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 African Roundtable was initiated with the view to facilitate the development of national and regional capacities for sustainable consumption and production and promote the effective implementations of the concepts and tools of sustainable consumption and production in African countries. The project on ‘Institutionalizing the African Roundtable on Sustainable Consumption and Production’ is implemented by UNEP with a financial support from the Government of Norway.
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1. Report of the Roundtable on Sustainable Consumption and Production ..............


3. The Casablanca Statement on Sustainable Consumption and Production in Africa

4. The Charter of the African Roundtable on Sustainable Consumption and Production .................................................................
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALCAN</td>
<td>African Life Cycle Analysis Network</td>
</tr>
<tr>
<td>APINA</td>
<td>Air Pollution Information Network Africa</td>
</tr>
<tr>
<td>ARSCP</td>
<td>African Roundtable for Sustainable Consumption &amp; Production</td>
</tr>
<tr>
<td>CMPP</td>
<td>Morocco Centre of Cleaner Production</td>
</tr>
<tr>
<td>CPCT</td>
<td>Cleaner Production Centre of Tanzania</td>
</tr>
<tr>
<td>ECPC</td>
<td>Ethiopian Cleaner Production Centre</td>
</tr>
<tr>
<td>EMP</td>
<td>Environmental Management Plan</td>
</tr>
<tr>
<td>FDI</td>
<td>Foreign Direct Investment</td>
</tr>
<tr>
<td>IPP</td>
<td>Integrated Product Policy</td>
</tr>
<tr>
<td>KNCPC</td>
<td>Kenya National Cleaner Production Centre</td>
</tr>
<tr>
<td>LCA</td>
<td>Life Cycle Assessment</td>
</tr>
<tr>
<td>MEAs</td>
<td>Multilateral Environmental Agreements</td>
</tr>
<tr>
<td>MDGs</td>
<td>Millennium Development Goals</td>
</tr>
<tr>
<td>MNCPC</td>
<td>Mozambique National Cleaner Production Centre</td>
</tr>
<tr>
<td>NCPCs</td>
<td>National Cleaner Production Centres</td>
</tr>
<tr>
<td>NCPC-SA</td>
<td>National Cleaner Production Centre South Africa</td>
</tr>
<tr>
<td>NCPC-Z</td>
<td>National Cleaner Production Centre Zimbabwe</td>
</tr>
<tr>
<td>NEPAD</td>
<td>New Partnership for Africa’s Development</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Cooperation</td>
</tr>
<tr>
<td>SCP</td>
<td>Sustainable Consumption and Production</td>
</tr>
<tr>
<td>MSMEs</td>
<td>Medium, Small and Micro Enterprises</td>
</tr>
<tr>
<td>UCPC</td>
<td>Uganda Cleaner Production Centre</td>
</tr>
<tr>
<td>UN DESA</td>
<td>UN Division for Economic and Social Affairs</td>
</tr>
<tr>
<td>UNEP DTIE</td>
<td>UNEP Division for Technology, Industry and Economics</td>
</tr>
<tr>
<td>UNIDO</td>
<td>United Nations Industrial Development Organization</td>
</tr>
<tr>
<td>WSSD</td>
<td>World Summit for Sustainable Development</td>
</tr>
<tr>
<td>WTO</td>
<td>World Trade Organization</td>
</tr>
</tbody>
</table>
1.0 Introduction

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.

To play a role in CP promotion, UNEP DTIE’s Cleaner Production Programme was launched in 1989, when the immediate task then, was to create awareness of the concept, build institutional capacities and demonstrate its benefits to foster sustainable development. There have been three major stages of CP development since then. The first phase focused on the early 1990s, a period that saw individual promotion of the CP concept by organisations as well as bilateral CP programmes (e.g. EP3, DANIDA and NORAD). The task then focused on creating awareness of the concept, building institutional capacities and demonstrating its triple bottomline benefits.

The second phase of CP development was between 1994 and 2000, when UNEP and UNIDO CP programmes gained prominence, implemented through establishment of National Cleaner Production Centres (NCPCs) to accelerate dissemination of the concept. UNIDO started, in 1994, to set up National Cleaner Production Centres (NCPCs). Since then, nearly 31 National Cleaner Production Centres and Programmes have been established. Of these, some are fully established and receive no further programmatic funding from UNIDO, while others are still in the process of being built up.\(^1\)

In the post-2000 phase of CP development, the number of CP promoting groups has expanded and the concept is now a flagship program of not only UNEP DTIE but also several organisations in the world that have adopted and adapted it. The emphasis on CP in this third phase is more on action and the establishment of an enabling framework embodying the spirit of partnership. The nine NCPCs established in Africa have so far been the principal promoters of sustainable consumption and production (SCP) in the region.

1 Details www.unido.org/
An initial evaluation of CP and SC activities in Africa was presented at the second African Roundtable on Cleaner Production and Sustainable Consumption (ARCP 2) held in Arusha, Tanzania in March 2002. Experiences on CP implementation from various countries were shared and key emerging lessons fed into the WSSD preparatory process as well as the 7th High Level Seminar on Cleaner Production in Prague in April 2002. Individual NCPCs took up the challenge to implement the recommendations from ARCP 2 in their countries with a view to reporting progress at the subsequent roundtables.

At the time, it emerged that the environmental gains achieved by CP programmes were being offset by consumer trends on the demand side, making it necessary to rethink how such gains could be enhanced. Later in 2002 at the WSSD in Johannesburg, the links between consumption and production were highlighted as a key issue to address. At its conclusion, the WSSD called for more holistic approaches to address production and consumption systems simultaneously, through frameworks for action in which producers and consumers can move together towards sustainable development.

Two years down the line, it is imperative to assess what relevant sustainable consumption and production activities have been implemented and identify key drivers (including responses to Johannesburg and ARCP 2) which motivated such actions and achievements. It is against this background that the NCPCs were engaged to submit national status reports on SC and CP activities over the 2002-2004 period for presentation at the ARSCP 3 held in Casablanca, Morocco over the period 17 – 20 May 2004. The combined Regional Status Report 2002-2004 presents the key findings from the nine NCPCs established in Africa.

This report elaborates the industry-environment nexus in Africa (based on the eight countries reported) and evaluates the SCP activities accomplished between 2002 and 2004 in response. It further reports on factors that motivated the adoption of these activities and highlights the challenges and constraints faced in the process of implementing them. Further to that, an analysis of reported trends in the adoption and performance of SCP activities in Africa’s industrial sector is made, as is the adequacy of proposed future strategic responses by the NCPCs. The report finally proposes appropriate benchmarks against which the design of future SCP strategies by interested stakeholders in Africa may be guided.
2.0 Status of Industrial Development in Africa

2.1 Impact on Economic Development

Most CP activities were driven by NCPC programmes that have so far focused on the industrial sector, despite enormous potential opportunities in the agricultural and other key sectors of economy. It is for this reason that this report will solely focus on the Industrial sector. South Africa remains the largest, most diverse and sophisticated economy in Africa, with a GNP of about US$ 13.4 billion—over four times of many African countries. Its mineral sector contributes 10% to total GDP. The food and beverage processing contributes about 2.4% to total GDP and 4% to total exports. Food processing accounts for 13% of manufacturing employment and 12% of manufacturing value. Chemical processing is, however, the largest manufacturing sub-sector in the South African economy, accounting for 20% of manufacturing GDP and around 5% of total GDP. South Africa is home to many large-scale industries and multinationals.

SMEs dominate and play a critical role in national economies of other African countries. In countries such as Mozambique, this role was only realized in the 1980s owing to sustained civil war, which sent the industry sector suffering for over 25 years. Kenya’s trade and industry sectors combined contribute to 20% of GDP, employing 300,000 people in the formal and another 3.7 million in informal occupations. Averagely, however, the contribution of the industrial/manufacturing sector to the GDPs of individual countries in the region is significant, ranging from 5 to 20% (such as 13% for Kenya and 8% for Tanzania) and growing steadily in many countries. For example, the per annum growth rates reported include Ethiopia at 2%, 1.2% Kenya, 6.6% Uganda and 1% in Tanzania. The sector is employing between 5 and 15% of the economically active population in Africa.

The manufacturing sector in Zimbabwe is operating at below 60% capacity. The sector’s contribution also decreased (as a result of the economic decline) to 14% of the GDP and 10% of Zimbabwe’s labour force in 2002. It also recorded a negative growth rate of between 5 and 10%. The economic decline in Zimbabwe has led to the massive brain drain and loss of human capital through the emigration of an estimated 2 million skilled Zimbabweans to other countries.

2.2 Composition & Impact of the Industrial Sector on Environment

Key industry/manufacturing sub-sectors vary greatly in diversity, across countries (size of economy) and in their relative importance to the economies of the countries. Key ones in the “giant” South African economy are Mining, Chemicals, Automobiles, Food and Agro-processing, Textiles, Tourism, Paper and Packaging, Metal Finishing, Electronics, Engineering,
Power generation, Building and construction, Services and Fishing. The industrial sector in other countries is made up largely of micro, small and medium enterprises (MSMEs). Most activities in the sector concentrate on manufacturing simple consumer goods such as sugar, beer, soap/detergents, vegetable oils, tobacco, textiles, cement, furniture and wood-based products.

Others include mining & quarrying, handicraft, construction, electricity and water, leather/tanning, chemical, metallurgy, electrical/electronics, rubber, paints, batteries, paper industries. Uganda has witnessed growth in sub-sectors including chemicals, paints, soap, beverages, tobacco and food processing following a major boost in foreign investment. There is, however, lack of proper records on the actual numbers of these enterprises—particularly the micro enterprises owing to their nature and distribution around the countries. The emerging Mozambican economy is dominated by micro enterprises (with less than 10 persons).

African countries are facing serious problems related to natural resource management and environmental pollution owing to rapid growth in urbanization and industrialisation. The Tanzanian Government has, for instance, identified six major environmental problems requiring urgent attention as land degradation, limited accessibility to quality water, pollution, loss of wildlife habitats and biodiversity, deterioration of marine ecosystems, and deforestation. There are growing cases of industrial pollution around the capital cities and other key economically important towns in the countries.

Examples exist to demonstrate the severity of unsustainable production processes. For example, over 90% of industries in Ethiopia discharge effluents untreated in water bodies and open land. Similarly, 35% of all factories in Maputo, Mozambique are chemical industries whose effluents are discharged untreated into the Matola River, ending up in the Indian Ocean. Another 34% of wastewater in urban areas in Zimbabwe emanates from local industries. A peculiar observation of concern is that about 97% of all Moroccan industrial water demand goes to chemical industries, of which 89% is released as untreated effluent into local water bodies!

Solid wastes and air emissions are also a growing nuisance from African industry. For instance, according to the Moroccan NCPC report, about 1 million equivalent tons of fossil fuels are burnt each year in Moroccan industrial facilities, generating 2 million tons of carbon dioxide—a greenhouse gas with potential to cause global warming. The major sources of greenhouse gases in Zimbabwe are energy, industrial processes and agriculture. Metallurgical processing and cement production are also key contributors to greenhouse gases. Average concentrations of NO₂ and SO₂ have also increased significantly over the past few years. Hazardous solid wastes from various Moroccan industries including phosphate industry, thermal plants and the oil industry are also a cause of concern to sustainability goals. On its part, the Kenya Government is currently grappling with pollution associated with polythene and plastic-based wastes.
3.0 SCP Activities Accomplished in 2002-2004

Over the period 2002-2004, NCPCs had their work programs focus on three key activities, which this report classifies as awareness raising and training, demonstrations and assessments, and CP-related technical support. It is these three that are herein reported. Other activities would include CP policy, product related work and consumer awareness initiatives. The following subsections present and discuss the activities accomplished over the two year period under the three categories considered.

3.1 Awareness Raising & Training

Spreading awareness of the CP concept through examples has been one of the major strategies towards improving both acceptance and understanding of CP across a wide range of stakeholders. Various stakeholders in different countries implemented various activities in the realm of SCP over the 2002–2004 period. Apart from South Africa and Mozambique, which reported implementation by a wider range of stakeholders, the rest of the countries reported on actions by the NCPCs themselves. Activities by NCPCs involved mainly awareness raising and training seminars for SME staff on CP and Environmental Management Systems (EMS), industry CP assessments, policy advice to governments and technical assistance on EMS implementation. Table 1 summarizes key findings from the eight country reports with regard to CP awareness raising and training activities. It reports the number of seminars convened by the NCPCs, the organisations that took part as well as the number of participants who benefited from the seminars and workshops organized. Detailed analyses of the findings are presented in Annex 1 of this report.

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Seminars</th>
<th>Number of Organizations</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethiopia</td>
<td>-</td>
<td>139</td>
<td>560</td>
</tr>
<tr>
<td>Morocco</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mozambique</td>
<td>13</td>
<td>85</td>
<td>189</td>
</tr>
<tr>
<td>Kenya</td>
<td>34</td>
<td>238</td>
<td>1800</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Uganda</td>
<td>27</td>
<td>-</td>
<td>938</td>
</tr>
<tr>
<td>South Africa</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tanzania</td>
<td>6</td>
<td>13</td>
<td>200</td>
</tr>
</tbody>
</table>

a These include training sessions and awareness workshops and in-plant demonstrations
b Include SMEs, industry associations, universities and local authorities
In addition to the numerous challenges that significantly hampered the success of the CP programmes across the countries, NCPCs in the region also had different resource endowments, programme strategies and plans over the period, hence the large variations in the number of activities implemented.

### 3.2 CP Demonstrations & Assessments

Many demonstration projects have been launched to convince industrial leaders of the economic and environmental benefits of CP. Sectors where most of the demonstrations were performed have been mainly textiles, metal finishing and tanneries. A reasonable number of CP assessments and pre-assessments have also been carried out by the NCPCs since 2002, considering the Centres’ small staff sizes and the difficulties they face in accessing many production premises. Table 2 presents the number of CP assessments implemented by the Centres across the eight countries.

Convincing examples include the outcomes from the KNCPC’s Cleaner Enterprise Program, in which 25 enterprises in four Kenyan towns spanning a range of industry sub-sectors had a total of 150 pollution prevention measures implemented. Total annual savings realized by the Program include about US$ 698,000, a reduction in wastewater generation of 30-50%, and organic and chemical pollution reduction by 20-30%.

In Ethiopia, the implementation of 90 CP options over the period realized an annual saving of US$ 105,000 and annual environmental benefits in terms of reduced chemical release of 107,560 kg, wastewater reduction of 11,623 m$^3$ and solid waste reduction of 260,348 kg. Despite these and many other convincing results, most entrepreneurs and decision makers in industry in most African countries are yet to change their minds to adopt the CP concept.

