

## **STRENGTHENING BUSINESS AND INDUSTRY FOR SUSTAINABLE DEVELOPMENT IN AFRICA**

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### **Summary**

The 1990s witnessed an increase in globalisation of national economies resulting from a revolution in communication technology and increased liberalisation. Globalisation has led to integration of markets in goods, services, capital, technology and labour leaving in its trail remarkable improvement in human development. Rapid industrialisation by countries in the Far East has resulted in massive growth in their economies, which has had positive impacts on the wellbeing of the population.

Despite the general increase in standards of living all over the world there is continuing poverty and unequal access to the benefits of globalisation in many African countries. Nearly 50% of Africans live below the poverty line and millions die annually from malaria. In Africa today, HIV/AIDS is assuming increasing proportions as a major cause of mortality. Another issue of major concern is the growing number of unemployed youth and destitute street children in Africa.

Africa is the region that is least exposed to modern technology for efficient and cost effective manufacture of consumer goods and provision of services. Due to the low level of industrialisation, Africa's contribution to world trade is based mainly on low value commodities. Consequently African businesses face stiff competition with

cheaper goods and services from the Far East. Over-reliance of African countries on export of primary commodities probably accounts for its low Gross Domestic Product and relatively low growth rate in the world. Africa therefore stands out as the region that is least integrated into the world economy.

Annual population growth in Africa is about 3%. If this rate continues, the figure is expected to double within the next 35 years. This growing population can be accommodated only by intensive exploitation of land and other natural resources. Available land in use in Africa is the best for agriculture, mining and forestry but the increasing scale of exploitation of natural resources is already seriously affecting climatic conditions, supply of clean water and soil erosion. At the current rate of population increase in Africa, it is unlikely that available resources can last for more than a century.

Although the level of industrialisation is low, many cities and urban areas in Africa are experiencing the effects of industrial pollution due to uncontrolled gas emissions and poor disposal of industrial and household waste. Factories that were established after independence in an effort to modernise the economy do not have facilities to handle industrial waste and recycling programmes are non-existent. Clearly, Africa has been sidelined in the technological revolution that has propelled many countries to a new level of advancement.

Sustainable development must meet the needs of present generations without compromising options for future generations. The key to achieving sustainable development in Africa is to strengthen business and industry with innovative and appropriate technologies that bring improvement in the standard of living of the people and safeguard the ecology of the world.

This paper examines industrial and human development activities in Africa and briefly highlights strategies, which can be adopted for the attainment of sustainable development on the continent.

## **1. Man and his Environment**

The world population stood at 1.6 billion in 1900. This figure increased more than two-fold to 4 billion in 1975. Over a period of just 25 years the population rose to 6 billion, with more than 20 megacities. More than half of these metropolises each with about 10 million people, can be found in developing countries. There have been rapid increases not just in population but also in housing, urbanization, mining, manufacturing, transportation, fishing, agriculture and animal husbandry, and nuclear and thermal power generation—all human activities that impact negatively on the environment.

Man produces more than a million different kinds of products, both waste and useful products that eventually end up as waste. Everything we produce ultimately becomes trash and must be disposed of properly, otherwise it pollutes the environment. The natural ecosystem, which provides us with all these services, is under a system of natural control. For example insects pollinate most vegetables, fruits and flowers. Commercial fish are produced almost entirely in natural ecosystems. Vegetation reduces

floods, prevents erosion, supplies oxygen, and provides beauty to the landscape. Fungi and minute animals in the soil work together on plant debris and weathered rocks to produce soil. Natural ecosystems cycle matter through green plants, animals and decomposers, thus eliminating waste. Life regulates the amount of carbon dioxide, oxygen and nitrogen in the atmosphere. Today materials are being mobilized at such high rates that it is changing their natural distribution. Present environmental changes clearly suggest that the health and vigour of ecological and climatic systems have been impaired. Substantial numbers of species are becoming extinct and general biological activity is depressed.

One of the most pervasive features of modern technology is that it is intended to improve upon the living conditions of human beings by providing food, clothing, shelter, and means of communication and expression which are superior to those available to man in nature. But there cannot be any technological gain without some cost. Nature is a complex web in which all life is enmeshed. Therefore technology and industrialisation has over the years poisoned the air, ravaged the soil, stripped forests bare and corrupted water resources. Many of the new technologies, which are now dominant in industry, are in conflict with the environment. Technology that is properly guided by appropriate scientific knowledge can be successful in the ecosystem. Environmental degradation largely results from the introduction of new industrial and agricultural production technologies which are designed to solve singular, separate problems and fail to take into account the inevitable side effects that arise because, in nature, no part is isolated from the whole ecological fabric.

