

Mainstreaming Cleaner Production and Sustainable Consumption in Lake Victoria Basin Development Programs



**Proceedings of The 1st East African
Round Table on Sustainable
Consumption and Production**

*6-7 December 2004,
Imperial Hotel-Kisumu, Kenya*

Organized by

Kenyan National Cleaner Production Centre (KNPCPC)
in collaboration with The United Nations Environment
Programme (UNEP) and The African Roundtable on
Sustainable Consumption and Production (ARSCP)



Mainstreaming Cleaner Production and Sustainable Consumption in Lake Victoria Basin Development Programs

Proceedings of The 1st East African Round Table on
Sustainable Consumption and Production

6-7 December 2004, Imperial Hotel-Kisumu, Kenya

Organized by

Kenyan National Cleaner Production Centre (KNCPC)

In collaboration with

The United Nations Environment Programme (UNEP)

and

*The African Roundtable on Sustainable Consumption
and Production (ARSCP)*

Table of Contents

Summary	v
Acknowledgements	ix
Session 1: Official Opening of the Roundtable	1
1.1 Welcoming remarks Director, Kenya National Cleaner Production Centre (Ms. Jane Nyakang'o)	1
1.2 Opening Remarks	1
1.2.1 Remarks by Dr. Patrick Mwesigye, the President African Roundtable on Sustainable Consumption and Production (ARSCP)	1
1.2.2 Remarks by Mr. Alex Alusa, Deputy Director, UNEP Regional Office for Africa	1
1.2.3 Remarks by Dr. K.W. Kipkore, Deputy Programme Officer East African Community (EAC)	3
1.2.4 Director of Industries, Ministry for Trade and Industry	3
1.3 Official opening by Honorable Kalonzo Musyoka, E.G.H. M.P., Minister for Environment and Natural Resources, Kenya	3
Session 2: Background Presentations on Lake Victoria Region	5
2.1 Vision and strategy framework for the Management of L. Victoria - Dr. K. W. Kipkore, EAC	5
2.2 The NBI Industry Environmental Management Vision - Ms. Lily Kisaka, NBI Secretariat	6
2.3 Industrial Pollution Levels and Current Environmental Management by Enterprise in Lake Victoria - Mr. John Okungu, LVEMP, Kenya	7
2.4 Industrial Pollution levels and Current Environmental Management by enterprise in Lake Victoria - Mr. Vitalis Mnyanga, LVEMP, Tanzania	9
2.4 Environmental challenges facing Kisumu City - George Wasonga, Director of Environment	10
2.6 Environmental challenges facing Mwanza Municipality - J. Maiseli (VIC Fish Ltd) Mr. Alfred Luanda (Mwanza City Council), Vitalis Mnyanga-LVEMP	11
2.7 Environmental Challenges: Industry perspective - Mr. John M. Khaoya, Pan Paper Mills Ltd	12

Session 3: Status of SCP in the Sub-region	15
3.1 Kenya Status Report - Ms. J. Nyakang'o, Director KNCPC	15
3.2 Tanzania Status Report- Mr. Binelius Mdewa - Deputy Director CPCT	17
3.2.1 Achievements	18
3.2.2 Challenges include:	19
3.2.3 Current Status	20
3.3 CP Activities in Uganda - Dr. Patrick Mwesigye and Mr. Silver Ssebagala	20
3.3.1. Introduction	20
3.3.2 The Eco-Benefits Programme	21
3.3.3 Case Studies	21
3.4 Synthesis of background presentations and status reports - Dr. Desta Mebratu, Industry Affairs Officer, UNEP-ROA	23
Recommendation	24
 Session 4: Need for a Practical Move Towards CP And SC	 25
4.1 Strategic priorities and components Identification	25
4.2 Specific follow-up activities and implementation modalities	26
4.2.1 Kenya	26
4.2.2 Uganda	29
4.2.3 Tanzania	35
 Appendix 1: List of Participants	 43
 Appendix 2: Provisional Agenda, 6-7th December 2004	 47

Summary

This report presents the proceedings of the 'First East African Roundtable on Mainstreaming Sustainable Consumption and Production in Lake Victoria Development Programs' held at the Imperial Hotel, Kisumu on 6th-7th December, 2004. The Roundtable was officially opened by the Kenyan Minister for Environment and Natural Resources. The East African Roundtable was organized as a follow-up of the African Roundtable on Sustainable Consumption and Production held in Morocco in May 2004. The Roundtable drew 41 participants from Kenya, Uganda and Tanzania who have a stake in the management of the Lake Victoria ecosystem. There were representatives from Municipalities, National Cleaner Production Centres (NCPCs), regulatory agencies, fisheries organizations, East African Community, NGOs, Industry, Lake Victoria Environmental Management Program (LVEMP), Nile Basin Initiative (NBI), Natural Resource Managers, UNIDO, UNEP, and Universities among others (See Appendix 1).

The two-day Roundtable was organized around four sessions (See Appendix 2). The first session dealt with the official opening. Session two was devoted to presentations of background information from the EAC (on vision and strategy framework for the management of L. Victoria), LVEMP (on industrial pollution levels and current environmental management by enterprises in Lake Victoria region), NBI (on industry environmental management vision), Municipalities of Kisumu and Mwanza (on industrial pollution levels and current environmental management), and industry, represented by the Panpaper Mills (Webuye, Kenya, on environmental challenges: industry perspective). The third session was devoted to presentation of national SCP status reports by the respective Directors of the NCPCs. The fourth session dealt with the identification and prioritization of SCP activities in the Lake Victoria region and strategies for their implementation.

The Roundtable noted that there existed significant initiatives and experiences in the Lake Victoria Region, which is now recognized as an important economic development zone of the Eastern African countries. The Lake Victoria Environmental Management Programme (LVEMP) was recognized as one of the driving forces behind cooperation within the EAC. The EAC has developed a regional vision and strategy framework for the development of the Basin. The key elements of this vision and strategy framework are elaborated in Section 3.1. Related development strategies are also being implemented by the Nile Basin Initiative (See 3.2). The need to mainstream SCP into the ongoing development initiatives in the region was clearly identified. It was noted that the NCPCs in the sub-region have in the last 10 years gained significant experience in the application of CP in existing industries

and municipalities in the region. Their existing technical capacities together with their global networks can be a major input to the process of developing the Basin. There is increasing policy and legal recognition for the adoption of cleaner production as a viable mechanism by the national governments in the sub-region. However, one of the key challenges in mainstreaming SCP in development planning remained lack of enforcement and compliance mechanisms on environment.

To fast track SCP in the region, there is urgent need to expand the NCPC's area of focus beyond industries into regional development programmes in line with the regional initiatives outlined above. This requires stronger linkages between the NCPCs and regional development initiatives and programmes. The strategic focus for SCP promoters should be the promotion of proactive approach through the continuous improvement of products, processes and services that should lead to combined economic, environmental and social benefits. The specific elements of the strategy should be:

- The promotion of alternative development models that promote the sustainable development of a region.
- The provision of environmentally sound alternatives in terms of products and services and the related information and decision making tools for informed consumers' decision-making.
- Developing innovative approaches aimed at meeting the challenges of basic needs in the developing world.

This will require thinking beyond the linear 'cause-effect' relationship through the application of systems approach. It will need the creation of the required individual and institutional capacities at various levels, the development and operation of effective compliance regimes as well as contextualizing the issues of sustainable consumption and production to the local environment. This should be based on the following key principles:

- Taking the existing regional development frameworks as the basis for future action.
- Focussing on the specific value that could be added by the NCPCs based on their experiences and network base.
- Developing initiatives as part of the 10 Year Framework Programme on Sustainable Consumption and Production.

Priority SCP activities in the EA sub-region were discussed under the following three headings;

- Enhancing SCP application in existing industry sector
- Integrating SCP in city development strategies
- Promotion of a circular economy

To enhance SCP application in the sub-region, undertaking of baseline studies will be accorded high priority. Priority issues include compliance assistance to existing industry to better perform within the environmental law guidelines. The key industrial sectors include manufacturing (sugar, pulp & paper, coffee, tea, fish, horticulture, dairy, tannery, chemical, beverage, plastics & rubber, matches and cereal milling), agriculture, and services (transport, tourism etc). Activities under the second strategic focus include integrated solid waste management (plastics & incinerators), sustainable building and infrastructure development, sustainable procurement and the promotion of sustainable consumption and production clubs. In the development of a circular economy, key activities will include promotion of industrial symbiosis, and development of eco-incubation. A wide range of stakeholders will be involved. Section 4 of the proceedings provides an elaborated version of the three strategic foci.

Acknowledgements

This sub-regional workshop on sustainable consumption and production was organized with the support from the United Nations Environment Programme under the framework of the project on 'Institutionalizing the African Roundtable on Sustainable Consumption and Production' which is financed by the Government of Norway. The KNCPC and its collaborators would like to thank UNEP for this assistance and in particular Dr. D. Mebratu. The contributions of the Directors of the NCPCs in Uganda and Tanzania towards the successful organization of the workshop as well as their technical contributions are gratefully acknowledged. We would also like to thank the late Mr. M. Ndalo (LVEMP, Kenya) for assisting in certain organizational aspects of the workshop. Finally the organizers would like to sincerely thank all the participants for their valuable contributions that led to the success of the sub-regional roundtable on SCP.

Session 1: Official Opening of the Roundtable

1.1 Welcoming remarks Director, Kenya National Cleaner Production Centre (Ms. Jane Nyakang'o)

The Centre Director, Ms. Jane Nyakang'o welcomed all the participants and gave an overview of the build up activities towards the 1st East African Round Table on Cleaner Production and Sustainable Consumption. She noted that as a region, the East African experts gathered in Kisumu would identify practical Cleaner Production and Sustainable Consumption activities to be implemented within the Lake Victoria ecosystem. She reiterated that the National Cleaner Production Centres in the three countries continue to be principal promoters of Cleaner Production and Sustainable Consumption. However, there is urgent need to expand the network of promoters and include all regions and in particular the Lake Victoria basin.

1.2 Opening Remarks

1.2.1 Remarks by Dr. Patrick Mwesigye, the President African Roundtable on Sustainable Consumption and Production (ARSCP)

Dr. Patrick Mwesigye gave a background of the institutionalization of the African Roundtable on Sustainable Consumption and Production (ARSCP). He noted the aim of ARSCP is to promote knowledge sharing and institutional capacity building for the promotion of sustainable consumption and production in the region. He underlined that the outcome from this roundtable could serve as a model for subsequent sub-regional roundtables as this is the first sub-regional roundtable to be organized under the framework of the African Roundtable on Sustainable Consumption and Production. He concluded his remark by expressing his appreciation to UNEP for the support that has been provided towards the establishment of the ARSCP and the organization of the East African Roundtable.