### Table 2. Summary Report of CP Assessments and Technical Support Initiatives

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Assessments</th>
<th>Nature of Technical Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethiopia</td>
<td>6</td>
<td>Information provision, EMS development</td>
</tr>
<tr>
<td>Morocco</td>
<td>22</td>
<td>Advice for MEA implementation</td>
</tr>
<tr>
<td>Mozambique</td>
<td>29</td>
<td>Development of EMPs</td>
</tr>
<tr>
<td>Kenya</td>
<td>25</td>
<td>Advice on CP techniques and technologies, University curriculum development</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>-</td>
<td>Emission monitoring, Policy advice to government</td>
</tr>
<tr>
<td>Uganda</td>
<td>31</td>
<td>Advice for Ecodesign project; Information support, University curriculum development</td>
</tr>
<tr>
<td>South Africa</td>
<td>-</td>
<td>Advice on LCA use; project development; course development for industry associations.</td>
</tr>
<tr>
<td>Tanzania</td>
<td>13</td>
<td>-</td>
</tr>
</tbody>
</table>

$^a$Including pre-assessments and rapid CP scans
3.3 *CP-related Technical Support*

A wide range of technical support services was also rendered to industry over the report period 2002 – 2004. These are reported in Table 2. They included collecting, collating and distributing information to needy industries, development of EMS, review of curricula at universities, CP-based policy advice to governments, technology assessments, Ecodesign-based product development and carrying out environmental assessments. As evidence from South Africa and Mozambique demonstrates (Annex 2), there is a possibility that many CP-related activities are going on in a number of stakeholder institutions in the various countries. However, these have not been reported by the national status reports of most countries. Such developments need to be captured among the gains made over the past two years.
4.0 Opportunities That Favoured SCP Activities

4.1 National Environmental Policies and Legislation

Policies and legislative instruments exist to govern environmental management in the countries covered by this report. CP and SC \textit{per se} are not specifically legislated in the countries today. Similarly, there are no legal instruments that can be used to enforce the reduction in the wastage of electricity and water. There are, however, a number of laws and overarching policies that are aimed at sustainable development and sound environmental management, and which are relevant and consistent with CP requirements. In some countries such as Ethiopia, however, these instruments seem to put emphasis on pollution control. Table 3 shows the lead legislation for the protection of the environment in each of the countries.

Uganda presents a unique case of SCP legislated—demonstrating that it is possible to incorporate the concept into national policy and legislation. Through fora such as the ARSCP, other countries may learn from Uganda how this can be achieved. The country’s National Environment (Waste Management) Regulations of 1999 require industries to adopt cleaner production methods including:

- Improvement of production processes through conserving raw materials and energy, eliminating the use of toxic raw materials, and reducing toxic emissions and waste;
- Monitoring the product cycle from beginning to the end by identifying and eliminating potential negative impacts of the product, enabling the recovery and use of new products where possible and reclamation and recycling; and
- Incorporating environmental concerns in the design and disposal of products.

\begin{table}[h]
\centering
\caption{Lead environmental protection legislation in various African countries}
\begin{tabular}{|l|l|}
\hline
Country       & Legislation                                \\
\hline
Mozambique    & Environmental Law of 1997                  \\
Ethiopia      & National Environmental Policy              \\
Kenya         & Environmental Management and Coordination Act of 1999 \\
Uganda        & National Environment Statute of 1995       \\
Tanzania      & Environmental Management Bill (2004)       \\
Zimbabwe      & Environmental Management Act              \\
\hline
\end{tabular}
\end{table}
All the countries covered by the report are Parties to important Multilateral Environmental Agreements (MEAs), key among these being the Climate Convention (UNFCCC), Basel and Vienna Conventions and are actively involved in activities towards the Stockholm (POPs) Convention. However, only the newly enacted Zimbabwean legislation makes specific provisions for domestication of MEAs.

4.2 SCP Promoting Institutions

The overall coordination of environmental pollution management in most African countries is charged to either a department in the Ministry in charge of environmental affairs or to a designated statutory authority. Other institutions that have a defined role to play towards sustainable consumption and production include government ministries of Water, Trade & Industry, and Local Government. Others are universities, business associations, chambers of commerce and industry and consumer associations. Of the NCPCs, only the Tanzanian one is an independent, legal entity having been incorporated as a Trust under Cap 375 of the country’s laws.

4.3 SCP-Relevant Programmes

Various programmes also exist in many countries to complement pollution management initiatives by the public sector. These range from government-supported programmes (such as the National Environmental Management Programme—NEMP in Mozambique) to donor-funded activities hosted by local private or public institutions. These include the German/Moroccan bilateral cooperation project (FODEP, 2001-2003), the National Cleaner Production Centres in all the eight countries as well as POPs and Industrial Energy Efficiency projects in many of the countries. Further examples include the Cleaner Production for Ecologically Sustainable Industrial Development in Tanzania (1999-2004), a NORAD funded initiative, and the National Cleaner Technology Strategies (2004) supported by UN DESA.
5.0 Constraints in Implementing SCP Activities

Despite the well-documented economic and environmental benefits associated with implementing CP in the 2002-2004 period, businesses have reacted slowly to adopting and adapting to CP. Some key constraints that were associated with implementing CP in the countries can be broadly categorized as attitudinal, systemic, organizational, technical, economic and governmental as follows:

Attitudinal

- General resistance to change
- Fear of additional taxation upon disclosing economic benefits originating from CP adoption
- Regarded by employees as time-consuming exercise without added benefits for them

Systemic

- Low awareness by government and entrepreneurs on the potential benefits in CP adoption
- Low numbers of qualified staff at the NCPCs
- Lack of culture to measure and keep data/records on relevant to production. This makes it difficult for decision makers in enterprise to appreciate the value of inputs being wasted into the drain and to the extent of the contribution of their operations to environmental pollution.
- Enterprises employing cheap labour consisting staff with low levels of education even at supervisory level—as well as using inefficient management systems. Compounded by lack of systematic training of employees, this leads to limited enterprise capacity to absorb new and innovative ideas on CP and SC.

Government

- Lack of appropriate laws on pollution management in some countries
- Weak enforcement of environmental legislation. Even so, the environmental laws in many countries are largely reactive, CP not well defined in the Act.
- Weak recognition of CP and SC in most industrial development policies

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2 Many case study publications available from UNIDO and UNEP and these have been made available to entrepreneurs in addition to the few local demonstration cases developed before 2002.
• Absence of enforceable national pollution standards in many countries. Local authority by-laws are also outdated and weakly enforced.
• Lack of appropriate consumer rights, policies and legal instruments for promotion of sustainable consumption.
• Incoherent policies and legislation on natural resource management, e.g. wood energy policies in many countries, which forbid charcoal production, yet allow charcoal use.

Organizational

• Absence of collaborative projects and exchange programmes in the region and beyond, to facilitate experience sharing to promote CP & SC and product innovation
• Centralized decision making especially in private or family-owned enterprises. Other employees are not motivated to make any improvements for the sake of the company.

Technical

• Lack of capacity for product development attributed to absence of product design & development components in human resource development programmes
• Weak institutional capacity to measure a wide range of pollution parameters in industry due to lack of basic instruments e.g. monitoring equipment, accessories, etc that could also contribute to income-generation.
• Wide scale reliance on obsolete technologies

Economic

• Financial instability and insecure future of the NCPCs
• Under pricing and abundance of natural resources such as groundwater, forests, etc are a disincentive in the implementation of CP programmes.
• Lack of appropriate financing mechanisms for CP investments
• Poverty. This has compelled communities to choose short-term consumption patterns, which could have more detrimental effects to human health and environment in the long run.
6.0 Analysis of Current CP & SC Trends

6.1 Framework for the Analysis

To assess the social, economic and environmental impacts the implemented CP and SC activities in the region may have had, a guiding framework defining the domain of the analysis is critical. This is briefly described in this section. A two-prong approach is adopted in the current case. First, the nature of the industry-environment nexus in the study countries in the region (as a result of the reported growth) is assessed the impacts of the response SCP examined with respect to scales achieved and potential for sustainability. Secondly, the range and quality of responses proposed by the NCPCs is analysed to determine the diversity of drivers, key gaps in them, and recommendations for filling them proposed.

Range refers to the number of diverse options at the disposal of the NCPCs to address the major SCP concerns raised by the Regional Status Report 2002–2004 while quality refers to the extent to which, inter alia, proposed strategies will aim to broaden the scope of responses from CP to SC; the strategies factor in context-relevance to country and region; the strategies promote knowledge networking; and contribute to national obligations to international treaties and regional development processes.

6.2 State of Industry and Impact on Environment

South Africa is the largest, most diverse and sophisticated economy in the region. It is also home to many large-scale industries and multinationals. On the other hand, SMEs dominate and play a critical role in national economies of other African countries. It is clear from the national status reports that the industrial/manufacturing sector is a major employer (employing between 5 and 15% of the economically active population in Africa) and a significant contributor to Africa’s economy (contributing between 5 and 20% of individual countries GDPs) and is generally growing, albeit slowly with per annum growth rates of various countries ranging between 1 and 7%. At the same time, there is clear evidence from Uganda, Mozambique and Zimbabwe experiences that political instability can be severely damaging to industrial growth.

Key industry/manufacturing sub-sectors vary greatly in diversity, across the countries and in their relative importance to the economies of the countries. Although the larger economies boast large industries such as mining, chemicals and automobiles, smaller economies are made up largely of medium, small and micro enterprises (MSMEs) that manufacture simple consumer goods including foods, beverages, soap and detergents, textiles
and tobacco. Most of these are operating on obsolete technology, leading to growing cases of industrial pollution around the capital cities and other key economically important towns in the countries.

6.3 **Analysis of Current SCP Activities**

Apart from the relatively high numbers of participants and institutions that took part in these awareness-raising and training seminars across the continent, it is difficult to establish the real impact made on the ground by the trained participants—locally in an institution and in scale—following the seminars. Numerous consultants have been trained at the NCPCs in the region, though it is not clear what role these consultants have played in providing such technical support. The same concern exists for other institutions such as universities. It is also unclear the nature of metrics needed to measure such impacts. The ability to translate the knowledge acquired from seminars into CP and SC actions in their respective occupations would be the ultimate measure of impact.

Furthermore, such assessments need to be prioritized by the NCPCs. This way, CP planners would, for instance, know how many university or polytechnic courses have been developed specifically for CP or incorporated components of CP; whether the lecturers trained are actually delivering as trained; or have been hindered by institutional rigidities typical in most state institutions. The assessments would also enlighten us on the nature of follow up activities required and whether extension services would be needed. In general, however, there’s an increase in activity towards strengthening training curricula at institutions of higher learning in the region to include aspects of CP.

The evidence adduced so far points to the NCPCs as being the real drivers of the CP concept in the various countries. However, the ability of these Centres to deliver better results is hampered by various factors including low funding and understaffing. Considering their limited capacities, these NCPCs have achieved so much, though overall, not enough to create national-level impacts. Clearly, strategies to enable NCPCs play a greater role towards scaling up these small, localized impacts are obviously desirable.

Although strategic partnerships are important in the implementation of CP, few such partnerships were created and nurtured by some NCPCs over the 2002-2004 period. In most cases it was the NCPCs designing and implementing projects e.g. seminars attended by interested entrepreneurs, the academia and communities. Other CP promoters hardly took the lead in spearheading CP and SC activities. Through creative partnerships, some NCPCs have depended so much on some companies’ facilities to demonstrate to others the CP concept and allied technologies. Other innovative partnerships include the Waste Minimization Clubs in South Africa. There is therefore potential in increased partnerships with other stakeholder institutions (mainly private sector and communities) in a given country and region. Similarly, there is need to shift to knowledge networks involving a wide range of stakeholders in the region and abroad mainly to support research and development and transfer of technology supportive of CP and SC objectives.

Financing still remains a major impediment to the wider adoption of CP in African countries. Donor funding has been an important avenue of initiating CP activities in many countries in
the region. However, these have been few and unsustainable in the long-term. Although good results have emerged from CP implementation in a number of countries—they have not been sufficient enough to motivate key decision-makers in the financial sector to pursue CP investments. A substantial segment of extremely small businesses and entrepreneurs, characteristic of many countries in the region, fail to qualify for many existing institutional financing mechanisms such as those of the World Bank and most local commercial banks. Therefore, unless alternative innovative financing options emerge in the short to medium term, it is likely that CP and SC activities will remain NCPC-guided, donor-funded, programme/project based—hence unsustainable. However, there is much for Africa to learn on innovative CP financing from partners in Eastern Europe.

There are differences in the adoption of CP in various countries in the region. For instance, there are countries such as Uganda where CP is already getting mainstreamed into the national policy and regulatory framework, while there are countries where CP is still at its infancy. Needless to say, political will and governance systems (which vary from country to country) play a major role in mainstreaming of new technologies in national economies. It can be inferred that the CP concept in Africa is still at its infancy. Most existing CP activities seem to be NCPC driven projects and other bilaterally funded programmes.

The enabling environment for CP adoption across the countries in the region is generally poor, plagued with numerous barriers ranging from lack of access to finances, information on emerging clean technologies, insufficient human and technical capacity, negative attitudes, weak policies and regulations, etc. However, the review also shows a disconnect between the achievements made on CP adoption and the existing situation of the enabling environment. Some countries such as Kenya have too many barriers yet numerous CP initiatives have been reported. This calls for research into the enabling environment, and its influence on CP promotion in the different African countries.

Since the CP inception in the region, activities have been initiated and guided by NCPCs, largely focusing on processes in the manufacturing sector. Applications of CP in other important economic sectors, products and services have been minimal, if any. Despite great potential for application in key sectors such as agricultural and natural resources, opportunities are yet to be exploited. Such an approach would emphasize the integration of health and safety concerns in the CP approaches and stress the interrelationships between CP and SC. The limited resources available for capacity building would be channelled towards building CP skills to enterprises and communities involved in food production and natural resource handling.

It is expected that drivers for CP adoption will be different at enterprise, country or even regional levels. Understanding such well-defined drivers is crucial in developing national or regional strategic action plans for CP adoption. A review of the country reports finds no organized or clearly stated guiding policy for shaping future NCPC programmes. New CP activities should focus on identifying key drivers that would enable greater CP penetra-

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3 It is on these key sectors that most economies and livelihoods in the region depend.
tion and impact. Appreciating that these may vary from country to country, a set of generic criteria would be necessary to ensure that such drivers are forward looking.

Finally, three overarching challenges to CP and SC adoption across the countries seem to lie in, first, encouraging SMEs to adopt international standards on product quality management, safety, health and environment, secondly, developing CP demonstration cases that clearly show monetary gains from CP implementation in various classes of enterprises, and thirdly, making clear the link between CP and SC—an aspect that still remains obscure to many stakeholders around the region.
7.0 Analysis of Proposed Future Strategies

A number of drivers informing the design of future strategic focus in various NCPCs have been identified. Whereas some NCPCs (e.g. Ethiopia) involved a wide range of stakeholders in defining their future strategies, others were determined by Centre staff themselves. Another unique feature is the decision by South Africa, Kenya and Morocco NCPCs to divide their strategies into short, medium and long-term components based on urgency. Overall, however, the analysis reveals the following eight factors that seem to have been the main motivators for the actions identified in the strategic foci across the countries.

7.1 Building on Experience & Lessons Learnt

This factor carries most of the cases. Experience in implementing CP in the countries has taught NCPCs to narrow down the number of sectors in which to be involved in. As a result, many are opting to focus their activities initially in about 3 sectors, before expanding to others. At a country level, Ethiopia’s experiences have led the Centre to plan to implement five service modules that will entail assisting enterprises to prepare environmental policy statements, product declarations for exporters, rehabilitation scopes, training and reviewing EIAs and EMS, and support on developing eco-industrial parks. The KNCPC is set to pursue strategies aimed at identifying innovative CP financing options for SMMEs, in light of the unconvinced formal financial institutions. It also plans to expand its reach to many other towns, moving beyond the four towns its activities have previously been confined to.

The Ugandan NCPC plans to focus its energies on assisting SMEs adopt Integrated Pollution Prevention strategies aimed at initially achieving compliance to the country’s National Environmental Management Authority’s (NEMA) standards and moving on to self-regulation. The CPCT in Tanzania is set to go only for demand driven activities. What that implies is that, the Centre’s future strategy will build on past experiences and utilize its strengths and emerging opportunities to select CP and SC activities to engage in. The need for greater awareness on SCP issues—mainly the distinction between CP and SC is of great concern to the Zimbabwe NCPC. Its strategy will emphasize seminars on SCP for groups comprising more stakeholder classifications.

