Industrial Development and the National Environmental Policy Framework

P.B. Marwa

Background

The industrial development of Tanzania can be divided into three main phases. The first is the pre-colonial period, before 1880. The second phase is the colonial period, between 1881-1961 and the third is the post-independence period after 1961.

Industrial inputs into economic development in the pre-colonial period were important. They formed an integral part of the traditional economy and contributed significantly to the nineteenth century development. Moreover, the pre-colonial economies developed in an ecologically balanced situation. The relationship between man and the environment had grown out of centuries of using simple iron tools, management of vegetation and control over the fauna.

Before independence, colonial governments had established a rudimentary industrial set up based on a number of medium to large scale industries, processing a limited range of consumer goods based on export cash crops. Such industries included sisal, coffee curing, cotton ginning, tea factories, meat canning and wax extraction.

At the time of independence in 1961, there were 200 industrial establishments each employing more than 10 workers. After independence government pursued a strategy of import substitution and encouraged foreign investment through provision of incentives. New industries that included a fertilizer complex, a cement mill, oil refinery, textile mills and others, were stablished. This development of modern industries in the country led to importation of technology through what is termed "technology transfer". This industrial strategy was implemented without due regard to the environment.

In 1974 the government embarked upon a long term (1975-1995) Basic Industrial Strategy (BIS) aimed at establishing export oriented basic industries and small scale industries requiring simple technology and workshops/

industries to produce spares, and machine tools. Other goals of the strategy were;

(i) improvement of capacity utilization;
(ii) establishment and expansion of industrial services in research, consultancy and technology transfer; and
iii) expansion of employment and training opportunities.

The strategy led to the development of a fairly large industrial base.

Environmental Concerns

Industrial development is generally regarded as one of the primary causes of depreciation of environmental resources. Industrial processes affect the environment in three main ways:

(i) through generating wastes which can be damaging to water, air and land resources and to the quality of human life;
(ii) through promotion of certain enviromentally hostile products such as chemicals, pesticides, fertilisers; and
(iii) through the destruction of the natural resource base thus altering the natural ecology.

The industrial development strategy in Tanzania has been implemented on the basis of short term economic considerations only. No adequate attention has been paid to the environment or public health. Industry has been concerned with profit, survival and growth. The government has, on the other hand, been more concerned with development in its broader aspects such as the employment level, income generation, balance of payments and the well being of its citizens. Industry has relied on the government to provide it with infrastructure to make its activities possible while the government has relied on industry to create jobs and wealth.

Industrial Pollution

Most of the industries in Tanzania have been established without serious environmental consideration. Local industrial managements and town planners lack awareness as well as expertise on the environmental impacts arising from the industrial activities. The siting, choice of technology and the actual operation of these industries were implemented without considering the environmental implications. Most industries were commissioned without pre-treatment facilities for unwanted wastes and indeed, nobody bothered as to how and in what form industrial wastes would be disposed of. The few industries which had treatment facilities had them poorly maintained and most are now not in operation due to technical and financial constraints.

The relationship between an industrial activity and its effects on the

environment and on society are complex. The environmental problems of any particular process are specific and peculiar to it. Industries in the country are characterised by different mechanical and chemical/technical processes. Environmental problems in these industries are mainly associated with discharges of wastes to water bodies, emissions to air, land dumping of waste, poor handling of hazardous chemicals, and noise. The impacts of industrial activity on the environment are as categorised below:

Industrial Waste Waters Discharge

Most industries discharge their waste water (untreated effluents) into local water resources. The waste waters are characterised by high oxygen demand and presence of hazardous and slow degrading chemicals. These factors cause a big drop in the water pH of the receiving bodies.

Industries of major concern here are those whose operations require a lot of water. These include textile mills, tanneries, sisal industries, food processing, beverages, and pulp and paper.

Some of the more conspicuous water bodies highly polluted with industrial waste waters included the Msimbazi River, Lake Victoria, River Karanga, Rau and Njoro rivers and River Themi.

Gaseous Emissions

Industries can be a major source of air pollution. The types of pollutants emitted depend on the raw materials and the process and control measures used. At present, industrial air pollution in Tanzania is significant but is expected to increase with time - especially in urban areas, where about 80% of all industries are located. Heavy industries like the Tanzania Portland Cement Company, Tanzanian and Italian Petroleum Refinery, and the Southern Paper Mills are examples of point sources of industrial air pollution.