1.2.2 Remarks by Mr. Alex Alusa, Deputy Director, UNEP Regional Office for Africa

Mr. A. Alusa noted that Lake Victoria is one of the major fresh water bodies in Africa that is shared by a number of African countries and that have major

importance to the livelihood of millions of people. He further noted that understanding the current status with its all dimensions is an important starting point for achieving a meaningful and positive intervention in the Region. However, he underlined that the purpose of this Roundtable is largely about influencing the future towards a more sustainable basis and requested participants to focus on developing concrete proposals that could be implemented through regional cooperation.

The Deputy Director highlighted two UNEP major programs that have a direct relevance. The first one is UNEP's programme on sustainable consumption and production (SCP). Under this program, UNEP in partnership with UNIDO has been promoting the establishment of National Cleaner Production Centres as key strategic approach in creating national capacities for the promotion of sustainable consumption and production. So far there are about 34 National Cleaner Production Centers established through out the world out of which 9 are located in Africa. He noted that these Centers have made significant contribution in enhancing the performance of African enterprises by improving their material and energy efficiency through the application of cleaner production. The other program is supporting the institutionalization of a continental coordinating network for sustainable consumption and production. UNEP has facilitated the establishment of the African Roundtable on Sustainable Consumption and Production (ARSCP) which is now a legal entity having its secretariat in Tanzania.

In addition to the above, UNEP in collaboration with the United nations Department of Economic and Social Affairs (UN-DESA) spearheads the development of the 10 Year Framework Plan on sustainable consumption and production as a follow-up to WSSD Plan of Implementation. The core principle adopted in the development of the 10 Year Framework program is to promote sustainable consumption and production through a broader context of meeting basic needs of the majority of the population in the developing world. The First African Expert Meeting on the 10 Year Framework Plan on sustainable consumption and production was held in May 2004 in Casablanca, Morocco. The meeting identified key priority areas and discussed mechanisms of implementation for the 10 Year Framework Plan. A Second Regional Expert Meeting is scheduled to be held in February 2005. The purpose is to further refine the outcome from the First Expert Meeting and develop concrete project proposals for implementation at the national and sub-regional levels.

Another programme relevant to this meeting is UNEP's Integrated Water Resources Management Programme (IWRM). Based on UNEP's water policy and strategy, this programme has the management of fresh water as one of the three core elements. It seeks to enhance national capacities of developing countries to enable them to sustainably manage and utilize their fresh-water resources. Mr. Alusa noted that the activities to be developed and implemented within the sub-region can benefit from UNEP's experience in development and implementation of programs on sustainable consumption and production (SCP) and integrated water resource management (IWRM). He finally expressed UNEP's commitment to work with the NCPCs and the other development partners based on the outcome of this meeting.

1.2.3 Remarks by Dr. K.W. Kipkore, Deputy Programme Officer East African Community (EAC)

Dr. Kipkore informed participants that the two most important priorities for the EAC were the development of the Lake Victoria Basin and the Customs Union. The latter is expected to lead to a common market and airspace. Support to the private sector to play its role in the development of the region is important.

1.2.4 Director of Industries, Ministry for Trade and Industry

The Director of industries was represented by Mr. Lawrence Ngari of the Ministry of Trade and Industry. He said that Industrial transformation by the year 2020 brings with it environmental challenges that call for networking and support to make the industries competitive. This challenge requires environment-related financing as well as technical support.

1.3 Official opening by Honorable Kalonzo Musyoka, E.G.H. M.P., Minister for Environment and Natural Resources, Kenya

The Director General NEMA, Prof. Ratemo Michieka, opened the Round Table on behalf of the Minister. He commended the efforts of organizing this Round Table on Cleaner Production and Sustainable Consumption as it demonstrates our commitment to the improvement of the livelihoods of our people. The Minister was optimistic that the choice of Lake Victoria as an area of focus is most important due to its location and economic importance to 30 million people. He further noted that, after the good work done by the Lake Victoria Environment Program (LVEMP) in determining pollution loading into the Lake, it is only logical that further interventions in the lake should include cleaner production, not only as a tool for reducing pollution, but also as a tool for maximizing the production and hence the productivity of the enterprises.

In order to encourage pollution prevention and to place the responsibility of mitigating the effect of pollution where it rightly belongs, the government has come up with compliance and enforcement regimes. The Environmental Management and Coordination Act (EMCA, 1999) emphasizes the *Polluter-Pays-Principle* and the *Pre-cautionary Principle*. This means that the polluter pays a penalty commensurate with the degree of pollution and preferably pollution is anticipated and prevented. The legal articles within the Act for the implementation of Cleaner Production include: Environmental Audits (EA); Environmental Impact Assessment (EIA); Environmental Quality; Environmental Monitoring and the various licenses for waste handling.

As a first step, enterprises must quantify and characterize wastes and understand their production processes and services. This will lead to targeted intervention measures including the development of Company environ-

mental policies. Cleaner Production (CP) has been embedded in the national environment policy. In this regard, the Minister noted that the top management should keep an eye on the implementation of CP in their organizations and involve all levels of staff to realize the economic and environmental benefits that come with Cleaner Production.

Session 2: Background Presentations on Lake Victoria Region

2.1 Vision and strategy framework for the Management of L. Victoria - Dr. K. W. Kipkore, EAC

The East African Development Strategy (2001-2005) has designated the Lake Victoria Basin as a regional economic growth zone. The strategy contains comprehensive strategies and action plans for sustainable development of the whole of Lake Victoria Basin. The Regional Vision for the Lake Victoria Basin is:

“A prosperous population living in a healthy and sustainably managed environment providing equitable opportunities and benefits”

The shared vision gives guidance to the formulation of a set of broad Policy Area Visions, activities and programs at regional and national level. The vision and strategy framework has five policy areas for the sustainable management of the Lake. These include:

1. Ecosystems, Natural Resources and Environment
2. Production and Income Generation
3. Living conditions, Poverty and Quality of Life
4. Populations and Demography
5. Governance, Institutions and Policies

All these policies emphasize the need to sustainably exploit, produce and consume resources. Strategies and change indicators to realize these include: point source pollution reduction, integrated resources management, adoption of best resource management practices, and reduction of poverty through income generating projects, integration of population issues into planning process, institutional strengthening and promotion of participatory approach among others.

Summary

- Relevant partners should be included and identify their roles in the sustainable management of Lake Victoria.

- Cross-cutting strategies are very important for capturing the different aspects of sustainable development as broadly as possible and for mobilizing resources across policy areas (i.e. Establishing: policies and institutions for integrated Basin management, programmes for improved education, training and awareness raising, programmes to confront HIV/AIDS pandemic including its effects on production and quality of life ;provision of clean water and sanitation for all and finally developing physical and economic infrastructure).
- Cleaner Production and sustainable consumption, which advocates for waste prevention at source and doing more with less resources has been acknowledged as a tool to be promoted in the realization of the regional vision for L. Victoria.

2.2 The NBI Industry Environmental Management Vision - Ms. Lily Kisaka, NBI Secretariat

The Nile river basin, home to millions of world's poorest people, has a unique environment but which is threatened by pollution and resource depletion. The principle objective of the Nile Basin Initiative (NBI) is to develop the water resources of the Nile Basin in a sustainable and equitable way to ensure prosperity, security and peace for its entire people. The shared vision for the Nile basin riparian countries is:

“To achieve sustainable socio-economic development through the equitable utilization of, and benefits from, the common Nile Basin water resources”.

The action agenda to realise the above vision includes Shared Vision Programs (SVP) and Subsidiary Action Programs that are participatory, proactive and prioritise adoption of preventive environmental and resource management tools. The SVP has several project portfolios among which include:

- The Nile Transboundary Environmental Action Project which provides a strategic framework for environmentally sustainable development of the Nile River Basin and supports basin-wide environmental action linked to trans-boundary issues in the context of the NBI strategic action program.
- Water Resources Planning and Management that is aimed at enhancing the analytical capacity for basin-wide perspective to support the development, management, and protection of Nile Basin waters.

- Confidence building and stakeholder involvement which aims at developing confidence in regional cooperation under the NBI and ensure full stakeholder involvement in the NBI and its projects
- Applied training whose objective is to strengthen institutional capacity in selected subject areas of water resources planning and management in public and private sectors and community groups as well as creating or strengthening centres with capacity to develop and deliver programs on a continuing basis
- Socio-economic development and benefit sharing whose objective is to strengthen Nile River Basin-wide socio-economic cooperation and integration through: Joint identification, analysis, and design of cooperative development options and priorities

Summary

Stakeholders in cleaner production and sustainable consumption were invited to develop programs to address any of the above project portfolios towards environmental awareness and education, knowledge and information sharing, pilot projects, private-public sector partnerships among others

2.3 Industrial Pollution Levels and Current Environmental Management by Enterprise in Lake Victoria - Mr. John Okungu, LVEMP, Kenya

LVEMP, a comprehensive program conducted by the three countries is aimed at rehabilitating the lake ecosystem for the benefit of the 30 million people who live in the catchment, their national economies and the global community. Among others, the LVEMP runs a sub-component that undertakes management of pollution loading into Lake Victoria. The sub-component aims at strengthening and improving the management of industrial and municipal effluents and to assess the contribution of urban runoff to the lake pollution, in order to alleviate environmental degradation and the associated socio-economic decline in the region. Several pollution sources into the Lake Victoria ecosystem include:

- Within the catchment, the pollution sources are Point and Non-point.
- Point sources have definite origins e.g. Industrial and Municipal effluent outlet. Best control is at source.
- Non-point sources cannot be pinned to a particular spot but comes from diverse areas e.g. farm land. Control is only through control of the bad practices resulting in the release of the pollutants.

- There are a number of industries scattered all over the Kenyan catchment.

Industrial pollution in the catchment area is characterized by the following:

- Most of the industries discharge their effluents into natural water courses.
- Air pollution is increasing mainly in urban areas and areas with industrial activities.
- Most industries in big towns discharge their effluents into existing municipal sewage systems.
- In general, technology and machinery used in wastewater treatment for both municipalities and industries are old.
- Sugar processing factories have problems with disposal of baggass and cane press cake which form big heaps and are fire risks in some cases
- Environmental consideration, such as self-assessment in industries has not taken root
- Cases of poor citing of factories have been noted, particularly with the coffee factories, which are often built so close to rivers and streams such that there is no space left for construction of effluent holding facilities. Therefore coffee pulping and washing wastes cause problems
- The effluent in the Kenyan catchment is mostly of organic nature (mostly from sugar and fish processing industries)
- Industrial pollution Loads: BOD₅ 4,074 kg/day; TN 89 kg/day; TP 241 kg/day
- The main point pollution sources that require attention and closer monitoring:
 - Municipal and industrial effluents
 - Municipal and industrial solid wastes
 - Oils and lubricants from workshops, garages and fuelling stations.
 - Human wastes and refuse from market and urban centres and fish landing villages.