Some of the major environmental issues facing the world today include the following:

- Effect of greenhouse gases
- Global warming
- Ozone depletion
- Air pollution
- Acid rain
- Deforestation
- Disposal of domestic waste
- Chemical pollution
- Renewable/Non-renewable energy
- Toxic waste

## **2. Impacts of Industrialisation on the Environment**

The following are some examples of how industrialization impacts on the environment:

- Coal is the worst contributor to the greenhouse effect and acid rain. The emissions from coal-fired power plants contain sulphur dioxide which causes acid rain.
- Acidity of the water supply in Scandinavia has been reported to turn the hair green.

- The faster cars travel the more pollutants they emit. In the UK road transport produces 85% of the carbon monoxide, 45% of nitrous oxide and 18% of carbon dioxide.
- It takes 1500 litres of oil to manufacture an average car. It uses at least 10 000 litres of fuel before it is scrapped.
- By the end of the twenty-first century, even with efficient use, the world will need twice as much as energy. Natural gas will probably run out, oil will be in short supply and coal will be the only significant fossil fuel.
- About 450 000 tonnes of lead are released into the air annually. Lead from vehicle exhausts represent more than half of this pollution.
- Nuclear power used to be hailed as the answer to all energy problems. It supplies 25% of total world electricity demand. But there is concern about safe disposal of nuclear waste. (The Green Party in Germany is calling for total elimination of nuclear power plants).
- Cleaning liquids, burning wood, decay of organic matter and volcanic eruptions and chlorofluorocarbons (CFCs) are believed to be sources of ozone depletion substances, which catalyse the conversion of ozone to oxygen. One chlorine atom can split 10 000 ozone molecules. CFCs survive in the atmosphere for over 100 years. Current levels of CFC alone can affect the ozone layer up to the twenty-second century.
- Surface coatings such as paints and inks can harm the environment due to solvent emissions during drying. Recent trends aimed at reducing this include solvent-free (water based) paints and powder coatings. Most pigments contain heavy metals (e.g. lead, mercury, and cadmium) which can accumulate in plants and animals when discharged into water bodies or the land.
- Each person in the UK throws away about 284 kg of rubbish a year. In USA the figure is three times higher. Assuming that each person in West Africa throws away a quarter of the British levels, 70 kg of rubbish will be thrown away per year. This amounts to 14 million tonnes of household waste per annum across the sub region. The bulk of this waste is allowed to decompose naturally, incinerated or buried.
- Throwing away an aluminium can of soft drink is equivalent to throwing away half a can of petrol.
- The Japanese throw away 16 million chopsticks every day. Some of this is made from precious wood from tropical forest.
- Less than 10% of timber from tropical forest is exported. The remainder is used or burnt locally.
- One loaf in three would be lost if agro-chemicals were not used to control weeds, pests and diseases. But this leaves chemical residues in plants, crops, water bodies and in the soil.
- Hydroelectricity produces 25% of the world's electricity at low cost, with no pollution. Further suitable sites are now very limited.

## **2.1. Impact of Industrialization on Forestry Resources**

Up to the 1960s, nearly 75% of the land surface of many African countries in the tropical zone was covered by forest. There were very few manufacturing industries and only a handful of cities and urban centres. Over the last four decades large scale

deforestation has occurred, mainly as a result of shifting cultivation, mining and intensive exploitation of forestry resources. Some African countries have recorded falls in fisheries resources, especially from inland water bodies. Even though the level of industrialisation in Africa is low, there are clear signs that the environment is threatened and the capacity for African countries to meet the basic needs of the people is declining.

One of the major impacts of industrial activity, population pressures and burning of tropical forest on the environment is global warming, caused by the build up of so-called greenhouse gases that trap solar energy. Carbon dioxide, methane, nitrous oxide and to some extent CFCs in the Earth's atmosphere are responsible for the increase in the Earth's temperature. It is estimated that unless the situation is reversed, the average global temperature could rise by 1 to 5 °Celsius in fifty years.

Forests and the ecosystem together form a cycle that is in balance with the environment. Forest can be managed without wasting the Earth's resources and harming the global environment. This can only be achieved if forests are tended and utilised in a sustainable manner. Sustainable forestry means showing prudence in economical use of wood and other resources, and ensuring that the entire forest ecosystem of plants and animals in the forest is not adversely affected.

