg. wildlife values)? How can the proposed environmental assessment and review policy and programme be most effectively linked with the project appraisal functions being carried out by the NEPC and ZIC?

Enabling EA Through Environmental Management Legislation

It is generally acknowledged that some legislative basis is required for effective EA. Is this required in Zimbabwe and, if so, what form should it take? For example, should there be specific EA legislation or broader legislation that mandates EA as well as establishes other means for environmental management?

Compliance

It is one thing to carry out environmental assessments but quite another to ensure application in actual development activities and operations. How should compliance be assured -- through legislation, economic incentives, stiff penalties? Who should ensure compliance -- the proponent alone or does the Government have a role?

Part II: Interim EIA Policy Proposal

Introduction

Within the context of developing a comprehensive EA policy and programme for Zimbabwe, the Ministry proposes to introduce an Interim EIA Policy for a trial period of two years. This initiative is intended to minimise confusion and uncertainty for both project developers and government regarding ongoing EIA activities, and to try out EIA administrative procedures, until a more comprehensive EA programme and new environmental management legislation can be put in place. Part II presents the draft policy as it is currently envisaged. *We would appreciate your suggestions for clarifications, changes or additions to the policy before finalising it for ministerial approval.*

Basis for the Policy

The policy basis for the Interim EIA Policy is the Second Five Year Development Plan (1991-1995). The plan states that "environmental impact assessment will be undertaken before any major development projects are embarked upon." This statement is taken to mean that no major development project may receive the approvals, permits and/or licences required for its implementation unless and until an acceptable EIA report for it has been produced or the project has been exempted from EIA requirements.

Principles of Environmental Impact Assessment

The Interim EIA Policy embodies a number of principles as outlined below. From both national and international experience, these principles have been found to be essential to implementing EIA effectively.

EIA is a means for project planning, not just evaluation

EIA was originally conceived as a means for evaluating the impacts of development projects once their location and design had been finalised. All over the world, this purely evaluative approach has proved inadequate since many of the best opportunities for avoiding or mitigating negative impacts, and for realising benefits, are only available early in the project planning process when project locations, plans and designs are flexible and few commitments of time and resources have been made. Thus, for best results, environmental planning and assessment should begin early in the project cycle.

Zimbabwe's Interim EIA Policy integrates environmental assessment into every phase of the project cycle, beginning in its earliest stages. Thus, EIA reports must describe the process and results of environmental planning that have gone into a project as well as both the anticipated environmental costs and benefits residual to the planning effort and the proposed means for managing them.

Identifying means for managing project impacts is an essential component of the Interim EIA Policy

EIA has been found to be most useful when it analyses both the impacts which projects are likely to create and ways for managing the negative impacts and capturing the potential benefits.

Zimbabwe's Interim EIA Policy requires proponents to include in their EIA reports specific plans for monitoring and managing environmental impacts. The plans must provide for regular reporting and evaluation of progress with their implementation. A clear proponent commitment to implementing such plans is an essential element of acceptable EIA reports.

The Interim EIA Policy depends on the normal regulatory functions of permitting authorities to implement EIA results

EIA is not a panacea for solving environmental problems. It is a means for government to satisfy itself that the environmental aspects of proposed projects have been adequately investigated prior to their approval and that, *subject to certain terms and conditions*, such projects can be implemented in an environmentally acceptable manner. The normal functions of government agencies in regulating projects through approvals, permits and licences, plus the accompanying monitoring and enforcement, are vital to achieving sound, "on-the-ground" environmental management.

The Interim EIA Policy provides only for formal acceptance of an EIA report by the Minister. It is the responsibility of permitting authorities to implement environmental terms and conditions specified by the Minister when accepting an EIA report.

The Interim EIA Policy involves the participation of all government agencies with a mandated interest in the economic, social and environmental benefits and costs of a project

The preparation and acceptance of an EIA report does not ensure that anticipated negative impacts will be adequately managed or that potential benefits will be realised. Too often, government agencies with "on-the-ground" responsibilities for managing natural and environmental resources have little opportunity for meaningful participation in EIA programmes and thus little commitment to their results. As a consequence, many recommendations made in EIA studies are not implemented and the resources devoted to EIA are wasted.

In Zimbabwe, government agencies having an interest in a project are involved in the review and approval of EIA documents. Their participation facilitates reaching consensus on the significance of likely environmental costs and benefits and developing commitment to measures for managing them.

The Interim EIA Policy pays particular attention to the distribution of project costs and benefits

EIA is most often applied to larger capital projects with national benefits such as new dams. Too often, such projects create costs such as environmental degradation and social disruption which are borne by local people and are inadequately mitigated or compensated for. In addition, opportunities for projects to create local environmental and socioeconomic benefits are often overlooked in the pursuit of broader benefits in the national interest. Consequently, local resentment of and resistance to economic development projects can grow and restrict opportunities for the future.

Zimbabwe's Interim EIA Policy pays particular attention to the distribution of project costs and benefits. One of its principal mandates is to ensure that, to the extent practicable, development projects are agents of local as well as national development. A basic principle is that local people be no worse off than they were before a project is implemented.

Public consultation is an essential part of the Interim EIA Policy

Incorporating local information into policy, planning and implementation decisions has been found to be a precondition for long-term sustainability. For an EIA programme to reflect this fact, there must be opportunities for the public to comment on development projects and advise government on the perceived effects of projects, on how economic, environmental and social costs can be minimised, and on how potential local benefits can be realised.

Zimbabwe's Interim EIA Policy provides genuine opportunities for individuals, communities, private organisations and public interest groups to provide input to the process of specifying, reviewing and accepting EIA reports. To facilitate effective public consultation in Zimbabwe, individuals and groups with a legitimate interest in projects have unrestricted access to all formal EIA documents.

Administration of the Interim EIA Policy

The Interim EIA Policy is administered by the Ministry of Environment and Tourism.