Some industries have environmental conservation departments and this has helped in reducing some problems related to environmental management. The drivers for this include; the need to reduce waste intensities, the enactment of Environmental Management and Coordination Act (EMCA, 199) and the subsequent requirement that annual Environmental Audits be undertaken. Energy audit requirements by KAM have ensured that industries have institutional arrangements for energy conservation.

Summary

Compliance assistance to enterprises is key to the pollution reduction in the Lake Victoria ecosystem and best practices need to be mainstreamed into their operations

- For industries overflow weirs or similar devices should be established in order to determine the effluent flows.
- Effective self control measures should be imposed on the polluters. To avoid possible pitfalls this should be done or supervised by independent environmental auditors
- A key factor is that polluters accept their responsibility to avoid pollution as a moral issue
- Environmental awareness campaigns should be launched to educate and encourage the stakeholders to comply with the legislation and by-laws on discharge and dumping of pollutants into the environment. The aim or goal should be to get and maintain a clean environment.
- Minimization of wastes at the source should be emphasized; so Cleaner Production Practices should be part and parcel of the industrial Environmental Management Programmes.
- Industries should be encouraged to implement sound Environmental Technologies.
- Any proposed industrial development in the riparian countries should definitely be preceded by an Environmental Impact Assessment (EIA) and receive all approvals from the appropriate authorities.

2.4 Industrial Pollution levels and Current Environmental Management by enterprise in Lake Victoria - Mr. Vitalis Mnyanga, LVEMP, Tanzania

Tanzania's development vision by 2025 envisages transforming the economy from a low productivity agricultural economy to a semi-industrialized. Growth in the industrial sector will have significant impact on water supply, and also in terms of potential pollution and degradation of water resources. The causes of pollution include:

- Lack of consideration to pollution and human health aspects when formulating and assessing industrial projects
- Overloading, short-circuiting, short retention time (some with less than half an hour), sludge re-suspension, algal bloom and poor operation and maintenance have been linked to the poor performance of the waste stabilisation ponds

- Most of the industries in the region still depend on the end-of-pipe treatment. Cleaner Production (waste minimization) needs popularizing.
- Some industries use obsolete production technology.

The LVEMP has implemented programs to address some of the above problems. These include: inventory of industries, monitoring the performance of waste stabilization ponds, undertaken pilot projects on constructed wetland, and undertaken Cleaner Production and training for industries in Mwanza under the Mwanza Sustainable Program

Summary

- Programs should be put in place to increase awareness and education so as to change the behaviour of producers and consumers to embrace waste minimization. Producers can improve their performance through both management changes and technological improvements
- Regular monitoring of water quality should be undertaken so that problems are detected early and remedial actions employed
- Reduction, recovery, recycling or reuse systems are not embedded in the existing technologies.
- Minimization of wastes at the source should be emphasized; So Cleaner Production Practices should be part and parcel of the Industries Environmental Management Programmes.
- The use of constructed wetlands as tertiary effluent treatment (polishing) facilities should be advocated and encouraged
- Any proposed industrial development in the Lake Victoria Basin should be preceded by an EIA and receive approvals from the appropriate authorities.
- The possibility of having collective wastewater treatment facility(ies) in the urban centres after pre-treatment at the individual industries should be envisaged for an efficient, cheap and convenient system.

2.4 Environmental challenges facing Kisumu City - George Wasonga, Director of Environment

The following are the major environmental challenges facing Kisumu Municipal Council include: in the hilly areas, destruction of tree cover, increased run-off/erosion; poor road infrastructure and quarrying activities; in the peri-urban fringe is congestion/overcrowding, blocked drains / flooding, uncollected garbage/foul environment and poor accessibility; in the Lake

shores/Lake is point source pollution (oils, sewage, farming), motor washing in lake, sand harvesting and siltation of waterways and finally, Central Business District Industrial effluent (>stds), informal trade encroachment, indiscriminate dumping ,air pollution (motor fumes), noise pollution and congestion on motor ways.

To address the above problems, the Municipal Council of Kisumu has developed a ‘City Development Strategy’ which provides an overall framework for urban development. On-going initiatives under this strategy include;

- Integrated Solid Waste Management Program that advocates for production, storage, transportation, safe disposal, recycling, re-use of waste among others
- SUM – low cost transportation, especially cycling
- EPC – ‘best practice’ demonstration
- Slum Upgrading – settlement condition improvement
- Small – Independent Service Providers; scale water solutions
- MCK has embraced new management schemes (improved governance)
- Embracing new management schemes for improved governance
- Adopting a neighbourhoods approach to environmental management

Summary

- Incorporation of sustainable consumption and production activities in the City Development Strategy will result in a healthy Kisumu ecosystem.
- Encourage and facilitate respect and active participation of the private sector in planning and managing the environment
- Minimize and control pollution (point and diffuse) within the Municipality using the best available technologies and techniques

2.6 Environmental challenges facing Mwanza Municipality - J. Maiseli (VIC Fish Ltd) Mr. Alfred Luanda (Mwanza City Council), Vitalis Mnyanga-LVEMP

Mwanza has a population of about 500,000. Environmental challenges include urban migration at 8% per annum giving rise to squatter settlements, wastewater management, solid waste problem especially plastics and domestic waste. Out of a total of 375 tons/day of solid waste, only 47% is collected and disposed of in dumpsites. Additional waste (oil spills, human waste) is generated by water transportation vessels like boats.

Among the programs undertaken to respond to the above challenges include: Cleaner Production Programs-LVEMP, CPCT, & SMWP (Sustainable Mwanza Programme)

Summary from his presentation

- For plastic bags, bottles, etc., alternative products like (bio)degradables should be considered
- Recover, Reuse, Recycle, Reduce should be emphasized where possible

2.7 Environmental Challenges: Industry perspective - Mr. John M. Khaoya, Pan Paper Mills Ltd

Pan African Paper Mills is a pulp and paper company located in Webuye, Kenya. It is an ISO 14001 certified company. Over the years the Company has faced a number of environmental challenges which the presenter believes are universal for all companies. These include:

- Maintaining a delicate balancing between environment and profits. Cleaner production and sustainable consumption may provide a window for a 'win-win' situation for industry and environment.
- Use of Best Available Technologies (BAT) and Best Environmental Practices (BEPs) to minimize or eliminate industrial negative impact on the environment. Pollution prevention, waste minimization and reuse of materials on site which fall under this category may require technical support. This support is sometimes very expensive.
- Employee training and awareness. Training and awareness requires some input in terms of capital and human resource. However, once trained, the employees become an invaluable asset for a company as the culture of waste minimisation is ingrained into them and attitudes changed. Process and products are viewed in terms of environment and the health and safety of employees is improved
- Corporate social responsibility. Companies need to improve their public images and reduce risks off site. This requires company involvement in community activities. Pan Paper has invested in community projects such as water supply, malaria projects, schools, reforestation programs, sports, health services, road/bridge construction, and HIV/AIDS
- Sustainable use of renewable resources. Companies must look at the way they extract and use resources. Pan

African Paper Mills has invested social forestry by providing tree seedlings for reforestation and reforestation.

- Compliance with environmental regulations. This is a challenge and enterprises need assistance in terms of training awareness-raising and actual learning-by-doing audits. Pan African Paper Mills has invested in staff training and has internal auditors. The company has installed electrostatic precipitators for the flue gases and constructed aerated lagoons for the wastewater.

Summary

The promoters of Cleaner Production and Sustainable consumption should work hand-in-hand with enterprises and institutions as it provides value to industry environmental management

Session 3: Status of SCP in the Sub-region

3.1 Kenya Status Report - Ms. J. Nyakang'o, Director KNCPC

KNCPC is assisting NEMA in the development of waste management regulations and guidelines. Cleaner production has been included as a first priority intervention for waste management in Kenya. It is conducting training in environmental audit and environmental impact assessment. Through the cleaner enterprise program, enterprises are assisted to comply with the law and to shift to cleaner production processes and techniques.

Training:

The following have been achieved in the area of training:

- Trained 180 industrial establishments in CP
- 14 NGOs, 25 trainers and consultants
- 2 courses reviewed-JKUAT. Incorporated CP
- CP lectures to Masters Students in Environ. Planning and Mgt
- CP awareness to university staff & students
- Trained 66 EIA and EA experts in 2004
- Training in CP financing form Financial Institutions

Cleaner Enterprise Programme (CEP)

This is a 6-month programme involving information dissemination, training (industry & auditors) CP audits in industry. Companies are assisted through "*learning by doing*" to implement CP. The product is a CP audit report containing prioritized waste minimization and efficiency measures implemented or to be implemented. The sectors that have participated in this include:

- Sectors – edible oil, soap, plastics, textile, wood, chemicals, paper converter, printing, electroplating, pesticides, soft drinks, floriculture

A total of 40 Industry CP projects have been implemented as follows: Nairobi and Thika – 25; Nakuru and Elburgon – 12; Mombasa – 3. Between the year 2002-4, a total of 250 pollution prevention measures were imple-

mented in industry. 60% of the measures were good housekeeping, the others include technology modification and organizational change, education and information. The options identified can be classified in the following categories: 8% energy, 20% water or waste water, 10% quality control, 15% preventive maintenance, 8% raw material consumption, and 20% supplementary measures (attitudinal changes). The total annual savings realized approximate US \$ 698,000, reduction in wastewater generation of 30-50%, organic and chemical pollution reduction by 20-30%.

Institutional sustainability

The Centre has transformed into a Public Trust under the Ministry of Trade and Industry.

CP Case study: Pwani Oil Products Ltd

This is an integrated edible oil and bar-soap factory. The company had excessive water consumption leading to the generation of copious amounts of waste water. The oil refining technology was old refinery leading to a generation of up to 15,840 m³ wastewater/yr. The process was also characterized by high levels of rejection/reworks producing up to 91,250 kg/year of non-conforming bar soaps. Management of spent bleaching earth (solid waste) was also a big problem.

The challenge

- CP awareness, training and mindset change of the administrators and workers.
- Minimizing water consumption, waste generation and enhanced employee skills
- Upgrading the oil refinery to a more modern and less polluting technology.
- Organization change to strengthen the supervision and develop operational procedures.

CP application

The applied CP options are: stoppage of water, steam, raw material and intermediate product leakages, overflows; avoidance of idle running of machines, condensate recovery. This resulted in wastewater reduction by 60%, material loss by 90% originally 43.8 tons/yr. Installation of a new edible oil refinery increased the efficiency to 99%. The company employed 10 new employees in production, quality control, environment, finance and personnel management. Employees were trained in best environmental practices, and record keeping. Metering of all production units to control inputs is on-going and a partnership is being forged with a local cement factory to utilize bleaching earth for cement making.

