

TECHNOPOLICY BRIEF 16

POLICY IMPLICATIONS FOR INDUSTRIAL WATER POLLUTION IN LESOTHO

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AFRICAN TECHNOLOGY POLICY STUDIES NETWORK

Published by

The African Technology
Policy Studies Network,

P.O. Box 10081, 00100 General Post Office,
Nairobi, Kenya.

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Policy Studies Network (ATPS)

Printed by
Newtec Concepts



ISBN:

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ATPS is supported by a growing number of donors including the International Development Research Centre (IDRC), the Carnegie Corporation of New York, the Rockefeller Foundation, the World Bank, the OPEC Fund, Ford Foundation, Coca-Cola Eastern Africa, the African Development Bank, and the Royal Dutch Government.

Acronyms

AISI	African Information Society Initiative
COMESA	Common Market for Eastern and Southern Africa
EAC	East African Community
NICI	National Information and Communication Infrastructure
ICT	Information and Communication Technology
UNDP	United Nations Development Programme
UNECA	United Nations Commission for Africa
UNESCO	United Nations Educational, Scientific and Cultural Organization
WB	The World Bank
IT	Information Technology
WDI	World Development Indicators
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals

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1.0

Background

Industrialization in Lesotho has increased exports from the country and has generated considerable employment for the Basotho people. A number of wet industries, that is, those using more than 2000 cu m of water per day, have been set up in the country, which generate large amounts of wastewater discharges. This techno policy brief draws upon a study on water pollution by industries. The study investigated the water quality in the industrialized areas of Lesotho and determined the effects of water pollution on health and livelihoods of communities in those areas in order to make policy recommendations.

The water samples were gathered from the waterways in the three industrialized areas of Lesotho. The data was then analysed and compared with South African standards, in order to know the extent of pollution. The pattern of water usage from the polluted waterways was also studied by use of survey questionnaires with the intention of determining the effects of water pollution on the livelihoods and health of the communities.



Figure 1: Effluents from industries at Ha Thetsane flowing down Keleqeke stream

2.0

Effects of AGOA

African Growth and Opportunities Act (AGOA) was the major incentive for industrial investment in Lesotho. A number of textile and garment industries were established in the country due to AGOA. Exports to the US increased from 140.3 million US\$ to 215 million when AGOA was introduced in 2001. Exports peaked in 2004 when it reached \$466.9 million and reduced slightly to \$403.6 million in 2005 when the worldwide free trade agreement opened up the US market to Asian countries. (Lesotho News Agency, 2005). In year 2006, exports were \$408.4 million.

Figure 2: Lesotho's AGOA exports to the US¹

¹ Source: *AGOA.info* accessed on 2 Feb 2007, 2 July 2007. Note: AGOA was introduced in 2001 in Lesotho.

AGOA has been instrumental in creating employment in the textiles and garment industries. According to Bureau of Statistics (Manufacturing in Lesotho, Statistical report, 2005) number of people employed in manufacture of textiles and clothing increased from 13,133 in year 2000 to 31,292 in 2004. It slightly reduced to 25,422 in 2005 and was 29,538 in year 2006.

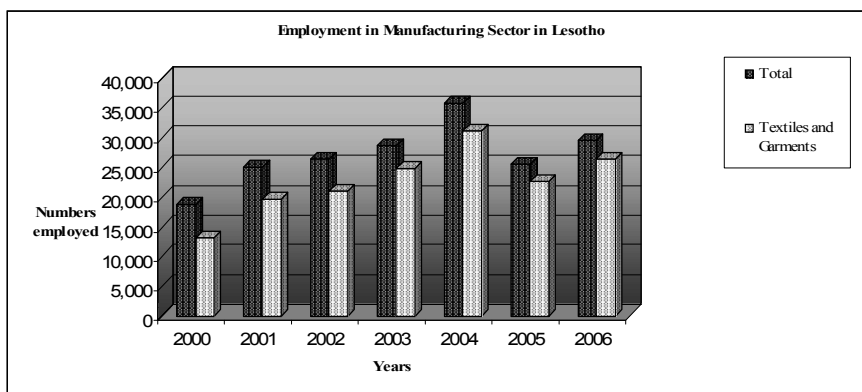


Figure 4: Employment in Manufacturing sector in Lesotho²

The increase in exports and employment generated is a success for the country, however, the impacts of industrial water pollution on the water quality and community health and livelihoods must not be overlooked and this document gives information on this aspect.

² Source: Bureau of Statistics, Manufacturing statistics, 2006.