7.2 Financial and Institutional Sustainability of NCPCs

The concern about NCPC financial stability and overall sustainability runs across all Centres. To try and secure their future, some of them are including in their strategies activities aimed at generating some income. For example, the Ethiopian Centre will strengthen
its engagement in technical advisory services to boost its earnings. In addition, it will also widen the base and strengthen the functioning of its Advisory Board. The Moroccan NCPC will aim to occupy a solid market position within the country, attracting national clients and support as well as additional international funding for instance through implementing MEAs. The Tanzanian CPCT delights in its newfound legal status as a Trust, a status it plans to exploit in fundraising from all possible sources.

7.3 Developing Critical Mass for Implementing SCP Activities

The low numbers of qualified staff at the NCPCs and other CP institutions has perhaps been the biggest undoing for the wider dissemination of the concept in industry. Some Centres have a deliberate plan to incorporate capacity building activities in the proposed strategies—although some Centres have already initiated some activities in that regard in collaboration with universities. Morocco plans to initiate processes aimed at strengthening university curricula in science and engineering by incorporating CP components. Zimbabwe is particularly concerned about the weak product development capacity in the country’s CP institutions and will put in place response initiatives starting with NCPC staff themselves before moving on to others including the universities.

7.4 Responding to National Development Policies

The need to contribute towards the implementation of national development policies and plans is contributing towards the shaping of future strategies in some NCPCs. For instance, Mozambique NCPC will pursue industry-relevant activities aimed at contributing to sustainable development in general and poverty reduction in particular, as prescribed in its national development plans and programmes. The same is with the South African NCPC, which will focus on designing and implementing many programmes for technical training and capacity building targeting the local authorities.

7.5 Demand for Foreign Investment

This is a driver that seems to exclusively drive the future strategy for Mozambique. The country is in dire need of foreign investment to increase the number of SMEs operating in the country. This seems to have worked in Uganda, which has seen an increase in industrial development—mainly SMEs—owing largely to improved donor confidence hence foreign investment flows. Mozambique is currently dominated by micro enterprises, probably offering a unique set of challenges for the CP and SC community. Its future strategy will consist of activities aimed at lobbying the government to remove fiscal barriers to, inter alia, clean technology acquisition so as to attract the much-needed FDI. Such FDI would then be targeted towards rehabilitation and modernization of the Mozambican industry.

7.6 Demand for Coherent Policies, Legislation and Institutions

The status of policies, laws and institutional arrangements are not in favour of efficient CP and SC adoption and adaptation. Some Centres are intent on prioritizing this challenge in
their future strategies. Mozambique NCPC, for example, aims to pursue the integration of environmental provisions into the country’s investment laws and policies. The South African NCPC will aim to contribute towards law and policy review by following up the integration of CP considerations into technological and financial support programmes for SMMEs. Similarly it will assist in the integration of the CP strategy into government programmes. A major challenge the Centre is set to surmount is the lack of coherence among the mandates of key government departments including the South African departments for trade and industry (DTI), environmental affairs and tourism (DEAT), water, agriculture and lands (DWAL), science and technology (DST), minerals and energy (DME), labour (DL) etc. The non-coherence in policies and programmes among government institutions is not unique with South Africa alone, hence, its success will be a lesson much awaited by other NCPCs.

7.7 Response to key International Agreements

A number of NCPC will be devoting a significant amount of their resources in developing programmes and projects aimed at contributing to their governments’ obligations to international agreements, particularly the MEAs and WTO agreements. The Kenyan NCPC will particularly pursue the design and implementation of CP projects aimed at contributing towards the implementation of key MEAs, mainly the Kyoto Protocol to the UNFCCC and the Stockholm Convention on POPs. These are said to have close linkages to industrial activities where preventive management approaches have already been developed. The KNPC’s agenda will also include the definition of entry points and development of appropriate action plans towards the local realization of MDGs (mainly Goal 7, on ensuring environmental sustainability, and Goal 8, on developing a global partnership for development).

The KNCPC will also design a strategy to innovatively support, encourage and promote the development of activities and programmes that will contribute to the ongoing development of a 10-year framework of Programmes proposed by the WSSD, aimed at accelerating the shift towards sustainable consumption and production. The KNCPC is also going to promote the Integrated Product Policy (IPP) adoption, for which it is developing programmes to support SCP through capacity building of SMMEs, CP practitioners, industries, local authorities, and central government to tackle environmental requirements in supply chains. Apart from MEAs, there are the WTO requirements, which CP could help entrepreneurs in the commodity export sectors to implement. In particular, concerns linked to pesticide residues and other sanitary conditions in horticultural exports have led to market access barriers affecting trade with OECD countries. The South African NCPC intends to invest resources in this area, targeting the promotion of CP to assist compliance with environmental standards and quality requirements. It will also enlist strategies to lobby the government to oblige to key international commitments to renewable energy.

The development of international partnerships is critical in implementing certain CP & SC projects on a regional or international basis. This is an area the Zimbabwean NCPC is keen on promoting strategic activities in. On its part, the KNCPC intents to link up with national, regional and international partners e.g. UNEP to achieve similar goals.
7.8 Demands for CP Success Examples

In most of the countries’ industrial sector, there is a high demand for tangible examples to demonstrate real monetary and environmental gains made through CP implementation owing to the “seeing-is-believing” attitude in most enterprise managers. South African NCPC plans to commit its resources in capturing all available data on environmental, social and economic gains of CP adoption in MSMEs to assist responding to this call. Also motivated by this demand is the Moroccan NCPC, which will put in place programmes to develop case studies demonstrating concrete benefits from CP adoption.
8.0 The Way Forward

Despite the progress made in the last two years (2002-2004) on SCP, much more still remains to be done. It is imperative that future strategies by SCP promoters ensure the institutional sustainability of NCPCs, broaden the scope of activities from CP to SCP, improve the context-relevance of SCP to African countries, and promote national and regional networking on SCP. These elements of the generic framework are elaborated as follows.

8.1 Ensuring Institutional Sustainability of NCPCs

Given their current legal status, most of the NCPCs are not able to attract financing from many potential sources. It is therefore critical that the appropriate models be adopted in registering the Centres ready to implement their strategic plans. They could take on new status as trusts, private or public company limited by government guarantee, etc as deemed fit from country to country. As soon as the SCP concept is popularized and a wider market understands the benefits, the NCPCs could provide support services and programmes on cost-recovery basis. Potential markets to target include mining and small-scale agricultural sub-sector involved in value added commodity export. These are key livelihood sectors in sub-Saharan Africa but whose fortunes are threatened by trade liberalization policies brought about by globalisation.

8.2 Broadening the Scope from CP to SCP

There has been much attention and focus on CP with limited activities in the area of SC—an equally important concept. In fact, products and services form a critical link between CP and SC. A formal integration of the two may provide a concurrent framework that guides producers and consumer behaviour on lines more aligned with the long-term objectives of sustainable development. This is in no way an easy task, but it is achievable. The SCP community could—with appropriate leadership—define their criteria for integrating the two concepts at national, regional or international circumstances. A good starting point for CP promoters would be developing activities to promote sustainable procurement. They could also make specific inputs to the Marrakech process aimed at developing a 10-year framework plan in support of regional and national initiatives to accelerate the shift towards SCP.
8.3 Improving Context Relevance of SCP to African Countries

Multilateral environmental agreements (MEAs) have provisions aimed at enabling disadvantaged nations and their governments to meet their commitments. Such include access to certain technologies, capacity building opportunities and project financing from more developed economies as well as secretariats of these agreements. It may therefore be strategic to strike a synergy between SCP and the implementation of various MEAs. The MEA of interest would be determined by the specific CP activities intended, and may vary from country to country. The Clean Development Mechanism (CDM) of the Kyoto Protocol would for example be appropriate for implementing energy efficiency systems in industry and lowering the energy budgets while earning the investors certified emission reduction (CER) credits.

Other MEAs that could be innovatively harnessed to contribute to development include the Stockholm (POPs) Convention, Basel Convention and the Convention on Biological Diversity (CBD) particularly with regard to sustainable forestry projects. NCPCs are faced with the challenge of eliminating potential barriers to successfully harnessing such synergies. They could position themselves strategically to mainstream CP and the relevant MEA provisions in national policies and regulatory frameworks. In addition, the Centres could start playing a proactive role in assisting local and national governments, business and communities to implement specific MEAs.

The concept of CP germinated in the manufacturing sector. This is where it still remains concentrated in Africa. Given the global shift of economies to services and infrastructure, there is now a need for a corresponding shift in CP focus as well. Although this has been achieved to some extent in the hospitality sector and some local authorities, much work still needs to be done in other sectors, especially those engaged in natural resource management, agriculture, services and infrastructure—where potential for SCP is high.

The way CP activities have been run in the region since inception tends to present the concept as an urban affair. Rural innovation in many African communities in agriculture, dairy farming and mining are still vibrant traditions and need to be supported by strategic interventions. Supporting indigenous initiatives such as these is critical in protecting and managing natural resources as well as sustaining rural livelihoods. Furthermore, indigenous innovations are the most sustainable as they address local situations the best. Cottage industries involved in processing primary agricultural and natural resource inputs make a fair contribution to rural economies.

8.4 Promoting National & Regional Networking on SCP

Information exchange is important and several initiatives have been taken in the region. However, most of these are supply driven and little work has been done to actually assess the real information demand related to CP. In fact most information data bases have tended to restrict themselves to manufacturing sector and its needs. They have therefore become mere conduits of generic information.
There is great need for information compilation to address issues of sustainable consumption since the link with sectors such as services, infrastructure, agriculture and resource management run deep. In future, CP information networks will have to shift to knowledge networks that can offer customized counsel to individual stakeholders on case-by-case basis as a value addition on the information provided. The role of the CP research community will be particularly crucial for the overall effectiveness of such networks, which should also include local CP expertise.

8.5 Contribution to Regional & Global Processes and Development Programme

a.) Integrating SCP in NEPAD’s Programmes

The NEPAD Science & Technology flagship programmes as well as those of its Environment Initiative are consistent with the aspirations of SCP in the region. NEPAD Science and Technology programmes call for the establishment of centres of excellence and knowledge networks in science and technology, reviewing of science and engineering training at tertiary institutions, and influencing integration of sustainability considerations into national development policies and programmes.

Education: SCP does not fit neatly into any one educational discipline. As a foundation to mainstream SCP and to ensure that it influences all the relevant stakeholders, inclusion of SCP concepts is necessary in all forms of education. The institutionalization of SCP needs to be formalized through education and development of specific training programmes culminating in certification, to build a credible accredited pool of SCP expertise. Uganda NCPC is already issuing CP certificates, which may prove a strong boost to developing a mature market for SCP.

Policy: SCP adoption would be faster if stressed through the national policy framework. CP has been relatively less used in developing land-use related and operational plans for guiding project siting and development, deciding on natural resource extraction or building infrastructure to support mobility, energy supply and human settlement. If SCP initiatives are to influence future development in the region, it will be imperative that SCP principles be explicitly integrated into planning and related anticipatory environmental management tools.

Centres of Excellence in SCP Promotion: SCP is best promoted through partnerships. The past model limited to donor funded projects and programs have proved unsustainable. It is critical that local level multi-stakeholder partnerships, guided prominently by NCPCs, are built to promote SCP on a self-sustaining basis. Increased role of the local private sector and community is particularly necessary.

Knowledge Networks around SCP: Recognition of the potential in life cycle approaches to contribute to development by the WSSD and its subsequent recommendation that the develop-
opment of SCP policies be based on scientific tools such as life cycle approaches provides a challenge for knowledge networks to spearhead the search for locally appropriate SCP adoption models. Application of life cycle tools is most likely to make a positive impact in Africa if they are incorporated in selected development policies and programmes targeting key areas such as energy development, mining and forestry, and agricultural export commodity sectors.

b) Targeting Opportunities in the WTO Trade-Environment Debate

The WTO processes have presented challenges as well as opportunities for developing country regions to address stringent export market standards—mainly quality, health and safety. CP could provide an excellent platform to address minimization of health and safety related concerns while meeting export market demands of codes of conduct, brands and eco-labels. The European Union also poses health and safety-based standards such as Eurepgap and Traceability requirements, which if not adhered to, African small-scale farmers are likely to loose commodity markets with severe repercussions for their livelihoods. NCPCs could initiate actions in collaboration with trade unions and consumer organisations as well as local authorities to demonstrate to producers the inherent economic, social and environmental gains of SCP. Such demonstration projects should focus on systems and life cycle thinking, and not merely technical retrofitting in order to foster multiplication.

There is also need to promote technology development and cooperation among SMEs through supply-chain approaches. This avenue is favourable because it driven through economy and competition, allows participation of medium and large-scale enterprises, and are intricately linked with trade, health and safety. NCPCs as lead promoters of SCP could actively participate in regional and national trade fairs—influential avenues for information exchange and interaction between expertise. A key fair in the region is the Hortic (the international horticultural/floricultural trade exhibition held annually in Nairobi) an event that brings together both big and micro entrepreneurs, local and multinational, growers, transporters, exporters, retailers, agrochemical firms, farm machinery dealers, refrigeration, IT and banking service providers. ESALIA, a UNIDO project could also launch exhibitions on leather technology in the region, focusing on demonstrating the success cases of CP adoption in the tanning industry.

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5 Paragraph 14c of the Johannesburg Plan of Implementation.
9.0 Conclusion

Although the role of the industry/manufacturing sector in Africa's economic development is growing, the negative environmental impacts accompanying this growth are worrying. However, the potential for CP to address this challenge has been demonstrated by case examples from various African countries. Since 2002, NCPCs in Africa have competently taken the lead in disseminating the concept mainly through awareness raising, training, demonstrations, site assessments and technical support. This has ensured significant economic and environmental gains to local industries adopting the concept. Key characteristics of the CP initiatives include the fact that these were donor funded, they focused more on processes in the manufacturing sector while paying negligible attention to other key economically productive sectors, products and services.

