

An Integrated National Chemicals and Waste Management
And
Strengthening governance, Civil Society, Public-Private
Partnerships

Eritrea
May, 2006

Part 1. Background Information
Part 2. Case Study-Cleaner Production-Integrated Vector
Management (IVM)
National Malaria Control Program of Eritrea

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Introduction

1. National Background Information

Geography

Eritrea is located in the Horn of Africa and lies north of the equator between latitudes 12° 22' N and 18° 02' N, and longitudes 36° 26' E and 43° 13' E. Eritrea's neighboring countries are the Sudan in the west, Ethiopia in the south, Djibouti in the south east and the Red Sea in the east. Eritrea has a total land area of 124,300 km sq. with a coast line of 1900 km. There are around 390 islands in the Eritrean Red Sea zone, the prominent being the Dahlak Archipelago. Administratively Eritrea is divided into six zobas (regions): Mackel, Semenawi Keih Bahri, Debubawi Keih Bahri, Debub, Gash Barka and Anseba.

History

Because of Eritrea's strategic position on the Red Sea, the country has fallen victim to many invaders and colonizers.-

- ✓ The ottoman Turks controlled the northern and coastal areas from 1557 to 1872
- ✓ The Egyptians replaced the Turks for another ten years
- ✓ The Italians colonized the whole country and stayed from 1890 to 1941
- ✓ The British took over from the Italians and ruled Eritrea from 1941 to 1952
- ✓ 1952 to 1961 the doomed UN engineered and against the will of the Eritrean people, a federal arrangement with Ethiopia was in place. Ethiopia abrogated this arrangement and annexed Eritrea.
- ✓ This led to the Eritrean struggle for self-determination, which resulted in a destructive war lasting from 1961 to 1991.
- ✓ Two years after the end of the war, a UN supervised referendum was held to determine Eritrea's political status; 99.8 percent of the Eritrean people voted for independence. Independence was formally declared in May 1993. Thereafter, Eritrea became a member of the United Nations and many other international and regional organizations.
- ✓ In May 1998, under the pretext of a border dispute, Ethiopia declared war against Eritrea.

Economy

Agriculture and pastoralism are the main sources of livelihood for about 80 percent of Eritrea's population. The agricultural sector has been dependent mainly on rain. However, for the last two years a national wide campaign of soil and water conservation is underway- construction of dams, micro dams, dykes and terracing etc- as a part of the Warsay- Yekealo economic reconstruction national project.

Eritrea is one of the poorest countries in the world, with GDP per capita of about USD 200, well below the average USD 270 for less developed countries (UNDP, 2001).

Population

No population census has ever been carried out in Eritrea. The estimated figure is 3.5 million. Annual birth rate is around 3 percent. Eritrea is a multi-ethnic society with nine different ethnic groups speaking nine different languages and professing two major religions, namely, Christianity and Islam.

Integrated and Sound chemicals and hazardous waste management:-

Conceptual framework- chemicals directly or indirectly affect every aspect of our lives and they can be both helpful and harmful. A substantial use of chemicals is essential to the social and economic goals of the world community. The production and sale of chemicals account for a large and growing proportion of trade worldwide. Developing countries play an increasingly important role, both as producers and as users of chemicals. Chemicals cross national boundaries both through trade relationships and by moving through the environment. Therefore global cooperation and coordination is necessary to solve problems of chemical exposure.

Health, environmental and economic benefits of sound chemicals management:-

Human activities to improve chemicals and waste management yield health, environmental and economic benefits. Toxic chemicals are a significant and growing threat to health in developing countries. Resulting in part from toxic exposures, chronic diseases are emerging as increasingly important sources of illness. Important sources of toxic chemical exposures include toxic metal, pesticides used in agriculture, obsolete pesticide stocks, hazardous waste including electronic waste and industrial chemicals. Projects to address these sources of exposure can translate directly in preserving the health of the workers and community. Improvements in health and environmental conditions also translate into economic benefits. Improving chemicals management reduces health care costs, allows workers to be more productive and allows children to learn and develop to their fullest capacity.

The Current Situation in Eritrea:-

In Eritrea chemicals are used in:

- Agriculture
- Industry (small and medium enterprises)
- Household (consumer)

Since the country became party to the major conventions and protocols related to chemicals and hazardous wastes just a year ago legislative, regulatory and administrative mechanisms are in the process of development. We are dealing with the problem by training and public awareness raising measures. Another issue of concern is chemical and other hazardous wastes are disposed to the municipal sewerage system .This polluted wastewater is used for peri-urban farming, a grave public health concern. Concerned authorities and stakeholders are now aware of the health risk involved and the **Government is planning to establish a wastewater treatment plant.**

Eritrea's response to the need of the sound management of chemical s and hazardous wastes:-

At the moment chemicals are fairly widely used in agriculture as fertilizers and pesticides, in industry- small and medium scale enterprises- such as textiles, tanneries, liquor and brewery, battery etc .as raw materials and processing agents. The level of pollution and contamination from local sources is assumed to be not very serious, but the majority of stakeholders believe it is indeed a matter for grave concern. Eritrea as an emerging independent, poor and developing nation is well aware of the lessons to be learnt from the path of development of "economic growth first, then clean the environment" the industrialized countries followed.