Economic benefits

Investment cost US \$ 641,025

Annual savings US \$ 230,769

Payback 2.8 years

Overall environmental results

- A reduction in chemical oxygen demand loading by 7.3 tons/year in avoided product loss into the wastewater.

Summary

The application of CP in the company led to reduction in effluent generation, non-conforming soaps and a better working environment, employment of extra staff, boosting of worker morale.

Planned and on-going company projects

- Expanding product range, innovating products from waste, HACCP and ISO 14001 certification

Impacts of CEP

- Self-regulation because of the “win-win” situation
- Need for replication in other sectors/regions (plastics, sugar, cement)
- Demand by companies for sector specific training and demonstration projects
- Fosters a participatory process (industry, regulators, consultants)
- Strong goodwill from industry
- Emerging & growing voluntary CP initiatives
- Growing demand for decentralized & easily accessible CP support

3.2 Tanzania Status Report- Mr. Binelius Mdewa - Deputy Director CPCT

The CPCT was established in October 1995 under UNIDO/UNEP NCPs Project with mandate to promote Cleaner Production concept in Tanzania. It was inaugurated in May 1996. The funding under UNIDO/UNEP Project ended in 1998 after which the Governments of Norway and Tanzania signed on 10 December 1999 an agreement to finance a 5 year project: “CP for Ecologically Sustainable Industrial Development in Tanzania”. The major functions of the Centre include: information; training; demonstration proj-

ects (Assessments); policy advice and coordination of country programme on Montreal Protocol (National Ozone Unit).

3.2.1 Achievements

Information: More than 31 seminars for more than 1000 stakeholders have been held. 1 regional seminar (ARCP-2) for 100 participants and 1 sub-regional seminar on Municipal Waste Mgt were organized. CP information collected (hard & soft copies), publication of newsletters and brochures, CP articles and events were covered by media and a video was produced on CP in Tanzania.

Training: 300 persons in Tanzania Mainland and Isles have been trained

Demonstration/Assessments: 47 companies have been involved in 4 phases (18, 8, 8, 13) as follows: Arusha 6; Dar es Salaam 10; Mwanza 8; Tanga 13; Zanzibar and Pemba 10. The major sub-sectors covered include: soap and detergents, beverages, steel rolling, textile, food processing, fish processing, wood processing, fibre, service sector and chemicals.

Policy advice: CP is incorporated in the SIDP (1996-2020) and Environment Policy (1997) and a process has been initiated for establishing an annual CP award.

Montreal Protocol: Investment projects have been developed in the sectors of aerosols, foam and CFC refrigerant recovery and recycling; 62 technicians/mechanics country-wide trained in Good Refrigeration Practices; Customs officers, trade and standards officers have been trained as trainers on illegal trade in Ozone Depleting Substances (ODS); ODS regulations drafted whose implementation is pending awaiting the environmental law, the bill for which has just been approved in November 2004.

CPCT Intervention in the Lake Region

Under the Sustainable Mwanza Programme held in 2000/1, 8 companies from around the lake participated in an 8 month long CP capacity building programme. The Programme was conducted by the CPCT in partnership with the Norwegian National Institute of Technology (TI), which was also representing the World Cleaner Production Society, with financial support from NORAD. Other participating stakeholders included NGOs active around the lake e.g. ECOVIC, LABECO, ETIA and LANESO and the Regional Water Engineer's office. Resource persons were drawn from the CPCT itself, network partners who are individual and institutional consultants (TISCO, CPE, IPI, COSTECH, IFM, CBE) previously trained by the Centre, and TI itself. The

training consisted of lectures, group sessions and in-plant “hands-on” training for 21 trainees, and interplenary industrial visits for personalized assistance to industrial trainees. In the end, 81 feasible options were generated by the enterprises for implementation as shown below

CP Financing

Tanzania was one of 5 countries (Guatemala, Nicaragua, Tanzania, Vietnam and Zimbabwe) participating in a UNEP/DTIE project “Strategies and Mechanisms for promoting Cleaner Production Investments in Developing Countries”. A four year project (starting 1998) sponsored by Government of Norway was launched in Tanzania mid-December 1999 and officially completed March 2002. It was coordinated by the TISCO, CPCT as Technical Adviser, with Division of Environment, VPO as the focal point.

Main project objective was to initiate and facilitate financing of CP Investments in developing countries and use results to motivate key decision-makers to pursue such investments. The project was very successful in raising awareness, but less so in persuading financial institutions to introduce credit schemes customised to CP investments and induce new initiatives such as trust funds and policy changes. The reasons:

- Commercial banks dealt mostly with larger companies as opposed to SMEs that were the CP target.
- Financial Institution’s great concern with the rates of default among borrowers ranging from 25% - 40% due to genuine business failure or non-paying culture.

Thus, SMEs adopting CP still face problems in funding relatively high investment CP options due to lack of CP financing facility. Some Sustainable Cities Programmes like the STP have an EDF fund which can be accessed by SMEs for this purpose. CPCT offers technical support to STP. Hence, the need for a financing facility special for CP investments which UNEP has been working upon.

3.2.2 Challenges include:

- Lack of enforceable legislation, hopefully better soon
- Absence of environmental standards
- Low level of appropriate education at supervisory level
- Privatization
- Very low level of awareness on CP and environmental issues in general
- Lack of financing mechanism for CP investments
- Low wages
- Lack of or poor collection and keeping of process input and output data
- Variable levels of commitment from management

- Lack of openness of enterprises in releasing CP data for fear of taxation
- Under-pricing of resources
- Lack of a comprehensive industrial environmental profile

3.2.3 Current Status

On 22nd April 2004, the Government decided to accord the Centre a legal status in the form of a “trust”. At the moment, preparation of the trust constitution by the Attorney General’s Chambers is underway. This shall be followed by registration. CPCT is registered as a founder member to the institutionalized African Roundtable on Sustainable Consumption and Production (ARSCP) – at Casablanca, Morocco, 18 May 2004 and elected to the Executive Board of the ARSCP. CPCT was elected “interim secretariat” to ARSCP and mandated to register ARSCP under the laws of Tanzania. The registration was done on 6th September 2004. The ARSCP website is under construction!

New mandate of the Centre

To Promote, mainstream and sustain sustainable production and consumption in Tanzania. Specific functions will include:

- Awareness Raising and Education
- Training and Empowerment
- Research and Consultancy
- Advise on Policy Formulation
- Advise on Setting of Standards
- Assist in Audit and Monitoring

Conclusions

- Programmes like LVEMP, EAC, Municipalities should make use of existing technical institutions like NCPCs in areas where CP may be an option.
- SMEs adopting CP still face problems in funding relatively high investment CP options due to lack of CP financing facility. Some Sustainable Cities Programmes like the STP have an EDF fund which can be accessed by SMEs for this purpose. CPCT offers technical support to STP.

3.3 CP Activities in Uganda - Dr. Patrick Mwesigye and Mr. Silver Ssebagala

3.3.1. Introduction

The UCPC was established in October 2001 and is hosted by the Uganda Industrial Research Institute. It is situated on Plot M217, Jinja Road,

Nakawa. In Uganda, the CP Programme effectively started March 2002. Its major objective is capacity building in CP and its work is accomplished with active participation of stakeholders.

The UCPC has a number of programmes including the following:

- The Eco-Benefits Programme
- CP Financing and Investment
- Eco-Design and Product Innovation
- EMS/ISO 14001
- Regional Programmes

3.3.2 The Eco-Benefits Programme

The Eco-Benefits Programme is a 10-month Programme that combines Cleaner Production theory and practice. The Programme has four phases:

- Training and Cleaner Production Assessments (9 weeks)
- Implementation of CP options (5-6 months)
- Evaluation (1-2 months)
- Award of CP certificates and Promotion

The Centre has 4 Programmes so far since May 2002. About 28 Enterprises (multi-sectoral) are involved including: Tanneries (2); Sugar (2); Tea (1); Dairy (2); Iron and Steel Products (3); Chemicals (2); Fish Processing (7); Foam mattresses (1); Confectionaries and Biscuits (2); MSEs – Furniture, wine and leather (5); coffee processing (1). The programmes have led to total savings of over USD 1,500,000 from Eco-Benefits I, II & III Programmes. Most of the industries (especially Fish factories) are near Lake Victoria and discharge effluent into it.

The benefits of participating in the Eco-Benefits programme include:

- Increased internal CP capacity in participating enterprises
- Increased efficiency in use of resources (raw materials, water, energy etc..) , a key step towards SCP
- Improved environmental compliance
- Competitive advantage due to reduced operating costs.
- Successful companies have good basis for implementation of ISO 14000 series

3.3.3 Case Studies

Dairy Processing

Effluent from milk processing plants contains milk and milk products, detergents and cleaning agents (acid and caustic). Milk loss can be as high as 7% and typical COD load in dairy plant effluent is about 8 kg/m³ milk intake.

Water consumption

A typical range for water consumption in reasonably efficient plants is 1.3 – 2.5 litres water/litre of milk intake. Applying CP brings this down to 0.8 – 1.0 litres water/litre of milk intake. The average water consumption in Uganda is 4 – 6 litres water/litre of milk intake and so there is considerable scope for improvement of water consumption in the country.

The strategies for reducing water consumption include the following

- Use of continuous rather than batch processes
- Automated cleaning in place (CIP)
- Installation of fixtures that restrict or control the flow of water for manual cleaning
- Use of high pressures instead of high volume for cleaning surfaces
- Reusing relatively clean wastewaters
- Re-circulating water used in non-critical applications
- Installing meters
- Pre-soaking floors and equipment before cleaning
- Using compressed air instead of water where appropriate
- Reporting and fixing leaks promptly

Fish Processing

The fish processing industry in Uganda has the following characteristics:

- It is expanding quite rapidly with the Nile perch as the major species being processed.
- Uganda, being a land locked country, has fresh water fish accounting for more than 98% of the processed fish, the remainder being fish produced by aquaculture.
- The fish processing plants are located around lake Victoria
- Almost all the fish processed in the country is for human consumption. (fresh, chilled or frozen fillets)
- There are 8 companies: daily operation capacity of 20 tones for low season and 40 tones for high season per plant.
- The industry employs more than 1500 people

The UCPC has been working with Ngege Ltd, a fish processing plant, with the major CP focus areas being water, raw materials and environmental compliance. The CP options recommended and adopted by the company as well as their benefits are shown in Table 2. There was a 30% reduction in water consumption and minimization of contamination of wastewater through adoption of CP options. Economic and environmental benefits were evident (with savings of USD 6,338/yr and a reduction in the BOD from 346 to 90 mg/litre).