The policy applies to both public- and private-sector development activities. Activities subject to the Interim EIA Policy are prescribed by the Minister. A schedule of prescribed activities will be published in the Gazette. In addition, the Minister may prescribe any activity which, in his or her view, may cause significant environmental impacts or community disruption.

Prescribed activities shall not receive the required authorisations to proceed from the relevant permitting authorities unless and until the Minister has granted "EIA Acceptance" or has exempted the activity from the requirements of the Interim EIA Policy.

"EIA Acceptance" is granted when the Minister determines that the environmental planning and assessment of an activity has been sufficiently thorough to adequately identify the impacts which it is likely to cause as well as measures for managing them. "EIA Acceptance" does not imply that the environmental impacts of an activity are acceptable to the Minister.

All formal submissions under the Interim EIA Policy are made to the Minister. The Ministry maintains a register of all activities currently being appraised under the policy.

The preparation of EIA reports is the responsibility of proponents. The Ministry provides procedural and technical advice to proponents, as required, on how best to comply with the Interim EIA Policy.

The National Economic Planning Commission and the Zimbabwe Investment Centre are required to refer all prescribed activities to the Minister for assessment under the Interim EIA Policy. Otherwise, public-sector proponents submit their EIA reports directly to the Minister and private-sector proponents submit their EIA reports to the responsible permitting authority which then submits them to the Minister.

The Interim EIA Policy incorporates a referral process whereby other government ministries and departments are informed about activities being appraised under the policy and are given the opportunity to review and comment upon EIA reports. The Ministry

will establish a "core referral group" which will be consulted on every activity being appraised. This group will be augmented as required for specific proposals to ensure that all activities receive the attention of the appropriate government agencies.

There are three types of EIA reports which represent sequential stages in the project cycle and EIA review process depicted in Figure 2. They are:

Prospectus

A prospectus is a short (1 to 2 page) document informing the Minister that a prescribed activity is being considered. Proponents should be able to prepare a prospectus with little or no assistance from environmental specialists. The prospectus provides a basic description of the activity, including proposed environmental management measures, and indicates the status of the feasibility studies. It should be prepared and submitted during the pre-feasibility studies.

A prospectus must be submitted for all prescribed activities.

Based on the prospectus, the Ministry assesses whether or not an EIA report is required. This assessment is based on screening guidelines approved by the Minister. Screening guidelines will be based on the type, size and location of an activity as well as on the likelihood of significant environmental impacts. The Ministry has 21 days to assess whether or not an EIA report is required. If this deadline is not met, exemption from further compliance with the Interim EIA Policy is assumed to have been granted.

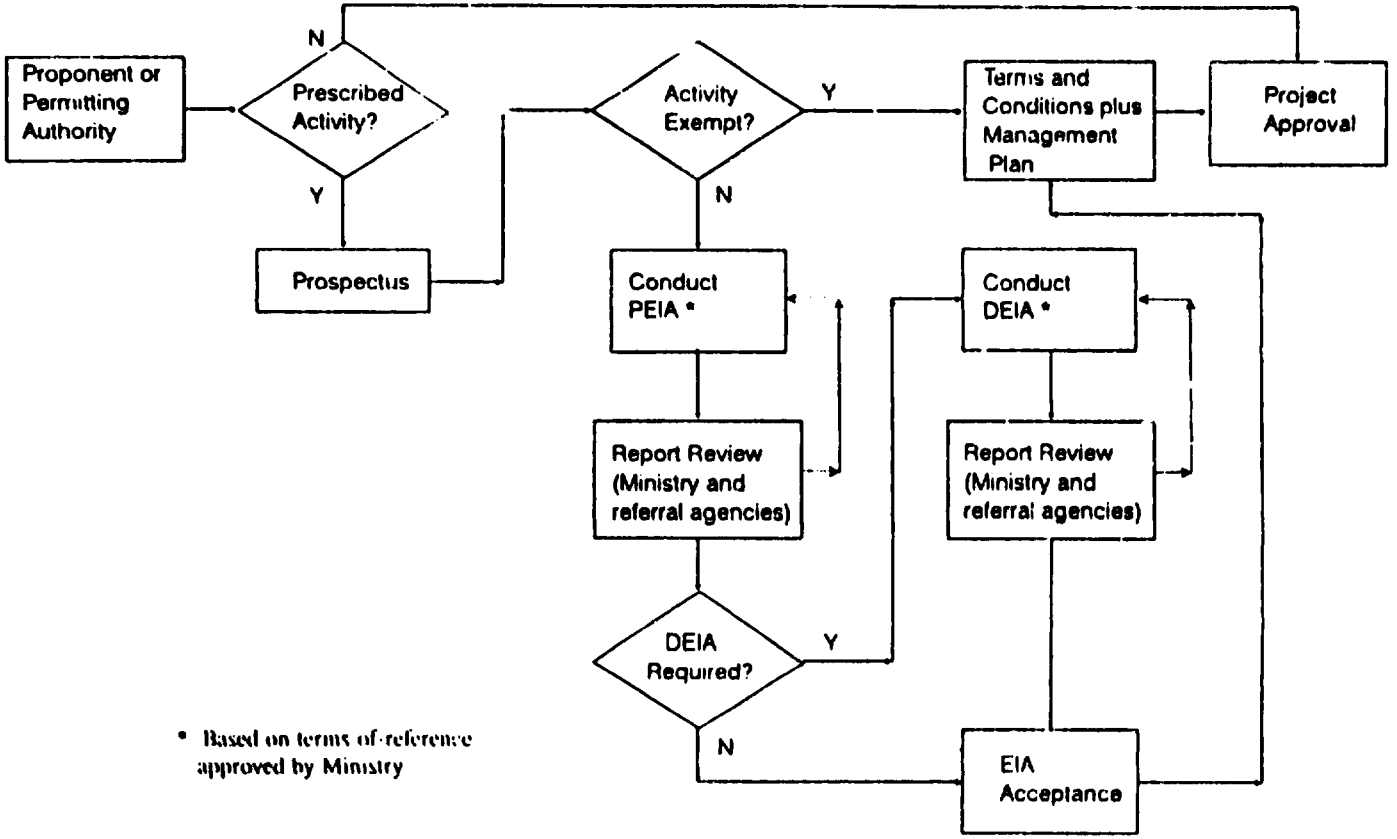
If an EIA report is not required, the activity is exempt from further compliance with the Interim EIA Policy. In such instances, the Minister advises the appropriate permitting authority of the exemption with recommendations for environmental management of the activity.