In the development of their strategic operational areas for the future, NCPCs are not guided by any formal policy. Although some proposed strategies seem forward looking in nature, they are piecemeal, and not consistent with sustainable development criteria. They are driven purely by the Centre’s interest. At a time when institutions and countries alike are engaged in the search for strategies to return industrial development back to the sustainability trajectory, appropriate strategic foci will have to ensure sustainability of the NCPCs; broaden the scope of operation from CP to SCP; improve the context relevance of SCP to the African situation; and promote national and regional networking. In addition, such strategies will need to contribute to and be informed by regional and global processes and development programmes such as those of NEPAD and WTO.
Reference

Cleaner Production: Global Status 2002, United Nations Environment Program.
http://www.emcentre.com/cpglblstatus/
UNIDO Cleaner Production documentation and information http://www.unido.org/doc/4460
UNEP/SETAC Life Cycle Initiative Project website www.unep.org/pc/sustain/lcinitiative/
www.iisd.ca/consume/mit.html

National Assessment Reports

Sustainable Consumption and Production in the Kingdom of Morocco 2002 – 2004. Leonardo Guiruta, MNCPC
## Annex 1: Key outputs from initiatives by African NCPCs between 2002 and 2004

### Main Outcomes

<table>
<thead>
<tr>
<th>Country</th>
<th>CP Awareness</th>
<th>CP Training</th>
<th>CP Assessments</th>
<th>Technical Support</th>
<th>Other</th>
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<tbody>
<tr>
<td>Ethiopia</td>
<td>255 participants from 50 organisations in in-plant sessions covering CP, energy conservation, CP-MEAs and EMS.</td>
<td>305 persons from 89 organisations trained on CP and ISO 14001: BMS implementation through workshops and in-plant sessions.</td>
<td>6 enterprises assessed. 2 firms reported real material and financial savings from CP adoption.</td>
<td>Different information gathered and distributed to selected industries. BMS development.</td>
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<td>Morocco</td>
<td>2 national seminars, several local and regional workshops held.</td>
<td>Various training activities on EMS, energy &amp; water conservation, EA BIA successfully implemented.</td>
<td>12 full in-plant assessments completed with UNIDO/SECO funding. 10 in-plant assessment completed with French Government funds.</td>
<td>Giving technical advice as members of National Council of Environment. Implementing the Montreal Protocol project on preparation of country programme update and the elaboration of the national survey on CFC gases.</td>
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<td>Mozambique</td>
<td>62 top company managers informed on CP through seminars.</td>
<td>72 production supervisors of selected firms trained.</td>
<td>34 CP pre-assessments and full assessments ongoing.</td>
<td>Centre offered technical assistance in the review of engineering curricula at Jomo Kenyatta University. Centre staff offers teaching services to an MSc Environ. Plan &amp; Mngt course at the University of Nairobi.</td>
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<td>Kenya</td>
<td>12 workshops on the application of CP in various areas, held reaching 1800 persons. Conducted 2-day CP awareness session for financial institution officials with funding from UNEP.</td>
<td>In-plant training held in 180 enterprises, 10 government departments, 4 municipalities, 14 NGOs, 15 private consultants, 10 university lecturers, 5 industry umbrella associations. 5 trained industries now ISO 14001 certified and embraced CP for continuous improvement.</td>
<td></td>
<td>Runs emission monitoring CP projects. Monitored SO2 emissions in three corporations. Providing support to firms to reduce strength and volume of wastewater discharge. Providing policy advice to both local and national governments. New strategic partnerships with private mining MNC to tap into technical and financial resources for development. NCPC a member of the National Sustainable Development Committee among other technical committees for natural resource management.</td>
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<td>Zimbabwe</td>
<td></td>
<td>One CP train-the-trainer course conducted in 2002.</td>
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<td>New strategic partnerships with private mining MNC to tap into technical and financial resources for development. NCPC a member of the National Sustainable Development Committee among other technical committees for natural resource management.</td>
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<tr>
<td>Uganda</td>
<td>27 awareness raising seminars held on CP, attended by 680 participants (since 2001).</td>
<td>49 persons receiving long-term (&gt;2 months) training while 99 are (undergoing short-term (&lt;2 months) training. 25 consultants in Uganda already hold CP consultant’s license. 13 training manuals and cartoon books developed. 85 CP assessors trained by UCPC are already applying know-how.</td>
<td>20 plants submitted to in-depth CP assessments, while 11 have allowed quick CP scans. 10 technical assistance activities have been implemented. One company already implemented Ecodesign product development with UCPC support. 10 requests for information support have been processed.</td>
<td>10 institutions including universities, consulting companies and national institutions have incorporated CP in their programmes and services after cooperation with UCPC 8 project proposals submitted to various donors.</td>
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<tr>
<td>South Africa</td>
<td>The CTP Project received technical support in developing strategy based on the Life Cycle Approach for the Cotton industry. Partners included Uni of Natal, Cotton South Africa, Danube-Denmark. CPMPi Project focused its CP activities on course development &amp; training as well as demonstrations for industry associations in electroplating and hot dip galvanizing industry.</td>
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<tr>
<td>Tanzania</td>
<td>6 awareness raising seminars held on CPSC &amp; MEAs. About 200 participants from industry, government, media and NGOs attended. Organised 2nd ARSCP in Arusha, March 2002, bringing together about 100 persons from around Africa. 20 technical personnel from 13 enterprises and institutions in Tanzania Municipality and suburbs completed and were awarded certificates for a 1-year capacity building programme on CP.</td>
<td>13 enterprises submitted to full in-plant CP demonstrations and assessments. Over 90 CP options identified of which 52% have already been implemented. Implementation of the remaining 48% to lead to US$ 140,000 in annual savings and better EH&amp;S.</td>
<td></td>
<td>Developed and implemented a number of CP projects on capacity building, feasibility studies, demonstration and awareness raising. 36 textile companies and 18 other organizations gained. These projects were requested by government departments (CGEAF and DTF) and funded by DANIDA.</td>
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### Annex 2: Key outputs from initiatives by other Non-NCPC institutions between 2002 and 2004

<table>
<thead>
<tr>
<th>Country</th>
<th>Institution</th>
<th>Key outputs</th>
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<tr>
<td>South Africa</td>
<td>Manufacturers</td>
<td>• 30 waste minimization clubs established in South Africa. These are either sector-based or geographically based. Participating companies are reporting substantial savings in resource use. More details at <a href="http://www.nu.ac.za/wasteminclubs">www.nu.ac.za/wasteminclubs</a>.</td>
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<td></td>
<td>Basel Convention Regional Centre</td>
<td>• The BCRC has collected a large amount of information on improved methods of hazardous waste management that can be shared and accessed by companies and projects. <a href="http://www.baselpretoria.org.za">http://www.baselpretoria.org.za</a>.</td>
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<td></td>
<td>Southern African Network for Training on the Environment (SANTREN)</td>
<td>• SANTREN has developed a number of CP-related training courses. Some of the courses are Internet-based commercial courses. <a href="http://www.santren.com/live/santren/content/938/">www.santren.com/live/santren/content/938/</a>.</td>
</tr>
<tr>
<td></td>
<td>Department of Trade &amp; Industry (the dti)</td>
<td>• The dti has been lending support to a number of local CP initiatives including DANIDA CP Projects, WMCS, and Ecolabelling initiatives. <a href="http://www.dti.gov.za">www.dti.gov.za</a>.</td>
</tr>
<tr>
<td></td>
<td>Department of Environmental Affairs &amp; Tourism (DEAT)</td>
<td>• DEAT has a CP Directorate. Together with the Norwegian Agency for Development, NORAD, DEAT is in the process of developing a National Strategy for Cleaner Production. <a href="http://www.dea.t.gov.za">http://www.dea.t.gov.za</a>.</td>
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<td></td>
<td>Gauteng Provincial Government (GPG)</td>
<td>• Recently approved an Integrated Cleaner Technology, Air and Water Pollution Control, Waste Minimization and Compliance and Enforcement Programme (DACEL).</td>
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<td></td>
<td>Western Cape Department of Environmental Affairs and Development Planning</td>
<td>• Has developed a Waste Minimization Guideline document for use in Environmental Impact Assessment (EIA) reviews. (WC DEAP)</td>
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<tr>
<td></td>
<td>eThekwini</td>
<td>• The philosophy of CP is now effectively implemented in the eThekwini metal finishing and textile industries, and has further potential in the city’s chemical and petrochemical industries. <a href="http://www.durban.gov.za">http://www.durban.gov.za</a>.</td>
</tr>
<tr>
<td></td>
<td>City of Cape Town</td>
<td>• The City council has commissioned the establishment of 7 waste minimization clubs in defined areas of specialization <a href="http://www.wastewise.org.za/index_wise.htm">http://www.wastewise.org.za/index_wise.htm</a> and <a href="http://www.beco.co.za">http://www.beco.co.za</a>. The city also has an Integrated WASTE EXCHANGE Program. This is a website that matches “waste material generators” and “waste material users”: <a href="http://www.capetown.gov.za/wie">http://www.capetown.gov.za/wie</a>.</td>
</tr>
<tr>
<td></td>
<td>Council for Scientific and Industrial Research (CSIR)</td>
<td>• The various business units at CSIR conduct CP assessments in their respective industry sectors such as the food sector, building, mining, manufacturing and materials, etc. <a href="http://www.csir.co.za">www.csir.co.za</a>.</td>
</tr>
</tbody>
</table>
### Educational institutions

- The Pollution Research Group (PRG), in the Department of Chemical Engineering at the University of Natal, Durban.
- University of Cape Town, the Environmental & Process Systems Engineering Research Group in the Department of Chemical Engineering, undertakes research in a number of CP-related fields. [http://www.chemeng.uct.ac.za/group/enviro/](http://www.chemeng.uct.ac.za/group/enviro/)
- Students at the following institutions have been part of skills transfer training in CP by the NCPC: Wits Technikon Chemical Engineering Department in Pretoria; University of Durban Westville; and Peninsula Technikon's Faculty of Engineering.

### Industry associations and other special interest groups

- Chemical and Allied Industries' Association (CAIA) played a key role in the promotion of voluntary industry initiative, the Responsible Care Programme. [http://www.caia.co.za](http://www.caia.co.za)
- Responsible Container Management Association of South Africa (RCMASA) promotes the reduction of container waste generation by encouraging reuse and recycle before disposal. [http://www.rcmasa.org.za](http://www.rcmasa.org.za)
- Institute of Waste Management (IWM) promotes environmentally acceptable, cost effective waste management. [http://www.iwmsa.co.za/](http://www.iwmsa.co.za/)
- Business Council for Sustainable Development (BCSD) promotes business role in environmental protection, and ensures that environmental issues are integrated in the corporate agenda. [http://www.ief.co.za/](http://www.ief.co.za/)

### Mozambique Business Forum for Environment (FEMA)

- Held 4 seminars on Environmental Audit for 74 participants in Beira and Maputo.
- Held 6 training seminars on Environmental Management Systems for 64 people in Maputo.
- Held 4 Environmental Monitoring seminars for 67 participants in Maputo and Beira.

### Ministry for Coordination of Environmental Affairs (MICOA)

- Working with other partners to promote CPSSC.
- Supporting national efforts to create public environmental awareness.
- Preparing educational materials.
- Coordinating international linkages for natural resource management.
- Developing environmental regulatory program.
- Monitoring environmental quality in Mozambique.
The Third African Roundtable on Sustainable Consumption and Production (ARSCP-3) consisted of two parts. The first part (17-18 May) was the Roundtable on Sustainable Consumption and Production which was organized in the context of the project on ‘Institutionalising the African Roundtable on Sustainable Consumption and Production’ that is being financed by the Government of Norway. The second part (19-20) was the First African Expert Meeting on Sustainable Consumption and Production in the context of the 10 Year Framework Plan on Sustainable Consumption and Production. This was organized in consultation with the Division of Sustainable Development (UN-DESA) with a financial assistance from the Government of Germany. A total of 65 participants from 24 countries representing government agencies, NCPCs, industries, academia and NGOs participated in the meeting.

Opening addresses were given, on behalf of the Royal Government of Morocco, by Mr. Rachid Talbi Alami, Minister of Industry, Commerce & Telecommunication and Dr. M’hamed El Morabit, the State Minister for Environment. Both Ministers expressed their appreciation to UNEP and its partners for organizing this meeting in Morocco and reaffirmed their commitment to support the agenda of sustainable consumption and production in the Region on the basis of the outcome of the Marrakech Meeting on the 10 Year Framework Plan. Mr. Allan Villard, UNIDO Representative in Morocco, made an opening remark on behalf of UNIDO. On behalf of UNEP, Dr. Desta Mebratu appreciated the support that has been provided by both ministries for the organization of ARSCP-3 and expressed UNEP’s support for the on-going effort of integrating environment into the national development strategies of the country. Welcoming remarks were also made by Mr. Hassan Chami, President of the General Confederation of Moroccan Enterprises and Mr. Majid Mouatlib, President of the Board of Morocco Cleaner Production Centre.

The Roundtable on Sustainable Consumption and Production was organized having four thematic focuses. These are: Regional status of sustainable consumption and production, innovative application of sustainable consumption and production (SCP) strategies, life cycle analysis and sustainable consumption, and the establishment of the African Roundtable on Sustainable Consumption and Production. The following is the summary report of the deliberations as per the thematic structure.\(^6\)

\(^6\) This report is prepared on the basis of the inputs provided by the session Reporters, namely: Mr. Debebe Yilma, Mr Silver Sebagala, Mr. Getachew Assefa, Mr. Philip Aquah and Dr. Mohamed Tawfiq,
I) **Regional status report on SCP**

This session consisted of a key note presentation followed by a panel discussion. The key note presentation was made by Dr. Desta Mebratu from UNEP. Dr. Mebratu described the three stages of development that has been witnessed since 1990 in the promotion of sustainable consumption and production in Africa. He underlined that National Cleaner Production Centres (NCPCs) are the principal promoters of SCP in the region supplemented by universities and other CP promoting institutions. He then described the existing institutional settings for the promotion of SCP in the region together with the highlight of the best cases of application. He identified weak legislative and enforcement basis, lack of institutional capacity, institutional sustainability concern and lack of financing mechanism for CP investment as the principal constraints. He further outlined the future strategic focus which included: ensuring the institutional sustainability of NCPCs, broadening the scope of activities from CP to SCP, improving the context-relevance of SCP to African countries, and promoting national and regional networking on SCP.

The panellists that participated in the panel discussion were Professor Cleo Migiro from Tanzania, Ms. Jane Nyakang’o from Kenya and Dr Chris Masuku from South Africa. Professor Migiro noted that although UNEP’s definition of CP which covers product, process and service already incorporates the consumption dimension most of the NCPCs were limited on the process side. Hence, he underlined the need to broaden the activities of NCPCs as per the basic definition and address the issue of consumption. Ms. Nyakang’o underlined the challenge that has been faced in terms of creating a sustainable institutional base for the NCPCs. She underlined the importance of organizing national roundtables on SCP in terms of facilitating the institutionalization process at the national level. Dr. Chris Masuku emphasized the importance of what the NCPCs bring to the competitive market in terms of service delivery. He noted that the NCPCs can only be financially sustainable if they are able to define their niche market and provide services to the industries on cost-recovery basis.

Participants of the roundtable gave different comments based on the key-note presentation and the input of the panellists. The following are some of the key points that were raised by the participants:

We need to involve groups and partners that are outside the NCPCs in order to promote SCP in the region;

It is important to address both the legislative status and the financial income of the NCPCs in order to ensure the institutional sustainability of the Centres;

The move from CP-focused activities to SCP-focused activities would require redefining the system boundaries under which the NCPCs and CP promoters in the region have been operating; and

The organization of the SCP roundtables at national sub-regional and regional levels is an important vehicle that facilitates information exchange and knowledge sharing.
II) Innovative application of cleaner production strategies

The part on ‘Innovative application of sustainable consumption and production strategies’ consisted of three sessions that were held on the first day of the Roundtable during which 10 presentations were made covering different topics. The first session was consisted of three presentations covering the application of SCP strategies and tools at different level.

The first presentation was made by Dr. Patrick K. Mwesigye, Director of Uganda Cleaner Production Centre (UCPC). The definition of the Eco-benefits was explained to represent Ecological and Economical benefits. The eco-benefits programme was started in May 2002 and the centre has completed three programmes up to March 2004. The period of one complete eco-benefit programme was selected to be ten months based on their experience in the centre. The Centre involves two experts from the enterprises and two other consultants to assist the enterprises. Each consultant pays USD 300 for the Centre while the fees from the enterprises are determined based on the size and turn over of the enterprises. The benefits derived from the programme were: increased awareness, increased national capacity to conduct CP assessments, environmental benefits and economical benefits as the result of efficiency improvement in water, energy and input material. The economic benefits have increased the competition between the enterprises and this has increased the demand for the programme in addition to the competitiveness in the industry sector. In spite of the achievements, the challenges faced were recruitment of the enterprises, involvement of small and micro enterprises (SMEs), drop out rate (though low), CP financing, obsolete technologies, etc.