Eritrea has taken the following measures towards establishing environmentally sound management of chemicals and hazardous wastes:-

- ✓ Included in the national constitution for the protection of the environment from degradation and pollution and recommending sustainable development
- ✓ Developed a national environment management plan which has been implemented for the last ten years
- ✓ Eritrea is party to major chemical and waste management related conventions and protocols including the Stockholm Convention , Basel Convention, Rotterdam Convention, Vienna Convention and Montreal Protocol
- ✓ Eritrea participated in the Millennium Development Summit and World Summit for Sustainable development, with the highest representation- a delegation led by the President of the State of Eritrea. She is committed to and is diligently working for the achievement of the MDGs and Agenda of WSSD in general and the components on the sound management of chemicals and hazardous wastes.
- ✓ Eritrea has been actively engaged in the SAICM process and is keen to participate in its implementation initiated by UNITAR.

Moreover, Eritrea's endeavors are driven by the following principles regarded as basic elements of a participatory and effective management systems arrangement:-

- All encompassing multi-stakeholder approach of management, thus involving ministries, industry, business, the academia, labor etc.
- A country driven process to assess, identify and prioritize chemicals and waste management needs and streamline them to the overall national sustainable development goals and activities.
- An integrated, holistic life cycle approach to chemicals and waste management.

Case Study in Cleaner Production-Success story Applying Integrated Vector Management in Malaria Control:

Sixty seven percent of the Eritrean people live in areas where malaria is endemic. Malaria is a major public health problem in Eritrea.

The Malaria Control Program, Ministry of Health of the State of Eritrea has made great efforts to tackle this devastating disease. As a result, malaria morbidity and mortality has been reduced by more than 80% in the last five years.

The National Malaria Control Program is applying the Global Malaria Control Strategy. The strategy has four basic technical elements. The first element is drug treatment to the ill. Second, implementation of sustainable and effective preventive measures (IVM). The third is to prevent or detect and contain epidemics in high-risk areas. Fourth is to strengthen local capacities in research and development.

Integrated Vector Management (IVM) is an important part of the National Malaria Control Program and the aim is to reduce morbidity and mortality of the vector borne disease (malaria) through the prevention, reduction or interruption of disease transmission. IVM is a targeted use of different vector control methods, alone or in combination, in order to prevent or reduce human-vector contact most cost-effectively while addressing issues of sustainability. IVM tools are:-

- Indoor residual spraying- DDT is sprayed indoors against mosquito (Anopheline) in specific high risk localities in consultation with WHO guidelines and where other tools or methods cannot be effectively used.
- Insecticide treated bed nets- these nets are insecticide (permethrin) impregnated and serve as a protection to humans from mosquito bites.
- Environmental management – the community drains or fills (with earth) stagnant waters which are habitual breeding habitat of mosquito.
- Larvicidal- this is applied in water bodies which cannot be drained or filled and the insecticide applied is Temphos.

The insecticides (Permethrin and Temphos) used in treating bed nets and as larvicides respectively are safer than DDT and are recommended by WHO.

Besides, Eritrea (the Ministry of Health) is experimenting on the use of biological control. Trials of both *Bacillus thuringiensis* var. *israeliensis* and *Bt* var *sphaericus* have been conducted in three regions (Gash-Barka, Debub and Anseba).

Stocking of larvivorous fish in mosquito breeding sites the Northern Red Sea Zone was not successful and abandoned due to high mortality of the introduced fish.

In addition a great deal of the malaria control activity is carried out by the local people. There fore IVM has also opened an opportunity for the participation of the local people in the management of chemicals.

The amount of DDT used every year is continuously decreasing while the application of the other methods using limited and safe chemicals, the biological and environmental are increasingly widely used. Recently Eritrea has approved a project aimed at reducing dependency on chemicals in general and DDT in particular in Malaria Control. With the launch of the project dependency on DDT will be reduced and IVM will continue to be used on the one hand and chemicals will be managed on the other hand.

Thus the strategy is proved to be safer and cost effective and Eritrea is reaping the health, environmental and economic benefits by applying sound chemicals management.