Preliminary EIA Report

If an EIA report is required, a preliminary EIA (PEIA) report is prepared, in draft, by the proponent based on terms-of-reference approved by the Ministry. The Minister may require that a scoping exercise be undertaken by the Ministry and proponent before terms-of-reference are prepared to ensure that all potentially significant impacts are included in the PEIA and that evidently insignificant concerns are excluded. The scoping exercise may involve public consultation.

A PEIA is a comprehensive initial assessment of the environmental impacts of an activity, based largely on existing information and some field reconnaissance. It should be undertaken during the early feasibility studies. Its main purpose is to identify likely impacts, to estimate their severity, to indicate which impacts are liable to be significant, and to indicate what opportunities are available to avoid or minimise negative impacts and enhance potential benefits. A PEIA report includes proposals for monitoring and managing the anticipated impacts, especially those which accrue to local people and their environment.

Figure 2:
Administrative Flow Chart of the Interim EIA Policy



Guidelines for preparing PEIA reports will be prepared by the Ministry.

Public consultation is mandatory when undertaking a PEIA. At minimum, the proponent must meet with the principal stakeholders to inform them about the proposed activity and to solicit their views about it. More problematic activities should involve more extensive consultations. The methods and results of these consultations must be documented in the PEIA report.

When a draft PEIA report is received by the Minister, the Ministry initiates a review. The report is referred to the Natural Resources Board for its comments and recommendations. Depending on the complexity and scope of the activity, individual outside experts or an independent review panel may be retained to advise the Ministry. Ministry staff may also meet with non-government stakeholders to verify or extend the proponent's public consultations.

The Ministry also refers the report to other government agencies having a mandated interest in the potential costs and benefits of the activity for their comments and recommendations.

When the reviews are completed and consolidated, the Ministry meets with the proponent to discuss the draft PEIA report and, if necessary, require that corrections and/or additions be made before it is finalised.

The Ministry has 60 days in which to complete the review of the first draft of a PEIA report, and 30 days for the review of subsequent drafts. If any of these deadlines are not met, "EIA Acceptance" is assumed to have been granted.

When the Ministry's review is complete, the Permanent Secretary recommends to the Minister that:

a) EIA Acceptance should be granted since the PEIA is sufficient analysis. Government should approve the activity with, if necessary, environmental terms and conditions;

or b) EIA Acceptance should not be granted since the PEIA indicates significant impacts with the activity as proposed and more detailed study is required. The Minister should require that a detailed EIA be undertaken before EIA Acceptance is considered further.

The Minister determines what course to follow and advises the permitting authority or proponent accordingly.

In case a), the Permanent Secretary's report to the Minister includes (1) an account of what environmental terms and conditions should apply to the activity as well as (2) a draft government management plan outlining the actions required of various agencies to ensure good environmental performance of the activity.

Detailed EIA Report

A detailed EIA (DEIA) is a detailed analysis of significant environmental impacts indicated by a PEIA. It is not comprehensive but focuses on those issues of primary concern. A DEIA involves sufficient project-specific field work to adequately study and analyse the issues to be addressed. It should be undertaken during detailed feasibility studies and in close liaison with engineering, financial and other project planners.

A DEIA report describes the environmental planning that went into an activity and what features are incorporated to avoid or minimise negative impacts and capture benefits. It presents an analysis of the severity and significance of residual impacts and of benefits, especially for individuals and communities directly affected by the activity. It also provides an impact monitoring and management plan.

Guidelines for preparing DEIA reports will be prepared by the Ministry.

Public consultation is mandatory while undertaking a DEIA. At minimum, the proponent must meet with the principal stakeholders to inform them about the issues being addressed in the DEIA and to solicit their views about them. More problematic activities should involve more extensive consultations. The methods and results of the consultations must be documented in the DEIA report.

When a draft DEIA report is received by the Minister, the Ministry initiates a review. The report is referred to the Natural Resources Board for its comments and recommendations. If individual outside experts or an independent review panel were retained to advise on the PEIA report, their advice will be sought on the DEIA report. Ministry staff may also meet with non-government stakeholders to verify or extend the proponent's public consultations.

The Ministry also refers the draft DEIA report to other government agencies having a mandated interest in the potential costs and benefits of the activity for their comments and recommendations.

When the reviews are completed and consolidated, the Ministry meets with the proponent to discuss the draft DEIA report and, if necessary, require that corrections and/or additions be made before it is finalised. The Minister may, if it is considered warranted, request the Natural Resources Board to hold public meetings on an activity to solicit further public comment on it and on the draft DEIA report.

The Ministry has 60 days in which to complete the review of the first draft of a DEIA report, and 30 days for the review of subsequent drafts. In the event of public meetings on an activity by the Natural Resources Board, the Minister may extend the review period upon giving notice to the affected parties. If any of these deadlines are not met, "EIA Acceptance" is assumed to have been granted.

When the Ministry's review is complete, the Permanent Secretary recommends to the Minister that:

a) EIA Acceptance should be granted since the DEIA is sufficient analysis. Government should approve the activity with, if necessary, environmental terms and conditions;

or b) EIA Acceptance should be granted since the DEIA is sufficient analysis. However, government should not approve the activity since, as proposed, it would have unacceptable impacts.