The overall fish yield increased by 3% as a result of the implementation of CP interventions. The gross savings of up to USD 223,245/yr and a 3% reduction in fish waste generation were realized.

As a result of embracing CP in their fish processing (dry cleaning and water conservation), the company improved its environmental compliance. BOD was reduced from 341 to 90 mg/litre; COD from 874 to 140 mg/litre; TDS from 496 to 160 mg/litre; Total Nitrogen from 72 to 22 mg/litre; and oils and grease from 1400 to 58 mg/litre.

3.4 Synthesis of background presentations and status reports - Dr. Desta Mebratu, Industry Affairs Officer, UNEP-ROA

Dr. Mebratu noted that there existed significant initiatives and experiences in the Lake Victoria Region. In particular, he noted that;

- The Lake Victoria Basin was now recognized as an important economic development zone of the Eastern African countries;
- The Lake Victoria Environmental Management Programme (LVEMP) is one of the driving forces behind cooperation within the EAC;

He noted that the EAC has developed a Regional vision and strategy framework for the development of the Basin. The key elements of this vision and strategy framework are elaborated in Section 3.1. Related development strategies are also being implemented by the Nile Basin Initiative (See 3.2).

On the other hand, NCPCs have in the last 10 years gained significant experience in the application of CP in existing industries and municipalities in the region. Their existing technical capacities together with their global network can be a major input to the process of developing the Basin. There is increasing policy and legal recognition for the adoption of cleaner production as a viable mechanism by the national governments in the sub-region. However, one of the key challenges in mainstreaming SCP in development planning is lack of enforcement and compliance mechanism on environment.

To fast track SCP in the region, there is an urgent need to expand the NCPC's area of focus beyond industries into regional development programmes in line with the regional initiatives outlined above. This will require fostering stronger linkages between the NCPCs and regional development initiatives and programmes.

The strategic focus for SCP promoters should be:

- Promoting proactive approach through the continuous improvement of products process and services that leads to combined economic, environmental and social benefits.

- Promoting alternative development models that promote the sustainable development of a region.
- Providing environmentally sound alternatives in terms of products and services and the related information and decision making tools for informed consumers' decision-making.
- Developing innovative approaches aimed at meeting the challenges of basic needs in the developing world.

This will have the following key requirements:

- Thinking beyond the linear 'cause-effect' relationship through the application of systems approach.
- Creating the required individual and institutional capacities at various levels.
- The development and operation of effective compliance regimes.
- Contextualizing the issues of sustainable consumption and production to the local environment

This should be based on the following key Principles

- Taking the existing regional development frameworks as the basis for future action.
- Focussing on the specific value that could be added by the NCPCs based on their experiences and network base.
- Developing initiatives as part of the 10 Year Framework Programme on Sustainable Consumption and Production.

Recommendation

The stakeholders should expedite and fast-track the promotion of cleaner production in the region by the NCPCs, integrate sustainable consumption and production in Cities Development Strategies, promote 'circular economy' as an alternative development model for sustainable development in the region

Session 4: Need for a Practical Move Towards CP And SC

Participants of the Roundtable deliberated on the possible strategies to be adopted at the sub-regional level and the follow-up activities to be undertaken at the national level. The working group discussion was conducted in two sessions. The first sessions focused on identifying the key components of the strategy for promotion of sustainable consumption and production in the region. This was followed by country group sessions that discussed the specific follow-up activities to be undertaken at the country level. This section summarizes the outcome of the working group sessions.

4.1 Strategic priorities and components Identification

During the East African Roundtable on mainstreaming Cleaner Production and Sustainable Consumption in Lake Victoria Basin Development Programmes held from 6th – 7th December 2004 at Kisumu, Kenya, three strategic areas of intervention and possible areas of focus leading to the mainstreaming of Sustainable Consumption and Production (SCP) in the region were identified. These were:

1. Enhancing SCP Application in existing industry Sectors
 - a. Sustainable Agriculture
 - b. Fishing – sustainable harvesting
 - c. Service sector (transportation, tourism, financial institutions)
 - d. Compliance assistance to SME's (eco-efficiency self assessment tools e.g. design for the environment, supply chain management, eco-indicators, environmental reporting, life-cycle management & EMS)
2. Integrating SCP In City Development Strategies
 - a. Integrated solid waste management with emphasis on the “5 R's”
 - b. Sustainable building and infrastructure development
 - c. Sustainable procurement
 - d. SCP clubs within Municipalities/Schools
3. Promotion of a Circular Economy (Closing The Loop)
 - a. Development of eco-industrial zone/parks
 - b. Promoting industrial symbiosis

- c. Development of return scheme for recyclable/re-usable materials
- d. Develop City/Regional environmental profile (baselines)

Following further deliberations in a group work arrangement permitting cross-fertilization of ideas amongst participants from all the three countries, some concrete actionable activities were identified within the areas of focus. Subsequent country group works led to prioritization of these activities and country-specific strategies of implementation.

4.2 Specific follow-up activities and implementation modalities

4.2.1 Kenya

Strategy 1: Enhancing SCP Application in Existing Industry Sector

The priority activity will be undertaking baseline studies to determine the needs in the priority sectors. The priority issues under this strategy include:

Compliance strengthening in priority sectors

Kenya has a new environmental law that requires existing enterprises to undertake annual environmental audits and new ones to undertake environmental impact assessments. Additionally the enterprises have been made responsible for the management of their wastes and any negative impacts. However, there is no specific program in place to assist enterprises to understand their obligations within this law and to implement its provisions. Thus, the need for these enterprises to be assisted through a program that raises awareness, training, development of sector reference SCP manuals and demonstration projects becomes greater. KNCPC does this under the Cleaner Enterprise Program (CEP) but a national fast tracking strategy to be implemented in close cooperation with NEMA is required. Compliance assistance was prioritised per sector as follows:

(a) Manufacturing

The industrial sub-sectors identified in order of priority for intervention include sugar & allied; pulp, paper and paper board; coffee; tea; fish; horticulture; dairy; tannery; chemical; beverage; plastics and rubber; matches and cereal milling.

(b) Fishing

Fishing is an important sector to the economy of the lake region. Priority intervention here will go towards strengthening of Beach Management Units; improvement of storage and handling; protecting breeding sites, innovating products from fish waste and improving quality to capture more local and external market.

(c) Agriculture

Kenya is predominantly an agricultural economy. The Lake region is a high potential area and a bread basket for Kenya especially with tea, coffee and sugar. Sustainable consumption and production here will have to look at the entire life cycle and SCP intervention areas identified. Interventions should include the development of environmental management systems, product innovation, pesticide management, banned chemical use and their disposal, and water management.

(d) Services

The service sector such as transport, tourism, financial institutions should be targeted for SCP. This includes:

- For transport, interventions would included: using unleaded fuel, sound management of used oil, developing environmental management plans for fleet vehicles
- Development of eco-tourism products. The Eco-tourism Society of Kenya has developed eco-tourism indicators that can be used to guide the implementation of this component including hotel ratings
- Raising more awareness and giving SCP training to financial institutions for them to appreciate and finance green projects. KNCPC in collaboration with UNEP already have held one national and one regional awareness and training workshop for the financial institutions in 2002/2003. However, still more convincing needs to be done for the financial institutions to evolve SCP products

Strategy 2: Integrating SCP in City Development Strategies

The Lake towns are poorly designed and characterised by many unplanned settlements and poor zonation. Waste management both solid and liquid effluent pose a serious challenge. Therefore, the integration of SCP in the design and management of the cities is crucial.

Integrated solid waste management

There is need for training, awareness programs and demonstration projects on best practices in integrated solid waste management. Emphasis should be laid on waste reduction, source segregation, product development/innovation to avoid waste and enacting of anti-littering laws.

(a) Plastics

Management of this will require the development of anti-littering law, exploring the opportunity for degradable plastics and development of a return scheme as part of the expanded producer responsibility.

(b) Incinerators

Management of clinical waste is a major problem and hospitals lack proper incinerators. A well-designed and competent incinerator centralised in major hospitals will need to be developed.

Kisumu lack a sanitary landfill. SCP intervention would entail first, enacting a law prohibiting incineration of recyclables followed by designing and building sanitary landfill

Sustainable Building and Infrastructure Development

Most buildings are not designed to conserve resources. New designs optimising on use of natural light, rain water harvesting and inclusion of greenery will be required.

Mobility should be sustainable to take care of motorised and non-motorised transport.

Sustainable procurement

Training & awareness on green procurement for the supplies Officers and reviewing procurement procedures to include SCP provisions.

Sustainable consumption and production clubs

Strengthen existing clubs and establish new ones where none exist. Prime target would be schools and through sector associations. These clubs would need technical and financial support to identify and implement SCP activities. KNCPC would need to work closely with education institutions and sector associations.

Strategy 3: Promotion of a Circular Economy

(a) Industrial symbiosis

Exploring waste exchange and reuse of wastes on-site for existing establishments. Agro-processing waste such as that from sugar and coffee would lead in this.

(b) Development of Eco-incubation parks

Kenya is coming up with incubation parks for promoting local entrepreneurs. This is being worked closely with the Kenya Industrial Estates. Incorporation of SCP principles for waste exchange, optimisation of common services will be required.

(c) Development of city environmental profile

The City of Kisumu already has a development plan in place. The first task in evolving a city that promotes a circular economy is the generation of the city environmental profile that will provide baseline information and a basis for SCP action. The Kisumu City Council would lead this process.

Priority

The following is the order of priority activities implementing the above proposals in Kenya:

- Environmental profile of Kisumu
- Compliance assistance to SMEs
- Return schemes and recycling
- Industrial symbiosis
- Eco-industrial development

Stakeholders

The KNCPC will assume a national coordination role. The stakeholder combinations will be need-based since each project presents unique features. At the moment the envisaged key stakeholders in the implementation process are:

KNCPC, NEMA, Line Ministries, Universities, R&D institutions, umbrella industry associations, NGOs, consumers, farmers, fisher folk, UNIDO, UNEP, UNDP, Kenya Industrial estates, financial institutions, regional development authorities.