Solid Wastes

Most Industries have problems in disposing of solid wastes and sludge. Industrial solid wastes are mixed with urban solid wastes and disposed of through crude dumping. Reference here is to haphazard disposal of the wastes on land surface without taking into account environmental or public health concerns. There is not a single disposal site in the country which practises any of the environmentally acceptable disposal methods like sanitary land filling, composting or incineration.

The crude open dumping of solid wastes is bad and thus a serious environmental and health hazard. Production of large quantities of strong leachates and run-offs contaminate underground and surface water, respectively.

Chemical Management

The use of chemicals in Tanzania is substantial. The bulk of these chemicals are used in the agricultural sector. The rest are used in industries, mining, research activities, laboratories etc. Despite the essential role that chemicals

play in meeting the social and economic goals of the society, most of these chemicals are hazardous and toxic. It is important to mention here that there are generally no safe chemicals; there are only safe ways of manufacturing, handling and using chemicals.

Tanzania is experiencing environmental and health risks associated with the mishandling of chemicals. Chemicals have had detrimental effects on the environment and especially around the many places where they have been dumped without due care. There have been incidences of wide spread poisoning of human beings and animals.

Management of chemicals covers a very wide scope. It starts from the handling of raw materials, through the manufacturing, packaging, labelling, transportation, distribution, storage, use and disposal. In Tanzania, except for the Tanzania Pesticide Research Institute (TPRI), which has the responsibility of supervising and regulating the manufacture, importation, distribution, sale and use of pesticides, there is no mechanism for monitoring and controlling the manufacture, importation distribution, storage, use and disposal of chemicals.

Institutional and Administration Constraints

It is important to note that there has been no specific legislation requiring industrialists to maintain any standards in relation to industrial pollution. Although there exists a number of laws and regulations related to occupational health and safety, and to a less extent, environmental protection, these laws and regulations were enacted to meet specific sectoral objectives. Some of such legislation include:

(a) *The Water Utilization Act of 1974 and Its 1981 Amendment*

The Water Act of 1974 stipulates that "water shall not be polluted with any matter to the extent of making it likely to cause injury either directly or indirectly to public health, livestock, fish or crops". The Act stipulates further that "any person who pollutes the water in any river, stream or water course or in any body surface commits an offence and is liable, upon conviction, to a fine and/ or a term of imprisonment or both". The Act was amended in 1981 to establish the Central Water Board which is empowered to research and investigate on pollution and to formulate steps to be taken to control pollution of surface water. The Amendment also states that "no person may discharge effluents from any commercial, industrial or other trade waste systems in receiving waters without a consent by a water officer."

(b) *The Factories Ordinance*

The powers of the Factories Ordinance extend to making provisions to all matters relating to, or in connection with, the health and safe industrial activities.

(c) *The Town and Country Planning Act 1956 (chapter 378 of the Laws) Principal Legislation Revised 1961*

Under this Act industries are classified into M.N. and O groups meaning small-scale industries, special industries, and general industries, respectively. Specific

areas for the categories of industries mentioned are allocated by an Area Planning Committee.

(d) *Public Health (Sewerage and Drainage) Chapter 336 of the Laws 1950 /54 Edition.*
Under this legislation, discharge of chemicals and petroleum products in sewers is prohibited unless these can be judged harmless.

(e) *National Industries (Licensing and Registration) Act 1967 with Amendment 1982*
The Act set up the Licensing Board to decide on the siting of industries in relation to the availability of land water, raw materials and power. The Board mainly deals with such issues as production technology; skills, labour and equipment requirements; financial requirements, and consumer and labour interests of the proposed industries. The Act has no provision on environmental protection or more specifically, industrial pollution.

(f) *Other legislations*
These include: the 1956 Township Rules; the 1970 Fisheries Act; and the 1983 National Land Use Planning Commission Act.

The above legislations are inadequate and have deficiencies. However, the main shortcoming lies with the lack of enforcement and the incredibly low penalties imposed on those who transgress these laws.

Some Key Issues for Policy Consideration

(a) ***Environmental Impact Assessment (EIA)***
It should be mandatory to assess the environmental impacts of all new industrial projects. EIA should provide mitigation measures and recommend monitoring procedures. Decisions on implementation of projects should depend on, among other things, EIAs.