The Minister determines what course to follow and advises the permitting authority or proponent accordingly.

In case a) above, the Permanent Secretary's report to the Minister includes (1) an account of what environmental terms and conditions should apply to the activity as well as (2) a draft government management plan outlining the actions required of various agencies to ensure good environmental performance of the activity.

Public Consultation and Access to Information

Public consultation is an integral component of the Interim EIA Policy as indicated in several places above. The principal elements are:

1) Proponents are required to conduct public consultation during the preparation of both PEIA and DEIA reports.

2) The Minister is empowered to conduct his own public consultation to verify or extend the work of a proponent.

3) During review of draft DEIA reports, the Natural Resources Board is empowered to conduct public meetings on an activity if the Minister determines that they are warranted under the circumstances.

4) For all prescribed activities, formal EIA documents are made available for public review and comment on demand.

Guidelines on public consultation will be prepared by the Ministry for approval by the Minister.

EIA documents to which the public has unrestricted access include all prospectus, terms-of-reference, draft and final PEIA and DEIA reports, and decisions of the Minister regarding EIA Acceptance. Procedures for making these documents available to the public will be determined by the Ministry for approval by the Minister.

Proposed Internal Ministry Administrative Arrangements

Because implementing the Interim EIA Policy will require communication, cooperation and coordination with other ministries and agencies of government, it is recommended that the Environmental Planning and Coordination Unit (EPCU) in Ministry headquarters be responsible for managing the policy. At the same time, Ministry technical expertise with EIA and natural resources management is located in the Department of Natural Resources. Thus, the EPCU will rely upon DNR for technical support through the Research and Technical Branch (RTB).

A joint EPCU/RTB "EIA Working Group" is recommended to ensure that implementation of the policy is expedited on a day-to-day basis. Representatives from the National Economic Planning Commission and the Zimbabwe Investment Centre will be invited to join the EIA Working Group for better coordination of activities under the policy and to develop and test administrative procedures for a legislated EIA programme in the future.

Proposed Prescribed Activities and Screening Guidelines

Introduction

Zimbabwe's Interim EIA Policy calls for the establishment of a project review process which, in its initial stage, "screens" projects for assessment. The screening process has two elements:

1) A schedule of activities subject to the policy ("prescribed activities"). For these activities, project proponents must submit a short Prospectus to the Ministry for a determination of the need for an EIA report. Activities which are not prescribed are not subject to the Interim EIA Policy.

2) A review of the Prospectus by the Ministry and a decision as to the need for an EIA report for the proposed activity. This review is to be based on screening guidelines which take into account the type, size and location of the proposed activity as well as the likelihood of significant environmental impacts.

The following proposals for prescribed activities and EIA screening guidelines were derived from international experience with EIA, from project experiences in Zimbabwe, and from the recommendations of a "Seminar and Workshop on Environmental Assessment and Review in Zimbabwe" held in Harare on March 8-10, 1993.

Proposed Prescribed Activities

It is proposed that new activities, and additions or expansions to existing activities, listed in Table 1 be prescribed under the Interim EIA Policy. These proposals were

Table 1:
Proposed Prescribed Activities Under the Interim EIA Policy

Agriculture
- new land development for agricultural production
- subdivision of land

Drainage and irrigation
- dams and man-made lakes
- drainage of wetland or wildlife habitat
- irrigation schemes

Forestry
- conversion of forest land to other use
- conversion of natural woodland to other use within the catchment area of reservoirs used for water supply, irrigation or hydropower generation, or in areas adjacent to national parks

Housing developments

Industry
- chemical plants
- petrochemical plants
- iron and steel smelters and plants
- smelters other than iron and steel
- cement plants
- lime plants
- pulp and paper mills
- agro-industries
- tanneries
- breweries
- industries involving the use, manufacture, handling, storage, transport or disposal of hazardous or toxic materials

Infrastructure
- highways
- new towns or townships
- airports and airport facilities
- industrial sites for medium and heavy industries

Table 1 (Continued):
Proposed Prescribed Activities Under the Interim EIA Policy

Mining and Quarrying
- mineral prospecting
- mineral mining
- ore processing and concentrating
- quarrying

Petroleum
- oil and gas exploration and development
- pipelines
- oil and gas separation, processing, handling and storage facilities
- oil refineries

Power generation and transmission
- thermal power stations
- hydropower schemes
- high voltage transmission lines

Railways
- new routes and branch lines

Tourist, resort and recreational development
- resort facilities and hotels
- marinas
- safari operations

Waste treatment and disposal
- toxic and hazardous waste: incineration plants, recovery plants (off-site), wastewater treatment plants (off-site), landfill facilities, storage facilities (off-site)
- municipal solid waste: incineration, composting and recovery/recycling plants, landfill facilities
- municipal sewage: waste treatment plants, outfalls into aquatic systems, effluent water irrigation schemes

Water supply
- groundwater development for industrial, agricultural or urban water supply
- water withdrawals from rivers or reservoirs
- major pipelines

drawn from the World Bank's "Operational Directive 4.01: Environmental Assessment" and from similar lists used in Thailand, Malaysia and South Africa.

In addition, it is proposed that any activities in or likely to affect the following environmentally-sensitive areas be prescribed under the policy:

* the National Parks Estate
* wetlands, dambos and vleis
* productive agricultural land
* national monuments and important archaeological and cultural sites
* areas protected under legislation, eg. the Natural Resources Act, the National Monuments Act
* areas containing rare or endangered flora or fauna
* areas containing unique or outstanding scenery

Proposed Screening Guidelines

Once a Prospectus has been received and reviewed by the Ministry, it is proposed that a prescribed activity be exempted from further compliance with the Interim EIA policy if all of the following conditions are satisfied:

1) The activity will not substantially utilise a natural resource in a way that pre-empts the use, or potential use, of that resource for any other purpose.