4.2.2 Uganda

The Ugandan Cleaner Production Centre (UCPC) will be the focal point with the major stakeholders being:

- Fisheries Resources Research Institute (FIRRI)
- Lake Victoria Fisheries Organisation (LVFO)
- Uganda Fish Processors and Exporters Association (UFPEA)
- Uganda Fisheries and Fishing Conservation Association (UFFCA)
- Fisheries Department in Ministry of Agriculture, Animal Industries and Fisheries (MAAIF)
- National Environment Management Authority (NEMA)
- National Agricultural Research Organisation (NARO)
- Uganda National Farmers Association (UNFA)
- Uganda Flower Growers Association (UFGEA)
- Uganda Institute of Bankers (UIB)
- Uganda Insurance Association
- Uganda Hotel Owners' Association
- Ministry of Tourism, Trade and Industry (MTTI) including Uganda Tourists Board (UTB), Uganda Tourists Association (UTA) and Uganda Wildlife Authority (UWA)
- Min. of Works, Housing and Communications
- Oil industry
- Local Government Authorities
- Private sector
- Ministry of Energy and Mineral Development
- Uganda Manufacturers' Association (UMA)
- Uganda Small Scale Industries Association (USSIA)
- Ministry of Health (MOH)

- Kampala City Council (KCC)
- Procurement and Public Disposal Authority (PPDA),
Procurement committees and Tender Boards
- Uganda Consumer Protection Association (UCPA)
- Schools and Institutions and Universities
- Ministry of Education and Sports (MOES)
- Uganda Investment Authority (UIA)
- National Water and Sewerage Corporation (NWSC)

Strategy 1: Enhancing SCP Application in Existing Industry Sector

Fishing

The proposed programme to enhance SCP in the fishing industry has to ensure sustainable fishing and production of new products. This can be achieved through:

- Fast tracking EMS in Fishing industry through awareness and training so that the industry can attain environmental compliance, access new markets and establish a functional Environmental Management System.
- Promotion of SCP in aquaculture, an activity that is beginning to take root in Uganda as one of the strategies to eradicate poverty and boost fish production.
- Promoting value addition in fish processing especially the use of by-products e.g. fish oil, animal feed, fish skin

The major stakeholders in achieving this enhancement include FIRRI, LVFO, UFPEA, UFFCA, Fisheries Department, UCPC and NEMA.

Agriculture

Agriculture is the backbone of the Ugandan economy and the agro-processing industries dominate the manufacturing sector. Enhancement of SCP in this sector especially in the value chain will result in sustainable agricultural practices. It is important to first understand the status of the sector before embarking on the promotion of SCP in agricultural sector. The major activities to be carried out in order to achieve this include:

- Inventory of agro-processing and horticultural production in the country
- EMS in sugar and horticulture industries as these sectors are increasingly gaining prominence in the economy of the country. UCPC has already worked with the sugar sector and valuable data exists that will assist in promoting SCP in the industry. The export market of horticultural products is slowly picking up and EMS will promote their easy access to new markets.

- Using Life Cycle Management in agricultural production so that the entire supply chain is analysed for a sustainable agricultural system in Uganda.

The major stakeholders in promoting SCP in agriculture include MAAIF, NARO, NEMA, UCPC, UNFA, UFGEA and agricultural processors.

Service Sector

The service sector is a very important component of SCP and needs to be included to ensure a complete cycle. The main players in this sector are financial institutions (banks and insurance companies, tourism and transport).

a) Financial Institutions

Financial institutions need to be aware of the benefits of SCP if they are to participate in the process especially in providing the badly needed financing. Awareness workshops have already been carried out by UCPC on CP financing for banks and insurance companies. However, a lot more still needs to be done if progress is to be sustained. The major requirement of the financial institutions is the provision of SCP financing in Small and Medium Enterprises (SMEs). Involvement of UIB and Uganda Insurance Association will facilitate the process.

b) Transportation

SCP in the transport sector is a neglected concept and as a result this sector has resulted in enormous environment negative impacts especially from the used/waste oil, use of leaded fuel and the widespread use of used vehicles. The policy of government on used cars does not encourage the acquisition of new vehicles (new vehicles are taxed more and importation of used vehicles is liberalised). The activities that can be carried out in this sector are:

- Catalyse Private Sector investment in waste oil management and disposal especially in establishment of special dumping sites for hazardous materials such as used oil.
- Promote use of unleaded gasoline to minimise the pollution from lead particles from vehicular emissions.
- Provide policy advice to government on importation and use of used cars

Major stakeholders in implementing the activities include Ministry of Works, NEMA, UCPC, Oil industry, Local authorities, Private sector, Min. of Energy and Mineral Development.

c) Tourism

Tourism is a fast growing sector in Uganda but tourism management does not measure to the requirements. Hotels are springing in different parts of the coun-

try and eco-tourism is considered one of the important areas for investment. It is therefore necessary to integrate SCP in hotel and tourism management in order to promote sustainable tourism development. Many opportunities exist in ensuring efficiency in tourism. The major stakeholders in achieving this goal in Uganda include UHOA, UCPC and MTII (UTB and UWA).

d) Compliance Assistance

In Uganda, environmental laws and regulations are formulated much faster than the industrial sector can cope with yet they are required to comply. It is therefore necessary that enterprises are assistance in understanding and interpreting the prevailing laws and regulations for them to comply. A compliance assistance programme based on SCP needs to be designed program to assist SMEs. The stakeholders in this exercise include UMA, NEMA, Private Sector and USSIA. UCPC has the capacity to implement the compliance assistance programme.

The general priorities in implementing these activities include:

- Baseline studies to obtain basic data in each of the sector
- Application of LCM in program/project development and implementation
- Capacity development and awareness in order to create initiatives among stakeholders.

Integrating SCP in City Development Strategies

The cities and municipalities in the Lake Victoria region (e.g. Kampala, Kisumu and Mwanza) are growing at a fast rate based on poorly planned infrastructure. The cities are characterised by poor Solid Waste Management (SWM), unplanned buildings and structures and poor procurement methods. It is therefore necessary to integrate SCP in the development strategies of cities and municipalities in the lake basin. The focus of activities in Uganda shall be:

a) Integration of SWM with Emphasis on the '5Rs'

Kampala City Council (KCC) has enacted the Solid Waste Management Ordinance (2000) that guides the handling of garbage in the city. The ordinance is not being fully complied with mainly because KCC lacks the resources to implement it. There is an opportunity for SCP promoters to work with KCC to manage solid wastes in the city. The proposed courses of action included:

- Reduction of solid wastes at source through awareness raising and training, segregation and provision of primary and secondary waste receptors.
- Construction of proper central incinerators in Kampala to handle hazardous wastes.

The stakeholders in this exercise include NWSC, NEMA, UCPC, Industries, MOH and KCC.

b) Sustainable Building and Infrastructure Development

Kampala is characterised by unplanned buildings and ran down infrastructure with most of the greenery and wetlands degraded. There are efforts to ensure that physical planning becomes part of the operations of the City Council. This will reduce on the instances of slum areas and having better maintained infrastructure. During the Cities Development Strategies, the following can be implemented to result in more sustainable urban areas:

- Designs for environment so that buildings and infrastructure are more user friendly and lead to sustainable consumption especially with regard to energy use (lighting, air conditioning); maintenance and use by stakeholders.
- Sustainable mobility and fleet management plans that can lead to improved use of resources such fuel and roads.

c) Sustainable Procurement

Procurement is one of the issues in government offices and has been characterised by corruption, supply of 'air' and lack of capacity. SCP can assist in ensuring sustainable procurement through:

- Capacity building for procurement staff and suppliers
- Preparing training manuals integrating SCP as one of the components
- Integrating SCP in procurement plans

The major stakeholders in this exercise are PPDA, Procurement committees, Tender boards and UCPC.

d) SCP Clubs

Clubs have been used successfully by NGOs and CSOs to promote the different issues in schools, higher institutions and society. Notable examples are wildlife societies, Red Cross Clubs, Rotary Clubs and Lions Clubs. Environmental issues can also be promoted to society through clubs and the SCP concept can easily be spread through establishment of SCP Clubs in schools and institutions. Some of the activities to promote the SCP clubs include:

- Integrating SCP in school curriculum
- Establish SCP clubs in Schools and institutions
- Disseminate materials on SCP

The Stakeholders: UCPA, Schools and Institutions, Universities, MOES and UCPC.

Promotion of a Circular Economy

(a) Promoting industrial symbiosis

1. Promotion of waste water reuse and utilization especially in agro-processing industries

2. By-product utilization including agricultural residues
3. Production of bio-energy from organic wastes

Stakeholders: NEMA, UCPC, MTTI, UMA...)

(b) Development of eco-industrial zones

Uganda proposes to establish industrial zones in the different urban centres in the country. At a national level, industrial zones are to be established in Namanve and Luzira. The development of Namanve Industrial Park is at an advanced stage and preliminary work has already been done for Luzira. It is necessary to integrate SCP issues in the development of these industrial zones so that there is harmony and synergy between the different industries in the park. It is therefore necessary to:

1. Influence the development of industrial zones by integrating principles of eco-industrial parks in Namanve and Luzira as test cases.
2. Development of provision of common environmental services for existing industrial sectors (e.g. common effluent treatment plant)

Stakeholders: UIA, NEMA, MTTI, UMA, UCPC....)

Development of return scheme for recyclable products/re-usable materials

- The collection and reuse of plastic waste.
- The collection and disassembling of electronic products to promote the recycling useful and toxic products.
- The collection and disposal of dry-cell batteries.

Stakeholders: NEMA, KCC, UCPC.....)

(c) Development of city environmental profile

It is important to have baseline data for Kampala City before any SCP activities can be carried out. Therefore, development of Kampala City Environmental Profile becomes the initial activity if SCP is to be integrated in the Development Strategy for the city.

Priority

From methodological perspective the following is the priority order implementing the above proposals in Uganda:

- Environmental profile
- Eco-industrial development
- Industrial symbiosis
- Return schemes and recycling

4.2.3 Tanzania

The rapidly growing urban and peri-urban centres located on the shores of the Lake depend on its natural resources for their economic growth as well as a source of clean water for domestic use by the surrounding communities.

On the other hand, the centers contribute significantly to the increased environmental degradation of the Lake. Uncontrolled municipal and industrial effluents (brewery, tanning, fish processing and agro-processing) continue to pollute the lake, threatening the basis of the local and regional economy.

The poorer communities, which rely on subsistence agriculture and fishing activities, have settled along the Lake. These communities do not have adequate shelter and infrastructure and suffer under the double burden of increased competition for degraded natural resources and increased prices for safe water.

The municipality of Mwanza and the Town Councils of Musoma and Bukoba lack the capacity to implement sustainable development policies, especially within a regional context of rapid urbanization and staggering national and regional economies. Residents live in poor conditions with limited access to basic services and infrastructure. This is compounded by uncontrolled pollution of the surrounding environment and dwindling economic opportunities. The poorer sections of the community are particularly at risk

The following is the strategy of implementation put up by the Tanzania group.

Strategy 1: Enhancing the application of Sustainable Consumption and Production in existing Industries

Focus area:

Compliance assistance to small and Medium Enterprises (SMEs):

- Promote the adoption of CP and fast track the establishment of Environmental Management Systems (EMS) within enterprises.
- Conduct training and awareness on SCP and EMS among SMEs and their associations.