(b) ***Cleaner Production Technology***
The government should encourage sound management practices. Cleaner production concepts and principles should be reflected in the development planning process. Research on cleaner and low-waste-technologies should be given priority. Recycling, re-use of residues as well as the use of by-products should be emphasized. The use of environmental audits should bring a better knowledge of waste streams and help in defining quantitative targets for waste reduction.

(c) ***Regulatory Framework***
It is important to set up a comprehensive multi-media regulatory framework which will lead to environmentally sound management practices. Stricter environmental regulations on emissions and disposal and tight enforcement procedures are necessary. Environmental standards should, therefore, be set.

(d) ***Project Development Cycle***
There should be a comprehensive project development cycle - that is "the stages through which a project passes from inception to operation stage". The screening mechanisms should clearly stipulate which organs are to be consulted/ involved before a project is cleared.

(e) ***Management of Chemicals and Hazardous Waste***
It is important to establish or build up an institutional mechanism for the control of chemical hazards. Responsibilities for all institutions and organs engaged in importation, distribution, use and disposal of chemicals should be clearly stipulated.

Specific Issues

Environmental Impact Assessment
The overall goal of the policy on EIA should be to promote widespread use of Environment Impact Assessment (EIA) as an essential element in industrial planning and development for assessing the effects of potentially harmful activities on the environment. The objectives here should be:

(i) institute a coordination mechanism for the assessment process with regulations on permits to be issued to approve projects.;
(ii) involvement of the public as an integral part of the EIA system;
(iii) for EIA reports to describe the proposed monitoring system to be established following plant start-up;
(iv) for the EIA to identify and describe the major ecological systems in the project area; and
(vi) for the EIA to also give information on the pollution levels associated with the manufacturing processes to be adopted.

Cleaner Production Technology
The overall goal of the policy on cleaner production technology should be to promote cleaner production concepts as an essential element in industrial management in order to enhance product quality, profitability and to improve environmental quality in workplace and external environment for ecologically sound industrial development. The specific policy objectives should be:

(i) to provide proper guidance to local industry in demonstrating the financial and economic advantages of cleaner production, as well asthe environmental benefits;

(ii) to establish a mechanism for the technical support and advice to industry in designing, establishing, operating, evaluating, auditing and monitoring cleaner production practices;

(iii) to examine the market-based economic instruments such as taxes. fees, subsidies, and resource-pricing in order to give industry direct financial incentives to reduce pollutant discharges in the most cost effective manner; and
(iv)to promote the use of substitute materials and product reformulations, process modifications and equipment redesigns, renewable sources of energy and raw materials, recycling and re-use of waste materials.

Regulatory Framework

The overall goal of the policy with regard to regulations should be to set up a comprehensive multi-media regulatory framework which will lead to environmentally sound management practices. The specific policy objectives should be:

(i) to review laws and regulation governing the protection of the environment;
(ii)to review the industrial licensing act in order for it to address environmental issues;
(iii)to ensure the establishment of environmental standards as well as productstandards and to institute a mechanism for monitoring the same.

Project Development Cycle (PDC)

The overall goal for the policy on PDC should be to institute a comprehensive project development cycle with the specific policy objectives being:

(i) to identify the roles of relevant/responsible organs in the project cycle;
(ii)to institute a coordination mechanism in the screening procedures of the project; and
iii)to review the roles of organs involved in the screening chanism.

With regard to the management of hazardous waste and chemicals, the overall goal of the policy should be to establish or build up an institutional mechanism for the control of chemical hazards and environmental pollution through the handling, use, and ultimate disposal. and to define responsibilities for all institutions and organs engaged in the importation, distribution, use and disposal of chemicals. The specific policy objective in this area should be:

(i) to establish a monitoring and control mechanism for the importation of chemicals;
(ii)to establish a system for exchange of information between the suppliers, importers, users and the general public on the hazards of the chemicals;
(iii)to require industries to develop and install safety, occupational health

and environmental protection policies and standards. Industries shouldbe encouraged to install pollution abatement facilities;
(iv)to establish a national standard for packaging and labelling;
(v) to improve the transportation and distribution patterns of chemicals;
(vi)to establish a mechanism to advise on, and monitor, the storage facilities and the use of chemicals; and
(vii)to establish a mechanism to monitor the disposal of chemicals.