2) Potential residual impacts on the environment are likely to be minor, of little significance, and easily mitigated.

3) The type of activity, it's environmental impacts and measures for managing them are well-understood in Zimbabwe.

4) Reliable means exist for ensuring that impact management measures can and will be adequately planned and implemented.

5) The activity will not displace significant numbers of people, families or communities.

6) The activity is not located in, and will not affect, any environmentally-sensitive areas such as:
    * the National Parks Estate
    * wetlands, dambos and vleis
    * productive agricultural land
    * national monuments and important archaeological and cultural sites
    * areas protected under legislation, eg. the Natural Resources Act, the National Monuments Act
    * areas containing rare or endangered flora or fauna
    * areas containing unique or outstanding scenery

7) The activity will not cause the emission of any pollutants or create by-products, residual or waste materials which require handling and disposal in a manner that is not regulated by existing authorities.

8) The activity will not cause significant public concern because of potential environmental changes.

9) The activity will not necessitate further development activity which is likely to have a significant impact on the environment.

ANNEX

5. MULTINATIONAL

P.Rantala/Environmental
Course participants, 1993
Arusha

ESTABLISHING INDUSTRIAL ACTIVITY

1. Introduction

To start new industrial activities or to make major changes in existing industrial production plant different authorities must be consulted or certain permits of licenses issued by the authorities before the production can be started. This process varies country by country. In the following chapter the general procedures in selected countries are discussed.

2. Ethiopia

The key governmental bodies are as follows:

(a) Ministry of Natural Resources and Environmental Protection

The newly established Environmental Protection Agency (EPA) is presently under the ministry but obviously the roles will be clarified in the near future and EPA may become more independent from the ministry and it may receive more enforcement powers as well.

(b) Ministry of Health

Their role is to protect the health of people and all industrial activities should be consulted with them.

(c) City Council (Local Authorities)

They give the right to build and they also control the environmental aspects on local level.

(d) Ministry of Urban Planning

(e) Ministry of Industry

The Ministry of Industry will issue the permit to start the industrial activity. Earlier no environmental considerations were needed but at the moment the situation is changing and the role of EPA and Ministry of Natural Resources and Environmental Protection has become more important. This development trend is expected to continue and the role of different authorities will be further

clarified in the future.

(f) Standards Authority (Bureau of Standards)

They are issuing all standards in the country. There are several standards which can have from environment point of view an influence on starting industrial activities.

3. Kenya

In Kenya the organizational structures of the authorities concerned is also in process of being developed. The key authorities are:

(a) Local Authority (Municipality)

It will control the construction and land use activities but also control the environment is protected.

(b) District Development Council (DDC)

Within this body the District Environment Committee (DEC) is to be consulted for proper environmental measures.

(c) Inter-ministerial Management Committee of Environment (IMCE)

This is a central body where all concerned ministries are represented at the national level. Ministry of Water an Ministry of Environment and Natural Resources with National Environmental Secretariat as well as Ministry of Health are some of the key ministries involved in IMCE.

(d) Other authorities such as Kenya Bureau of Standards, Registrar for Trade and Production are to be consulted before starting the industrial activities.

4. Lesotho

In Lesotho all industrial activities are under one central body and the following are the key authorities:

(a) Ministry of Trade and Industry will look after the overall development of industrial activates but not specifically from the environment point of view.

(b) Lesotho National Development Corporation (LNDC)
All the industrial activities will be under this central body.

(c) Water and Sewerage Authority (WASA)
The water right and effluent discharges are controlled by WASA.

(d) Maseru City Council (MCC)

Under MCC Public Health and Environmental Sector controls the health general environmental aspects of industrial developments.

5. Malawi

The central body in Malawi is Office of the President and Cabinet (OPC) under which all ministries concerned will be consulted. The key ministries are:

(a) Ministry of Lands and Physical Planning which allocates the area for development.

(b) Ministry of Trade and Industries.

(c) Local Authorities.

(d) Factory Inspectorate which is mainly in charge of work safety and conditions in the factories.

Additionally the factories must be connected to water and power supply networks through water and power organizations.

6. Mauritius

In Mauritius the environmental legislation has developed largely just this year through introduction of Environmental Impact Assessment process to new industrial activities. The key authorities are:

(a) Department of Environment (DOE)
Is issuing Environmental Impact Assessment licence on the basis of assessment presented.

(b) Local Authorities give the development Permit for the factory site.

(c) Factory Inspectorate will be mainly looking at the work safety aspects.

7. Tanzania

Tanzania is also in the process of developing its environmental legislation and enforcement powers. Presently the key authorities are:

(a) Ministry of Trade and Industry

(b) National Environment Management Council (NEMC) is the key organization under development. Its role is presently to control all activates in relation to environment and it has a pollution control department.

(c) Ministry of Natural Resources, Tourism and Environment. There the Division of Environment is in charge of environmental issues. The roles of NEMC and the Ministry are presently being discussed and it is expected to be further clarified in the near future.

(d) Local authority will be in charge of land allocation and it will also control environmental issues on local level.

(e) Ministry of Water, Energy and Minerals will issue the water wrights. It is also concerned about the effluents discharged since it is in charge of water resources development and drinking water supply development.

(f) Ministry of Labour, Factory Inspectorate is in charge of work safety related matters.

In Tanzania there are several standards published on environmental aspects e.g. Industrial effluent - sampling and test methods and Tolerance limits for industrial efficients discharged into inland surface waters - Tanning industry as well as phosphatic fertilizer industry.

8. Uganda

The environmental legislation is also in Uganda under major developments. Presently several institutions are involved but in the future it is expected that the situation will be greatly clarified.

(a) Investment Authorities

(b) Department of Environmental Protection

(c) Local Authorities

(d) Water and Sewerage Corporation

(e) Factory Inspectorate

(f) Ministry of Trade and Industry

(g) Bureau of Standards

In the Water Acts, there are normally standard conditions to the effect that water shall be returned to the same water body as from which it was taken; it shall be substantially undiminished in quantity; it shall not be polluted to the extent that it will be likely to cause injury to other users; and precautions shall be taken to the satisfaction of the water officer to prevent injury from sewage and waste accumulation in water.