The second presentation was entitled ‘Cleaner Production at Municipality Level: The Tanzania Experience’ and was presented by Mrs. Anne Magashi, Deputy Director of Cleaner Production Centre of Tanzania. The presentation included the introduction of CP, the CP strategy used in the two Municipalities (Mwanza and Tanga), the achievements, challenges faced and the conclusion. The activities included the identification, selection & enticing of stakeholders, awareness raising & capacity building programmes for the enterprises and municipalities. The achievements in the programme were the development of 190 CP options out of which 70% were implemented resulting in annual saving of about USD 772,000. The total investments required were USD 370000 while the payback period being in a range from instant to 2 years. The major challenge that was faced was the unfriendly relationship between the City/Municipal Council and enterprises. In the conclusion it was expressed that CP through Municipalities is an effective approach in Tanzania as most of the industries are located in urban centres and this has demonstrated a win-win strategy where all stakeholders (the Authority enterprises and the community) have benefited.

The third presentation was entitled ‘Accounting for Cleaner Production: Strategy for Sustainable Businesses and was presented by Mrs. Rosie Chekenya, the Director of ROSCAM strategic development consultancy. The presentation included the background which included the goal, efforts and achievements of CP and the challenges faced by CP promoters to access finance to implement investment requiring CP options. The issue dealt well in the presentation was ‘a business case for CP finance/ Total Cost Accounting
(TCA)', which explained the functions of Environmental Management Accounting (EMA) and compares the conventional accounting practices and EMA. The conclusions made were the need to adapt approaches to cost inventory and the use of EMA as it bridges the communication gap between financiers and environmentalists.

Similarly, the second session was consisted of three presentations from the Morocco Cleaner Production Centre, the Cleaner Production Centre of Tanzania (CPCT) and the Kenyan Cleaner Production Centre. The first presentation was made by Mr. Smail AlHilali, Director of the Morocco Cleaner Production Centre under the title ‘Application of eco-efficiency tools in Textile industries’. The presentation focused on the application of eco-efficiency tools that has been developed by a Swiss-based company called BASF in a dyeing section of a Textile industry in Morocco. It described the different steps involved in BASF tool for eco-efficiency analysis based o the review of the entire life-cycle of a product. Mr. Al Hilali noted the need to adopt the eco-efficiency tool so that it could be suitable for application at the SMEs level and the ‘Eco-efficiency Manager’ (EEM) that has been applied in the Morocco industry. He finally described the different results that have been obtained from the application of the tool and the measures that have been suggested to improve the eco-efficiency of the dyeing process.

The second presentation was made by Mr. Binelias Mindewa from the Cleaner Production Centre of Tanzania under the title ‘Cleaner Production and Multilateral Environmental Agreements (MEAs)’. Mr. Mindewa started his presentation by providing an overview of the various multilateral environmental agreements that have direct linkages with the promotion of cleaner production and sustainable consumption. He outlined the ratification and accession status of Tanzania with respect to the key MEAs. He then focused on the implementation of the Montreal Protocol for which the Cleaner Production Centre of Tanzania is serving as the national focal point. He further outlined the various benefits that have been obtained from the Centre’s participation in the implementation both in terms of facilitating the implementation of CP approach and getting recognition for the Centre. He finally concluded his presentation by underlining that the involvement of NCPCs in MEA implementation will facilitate the integrated implementation of the MEAs through the cross-cutting approach of cleaner production.

The last presentation for this session was made by Ms. Jane Nyakang’o, Director of the Kenyan Cleaner Production Centre under the title ‘The Role of Cleaner Enterprise Programme (CEP) in Environmental Governance in Kenya. She started her presentation by presenting the environmental policy and institutional set-up in Kenya and identifying the gaps for the promotion of sustainable consumption and production. She then described the ‘Cleaner Enterprise Programme’ that has involved 25 industries and has led to the development and implementation of 150 pollution prevention projects. Ms. Nyakang’o identified the promotion of self-regulation amongst the participating industries as one of the major achievement of the programme. She finally concluded her presentation by highlighting the elements of future strategic focus.

The third session under innovative application had four presentation submitted by the Kenya Cleaner Production Centre, the Zimbabwe Cleaner Production Centre, the South...
The first presentation of this session was made by Professor David Mungai from the Kenyan Cleaner Production Centre on ‘Capacity Building for the Implementation of the Environmental Framework Law in Kenya’. In his presentation, Professor Mungai covered Environmental Management in Kenya before the Environmental Management and Coordination Act (EMCA) in 1999, the provisions under the EMCA, and the National Capacity for Environmental Impact Assessment (EIA) and Environmental Audits (EA). He said that the national capacity is still very low and there is a need to strengthen it. He noted that the Kenya National Cleaner Production Centre (KNCPC) has developed short courses on EIA and EA that will be provided in collaboration with the National Environment Management Authority (NEMA). The courses are prepared for Trainer of Trainers, Decision Makers and specialists, Lead Agencies, Industry Associations etc. The course materials are prepared using the EIA training Manual that has been produced by the Economics and Trade Branch of UNEP. The overall goal of the course is to ensure more application of the principles of sustainable consumption and production.

The second presentation of the session was made by Dr. Edith Kuzinger under the title ‘Profitable Environment Management’ abbreviated as PREMA. The presentation focused on Capacity Building for effective Implementation of change. The presenter highlighted the content and results of PREMA application in Africa with specific examples from Zimbabwe where the approach has been applied more extensively. She said that the lessons learned from the existing programmes could be used to develop integrated concepts suitable for SMEs. The PREMA approach focuses more on the economic benefits without mentioning the need for environmental compliance at the initial stage. She said that focusing on the economics helps to create interest on the companies’ side. Dr. Kuzinger further described the basic steps involved in the implementation of PREMA at company level. She said that PREMA and PREMA-plus are not simple projects for cost saving but provide a management system which enhances continuous improvement. Dr. Kuzinger concluded her presentation by highlighting the benefits that can be achieved through PREMA which included among others: better management of production time, increase in fluidity of production chain, better working conditions, increased innovation of personnel.

The third presentation of the session was made by Dr. Christopher Masuku, Director NCPC of South Africa under the title ‘Food Product, Process and Service safety’. In his presentation, Dr. Masuku said that implementation of Cleaner Production (CP) in South Africa was largely focused on operating within existing systems/strategies in the companies such as good Manufacturing Practices (GMP), Hazards Analysis at Critical Control Points (HACCP), Total Quality Management (TQM) and Environmental Management Systems (EMS). He noted that on analysing all the systems above, it was found that CP application in SA fits well within GMP. He then explained the relationship between CP and GMP. Dr. Masuku said that CP could to be used primarily to improve processing efficiency and productivity as well as for compliance with environmental and Occupational Health Safety issues.

The fourth presentation was done by Mr. Moris Chidavaenzi, Director of the NCPC in Zimbabwe under the title ‘viability, feasibility and potential for product development and
process innovation for mine waste in Zimbabwe’. He said that the focus of his presentation was on mining because of its position in the Zimbabwe economy and the impact of the mining activities on the environment. The presenter said that strong environmental laws in Zimbabwe call for attention to be put on the mining waste. The waste is very abundant and therefore could be a very cheap raw material. He said that some products have been identified from the ferrochrome mining operations and the market survey is being done using the existing information. He mentioned some of the challenges faced which included, among others, ensuring the quality of the products and development of manufacturing processes.

III) Life Cycle Analysis and Sustainable Consumption in Africa

The sessions on the morning of the second day were mainly focused on the application of Life Cycle Analysis or thinking for the promotion of sustainable development in general and sustainable consumption and production in particular. The first presentation was made by Dr. Tollseeram Ramjeawon from the University of Mauritius under the title ‘Life cycle assessment to inform policy relating to energy products from sugar industry. The paper was based on review of case-studies from Mauritius and South Africa. In his presentation, Dr. Ramjeawon stressed the benefits of Life cycle analyses that take into account the different aspects of bio-energy cycle in terms of making the right decision with regards to energy production from sugar cane. Such an approach leads to quantifying the degree of renewability of the biofuel as important information for decision-making. He furthermore highlighted the driving forces for the application of LCA in bioenergy development in Africa together with the existing barriers and challenges. He finally highlighted the key steps that need to be taken which included the development of case-studies and appropriate training materials to enhance capacities.

The second presentation was made by Ms. Mandy Rambharos from ESKOM South Africa under the title ‘Shifting peak electricity demand: a sustainable business strategy. Ms. Rambharos underlined the importance of adopting a demand side management strategy in order to improve energy efficiency and conservation. She outlined some of the major measures that have been taken by ESKON on improving demand-side efficiency including the measure taken to distribute efficient lighting bulbs to communities with lower income. She further described the significant benefits that have been obtained from these measures. She concluded her presentation by underlining that demand-side management programmes represent an alternative way of doing business that is not related to charity or philanthropy. Instead it is about new business and new markets that benefits the communities and benefits the company and the country in general.

Dr. Greg Norris from Harvard School of Public Health made the third presentation under the title ‘Life cycle development: Linkages between local and global sustainable consumption and development. He described the dynamic linkages between life cycle development, the economics of trade, tariffs and subsides, and the linkages between the average income, health, and education. He underlined the importance of developing new socio-economic pathways to achieve the same endpoints of improved health and wellbeing. He further presented the global distribution of health impacts of life cycle pollution and the
global distribution of health impacts of development in terms of the disability adjusted life years. He showed that industrialized countries like Netherlands are significantly affected by the pollution effect while the rest of the developing world significantly gains from the development impacts. Dr. Norris ended his presentation by describing the structure and the key activities that are being conducted by a new organization called New Earth which operates as a global fund and local driver for sustainable consumption and production. This organization is being promoted as voluntary associations where companies become member with a purpose of pulling their resources for the common good.

Dr. Azza Morssy of UNIDO made the last presentation of this session during which she underlined that sustainable consumption and production the successful implementation of eco-efficiency and cleaner production. She further elaborated the SCP approach by underlining that sustainable production (SP) address the supply-side while sustainable consumption (SC) addresses the demand-side. She highlighted the various activities that are being conducted by UNIDO in order to promote sustainable production and consumption. She underlined the importance of involving women in promoting sustainable consumption and production. She finally concluded her presentation by presenting the guidelines for the promotion of sustainable consumption and production.

The second session under the LCA and sustainable consumption theme was consisted of four presentations. Three of the four presentations focused on the application of life-cycle thinking for the promotion of sustainable consumption and production. The first presentation was made by Dr. Evans Kituyi from the Industrial Technology Institute in Nairobi Kenya under the title ‘Towards sustainable consumption and production in Africa, the role of research partnerships’.

In his presentation, Mr. Kituyi highlighted the research problems in African countries and the poor coordination of research endeavours, the lack of appreciation of research and lack of funds, poor communication of researchers in Africa and the gap between researchers and decision makers. Mr. Kituyi also expressed the need to create the spirit of relationship between African countries and African research institutes. Mr. Kituyi presented the key elements of a research agenda that would promote sustainable development in Africa. He mentioned ALCAN as a step forward to the spirit of partnership that address LCA within Africa. He also mentioned that ALCAN is setting a good example of how scientists from different parts of Africa can work together and along with other scientists from other parts of the world for the interest of promoting sustainable development in Africa.

The second presentation was entitled the ‘Impact of flows of resources and products (imports, exports and aid) between north and south: Case study: the flow between EU and East Africa’ and was presented by Mr. Getachew Assefa from Stockholm University. Mr. Assefa discussed the impact of flows of products between north and south. He also gave some examples of how minor environmental violation in one of the globe can produce some significant impacts on other parts, underlining that even a minor perturbation can always produce some drawbacks somewhere. He note that some researchers have concluded that the famine in some parts of Africa in the last two decades of the 20th century was attributed to the emission of aerosols and sulphur emission in the northern hemi-
sphere. Mr Assefa also made some reference on the use of LCA in assessing the impacts of products flow and how to use LCA in similar cases. He concluded his presentation the key methodologies to be applied in the proposed research and the expected outputs.

The third presentation had the title of ‘An introduction to forming and managing waste minimization clubs and was presented by Professor C. Buckley from University of Durban in South Africa. Professor Buckley explained how the idea of these clubs came about, the stages that a club would go through, the need of these clubs and how to secure funds. The life time of the club and the cost of running the club were also indicated through the presentation. He indicated that at the present time there are about 40 clubs operating in South Africa. He also indicated that waste minimization club could be established for a factory, district, a river or any other similar activities. The presenter gave an ample explanation of the barriers that clubs could be faced, including competition between club members, lack of the perception of the need for waste minimization and so forth. Other part of the presentation focused on how to overcome these barriers.

The fourth and last paper was also presented by Professor Buckley. The presentation had the title ‘Salinity, A new environmental category for LCA’. The presentation emphasized on salinity as one of the most serious problems in a number of African countries and the impact of salinity on soil, crops. The presentation has explained how to use the concept of LCA in order to have a better understanding of the salinity problem and its impacts. The different models that could be utilized in order to understand the problem of salinity were highlighted.

**IV) Establishment of the African Roundtable on Sustainable Consumption and Production (ARSCP)**

The draft charter of the African Roundtable on Sustainable Consumption and Production (ARSCP) was presented by Dr. Patrick Mwesigye of Uganda Cleaner Production Centre. Participants of the roundtable discussed the charter item by item under the chairmanship of Professor Cleo Migiro from Cleaner production Centre of Tanzania. The charter was adopted as the charter of the African Roundtable after making the necessary amendments on the draft charter based on the inputs provided by the participants. The adopted Charter was opened for signature during the coffee break and a total of 12 institutional and 32 individual members signed as member of the ARSCP thereby constituting the Founding Assembly of the ARSCP. This was followed by the election of the Executive Board and the selection of the Secretariat of ARSCP. The election process was facilitated by colleagues from the UN Agencies in the presence of NORAD’s representative as an Observer. The election of the board was conducted with an open campaign and secret ballot vote. Accordingly, the following were elected as members of the Executive Board of ARSCP.

- **Dr. Patrick Mwesigye**
  - Uganda NCPC
  - President
- **Professor Cleo Migiro**
  - Tanzania NCPC
  - Secretary
- **Mr. Smail Alhilali**
  - Morocco NCPC
  - Member
- **Mr. Philip Auqah**
  - Ghana EPA
  - Member
- **Dr. Evans Kituyi**
  - Individual, Kenya
  - Member
The selection of the Secretariat of the ARSCP was conducted following the same procedure and the Kenyan, Morocco and Tanzania NCPCs presented themselves as a candidate. The Directors of the Centers campaigned on behalf of the candidate centres to host the Secretariat of ARSCP and the Tanzanian NCPC was selected to be the Interim Secretariat of ARSCP. The Executive Board had its first meeting on 19 May 2004 in the presence of the S/M and appointed Mr. Smail AlHilali to serve as the Treasurer of ARSCP. The Board also discussed the activities to be conducted in the following months and apportioned specific responsibilities amongst the Board members including sub-regional responsibilities as per the following:

- Professor Cleo Migiro  
  Southern Africa
- Mr. Smail Alhilali  
  Northern Africa
- Mr. Philip Auqah  
  Western Africa
- Dr. Evans Kituyi  
  Eastern Africa
- Dr. Patrick Mwesigye  
  Central Africa

Finally, the founding meeting selected UNEP, UNIDO, UNDESA and NORAD to be the patron institution of ARSCP in recognition of their support to SCP activities within the region.
I. Introduction

The First African Expert Meeting on Sustainable Consumption and Production was held in the context of the Third African Roundtable on Sustainable Consumption and Production in Casablanca, Morocco, 17 – 20 May 2004. The meeting was organized by the United Nations Environment Programme (UNEP), in consultation with the United Nations Department of Economic and Social Affairs (UN DESA), and hosted by the Moroccan Center for Cleaner Production. Financial support for the meeting was provided by the Governments of Germany and Norway. Participants in the meeting included experts from governments, national cleaner production centers, academia, civil society, private sector and international organizations.