Despite increased levels of production, in Europe and North America harvested volumes of wood have been lower than the volume of new growth. This is because, unlike the situation in many African countries, many more new trees are planted than those felled. Consequently while deforestation is reaching crisis levels in Africa, forests in the technologically advanced countries have achieved the goal of sustainability and preservation of biodiversity. One sad reflection on many African countries in the twenty-first century is poor management of forests, which are characterised by slash and burn agriculture, mining, charcoal production, and intensive felling of timber. As a result of this intensive exploitation of forest resources, most forests areas have been converted to grasslands. Many species of fauna and flora are in danger of extinction. African countries have no option but to adopt strategies for conservation and restoration of biodiversity.

One powerful tool, which can be used for sustainable forestry management in a direction that is beneficial to the environment, is eco-labeling. Businessmen who deal in products made of wood and paper should be able to do so with a clear conscience. They should provide a verifiable guarantee that the raw materials neither comes from devastated rain forests nor from poorly managed forests. It is not enough for products to be extracted from renewable resources. It is also required that methods used for processing should not contain chemicals which are environmentally hazardous, such as pesticides and carcinogenic compounds. Chemicals used for processing must meet biodegradability, toxicity and bio-accumulative standards. The requirements also cover levels of effluent, gas emissions, heavy metals and organochlorine compounds released into the ecosystem. To prevent further deterioration of the ecosystem, and to repair some of the present damage, there is an urgent need for effective environmental management systems and strengthening the expertise of people working in the forest products industry.

## 2.2. Impact of Industrialisation on Soil

The soil together with the atmosphere and the ocean, are the physical components of the biosphere, which is a thin layer around the Earth. It is within the biosphere that all living things exist. Soil is a country's most precious natural resource, being the bridge between living and non-living things. Apart from food, the soil provides fuel, fibre for clothes, ropes, sails and many items essential to life. Gold, oil, minerals and other precious stones are derived from the soil. It takes from 3000 to 12 000 years for a soil to become fully developed. This means that soil is effectively a non-renewable resource, once destroyed; it is not replaced in a human timescale.

Today the soil is one component of the biosphere, which is being destroyed at an alarming rate through the actions of man. Tens of thousands of tonnes of soil are removed daily, leading to disruption of natural recycling processes. Unfortunately the use of inappropriate farming techniques, cultivation of wrong crops and short-term exploitation of natural resources, result in the loss of thousands of hectares of land every year through soil degradation. This situation sets in progress a chain reaction of disaster—declining production, increased erosion and lower crop yield. The devastating effects of erosion are readily apparent in many villages where houses are seen standing on a hill with the foundation washed away, leaving the house prone to collapse. It is believed that the collapse of past ancient civilizations in the Mediterranean and in Central America, were largely attributable to land degradation.

There are several causes of land loss but of major importance in Africa are physical and biological damage resulting from working the land repeatedly with heavy equipment in wet weather. Biological damage occurs when soils are deprived of essential organic matter. Wind erosion, which causes stripping of the top-soil from good land and also burying areas with unwanted soil, is a leading cause of land loss in Africa. The commonest form of erosion is water erosion. All over the world about 25 000 million tonnes of soil are washed away every year, ending up in rivers and finally the oceans.

In Africa overstocking, overgrazing and shifting cultivation are still prevalent, and these have caused tremendous damage to the land over the years. Soil erosion and degradation are responsible for desertification in Africa. Population pressure and the struggle to improve yields is shortening the fallow period. Several hectares of forest are stripped everyday for fuel wood. In the face of increasing balance of payment problems, unemployment and poverty, many African countries have encouraged citizens to return to the land to plant more cash and food crops. This puts a lot of pressure on available arable land and affects the sustainability of the soil.

The problem of land loss in Africa is closely linked to poverty and rural under-development. Rural people are forced to travel further and further to cut wood for their energy supplies. Forests are being cleared for timber and agricultural purposes without any sustained program of restoration. These inappropriate methods of land use by poor farmers who struggle to make ends meet, lead to low crop yield and land degradation. This reduces yield still further and the poor people pass on their suffering to the land. Eventually the land is degraded and goes out of production. A nation without soil is effectively bankrupt. Sustainable development can only be achieved if land degradation

is controlled through proper land management systems, farming systems, and remediation of devastated land.

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