In some of the countries (Botswana, Zimbabwe) there are also a requirement in the water legislation to obtain a discharge permit. There are possibilities for the ruling water authority to specify conditions of treatment, effluent quality and other anti- pollution measures. The water officer may also have the right of full information before an application for a discharge permit is considered.

The main problem of the water legislation, even though there are inherent limitations in the acts themselves, is not the weakness of the legislation but the fact that it has not been enforced. Government authorities have not exercised their powers as pollution control authorities and have not put the necessary pressure on the industrialists in this respect.

1. BOTSWANA

The existing Water Act is from dates back to 1967. According to the Act, there is normally a requirement of a Water Right for water abstraction, use, discharge, etc. Procedures for application are given and regulations have been made to the Act. Water rights may be granted by the Water Apportionment Board and a register of water rights is kept by the Water Registrar. A water right may be issued under limitations of quantity, period of use, purpose and subject to such terms and conditions as the Board may deem fit. If a water right has not been used for three years, then it may be determined or diminished. Standard conditions are implied for water rights for mining, forestry, industrial purposes or for generation of power. The conditions are, in brief: water shall be returned substantially undiminished in quantity; water shall not be polluted to the extent as to make it harmful to other uses; accumulation in water courses of refuse, sewage, waste or other substances must be prevented so that reasonable use of the water is not harmed. Among other things, the Act provides for the Water Registrar the right to call for information and the right to enter upon land for inspection. The Act also provides for remedial measures to be taken by an offender, penalties and appeal. The Director of Water Affairs is the Water Registrar and he is also the Secretary to the Board.

Connection to a public sewer in towns can be controlled under the Public Sewer Regulations and necessary conditions may be imposed by the Minister and the Town Council.

The present pollution legislation (Water Act of 1967) is weak and fragmented, and is not enforced mostly due to deficiency of adequate personnel in the various places and organizational units to which the responsibility for environmental protection (water) is being assigned. This refers to the governmental/district/local units. It should be noted that beside understaffing, there are inadequate human and financial resources for this purpose.

Consequently, the existing pollution regulations are not effectively policed and penalties for pollution offences need to be considerably stiffened.

The National Conservation Strategy (1989) envisages more stringent pollution legislation including revisions and extension to the Water Act and says that it should also be aimed "to protect groundwater in its natural state against pollution".

The Botswana National Water Master Plan (Study) and its Volume II Water Legislation, April 1990 1/ (which Draft Final Report is now under review by interested governmental bodies) is expected to endorse the urgent need for a strengthened administrative and legal framework to address pollution issues.

It is also envisaged that the role of formal co-ordination of implementation of the National Water Master Plan is likely to be taken up by a National Water Resources Council or Board charged with the implementation of the National Conservation Strategy. Either of these bodies would be well placed to ensure that pollution aspects receive the priority they deserve.

2. ETHIOPIA

The first major legislation of an administrative nature regarding inland water resources at the national level was enacted in 1971 by Order 75 of 1971. Although this piece of legislation was enacted for the purpose of creating an institution at the national level for co-ordinating all activities which maybe influence the quality, quantity, distribution or use of water, etc., it also contained certain principles relevant to water resources management. These were: (a) data collection, analysis and evaluation; (b) integrated planning; (c) ensuring adequate supply of water (i.e. for domestic use, watering of animals, irrigation and other agricultural purposes, urban and industrial use, generation of hydro-electricity, transportation (navigation) and recreation; (d) control and prevention of flooding, soil erosion, damage to water shade area as well as protection of inland fisheries, fauna and flora and the reclamation of land; (e) ensuring the existence of adequate facilities for drainage, the safe disposal of sewage and prevention of pollution and disease; (f) ensuring the application of appropriate techniques for the investigation, use control, protection, management and administration of water, and, more importantly, (g) the preparation of national water legislation.

The existing legal and institutional situation with regard to water use and pollution control is complex and still not quite comprehensive. The Ethiopian Valley Development Studies Authority (EVDSA) seems to have overall responsibilities for investigations, studies, planning, policy-making and supervision. However, the day-to-day central state administration of water resources still seems to be vested in the Water Resources Commission (WRC) and more directly under it, the Water Resources Development Authority.

Water supply and sewerage is the responsibility of a separate authority under the WRC. A new water supply and sewerage authority has been established for the Addis region. Some legislation concerning sewerage appears under the Public Health Proclamation (1974).

The task of preparing (drafting) a national water law, which has also been stressed in subsequent legislation strengthening and streamlining the institutional set-up as regards the water sector, has been completed recently and a draft submitted to the Council of Ministers for enactment.

The draft legislation which consists of a draft Proclamation to Provide for the Ethiopian Water Resources Code and draft detailed regulations for the implementation of the basic principles contained in the draft code are considered to be comprehensive as a general framework within which the water resources of Ethiopia can be effectively managed and utilized. However, further regulations specifying effluent and water quality standards, etc. are required.

3. LESOTHO

The existing Water Act is from 1978. According to the Act there is a requirement for a water use permit except for domestic uses. Procedures for how applications should be done are incorporated in the Act. According to the Act, the Minister shall appoint a Water Officer to carry our the duties and functions in the Act. A Water Use Permit is granted by the Water Officer for a period not longer than five years and it can be extended for a period of maximum three years at a time. Terms and conditions necessary in the interest of the public can be included in the Water Use Permit. The pollution or fouling of any water is an offence under the Act and it also provides for penalties and remedial measures to be taken by the offender. The Water Officer shall keep records of the water use permits, etc.