The objectives of the meeting were:

(a) To identify regional and sub-regional priorities and needs for sustainable consumption and production in Africa;

(b) To consider a regional framework for promoting more sustainable consumption and production, contributing to poverty alleviation, economic development and environmental protection;

(c) To consider the international 10-year framework of programmes on sustainable consumption and production agreed at the Johannesburg World Summit on Sustainable Development, to review the Marrakech Process agreed at the First International Expert Meeting on Sustainable Consumption and Production, and to consider how African countries could participate in and benefit from the international process;

(d) To prepare outcomes of the meeting, which could be presented to the African Ministerial Conference on the Environment (AMCEN), to other regional institutions such as NEPAD, ECA and the African Union, to DESA and UNEP, and to the next international expert meeting in 2005, for further action.
II. PLENARY SESSIONS

The Co-Chairs of the plenary sessions were: Mr Mootaz Khalil, Director, Environment and Sustainable Development Affairs, Ministry of Foreign Affairs, Egypt; Ms Nassere Kaba, Director of Policies and Strategies for the Environment, Ministry of Environment, Côte d’Ivoire; and Mr Mourad Skalli, Counselor to the Secretary of State for the Environment of Morocco.

In opening the expert meeting, Mr Mourad Skalli of the Secretariat of State for the Environment of Morocco underlined the importance of the “Marrakech Process” as a means for establishing priorities for international cooperation in sustainable consumption and production. He also emphasized the important role for the National Cleaner Production Centres in promoting practical work on the issue. He highlighted waste management as one of the main priorities in Africa, and in Morocco in particular, and stressed the importance of using both legislative measures and incentives to address the issue. Mr Skalli reiterated the readiness of Morocco to continue to be a driving force on sustainable consumption and production.

Mr Bas de Leeuw of UNEP noted that the Johannesburg Plan of Implementation (JPOI) adopted at the World Summit on Sustainable Development (WSSD) called for a 10-year framework on programmes on sustainable consumption and production. In response to that call, an International Expert Meeting on the 10-Year Framework was organized in Marrakech, Morocco, 16 – 19 June 2003. That meeting launched the Marrakech Process, including a strengthening of regional processes, as well as the organization of task forces and roundtables on specific issues relating to sustainable consumption and production. The Marrakech meeting agreed that a second international expert meeting should be convened in 2005 to review international and regional cooperation in support of sustainable consumption and production.

Mr de Leeuw also noted that regional meetings had been held in Latin America and the Caribbean and in the Asia-Pacific region. The results of the regional expert meetings will be brought to the attention of the next international expert meeting, to be held in 2005, as well as to other international and regional organizations and meetings. He emphasized the importance of achieving tangible progress, for which the opportunities of the sustainable consumption and production agenda for contributing to poverty eradication need to be highlighted.

Mr Ulf Dietmar Jaeckel of the Federal Ministry of Environment of Germany noted that Africa was ahead of some other regions in regional organization on the Marrakech Process. He noted that Europe would hold a regional meeting on sustainable consumption and production in November 2004 in Belgium. He highlighted the call in the JPOI to develop an active dialogue involving all stakeholders, including environmental organizations, social organizations and other community organizations. He informed participants of major initiatives taken by the German Government such as the National Strategy for Sustainable Development “Perspectives for Germany” with concrete targets including a doubling of energy and resource efficiency and reducing land use by 2020, increasing the
share of organic agriculture from 4% to 20% by 2010, and increasing imports of goods from developing countries.

Mr Ralph Chipman of the United Nations Division for Sustainable Development/DESA noted that this First African Regional Expert Meeting could contribute to the Marrakech Process by identifying priorities and needs for regional and international cooperation in sustainable consumption and production. The results of the meeting would be used by the United Nations and other international organizations in their efforts to promote international cooperation focusing on the needs and priorities of developing countries and drawing on the experience of both developed and developing countries. He also presented a background paper on sustainable consumption and production issues and activities in Africa, prepared in consultation with Mr Mersie Ejigu of the Partnership for African Environmental Sustainability (PAES)

(www.un.org/esa/sustdev/sdissues/consumption/Marrkech/conprod/10Yafr.htm).

Mr Stephen Karekezi of the African Energy Policy Research Network (AFREPREN) presented a background paper on energy consumption patterns in Africa, noting the different patterns in different sub-regions. He emphasized the low levels of energy consumption in most Sub-Saharan African countries as a major obstacle to sustainable development. The use of traditional biomass fuels, including wood, agricultural residues and animal dung, for most household energy, particularly in rural areas, had serious impacts on health, particularly of women and children, as well as negative environmental impacts.

(www.un.org/esa/sustdev/sdissues/consumption/Marrkech/conprod/10Yafr.htm)

Ms Adriana Zacarias Farah of UNEP emphasized the linkages between poverty and sustainable consumption and production, noting that African countries had an opportunity to “leapfrog” over the unsustainable technologies and practices of the developed countries. She defined poverty as the inability to meet basic needs, including food, shelter, health and education, and a lack of choices and access to markets. She noted that the priority in developed countries is to increase resource efficiency in consumption and production, while in Africa the priority is to increase consumption and production to meet basic needs, while improving social conditions and reducing environmental impacts. Hence, sustainable consumption and production approaches in Africa (and other developing countries) represent an opportunity to leapfrog to sustainability. It will require the development of national strategies and implementation through strategic policy mixes. Examples of technology leapfrogging include the use of renewable energy and mobile phones in rural areas. Less industrialised countries can adopt sustainable technologies without going through the polluting phases of industrialization that the developed countries went through. Leapfrogging might require changes in values, perception, and understanding of the quality of life. Sustainable consumption and production in Africa can lead to hybrid societies with traditional knowledge, technologies and values mixed with high technology and modern scientific knowledge. Ms Zacarias also noted that it is important to include aspects/projects of sustainable consumption and production in national poverty reduction strategies.
Mr Samba N’Diaye, Executive Secretary of the Senegal Association for the Defense of the Environment and Consumers, and representing Consumers International, noted the important role of consumer protection policies and consumer organizations in promoting sustainable consumption and production in Africa. The United Nations Guidelines on Consumer Protection, as expanded in 1999 to include sustainable consumption, provides guidance to countries in developing sustainable consumption and production policies. Mr N’Diaye also noted that consumption patterns in developed countries can have important impacts in developing countries. In the case of Senegal, increasing demand for fish and fish products in developed countries is resulting in depletion of African fisheries, creating hardship for Africans dependent on fish production and consumption.

Mr Desta Mebratu of the UNEP Regional Office for Africa noted that regional efforts to promote sustainable consumption and production in Africa needed to take into account the great diversity of economic and social conditions in the region. He further noted that most African countries have high levels of chronic poverty and are low on the UNDP human development index (HDI) and human poverty index (HPI). Economic conditions have stagnated or deteriorated in many countries in the last 20 years. He emphasized that the depletion and degradation of natural resources, as both a cause and consequence of poverty, poses a particularly challenge for Africa. Much of the African population live on fragile ecosystems with low agricultural productivity, and with pressure on resources exacerbated by high population growth rates. While industrialization in most African countries is low relative to other regions, industrial activity has significant environmental impacts in urban and coastal areas.

Mr Mebratu stressed that policies and programmes to promote sustainable development in Africa should address both the supply side and the demand side. A key issue that needs to be addressed in this regard is the structural transformation of the African economy through the promotion of sustainable industrial development. He further highlighted the key measures that could be taken by the key stakeholders in order to promote sustainable consumption and production in the region. In this context, governments should provide incentives for sustainable consumption and production and disincentives for unsustainable practices. Infrastructure, such as transportation and communication networks, should be reoriented with a view to long-term sustainable development. Technological capacity building and the development of centres of excellence are needed, as are financial mechanisms to support these activities. He noted that public procurement could support sustainable consumption and production, as could requirements for environmental impact assessments (EIA) or strategic environmental assessments (SEA). Civil society has an important role to play in public advocacy and in promoting public and consumer awareness, together with public institutions, through media campaigns and education all levels.

III. WORKING GROUPS

Detailed discussions of experiences, needs and priorities with respect to sustainable consumption and production were held in six working group sessions, as follows:
A. Four parallel thematic working groups:

- Energy
- Water and natural resources
- Urban development
- Industry

B. Two parallel sub-regional working groups

- North Africa
- Sub-Saharan Africa

The following are the reports of the working groups as prepared by the Rapporteur of each group and the Secretariat and as discussed in the final plenary.

A. Working Group on Energy

The Working Group on Energy included 12 participants from 8 countries and one international organization. The Working Group was chaired by Dr. Patrick Mwesigye, Director of the Uganda Cleaner Production Centre. Mr Stephen Karekezi of the African Energy Policy Research Network was Rapporteur.

To analyze the key issues pertaining to the sustainable consumption of energy in Africa, participants agreed to adopt a sub-sectoral analytical approach that focused on the following sub-sectors:

- Industry
- Household
- Transport

Energy use in the industrial sector

To develop appropriate sustainable energy options for the industrial sector, the Group thought it wise to first identify important energy challenges facing the sector. This approach would ensure that proposed sustainable energy options for industrial sector reflect the prevailing realities in the regions and thus lead to more effective impacts.

The industrial sector in Africa can be divided into two categories. The first category is energy intensive industries such as cement manufacture and other process industries that use a large amount of heat and electricity. In many cases, energy accounts for a significant portion of production costs. The second category consists of industries that use limited amounts of energy and therefore face much lower energy bills. The Group emphasized that a differentiated approach should be used in pursuing sustainable energy consumption goals in the aforementioned two categories. The high energy costs associated with energy-intensive industries generally imply greater willingness to make significant investments in sustainable energy options. With respect to the second category, concerned decision makers are generally unwilling to go beyond low-cost housekeeping measures.
The Group underlined the very serious twin problems of unreliable and poor quality power supply facing the industrial sector in certain African countries, particularly in the sub-Saharan region. The underlying causes of the absence of reliable and good quality power supply include drought-related hydropower deficiencies and siltation of hydropower dams due to upstream deforestation and soil erosion. Other contributing factors include obsolete technology and equipment, poor maintenance, high system losses and poorly skilled technical personnel. It was also noted that inappropriate tariff structures can result in low revenues leading to inability to finance the replacement of aging equipment.

Response options

As a priority response to the unreliability of energy supply to industry, participants underlined the importance of sustainable energy options to diversifying energy supply. Participants highlighted successful case examples of energy supply diversification in several African countries. In Morocco, grid-connected wind power is providing an important contribution to national power supply. Tanzania plans to use its reserves of cleaner natural gas to reduce its reliance on drought-sensitive hydro power, while the southern African region is using regional interconnections to diversify and promote the use of cleaner energy sources. Kenya currently meets 10% of its power supply from geothermal energy, which has proven valuable in addressing drought-related shortfalls of hydropower. In West Africa, the regional pipeline project, supplemented by combined heat and power generation units as well as higher efficiency combined-cycle power plants, is expected to diversify the region’s energy supplies.

For industrial energy end use, the Group proposed the following options that deserve greater attention:

Co-generation, which is both an end user and supply response option. In Mauritius, bagasse-based co-generation meets 40% of the country’s power supply, while captive power generation is widely used in many agro-based and forest industries in the region;

Use of solar water heaters to pre-heat water for industrial steam generation. Although attractive, this end-use option is still constrained by its high upfront investment cost;

Other demand side management (DSM) options, such as efficient industrial motors and drives, power factor correction/capacitor banks, energy-efficient buildings, and differentiated electricity tariffs that encourage DSM;

Information dissemination and awareness creation;

 Properly designed end-use interventions to benefit the poor. For example, revenues from Mauritius sugar co-generation is equitably shared among both large-scale and small-scale sugar cane farmers.
Household energy

- The Group identified a range of sustainable energy options classified by 2 major end-user groups, namely urban and rural households. One option that is applicable to both end-user groups is the need to subsidize upfront costs of cleaner energy alternatives, which is a constraint to improving access to the poor. Ownership and income generating options should be given priority.
- In urban households, the following sustainable energy options were proposed:
  - Improved energy-efficient biofuel stoves. Over a million improved stoves have been disseminated in Kenya, and similar programs have registered encouraging progress in other countries in eastern, western and southern Africa;
  - Dissemination of energy-efficient kerosene and LPG stoves to replace environmentally-unsound traditional biofuel cookstoves;
  - Compact fluorescent lights, which are widely used in several African countries, notably South Africa, Tunisia and Morocco;
  - Insulation blankets for domestic water heaters to conserve energy, which have been piloted in South Africa;
  - Pre-paid meters, which encourage efficient use of electricity and improved household energy budgeting. These have been widely tested in Algeria, South Africa and Tanzania, but the high upfront cost of the meters continues to be a major barrier to wider dissemination;
  - Household appliance standardization to encourage use of energy-efficient devices, which has been piloted in Ghana and shows encouraging progress;
  - Differentiated tariffs that encourage household energy-efficient practices;
  - Efficient building designs, exemplified by a model house in Kenya.
- For rural households, the following sustainable options were proposed:
  - Better combustion techniques, with promising results recorded in Kenya and South Africa;
  - Smokeless energy-efficient stoves, widely disseminated in Kenya.
  - Woodlots, which have proven popular in Western Kenya.
  - Rampumps, widely used in northeast Tanzania.
  - Biogas;
  - Small/mini/micro/pico hydropower.

Transport

Participants agreed that regulations were very effective and low-cost policy tools for promoting more efficient use of energy in the transport sector. For example, bicycles attract a high import tariff in a number of African countries. Removal of this tariff would greatly facilitate greater use of bicycles, which constitute a more sustainable transport option.

Innovative parking space charging schemes can encourage the wider use of mass transit and non-motorized systems. Uganda and Kenya provide some evidence that parking space charging schemes can play influence urban transport patterns.

Other options that were identified but not exhaustively discussed include:
• Car pooling
• Unleaded fuel. Although a number of African countries have launched unleaded fuel initiatives, the Group stressed the need for encouraging a complete shift to unleaded fuel and discouraged partial removal of unleaded fuel;
• Improved vehicle and infrastructure maintenance, as an important sustainable option for reducing energy-related vehicle emissions;
• Mass urban transit to be given priority. Pilot schemes are ongoing in Tunis, and a pilot scheme is under consideration in East Africa;
• CNG for motor vehicles;
• Biodiesel/ethanol (blending);
• Promotion of high-capacity energy-efficient train and river/lake transport. The Volta River/Lake transport option has proven to be notably successful;
• Encouragement of improved regional air links.

**Regional initiatives**

Participants agreed that promotion of sustainable energy options at the regional level should first target regional organization with a specific energy mandate. Examples include:

- Southern African Power Pool (SAPP)
- Power Institute for East and Southern Africa (PIESA)
- Union of Producers, Conveyors and Distributors of Electrical Energy in Africa (UPDEA)
- African Roundtable on Sustainable Consumption and Production (ARSCP)

**B. Working Group on Water and Natural Resources**

The Working Group on Water and Natural Resources included 13 participants from 11 countries and one international organization. The Chair of the Working Group was Prof. T. Ramjeawon of the University of Mauritius, and the Rapporteur was Dr Mohamed Tawfic of the Suez Canal University.

The working group noted the diversity of African countries both in terms of the natural environment and socio-economic conditions, and the resulting diversity of needs, priorities and options. Some countries, particularly in North Africa and Southern Africa, suffer from a serious scarcity of water, while others, particularly in central Africa, have an abundance of water, although most of it is undeveloped and unused.