3.0

Key Concerns

Water quality was analysed in the waterways in all three industrial areas. In addition to testing water quality both upstream and downstream of industries, a survey was conducted with the community by means of questionnaires at the three industrial areas.

The water quality analysis and survey revealed the following key concerns:

Effects on animal and fish health

13% of community interviewed in Ha Thetsane, 19% in Mafeteng and 6% at Ha Nyenye use the waterways under study for livestock watering. Incidences of livestock mortality were reported by the community in Ha Thetsane area. Fishing was done only at Ha Nyenye where 13% of community interviewed do fishing activities at the waterway under study and reported incidences of fish mortality that had occurred in the past.

Effects on health of Communities

Community reported skin irritations when using water from the polluted waterways downstream of industries for washing.

Effects on pattern of water usage of community

The community reported that they use the water in the waterways for various purposes. 33% of community interviewed at Ha Thetsane, while 53% in Mafeteng and 44% at Ha Nyenye uses the water for washing. Community members reported staining of clothes when using the water from the waterways. They also reported that lathering of soap has reduced.

25.3% of households surveyed who had previously used the waterways have stopped using the waterways subsequent to the arrival of the industries.

Effects on livelihoods

The people surveyed were all of lower income (less than M2000 per month) and some of them continue using the water in the waterways under study. Others reported that they no longer use the water for drinking and washing dishes and were forced to buy water spending up to M30 every month taking 10 to 30 minutes to collect the water everyday.

Effects on water quality

Water quality was tested both upstream and downstream of the industries to find out if it is indeed the industries which have caused water quality changes. Moreover water quality in industrialised areas was compared with water quality in control areas in Butha Buthe and Mafeteng which had water bodies not affected by industries. The waterways in industrialised areas downstream of industry were indeed found to be affected and had several chemical elements which had significantly increased making the water downstream unfit for domestic use, livestock watering and irrigation.

Chemical elements such as chromium hexavalent, copper, nitrates, suspended solids and total dissolved solids were found to have increased in waterways in industrialised areas when compared to those not affected by industries. This may have impacts on health of humans when coming into contact with the water, animals drinking the water and crops irrigated by the water.

The effects of chemical elements exceeding standards for domestic use may cause skin irritations, ulcers, impair lathering of soap, cause staining of clothes and other effects. If water is consumed, it will have poor taste, cause kidney damage and may have carcinogenic effects.

The effects of the chemical elements exceeding standards for use of water for livestock may cause problems such as taste of water will be affected, diarrhoea, liver damage, stomach irritation, nausea, decreased feed intake, lethargy as well as toxicity from high concentrations of certain elements. When water is used for irrigation, it may reduce crop yield and cause yellowing of leaves.

The water quality analysis clearly indicates significant worsening of parameters downstream of industries and in treatment samples as compared to upstream and control water samples. This can be inferred to the effects of industrial effluents being released into the environment and the water bodies.

4.0

Conclusions

Industrialization in Lesotho has improved the economy and created employment for Basotho. However, water quality in the waterways of Lesotho has been affected negatively by industrial effluents being released into them. Community members of lower income category living near these waterways have also been affected negatively by the pollution and it has altered their water usage pattern as well as livelihoods for some. Water quality analysis has found some parameters in excess standards which may have harmful effects if used for livestock, irrigation, domestic use and recreational use.

5.0

Conclusions

Policy Recommendations

The recommendations arising from this study is aimed to positively solve the problems of water quality in the country and not to ascertain blame to any institution.

The recommendations from the study are:

1. There is a need to sensitize and educate industries and affected communities about the policy on water pollution and its implications
2. There is a need to provide alternative sources of water for communities around the industrialized areas as a matter of urgency, e.g. building rain water harvesting tanks. Industries may come forward to use their factory roofs for provision of rainwater harvesting for the community living nearby that are using the polluted waterways.
3. There is a need to incorporate waste water treatment plants at the inception of an industry.
4. Establishment of eco-industrial parks (EIP) could be investigated as an option for cleaner production and as a result address the water pollution in Lesotho. The benefits of EIPs which include improved environmental performance through greener purchasing, reduced waste collection costs, greater economies of scale and reuse of waste. EIPs have been set up in developed countries such as Australia, Finland and Canada, as well as developing countries such as China and India. This is possibly an area that Lesotho can look into while planning industrial estates in the future.
5. There is a need to provide incentives to industries for their efforts for cleaner and greener production and recognition of their mitigation or pollution control measures.
6. There is a need for AGOA to integrate environmental compliance as a mandatory requirement.

6.0

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