The current legislation resulting from the Water Resources Act 1978 is not enforced,mostly due to deficiency of adequate personnel in the various places and organization units to which the responsibility for environmental protection (water) is being assigned. This refers to the governmental/district/local units.

There are currently no acceptable and legally binding industrial effluent discharge quality standards.

Actually a Final Draft of "The Rationalization and Consolidation of Legislation re: Water and Sewerage Management, including new management proposals and rationalization of water uses (i.e. through an Apportionment Committee Regulation with "Abstraction and Discharge Regulations" and the Drafting Legislation to create a Water and Sewerage Authority,and moreover proposals (draft) on Standards of Quality of Potable Water Regulations, and Standards of Quality of Effluent Discharge Regulations. All the proposals are aimed to consolidate, under the auspices of the Ministry of Water, Energy and Mining, the responsibility and powers for their actions in water resources management and use.

On the side of the industrial plant developments, the Department of Industry of the Ministry of Trade and Industry, Lesotho, has recently introduced, under its "Application for Industrial Licence", also considerations regarding the water consumption and effluent discharge.

4. TANZANIA

Act No. 42 of 1974 "Water Utilization (Control and Regulation)" relates the following: the abstraction or use of water - except for some specified purposes such as domestic - requires water rights granted by a Water Officer.

The Water Act lays down procedures for the handling of applications, etc. In every water right granted for mining, forestry or industrial purposes or for the generation of power, it was implied (in brief) that: (i) it shall be returned to same water body as from which it was taken; (ii) it shall be substantially undiminished in quantity; (iii) it shall not be polluted to the extent that it will cause injury other users and that precautions shall be taken to the satisfaction of the Water Officer to prevent injury from sewage and waste accumulation in water.

The current legislation is not enforced, mostly due to deficiency of adequate trained personnel in the various places and organization units to which the responsibility for environmental protection is being assigned. This refers to the governmental/regional/local units. It is noted that there are inadequate financial resources available for this purposes.

If a water right has not been used for three years or if the water is needed for public purposes, then the Water Officer can revoke or diminish the right. The Water Act also provides powers to the Water Officer to revoke a water permit if conditions for it have not been complied with. He also has the right to call for information for the purposes of the Act and the right of access for the inspection of works and monitoring of abstractions. Provisions are made for appeals and penalties. A Central Advisory Water Board plus Regional Advisory Water Boards were established in advisory support of the Water Officer.

Act No. 10 of 1981 of the above Water Utilization Act (Amendment 1981) makes provisions for a better control of pollution of surface water. The advisory function of the Water Boards remains as far as water utilization is concerned.

The central Water Board shall have power:

- to research causes and ways of efficient prevention or control of pollution;
- to recommend comprehensive plans for the regulation of discharges;
- to formulate uniform procedures for the sampling and examination of water, sewage and industrial effluents and for the dissemination of results;
- to advise all organizations and persons on ways to prevent or control pollution;
- to recommend legislative measures for effective control of pollution;
- to formulate effluent and receiving water standards;
- to synchronize the application of water-related laws for the more effective control of pollution.

River Basin Water Boards may be established instead of the Regional Advisory Water Boards. The new boards are to be established in areas of water basins and, if established, the central functions are taken over by the Regional Water Officer and Basin Board. Discharge of effluents require a consent granted by a Water Officer. Facilities for treatment and sampling shall be installed and regular reports on wastes and effluents shall be returned to the Water Officer.

The above Act (Amendment 1981) introduces also temporary standards for receiving water (three categories), for effluents (for direct discharge but also for discharge into sewage works) and moreover also for domestic water.

5. UGANDA

The existing legislation relating to discharge of waste water (domestic, industrial, commercial, etc.) into public sewers, natural water courses, on the land, etc. are contained in the following Acts: (i) The Public Health Act of 1935/1964 Revision; (ii) The Public Lands Act of 1962 and 1969; (iii) the Mining Act of 1949; (iv) Lands (Conveyance) Rules; (v) The Factories Act (1964).

The apportionment and the management of natural water is ruled under the Public Lands Act and the Department of Water Development (DWD) under the Ministry of Water and Mineral Development is responsible for monitoring water quality and for pollution control.

Water supply and sewerage for the seven major towns is the responsibility of the National Water and Sewerage Corporation (NWSC), a parastatal under the above Ministry. The Waterworks Act covers the water supply side while the rules for sewerage are to be found in the Public Health Act.

The Ministry of Environment Protection has an overall responsibility for the environmental consequences of the discharge of industrial wastewater (and other pollutants).

It should be stressed that the current guidelines prepared under the provisions of the National Water and Sewerage Corporation Decree (Decree 34 of 1972) for permissible levels of pollution discharged into public sewers in the towns of Mbale, Tororo, Jinja, Kampala, Entebbe and Mbarara are strictly for the use of the local sanitary authority, and have never been agreed with the Ministry of Environment Protection.

The licensing of industry is regulated by the Licensing Act of 1969. The Act establishes a Licensing Board within the Ministry of Industry. The members of the Board are drawn from the Ministries of Industry, Finance, Planning, Housing, Commerce, Uganda Development Bank and the National Chamber of Commerce.

The issuance of a licence to a developer is not, to date, supported by an Environmental Impact Assessment (EIA).

6. ZAMBIA

The legal framework concerning the industrial wastewater management is composed from at least four relevant acts. These are: (a) The Local Administration Act, Act 15 of 1980; (b) The Public Health Act; (c) The Natural Resources Act; (d) The Water Act of 1978.

"The relevant bits of these legal instruments are virtually inoperative, un-enforced or unenforceable. Ad hoc amendments have been the usual way of increasing complexity" 1/

A Water Development Board was established to administer the Water Law. As far as pollution control is concerned, the relevant statutory instrument clearly states the powers of the Department of Water Affairs of the Ministry of Water, Land and Natural Resources.

The Water Act provides for the control of pollution arising from the disposal of wastewaters into water courses on bodies of water, although there seems to be obvious overlaps with the Local Administration Act.