**Priorities**

Management of water resources, on the river basin or catchment level, including water resource protection plans, was generally a priority, particular in water-scarce areas where population growth and industrialization are producing a steady increase in the demand for water. Where water is scarce, water withdrawals need be managed, and a legal frame-
work of water rights and standards, suitably enforced, is essential to that purpose. Education, information and awareness raising concerning the importance of productive and efficient use of available water are important both for encouraging efficient use of water and for building public support for water management policies and enforcement.

Groundwater is an important source in many areas, and groundwater withdrawals should be regulated as part of general water resources management. However, groundwater resources are generally poorly understood, and research is needed on both the quantity and quality of groundwater resources.

Developing sources of water as alternatives to surface water was also considered important in most countries. Rainwater harvesting has increasingly been recognized as an important potential source of good quality water. For high-value uses in water-scarce areas, desalination is an option, although it is expensive and energy intensive, and the environmental impact of the brine by-product can be serious, as for example in Egypt. In coastal areas of Morocco, seawater is used in place of freshwater for industrial cooling. Reducing leakage in municipal water distribution systems and irrigation systems can also increase effective water supply.

Reuse of treated wastewater is a priority in water-scarce areas such as North Africa for such uses as irrigation of trees and non-food crops and for industrial cooling. Egypt, for example, is using partially treated wastewater on non-food crops. However, there are concerns over the health risks of using treated wastewater on food crops.

In some countries with high rainfall, such as Uganda, the priority for water management is not to limit water withdrawals, but to encourage productive use of the large unused water supplies. Small-scale irrigation systems, mini-hydropower systems, and gravity flow water distribution systems can be effective low-cost means of expanding the productive use of water resources without large investments.

Water management in water-scarce areas should also take into account the “invisible” or “embodied” water contained in imported or exports products, particularly agricultural products. Water-scarce areas can make best use of limited water resources by exporting products requiring little water to produce and importing water-intensive products.

**Water quality**

Protection of water quality, including through pollution prevention and municipal and industrial wastewater treatment, is a central element of water resource management and a priority for most countries. Establishing and enforcing industrial effluent standards is important, but requires water quality monitoring as well as enforcement mechanisms, and many countries have insufficient capacity for effective water quality management.

Water quality management systems and facilities can be financed on a user-pays or polluter-pays approach. South Africa has general effluent discharge standards and is developing a discharge charge, with additional charges for particular pollutants. Uganda has
developed water effluent standards as a basis for applying the polluter-pays approaches, with charges to be introduced next year. In some cases, however, the polluter-pays approach is not feasible. In many cases, water management is financed from public budgets, although such budgets are commonly not sufficient to provide adequate water management.

One way to promote cost-effective industrial wastewater treatment is to cluster polluting industries together, allowing common water treatment facilities, as has been demonstrated in Tunisia and Morocco, for example for leather tanneries.

Protecting water source areas from polluting activities is also needed, particular for sources of drinking water.

**Agricultural water use**

Improving the efficiency of water use in agriculture is a priority in many countries, including promoting efficient irrigation systems such as drip irrigation and water efficient crops. In Egypt, water-inefficient flood irrigation is banned in new irrigation developments and water-intensive rice growing is banned in some areas. One approach that has proven effective in managing agricultural water use and improving efficiency, without introducing politically-sensitive water pricing, is the use of local water user associations for water management.

**Policy instruments for water management**

Water pricing can be a tool for managing water consumption and promoting efficient use and is used in a number of countries. However, water pricing is a very sensitive issue in many countries and may not be politically or socially feasible. Charging for water services, particularly for urban water supplies, as a cost recovery mechanism is more widely accepted. In some countries, to minimize opposition, water pricing has been introduced at a very low level, then slowly increased as it became accepted.

Public-private partnerships can be a means for improving efficient water services, but management of such partnerships requires a strong public regulatory agency. Public-private partnerships have been effective in improving urban water management in Morocco and Egypt. They have also been used in Cote d’Ivoire, where an inter-ministerial council oversees the private contractor’s performance.

The establishment of funds to provide financial support on a cost-sharing basis for improving industrial water management have proven effective in some countries. Promoting environmental management systems (EMS), such as ISO 14000 systems, can also promote improvements in industrial water management.

Charging for water services such as household water supplies is commonly done by metering water consumption, but meter installation is costly, particularly for the poor. Alternative low-cost volumetric pricing systems for low-income households, such as used...
in South Africa, include daily filling of a tank of a standard basic volume and flow-limiting systems.

**Meeting the water needs of the poor**

A priority for meeting the needs of the poor in many countries is facilitating access to safe drinking water. As women often bear the burden of collecting water for household use in the absence of piped connections, they suffer particularly when water sources are distant. Improving water supply infrastructure is important for this purpose. In South Africa, all households are entitled to 25 liters per person per day of free water for basic needs, with increasing block pricing for higher consumption. Increasing block tariffs are also used in Cameroon to ensure affordable water for poor people while reducing unnecessary consumption by others.

In rural areas, water user associations can provide a valuable function in managing and maintaining water infrastructure. Rainwater harvesting can also provide good quality water at low-cost for low-income and rural households.

Water supply is often a constraint in improving sanitation for the poor. In crowded urban slums unserved by sewer systems, water use for sanitation can also pose serious threats to health and the environment. An effective approach to overcoming this constraint, as applied in parts of South Africa, is the use of dry sanitation techniques that dispose of human waste safely without consuming water, allowing reuse of other household "grey" wastewater for non-drinking purposes. This “ecological sanitation” is also being applied in Uganda in schools, marketplaces and towns with high watertables. Other water-conserving sanitation techniques include low-flush toilets and membrane filtration systems for the treatment of household wastewater.

The Working Group felt that a concept paper would be valuable to investigate the potential for innovative systems for the supply of water and sanitation services (leapfrogging or tunneling through the environmental Kuznet’s curve), using a life-cycle assessment approach which includes social and developmental assessment criteria.

It was also noted that in some cities, wealthier households are provided with subsidized low-cost clean water through piped municipal water supplies, while poor people pay higher prices for water, often of lower quality, from private water vendors. Municipal water supply systems should ensure equitable distribution of public water services between rich and poor.

**Regional cooperation**

Regional cooperation could support capacity building for water management, including for water legislation and regulation and the application of environmental impact assessment (EIA) and strategic environmental assessment (SEA). Regional cooperation could also be useful for managing transboundary water resources, including transboundary aquifers. Regional organizations could assist in mobilizing funding from international financial institutions for water management activities.
Information exchange on a regional basis can promote the dissemination of best practices in water management, both among public water management agencies and for improving industrial performance through improved technologies and tools.

**Natural resource management**

Management of natural resources in general, including water resources, can benefit from life-cycle thinking, taking into account all impacts of resource extraction, processing, consumption and disposal. Education and awareness raising, based on life-cycle thinking, can contribute to changing unsustainable behaviour with respect to resource consumption, particularly for resources under threat of depletion and endangered species.

Education is needed for improving resource management, including in life-cycle assessment, cleaner production, and green chemistry, which is now being taught in Egypt. Public education and information can be supported by the media and such means as brochures distributed by public utilities. Morocco is promoting basic environmental education by establishing environmental clubs in all elementary schools.

### C. Working Group on Urban Development

The Working Group on Urban Development included 10 participants from 8 countries and one international organization. The Chair of the Working Group was Mr Morris Chidavaenzi, Director of the Zimbabwe Cleaner Production Center, and the Rapporteur was Mr Clive Wabule Wafukho, Executive Director of Ivory Hygiene and Environmental Services, Nairobi.

The Working Group discussed priorities, best practices and policy recommendations for urban development in Africa as they relate to sustainable consumption and production. The issues discussed were waste management, transport, urban planning, and housing.

**Waste Management**

Some of the main problems facing African countries on waste management are:

- Lack of infrastructure for waste management, including waste prevention, sorting and collection, transportation and final disposal, with final disposal as an immediate priority;
- Lack of access to and adoption of appropriate technology to manage waste, such as containers to collect sorted waste, recycling plants, and properly designed landfills;
- Widespread illegal dumpsites;
- Limited presence of formal systems to sort and recycle waste;
- Lack of enforcement of waste management regulations.

In most African countries, the main problem in waste management is lack of infrastructure for collection, transport and disposal. In Kenya, for example, there is a national policy on waste management, which gives responsibility to local governments for policy develop-
ment and implementation, but enforcement is weak. There is not a single sanitary landfill for Nairobi. The only available disposal facility is a former quarry right next to the Nairobi River, and some waste is dumped directly into the river. There are similar problems in other cities in Kenya, as well as other cities in Africa.

There are small-scale examples of composting, recycling and reuse in Africa, but these are not being scaled-up, partly due to lack of markets for the end products, such as compost from organic waste.

Another problem is that waste from health care facilities is mixed with other municipal solid waste.

The following solutions were proposed:

- Adopt the waste hierarchy approach, starting with waste prevention;
- Encourage public/private partnerships for waste management;
- Apply extended producer responsibility. For example, waste tires are a problem in Africa as on other continents. South Africa is considering an approach where the purchase price for new tires includes a surcharge to pay for the systematic recovery of tires at their end of life. South Africa is also considering broader application of this approach to electronic waste;
- Separation of different types of waste at the source, which facilitates reuse and recycling;
- Education and information for citizens, especially children, including on waste reduction;
- Assist scavengers in improving their working conditions by integrating them in the newly created recycling programs.

Transport

Some of the main transportation problems facing African countries are:

- Poor development of infrastructure, including roads, rail lines, inland waterways, and air transport, as well as interconnections among modes;
- Low-value, old, inefficient, emission-intensive vehicle fleets for both private and public transport;
- Poorly maintained and inefficiently run mini-buses;
- Poor management of public transportation;
- No provision for pedestrians and cyclists on the roads.

The following solutions were proposed:

- Invest in public transport, including trains and bus systems;
- Design sustainable transport, including roads, to improve mobility in cities;
- Provide efficient and comfortable public transport;
• Encourage use of public transport;
• Support non-motorized transport by including in overall transport planning infrastructure such as bicycle lanes and paths for pedestrians;
• Phase out leaded fuels;
• Require emissions testing of vehicles.
• Improve and encourage clean fuels.

Urban Planning:

• Some of the main problems facing African countries on urban planning and design are:
• Lack of opportunities in rural areas, which increases migration to cities, where marginalized people join and expand unplanned settlements;
• Failure of comprehensive execution and implementation of urban plans due to corruption;
• Lack of master plans for cities in some African countries.

The following solutions were proposed:

• Sustainable planning of cities, including residential and commercial areas that are in tune with sustainable transport design;
• Strengthen institutional capacity to effectively implement urban plans, and promoting transparency and accountability;
• Encourage economic activity in rural areas to reduce urban migration;
• Promote “green-building” through ecological design, including natural lighting, local construction materials, insulation, and standards for energy and water efficiency;
• Design and promote low-cost housing, using alternative “green” technologies;
• Provide green areas in cities.

Other important issues that were not discussed for lack of time include governance and unemployment.

D. Working Group on Industrial Development

The Working Group on Industrial Development included 18 participants from 16 countries and one international organization. The Chair of the Working Group was Ms Jane Nyakang’o, Director of the Kenya National Cleaner Production Center, and the Rapporteur was Prof. David Mungai of the University of Nairobi.

The working Group analyzed factors leading to the low industrial productivity in the region, followed by an identification of policies and measures to improve that situation, with governments, private sector and civil society having active roles. Issues discussed included mainstreaming cleaner production, finding new market opportunities, promoting corporate responsibility, better control of hazardous and toxic waste, and improving working conditions.
Participants felt that too little added value was generated in African industry, leading to exports of African raw materials and resources to be processed in other regions, and often returned to Africa as semi-processed goods or end products at high prices. On the demand side there was often a consumer preference for imported goods, which were perceived to be of higher quality. Inefficiencies in production processes, obsolete technologies, lack of skilled labour, lack of access to capital, and lack of domestic research and development were mentioned as obstacles on the production side. Improving industrial productivity could also be promoted by strong policies to promote better working conditions, including safety and health in the workplace, as well as by measures to combat HIV/AIDS. This would contribute to the eradication of poverty, since increasing productivity generates income (which should be shared equitably), and higher workplace standards would improve working conditions.

Some participants pointed to “unfair competition” to local products from imported goods and second-hand goods and equipment, due to the high cost of, or lack of, utilities (water, electricity, infrastructure), poor management practices, and a generally unfavorable political climate. Participants felt that the capacity to develop and implement product standards in Africa should be developed.

Improving industrial productivity would require policies targeted at small and medium-sized enterprises (SMEs) and specialization within the region, as well as better transfer of technologies, including South-South. It would also require the development of mechanisms to help SMEs bear the incremental costs of the adoption of new technologies, and other economic incentives. Cleaner production needs to be more widely adopted through mainstreaming into national policies, plans, programmes and legislation, finding new and innovative financing mechanisms, promoting sustainable corporate procurement, and strengthening and broadening capacities to convey the importance of the broader sustainable consumption and production agenda to clients, particularly SMEs.

Creating new marketing opportunities and improving access to international markets were considered essential, in particular by developing and improving quality standards for both domestic and international markets. Some strategies for developing domestic markets need to be improved. Some participants advocated a shift in industrial strategies towards developing local and regional markets rather than international markets, which are difficult to access and in which consumer preferences are difficult to assess.

Influencing domestic consumers’ market preference for imported goods would require a change of attitude (which could be achieved through better information and awareness campaigns), better promotion of local products, and activities to improve the quality of local goods and services. It was also felt that production of sustainable goods, services and equipment in Africa should be promoted through green public procurement programmes.

Corporate responsibility needs to be promoted, with revenues ploughed back into local communities. Some participants felt that corporate environmental reporting should be made mandatory.
On the issue of hazardous and toxic wastes, a specific recommendation was that the Bamako Convention and the Ban Amendment to the Basel Convention should be ratified by all African countries. Developed countries should not export to developing countries hazardous materials, or second hand products or equipment; and they should enforce their own regulations. Participants felt a need for truly implementable national action plans on prevention, management and disposal of hazardous and toxic wastes. Capacity building for national and regional negotiation and implementation of multilateral environmental agreements (MEAs) was considered highly necessary, in particular in the negotiation phase, since some governments sign conventions without having adequate knowledge – and therefore resources and skills – to comply.

Working conditions need to be improved by development and amendment of regulations, updating and strengthening enforcement of occupational health standards (OHS) at national levels, and encouraging adoption of international OHS standards. HIV/AIDS policies should include creating more awareness about impacts of HIV/AIDS on economic productivity, enhancing on-going activities on HIV/AIDS, improving livelihoods of people, and promoting more manufacturing of retroviral drugs.

Regional cooperation was considered important, as it promotes technology transfer and synergies. It was noted that networking among National Cleaner Production Centres and other organizations promoting sustainable consumption and production needed to be strengthened.

It was concluded that industrialization was needed to alleviate poverty as it would create employment and improve infrastructure and social services.

E. Working Group on North Africa

The Working Group on North Africa, Chaired by Mr. Mootaz Khalil, Director of Environment and Sustainable Development Affairs, Ministry of Foreign Affairs, Egypt, included 14 participants from 5 countries and 2 international organizations. The Group discussed national experiences related to sustainable consumption and production initiatives in the five countries represented.

The Working group identified a number of common priorities for the sub-region, including waste management, water management, energy efficiency, air quality, and natural resources management. The Group decided to focus the discussion on the first three items.