Stakeholders and roles:

- Cleaner Production Centre of Tanzania – for technical assistance.
- National Environment Management Council – for law enforcement.
- Fisheries Department – for policy advice.
- Municipal and Town Councils – for enforcement of regulations and bye-laws.
- UNEP and UNIDO – capacity building
- NGOs and CBOs – awareness raising

b. Sustainable Agriculture:

- Developing an inventory of agro-processing and horticultural production.
- Creating awareness on SCP.
- Planning agricultural production using Life Cycle Management (LCM) approach.
- Instituting Environmental Management Systems (EMSs) for sugar, coffee, horticulture and cotton growing sectors.

Stakeholders and roles:

- Ministry of Agriculture and Food – for policy advice
- Ministry of Water and Livestock Development – for policy advice
- National Environment Management Council – for law enforcement
- Agro-processors - understanding and willingness to change
- Farmers at all levels – understanding and willingness to change
- Municipal and Town authorities – enforcement of regulations and bye-laws
- Cleaner Production Centre of Tanzania – technical assistance
- UNEP and UNIDO – capacity building
- NGOs and CBOs – awareness raising

c. Sustainable Fishing:

- Fast tracking EMSs in the existing industries.
- Enforcing regulations on landing sites and use of appropriate fishing gears and immature extraction.
- Promoting addition of value to fish processing by-products e.g. fish meal, fish oil, fish skin etc.
- Conducting awareness programmes to stakeholders across the value chain on SCP elements
- Promoting SCP in aquaculture.

Stakeholders and roles:

- Fisheries Department – for policy advice and enforcement
- Cleaner Production Centre of Tanzania – technical assistance
- UNEP and UNIDO – capacity building
- Fish processing industries – for understanding, willingness to change and compliance
- Fishing field folks – for compliance

- Basin Water Office – for regulatory functions
- NGOs and CBOs – awareness raising
- Municipal and Town authorities – enforcement of bye-laws

d. Service Sector:

i) Tourism:

- promotion of eco-friendly tourism in parks
- integrating SCP in hotel management

Stakeholders and roles:

- Ministry of Tourism and Natural Resources – policy advice
- Cleaner Production Centre of Tanzania – technical assistance
- NGOs and CBOs – awareness creation
- Hotel operators - compliance
- Tour operators – compliance
- National Environment Management Council – law enforcement
- Municipal and Town authorities – enforcement of bye-laws
- UNEP – capacity building

ii) Transportation:

- introducing sanitary facilities on boats
- promoting the use of unleaded gasoline
- adopting appropriate waste oil disposal techniques

Stakeholders and roles:

- Ministry of Communications and Transport – policy guidance
- Boat operators - for compliance
- Ministry of Industry and Trade – policy on trade
- Private sector – innovative disposal of waste
- NGOs and CBOs – awareness raising
- Cleaner Production Centre of Tanzania – technical assistance
- UNEP and UNIDO – capacity building

iii) Financial institutions:

- sensitize financial institutions on the role of SCP in development

- use of EMSs as a pre-condition for SCP loans.

Stakeholders and roles:

- Cleaner Production Centre of Tanzania – technical assistance
- Insurance companies – backing up of SCP investments
- Banking institutions – financing SCP
- UNEP – capacity development

The priority order of implementation is compliance assistance to industries; service sector especially tourism and financial institutions; agriculture; and fishing.

Strategy 2: Integrating SCP in City Development Strategies.

Focus area:

a. Integrated Solid Waste Management with emphasis on the '5 Rs' (Recover, Re-use, Re-cycle, Reduce, Re-manufacture) :

- Capacity building to local authorities in solid wastes management issues:
 - Training Municipal solid wastes management staff
 - Training CBOs, Micro-enterprises and other related organs on Solid Waste Management
 - Provision of equipment and working tools to City authorities, CBOs, Micro-enterprises, etc.
- Promote reduction and segregation of waste at source:
 - Conduct mass media (TV, Radio) sessions on solid wastes segregation.
 - Conduct workshops for CBOs and Micro-enterprises on segregation of solid wastes.
 - Establish environmental newsletter in each Municipality
- Install functional incinerators for Solid Waste Management in urban hospitals:
 - One for each of three regional hospitals (Mwanza, Kagera, Mara), and one at the referral hospital of Bugando.
- Address the plastic problems by:
 - Promoting alternative products in lieu of carrier bags through adverts, etc.

- Design and build sanitary landfills in Cities
 - Identify areas for sanitary landfill establishment in Musoma and Bukoba towns.
 - Construct boundary fences to the landfill sites (Mwanza, Bukoba and Musoma)
 - Provide equipment for landfills management

Stakeholders and roles:

- UNEP, ILO and UNIDO – capacity development
- Cleaner Production Centre of Tanzania – technical assistance
- Local authorities – mobilization
- National Environment Management Council – regulatory
- Industries – innovative business propositions
- NGOs

b. Sustainable Building and infrastructure development:

- Training Architects and Planners on aspects of greenery planning, energy saving buildings and rain water harvesting techniques.
- Establish sustainable mobility programmes including fleet management, control of oil spills on the lake wasters, etc.

Stakeholders and role:

- UNEP, UNIDO – capacity development
- Cleaner Production Centre of Tanzania – technical assistance
- Local authorities – mobilization
- Ministry of Communication and Transport – policy advice
- Ministry Water and Livestock Development – policy advice

c. Sustainable Procurement:

- Training procurement staff and suppliers on sustainable procurement
- Review existing procurement bye-laws and harmonize them among the municipalities and town councils of the lake zone.
- Prepare training manuals

Stakeholders and roles:

- UNEP, UNIDO – capacity building

- Cleaner Production Centre of Tanzania – technical assistance
- Local Authorities – beneficiary
- Ministerial Tender Board representatives – beneficiaries
- Suppliers – compliance

d. Sustainable Consumption and Production (SCP) Clubs within Municipalities or Town Councils and Schools:

- Establish and/or strengthen existing SCP clubs in Mwanza and in town Councils of Musoma and Bukoba.
- Establish SCP clubs in Secondary Schools
- Strengthen existing Malihai Clubs in Schools to undertake SCP activities at school level
- Recognize these clubs for awards and/or incentives
- Prepare publicity materials

Stakeholders and roles:

- Cleaner Production Centre of Tanzania – technical assistance
- Local authorities - mobilization
- UNEP – capacity building

The order of priority in implementation is integrated solid waste management; SCP Clubs in schools; sustainable procurement; and sustainable building/infrastructure development.

Strategy 3: Promotion of Circular Economy.

Focus area:

a. Promoting industrial symbiosis:

- Generation of bio-energy from organic waste e.g. sugar waste and domestic waste.
- Promote the utilization and reuse of waste water in industrial processes.
- Promote the utilization of process by-products including agricultural residues.

Stakeholders and roles:

- UNEP, UNIDO – capacity building
- Cleaner Production Centre of Tanzania – technical assistance

- Municipal/Town Council Authorities – bye-laws enforcement
- Industries – compliance
- National Environment Management Council – law enforcement
- Ministry of Agriculture and Food Security – policy guidance

b. Development of eco-industrial zones/parks:

- Influencing the planning and development of industrial zones by integrating the principles of eco-industrial parks. This will also promote symbiosis.
- Provision of common environment support services for existing industrial zones, such as common treatment facilities.

Stakeholders and roles:

- UNEP – technical assistance through its eco-industrial parks toolkit
- Municipal authorities – mobilization and bye-laws enforcement
- Local Governments – planning and policy advice
- National Environment Management Council – law enforcement
- Cleaner Production Centre of Tanzania – technical assistance

c. Development of return schemes for recyclable products/re-usable materials:

- Collection and reuse of plastic waste.
- Collection and disassembling of electronic products to promote the recycling of useful and toxic products.
- Collection and disposal of dry cell batteries

Stakeholders and roles:

- UNEP, ILO, UNIDO – capacity development
- Cleaner production Centre of Tanzania – technical assistance
- National Environment Management Council – law enforcement
- Municipal Authorities – bye laws enforcement
- Industries – compliance
- Electronic Service Workshops – compliance

d. Develop of City/Town Environmental Profiles:

- Development of environmental profiles for Mwanza, Musoma and Bukoba, where industrial activities are concentrated and significant impacts may be felt.

Stakeholders and roles:

- LVEMP – enrichment from previous profiles conducted
- National Environment Management Council – technical assistance
- Cleaner Production Centre of Tanzania
- City/Town Authorities

From a methodological perspective, the order of priority is environmental profiling; eco-industrial development; industrial symbiosis; and return schemes and recycling.

Appendix 1: List of Participants

No.	Name Of Participant	Title	Organization	Physical Address	Telephone	Fax	E-Mail
1.	Dr. Desta Mebratu	Industry Affairs Officer	UNEP-ROA	P.O. Box 47074, Nairobi	020 624044	020 62928	desta.mebratu@unep.org
2.	Ms. Danielle Keulen	Junior Program Officer	UNIDO	P.O. Box 41609, Nairobi	+254 20 624369	+254 20 624368	office.kenya@unido.org
3.	Mr. Alex Awiti	Ecologist	ICRAF	ICRAF-UN Avenue	020 524126	020 524001	a.awiti@cgiar.org
4.	Mr. Alexander L Alusa	Deputy Director	UNEP-ROA	P.O. Box 47074, Nairobi	020 623455	020 623928	alex.alusa@unep.org
5.	L. Munene Ngari	Ag. Assistant Director Of Industries	MT&I	P.O. Box 30418, Nairobi	020 315001/4		lmgngari2000@yahoo.com
6.	Ms. Lily Kisaka	National Project Coordinator-Nfb-NEAP	Nile Transboundary Environment Action Plan Project	NEMA, Kapiti Road Off Mombasa Road	020 605522/6/7	020 608997	lilyk@nileteap.org
7.	Mr. Maurice O. Mbegera	Director	NEMA	P.O.Box 67839 Nairobi	020 605522 0733 759744	020 608997	dgnema@swiftkenya.com
8.	Mr. Muitung'u M. Wanjohi	Senior Compliance & Enforcement Officer	NEMA	Karura- NEMA Offices- Off Kiambu Road	020 3760461	020 3760461	kenpopsmwai@swiftkenya.com
9.	Prof. Ratemo Michieka	Director General	NEMA	Msa Road	020 699694		dgnema@swiftkenya.com
10.	Ms. Jane Nyakang'o	Director	KNPC	P.O. Box 1360-00200, Nairobi	020 604870/1	020 604871	jnyakango@cpenya.org
11.	Prof. David Mungai	Visiting Research Professor	KNPC/UoN	P.O. Box 1360-00200, Nairobi	020 604870/1	020 604871	d.mungai@cpenya.org
12.	Dr. Charles Moturi	Senior Research Officer	KIRDI	P.O. Box 30650-00200, Nairobi.			
13.	Dr. Evans Kituyi	Lecturer	UoN	Chirromo Campus Chem. Block	4449004 Ext.2189	4446138	ekituyi@uonbi.ac.ke
14.	Mr. Alfred C. Luanda	Coordinator – Sustainable Mwanza Prog.	Mwanza City Council, Tanzania	Balewa Street Mwanza City	+255 2840334 Mob.255 256000065	+255 256000065	mwaciy@thenet.co.tz alfredluanda@yahoo.co.uk
15.	Mr. Kassian G. Kimela	National Coordinator	Ecovic Tanzania Chapter	P.O. Box 887, Mwanza – TZ.	+255 28 2500475 Mob.255 0744597721	+255 282500676	ecovictz@hotmail.Com tanzania_eli@yahoo.Com
16.	Mr. Binelias Mndewa	Deputy Director	CPCT	Kimweri Avenue, TIIRDO Office Complex, P.O. Box 23235, Dar es Salaam	+255 22 2602338	255 222602339	CPCT@iwayafrica.com