Under the Local Administration Act, local authorities (councils) have powers to determine the conditions and standards for trade effluent and public sewage discharge. They also have powers to regulate the discharge of trade effluent into sewers. Councils have the right of access to premises for the purpose of taking samples. Moreover, the statutory instruments also provide a formula for the purpose of charging those who dispose of their trade effluent into sewers.

The above Local Administration Act assigns to the local authorities (councils) the responsibilities as for the control of the generation and disposal of wastewaters is concerned. These powers appear also in the Public Health Act.

The National Resources Board has been constituted under provision of the National Resources Act. This Board may make orders of the conservation of natural resources (environment protection). The general functions of the Board are, inter alia, general supervision of natural resources, stimulation of public interest in conservation, improvement of natural resources and general investigations, recommending legislation for conservation.

Despite the existence of the above-mentioned legal framework, there is, however, a lack of a workable institutional framework established for enforcement of the above legal instruments and assigned responsibilities. It does not provide for the necessary consistent mechanism for its implementation and/or is ineffective. For instance, the Department of Water Affairs has been assigned a broad legal responsibility on pollution and effluent control but it cannot efficaciously perform for extension of its obligations against the lack of national or regional water and sanitation authorities.

As mentioned previously, there was an obvious conflict in the responsibilities actually assigned to the Department of Water Affairs resulting from the Water Act and those assigned to local authorities (councils) according to the Local Administration Act.

On the bottom line, the governmental local organizational units are more understaffed with adequate skilled personnel and the monitoring/controlling of pollution is also not performed due to lack of adequate funding and relevant equipment.

The Ministry of Commerce and Industry, which is responsible for approving industry and manufacturing licences, is performing its relevant activities with the support of an Investment Coordinating Committee (ICC). The Department of Industry of that Ministry participates in consultative meetings of the Mining and Industrial Committee at the National Council for Scientific Research. There is no established co-ordinating relationship between this department and the local authorities, Departments of Water Affairs, Natural Resources, etc. Actually, industries are not required to provide Environmental Impact Assessment (EIA) prior to their approval.

7. ZIMBABWE

With regard to legal and institutional provisions for the control of water pollution control, the Water Act was first amended in 1970 to include provision relating to Water Pollution Control. Since then, various amendments have been made and incorporated into the present Water Act of 1976 (Chapter 41 of 1976). The most important of these provisions are in Section 101.

The Act does not allow discharge into water courses of any effluent which does not meet the standards as laid down in the Water (Effluent and Waste Water Standards) Regulation 1977.

Water Poliution Control amendments which were first introduced into the Water Act in 1970 basically prohibit water pollution but allow for temporary exemptions to be granted under specific conditions.

As Zimbabwe lies in the semi-arid region and irrigation is needed to realize increased agricultural production, it is considered essential that the quality of effluent discharged directly into any water should be strictly controlled and the regulations have been introduced which prescribe a comparatively high standard of purity for any effluents discharged into the water and should encourage the optimum re-use of the wastewater.

What should also be underlined, amongst other constituents, is that these regulations should lay down maximum permissible concentrations for cyanide, arsenic, mercury, lead and other potentially poisonous or hazardous substances that may be present in wastewater.

Recommendations

Formalize a mandatory procedure for conducting environmental impact assessments of major polluting industry, particularly with regard to the siting.

Establish in each country a list of which industries should be considered major polluting. UNIDO support in the development of such lists is recommended.

Establish strong technical/environmental units with professional staff in the water or environmental authorities in each country, to participate in and give advice on industrial development, water use and pollution control.

Give such staff support by industrial and environmental training as proposed in Chapter VI. Let the technical/environmental authorities mentioned above be the advisory body also to the water authorities, and make sure that there are provisions for the right of full information to form the basis for the technical work. (The kinds of information and considerations required have been listed in Annex VIII.)

A discharge permit for the discharge of wastewater should be a requirement for major polluting industries, whether the water is obtained from a municipal water supply or from a natural body of water and whether the discharge will be to nature or into a municipal sewerage system.

When issuing a water right or a discharge permit or the equivalent, the water authorities should specify in writing to the polluting industry the exact requirements for wastewater treatment and other anti-pollution measures, as well as the effluent conditions to be met. This will form the basis for the monitoring and pollution inspection work.

Laboratory Facilities in Industry

General

Laboratory facilities for water quality and pollution control analysis are generally not available in the industry except in a few cases. BMC in Lobatse and Ethiopian Tanneries are exceptions from the rule. At many industries, however, there are staff available who with some additional training could do the analysis, and there are several laboratories for industrially related analysis which with some additional equipment would be able to carry out their own effluent monitoring. At major polluting industries this monitoring should be regarded as a natural part of the control of the industry, including control of the industrial processes. It would also be a rational solution to let industrial staff, who are already on site and who know the materials and processes in operation, to retain day-to-day control also of the effluent treatment and wastewater discharge. Pollution control or trade effluent inspectors should only do spot checks and inspect the records kept by industry.

Recommendations

Major polluting industries should be made responsible for their own day-to-day monitoring of effluent treatment and discharge and records should be kept for inspections.

Upgrading of industrial laboratories and supplementary training for laboratory staff should be provided or, as an alternative, the analytical work should be done at the central water quality and pollution control laboratory.

Institutional Laboratory Facilities

General

The institutional laboratory facilities in each country were reviewed and inspected to the extent that time permitted. Interest focused on those laboratories where analysis of water quality and pollution control parameters are of primary concern. There are several others, for instance, in geological and university departments there are twenty-six standardization institutions or government chemical laboratories which are fully capable of doing water analysis, but where the main duties are in other fields. Such laboratories could be used for special and occasional analysis. However, for the regular day-to-day analysis of water and wastewater, our attention should be centred on laboratories servicing water resources departments, national water and sewerage departments or environmental departments.