No.	Name of Participant	Title	Organization	Physical Address	Telephone	Fax	E-Mail
17	Dr. Kapyas Kipkore	Asst. Programme Officer	East African Community	AICC, Arusha	250 4253/8	2504355	kwkpkore@eachq.org
18	Mr. William M.B. Jirabi	-	Vice-President's Office – Div. of Environment	IPS Building, Azikiwe/Samura Str. 1st Flr.	+255 -22-2113983	+255 -22-2115297	wmbjirabi@yahoo.co.uk
19	Mr. Ejid B. Katunzi	Centre Director	Tanzania Fisheries Research Institute	P.O. Box 475 Mwanza, TZ.	028-2550021/ 0744-398312	-	katunzi2002@hotmail.com
20	Mr. Vitalis P. Mnyanga	Senior Scientist	Lake Victoria Environmental Management Project	P.O. Box 211 Mwanza	255-28-2502684	255-28-2502523	lvemp_waterquality@ africaonline.co.tz
21	Mr. Jacob Maiseli	Quality Assurance Manager	Vicfish Ltd. Mwanza	P.O. Box 1654 Mwanza	2551596	2550597	-
22	Mr. Jerry Awino	Asst. Technical Manager	Kisumu Water & Sewerage Co.	Nafaka Hse. Oginga Odinga Street – Kisumu	057 – 42810	21604	kiwasco@kiwasco.co.ke
23	Mr. John Musebe Khaoya	Dy. Chief Chemist	Panafrican Paper Mills (E.A.) Ltd	P.O. Box 535 Webuye	057 – 41622	-	-
24	Mr. Alfred Oduor	Reporter	The Standard	P.O. Box 788, Kisumu	0733 - 433035	23451	oduoryamara@yahoo.com
26	Mr. Maurice N. Otieno	Prov. Director of Env. – Nyanza	NEMA - Kenya	Park Road, P.O. Box 1337, Kisumu	0733-740133	-	nyinjia@yahoo.com
27	Mr. George Wasonga	Director of Environment	Kisumu Municipal Council	P.O. Box 105, Kisumu	0722-736845	-	grwasonga@hotmail.com
28	Dr. Enock O. Wakwabi	Deputy Director	KEMFRI	P.O. Box 1881, Kisumu	057 530045	057 530045	enockwakwabi@yahoo.com
29	Mr. Wilson Busienei	District Environmental Officer	NEMA	P.O. Box 1337, Kisumu	0722-232034	-	wbusienei@yahoo.com
39.	Mr. Joseph O. Goch	Reporter	Health and Environmental Media	P.O. Box 1896, Kisumu	057-23007	057-23007	ojwangjoe@yahoo.com
40.	Mr. Joseph Ochola	Ecologist	Lake Basin Dev. Authority	Kisumu – Miwani Junction	0733-917283	-	-

No.	Name of Participant	Title	Organization	Physical Address	Telephone	Fax	E-Mail
41.	Mrs. Margaret A. Abira	Chief Chemist	Min. of Water & Irrigation	Prov. Water Office, Kisumu	(057)44584, 0722 721834	057 44584	mabira59@yahoo.com
42.	Mr. John Okungu	Project Manager	LVEMP– Water Quality	Prov. Water Office, Kisumu	057 44584, 073 722059	057 44584	-
43.	Mr. Cosmas Mutoro	Occupational Health & Safety Officer	Directorate of Occup. Health & Safety Services	Haki House Kisumu	057 22813	057 - 22813	cosmutoro@yahoo.com
44.	Dr. Stephen W. Njoka	Project Coordinator	Kari/LVEMP	Re-Insurance Plaza Kisumu	057 – 42811	057 – 42813	coordinator@lvemp.co.ke
45.	Dr. Mercy Gichora	Centre Director	KEFRI	Maseno	057-351164	057-351592	mewagi@hotmail.com
46.	Nobby Chiera Macharia	District Industrial Dev. Officer	G.O.K	Noo Ooro Street P.O. Box 131, 40100 Kisumu	057-42679	057-42679	ncmacharia2000@yahoo.com
47.	Mr. Silver Ssebagala	Deputy Director	Uganda Cleaner Production Centre	Plot M217 Jinja Road Nahawa P.O. Box 7184 Kampala	256-41-287938/58 286767	256-41-287940/ 286767	silverbms@ucpc.co.ug
48.	Mr. Justin Ecaat	Director	NEMA - Uganda	Jinja Road	256-41-251064/5	256-41-257521	jecaat@nemaug.org
49.	Mr. John Wasswa	Lecturer	Makere University	P.O. Box 7062 Kampala	256-41-540992 256-77-504657	-	jnwasswa@chemistry.mak.ac.ug
50.	Dr. John S. Ballirwa	Director	Naro/Fisheries Resources Res. Institute	P.O. Box 343, Jinja Uganda	256-043-121369	256-045-120192	firi@firi.go.ug director@firi.go.ug
51.	Mr. Christopher Kanyesigye	Quality Control Manager	National Water and Sewerage Corporation	P.O. Box 7053 Kampala	256-41-341144	256-41-255441	waterq@imul.com
41.	Dr. Patrick Mwesigye	Director	Uganda Cleaner Production Centre	Plot M217 Jinja Road Nakawa	077-482057	041-287940	pmwesigye@ucpc.co.ug

Appendix 2: Provisional Agenda, 6-7th December 2004

Day 1

8.30	Registration	KNPC Secretariat
Session 1: Opening Session Chair person Director of Industries Rapporteur: Dr. Charles Moturi,		
9.00	Welcoming remarks	Director, KNPC
9.15	Brief Remarks	President ARSCP Director, UNEP-ROA Assistant Resident Rep. UNDP Programme Officer Lake Victoria EAC DG-NEMA Director of Industries
	Official Opening	Minister, MENR
10.00-10.20	Tea Break	
Session 2: Background presentations - Chairperson: Dr. S. Njoka		
10.20– 10.40	Vision and strategy framework for the Management of L. Victoria	Dr. Kipkore, EAC
10.40 - 11.00	The NBI Industry Environmental Management Vision	Ms. Lily Kisaka, NBI Secretariat
11.00 - 11.20	Industrial Pollution levels and Current Environmental Management by enterprise in Lake Victoria	Mr. John Okungu , LVEMP, Kenya
11.20 – 11.40	Industrial Pollution levels and Current Environmental Management by enterprise in Lake Victoria	Christopher Kanyesigye, LVEMP, Uganda
11.40 - 12.00	Industrial Pollution levels and Current Environmental Management by enterprise in Lake Victoria	Mr. Vitalis Mnyanga, LVEMP, Tanzania
12.00 - 12.20	Environmental challenges facing Kisumu City	Director of Environment, KC
12.20 – 12.40	Environmental challenges facing Mwanza Municipality	Mr. Alfred Luanda, MN

12.40– 01.00	Environmental Challenges: Industry perspective	Mr. Lukorito, PA Mills Ltd
01.00 - 02.00	Lunch	
2.00 - 02.30	Participant reactions	
Session 3: Status of SCP in the Sub-Region - Chairperson: Mr. Nanjale		
02.30 - 02.50	Kenya Status Report	Ms. J. Nyakang'o, Director KNPC
02.50 – 03.10	Tanzania Status Report	Prof. C. Migiro, Director CPCT
03.10 - 03.30	Uganda Status Report	Dr. P. Mwesigye, Director UCPC
03.30 - 03.50	Tea Break	
Session 4: Chairman- Dr. Desta Mebratu		
03.50 - 04.10	Mainstreaming SCP in Lake Victoria sustainable development programmes	
04.10 - 05.00	Participant reactions	
05.00	End of Day	

Day 2

Need for a practical move towards CP and SC: Session Chair: Mr. Justin Ecaat Rapporteur: L. Ngari		
09.00 – 09.30	Background to group work and creation of work groups	Prof. David Mungai, UoN/KNPC (Groups Facilitator)
Group Work		
09.30-10.30	Identification & Priority Listing of Activities of Cleaner Production and Sustainable Consumption in L. Victoria	Mr. Ecaat, Mr. Mbegera, Mr. Mnyanga (Group Leaders)
10.30 – 11.00	Tea Break	
11.00 – 12.00	Group presentations and discussion	Dr. Desta Mebratu
12.00 – 01.00	Strategies for the implementation of prioritised activities	KNPC, UCPC, CPCT

Countries and regions are, since Rio, searching for options that could bring about fundamental changes in the way societies produce and consume in order for global sustainable development to be achieved. The Cleaner Production (CP) concept came in handy to provide developing countries with one such way of responding to this global challenge. Cleaner Production is itself not a new concept but a logical extension of the desire to conserve materials and reduce waste. It requires people to examine ways that result in increased productivity, reduced resource inputs and waste, and most importantly, reduced risk to the environment. CP provides a practical way to take clues from the conceptual framework of sustainable development towards action.

The First East African Roundtable on Sustainable Consumption and Production was organized in the context of the project on 'Institutionalizing the African Roundtable on Sustainable Consumption and Production' that is implemented by UNEP with a financial support from the Government of Norway. The objectives of the project are to:

- Support the institutionalization of the African Roundtable on sustainable Consumption and Production as a regional networking mechanism;
- Strengthen the activities of existing National Cleaner production Centres and facilitate the establishment of new ones.
- Promote the integration of sustainable consumption and production in national development policies and strategies;

For more information, please contact

United Nations Environment Programme

Regional Office for Africa

P.O.Box: 30552

Phone: +254 20 62 4044

Fax: +254 20 62 3928

Email: desta.mebratu@unep.org, sekou.toure@unep.org