On the issue of waste management, the Working Group identified the main problems as follows: the lack of waste collection, poor waste management capacities, in particular for industrial and hazardous wastes, and the lack of managed landfills and incinerators. The Group noted the need to address these issues by strengthening the capacity of national institutions for waste management and treatment through provision of financial and technical assistance and the establishment of more managed landfills and incinerators. Participants also agreed on the importance of separating the different types of waste
(industrial, urban, hazardous and hospital wastes) and establishing proper treatment systems for each, and in particular for hazardous waste.

With regard to water management, participants considered more rational and efficient water consumption in all sectors (industry, agriculture, household) as a main priority. Due to the scarcity and uneven distribution of water resources in North Africa, the Group highlighted the need to effectively use the existing water and to improve the quality and quantity of the water available for consumption. Participants also stressed the importance of waste water treatment and reuse.

Energy efficiency is a priority for North Africa, particularly in the industrial sector. In countries with natural gas resources, there is a need to increase its use for multiple purposes, in particular as fuel for public urban transportation. Solar and wind energy should be developed for remote and rural areas through access to and transfer of technology. The Working Group noted the potential of expanding the use of solar energy in the sub-region, as a clean and sustainable source of energy, if appropriate cost effective technologies were available.

Cross-cutting issues

The Group identified several cross-cutting issues applicable to all three main priorities as well as to the other issues identified.

Participants identified the need to strengthen legal instruments both by developing new laws and ensuring enforcement of existing laws related to sustainable development and environmental protection. The lack of legal instruments and the inability to enforce existing laws are major barriers preventing the implementation of sustainable consumption and production in North Africa. To address these constraints, stakeholder involvement and participation at all levels was highlighted. Participants agreed that national legislation related to sustainable consumption and production and environmental protection in developed countries were good sources of inspiration for elements to incorporate into national legislation in North African countries. It was noted that in Egypt the law requires new, expanding or diversifying industries to present an Environmental Impact Assessment Study as a pre-requisite for requesting authorization for the new activities.

Participants also highlighted the need to mainstream sustainable consumption and production in all sectors, with special attention to the industrial sector. The Group noted some successful initiatives to incorporate sustainable consumption and production in industry based on guidance in efforts by industry to adopt international standards such as ISO 14000. This guidance included an awareness-raising phase followed by a capacity building phase in the selected industries, supported by economic incentives. The Group underlined the need for awareness-raising and communications campaigns as effective tools for promoting sustainable consumption and production in all sectors.

Awareness-raising and information campaigns are particularly important where demand for electrical power at peak periods exceeds supply, requiring power cut-offs or “load shedding” to some areas at some times. In Algeria, an awareness-raising campaign
launched on television to reduce high use of electricity in certain cities at certain times of the day prevented the need to cut electricity in others.

To promote the mainstreaming of sustainable consumption and production in all sectors, the Group highlighted the need to ensure the transfer, accessibility and assimilation of appropriate technology.

The Group considered economic incentives to be an important cross-cutting issue, including taxation policies, customs and tariff exemptions, and the creation of special funds to help enterprises adapt sustainable production methods. In Morocco, a special fund called FODEP (Fonds de Dépollution) has been established in collaboration with the German technical cooperation agency GTZ to allow industries willing to invest in pollution reduction to have access to funds at low interest rates. This incentive measure was considered a successful public-private partnership for promoting environmental protection in the industrial sector.

Poverty alleviation and economic development were also considered as cross-cutting issues and as important objectives for all policies and actions to be implemented in the area of sustainable consumption and production in North Africa.

Pilot projects

The Group identified a number of pilot projects related to the three main priorities based on successful national experiences and the potential of replication at the regional level, in other countries in North Africa, and perhaps in Sub-Saharan Africa.

Waste management

- In Morocco, the leather industry collects and reuses the chrome used in the production process, recycling it and preventing inefficient use and pollution;
- In Morocco, eco-efficiency was improved in the dyeing and textile industries with the assistance of the Moroccan Cleaner Production Center and in partnership with the private company BASF and UNIDO. Eco-efficiency analysis provided a basis for optimizing the use of materials and energy and minimizing the generation of waste and emissions;
- The Basel Convention Regional Centre for Training and Technology Transfer for the Arab States, based in Cairo, has initiated a regional project for the preparation of a set of tools for the selection, design and operation of hazardous waste landfills in hyper-dry areas.

Water management

- Egypt has implemented a successful project for treating sewage wastewater and reusing the water for irrigating forest plantations.
Energy

- Algeria has implemented a successful “energy a la carte” project to promote management of energy consumption in low-income households. Customers buy pre-paid electricity cards, similar to pre-paid phone cards, according to their energy needs and financial resources and are provided with electricity up to the amount indicated in the card. New refills can be purchased later.
- Algeria and Egypt are promoting the use of natural gas as fuel for public urban transportation. Natural gas fueled vehicles are in use in a few cities such as Cairo and Algiers, with a significant improvement in air quality through reductions in pollution emissions and a reduction on dependence on fuel imports.

Recommendations

The Group highlighted some recommendations to ensure that sustainable consumption and production is implemented in North Africa and suggested that these recommendations be considered also in other sub-regions of Africa. The recommendations focused mainly on establishing or expanding regional and/or sub-regional organizations and arrangements in order to create regional strategies and support existing national strategies to promote sustainable consumption and production.

In particular, the Group recommended the creation of an African Observatory for Hazardous Waste in collaboration with the Regional Centers for the Basel Convention and the Bamako Convention. The Observatory would support policies and strategies on hazardous wastes and their disposal at the regional and sub-regional level.

Participants also suggested the creation of a sub-regional network among the National Cleaner Production Centers to improve information sharing and expand and coordinate activities at the sub-regional level, including pooling of resources. Participants also highlighted the possibility of expanding the Network of Maghreb Industries for the Environment, which is presently financed by GTZ in Algeria, Morocco and Tunisia, and expand it to other countries in the sub-region.

The Group also stressed the need to integrate sustainable consumption and production into NEPAD’s Action Plan for the Environment Initiative.

The Arab Industrial Development and Mining Organization (AIDMO) was considered as having a potential to expand its activities to promote sustainable consumption and production.

Participants recommended to explore the possibility of using the existing European Union Partnerships Agreements with a number of countries in North Africa as a means to further promote sustainable consumption and production in the sub-region.
F. Working Group on Sub-Saharan Africa

The Working Group on Sub-Saharan Africa included 39 participants from 14 countries and 2 international organizations. Mr Patrick Mwesigye, Director of the Uganda Cleaner Production Centre, chaired the Group, and Prof. Chris Buckley of the University of KwaZulu-Natal, South Africa, was the Rapporteur. The Group addressed the needs and priorities of Sub-Saharan Africa with respect to sustainable consumption and production, with a particular focus on poverty reduction, and identified a number of success stories and best practices.

The Group noted the extensive linkages between sustainable consumption and production and poverty reduction, as well as the importance of integrating sustainable consumption and production in all development planning. It was suggested that any new development plans or projects should be evaluated from the perspective of sustainable consumption and production.

The Group noted the need to improve efficiency of natural resource exploitation and use in Sub-Saharan Africa, and to reduce poverty, through local decision making and participation, which may require legal reforms. Improved resource management and poverty reduction also require capacity building for local communities to ensure informed decision making and ownership. Where possible, indigenous knowledge should be used for resource conservation and economic development, with protection of local intellectual property, such as traditional medicines.

In many countries in Sub-Saharan Africa, declining soil fertility due to inappropriate agricultural practices and crops is an obstacle to poverty reduction, food security and the development of agro-industries. Agricultural techniques that could help to address this problem include traditional agricultural practices and organic agriculture. Taking advantage of new and expanding export market opportunities could also contribute to improving agricultural production. In Kenya, an export company has assisted small farmers in producing French beans for the European market, providing technical assistance in meeting market standards, guaranteeing purchases, and marketing the products. Agricultural extension services could assist farmers in identifying market opportunities as well as in sustainable agricultural techniques.

Organic agriculture can maintain soil fertility and reduce water pollution from fertilizers and pesticides, while getting premium prices (typically 10-15% higher) in export markets for products labelled as certified organic. The demand for such products, particularly in Europe, has been growing rapidly, in part due to opposition to genetically modified crops. African indigenous knowledge and traditional agricultural practices, with no chemical inputs, can be adapted relatively quickly and easily to organic agriculture, although obtaining certification can be a problem. Some producers in Africa, such as orange producers in Ghana, have obtained organic certification with European assistance. Organic production also has the advantage of being relatively labour intensive.
Efforts are also needed to develop African fisheries. In Tanzania, a fish processing company is working with local fishers and fishing communities, providing technical assistance on sustainable fishing practices, hygienic handling techniques and product packaging and marketing, with guaranteed sales and improved and more stable revenues. Some of the revenues are earmarked for community development.

Sustainable agriculture and rural poverty reduction in Africa can also be supported by improved rural communication systems using modern technologies such as cell phones and internet connections. Such systems can provide farmers with accurate and up-to-date information on prices, reducing dependence on middle-men. Modern information and communication systems can also support agricultural extension services.

Electrification for rural areas and affordable energy for the urban poor are critical issues for sustainable development in Africa. Most household energy in Sub-Saharan Africa is obtained by burning fuelwood, agricultural residues or animal dung, often indoors and inefficiently, producing serious damage to health and contributing to environmental degradation. Improved biomass energy generation, including agro-industrial co-generation and bio-fuels, could make an important contribution to energy for sustainable development in Africa, particularly in view of the labour-intensive nature of biomass energy. Kenya and Senegal have promoted improved charcoal stoves for cooking, reducing fuel consumption and air pollution. In Mauritius, bagasse from sugar cane is now an important fuel for electricity generation, in addition to providing process heat for sugar refining.

Other renewable energy sources, such as wind, solar and geothermal, can also contribute to meeting energy needs, particularly in areas remote from energy grids, or in mixed grids. However, affordable energy storage is a problem with discontinuous sources such as wind and solar. Rural community participation in the planning, financing, operation and maintenance of energy systems is important to their sustainability and their contribution to poverty reduction.

Replacement of traditional biomass fuels by modern cleaner energy sources, such as liquefied petroleum gas (LPG) can be market driven through liberalization of the energy sector. In Kenya, energy liberalization has led to the introduction of smaller LPG containers - 3kg and 6kg, in addition to the standard 13kg - and wider distribution, making LPG more accessible and affordable to poor people.

In the area of water resources, integrated water resource management and efficient use of water were identified as important issues. In some countries, making productive use of available unused water resources was a priority, together with improving water efficiency.

In some countries, deforestation in upstream areas is making downstream flow more seasonal, creating difficulties for water management and year-round use. Catchment management and community awareness were identified as important for watershed and water resource management. In Cameroon, a national discussion on deforestation was organized with the participation of civil society, leading to improved policies for forest management, including regulations and fees for harvesting, with the government working with foresters.
and community organizations to ensure sustainable forest management. In Zimbabwe, community responsibility for forest management had also proved successful, with funding derived from wildlife management through the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE).

In the area of urban solid waste management, it was noted that informal waste collection and trading provide an important source of livelihoods for poor people in many countries, play a substantial role in waste management, reuse and recycling. Waste collection, reuse and recycling could be improved, together with the conditions of scavengers, by integrating the informal and formal waste management systems and developing the reuse and recycling supply chains, including through public-private partnerships. Plastic bags and other plastic products are a particular waste problem, which might be addressed through the development of innovative plastic products. There was also a need for improved handling and safe disposal of medical waste, for example by small-scale high-temperature incineration, as in Malawi.

Urban street traders are a source of information for their customers, and efforts should be made to use them to promote sustainable consumption and production.

The problems facing urban development in Sub-Saharan Africa are exacerbated by high population growth and by rural poverty, which drives rural-urban migration. Efforts toward sustainable development in urban areas should therefore be complemented by rural development efforts including improved access to electricity, safe water, sanitation, health care, education and other services, as well as economic diversification and the creation of local industries and employment opportunities.

The Group identified a number of policy issues related to sustainable consumption and production that require further work. There is a need to examine how government procurement can promote sustainable development, poverty reduction and competitive advantage, including by government funding of research. There is also a need to address the problem of low wages, for example by strengthening labour laws and enforcement and promoting corporate social responsibility. The potential for opening African markets for Africans should be examined, for example through regional trade liberalization and new products and services designed specifically for the African market.

Policies for sustainable consumption and production should be developed to empower women and enhance their participation in decision making, recognizing their important role in changing social attitudes. There is a need for international policies to reduce trade barriers to African exports and to examine the extent to which ecolabels represent barriers or opportunities. New policies to improve governance and access to justice, to increase transparency and to reduce corruption are also needed. In policy making for sustainable consumption and production, job creation should be a major metric for measuring the effectiveness of policies.

In the area of health, the provision of safe drinking water and sanitation, in accordance with the Millennium Development Goals (MDGs) and as part of poverty reduction efforts,
is a major concern for all countries in the region. Efforts to meet those needs should take into account sustainable consumption and production criteria (e.g. through environmental life cycle assessment). In particular, the possibility of technology “leapfrogging” to introduce more sustainable technologies than conventional developed-country technologies should be considered. Some countries, such as South Africa, have introduced policies to provide all households with a free basic water supply, with a rising block tariff for higher levels of consumption. South Africa is also introducing dry sanitation techniques to improve access to basic sanitation while conserving water resources.

The Group identified a need to develop commercial opportunities for traditional African medicine to contribute to both health care and sustainable development. Health insurance should make provision for prescribing traditional medicines. Products of traditional African medicine include medical drugs, essential oils, cosmetic ingredients and sweeteners. There is a growing international market for such products, many of which derive from trees, offering opportunities for rural poverty reduction and conservation of forests and biodiversity. However, rural communities need assistance in marketing these products, particular to upscale export markets. Inclusion of traditional medicine in health insurance benefits could provide valuable support for such practices. Market opportunities for natural resource based textiles, including “smart fibre” blends, should also be developed, particularly for fibres unique to Africa. The maximum benefit of sustainable consumption and production can be achieved if it is introduced at the beginning of a “new wave” for products such as traditional medicines.

In the area of education, sustainable consumption and production should be mainstreamed into formal and non-formal education. A particular need was recognized for information dissemination and capacity building among youth, including training for entrepreneurship. In Cameroon, a national youth network (The YouthXchange project in partnership with UNEP-UNESCO) has been established to educate and involve young people in sustainable consumption.

**Priorities**

The Working Group identified a number of priorities for promoting sustainable consumption and production at sub-regional and regional levels in Sub-Saharan Africa.

- A number of general priorities were identified for Sub-Saharan Africa, including:
- Creating databases of best practice and success stories and networks for information exchange, for example through the African Roundtable on Sustainable Consumption and Production;
- Disseminating information on improving rural energy efficiency;
- Transfer of knowledge and experience on rural electrification;
- Improving transport networks, including rail networks and water transport;
- Using NEPAD as a basis for increasing funding opportunities of cleaner production projects;
• Using multilateral environmental agreements as a basis for promoting the use of biomass energy and cleaner fuels, for example through the Clean Development Mechanism;
• Capacity building on tools for sustainable consumption and production;
• Networking among youth organizations;
• Developing strategies for managing plastic waste;
• Supporting educational institutions in mainstreaming sustainable consumption and production into curricula.

At the sub-regional level, in the Lake Victoria area, a priority could be developing the use of biomass such as the water hyacinth for compost, energy or fibre, as part of integrated use of lake resources. Sub-regional support networks for rural water and sanitation systems would also be useful. A multilateral environment agreement should be considered for shared resources such as Lake Victoria.

To improve access to energy for sustainable development, a priority could be the use of agricultural and forestry by-products for co-generation of heat for industrial processes and electricity for general use. Cooperation on such technologies might be most valuable in sub-regions sharing agricultural crops and agro-industries, such as sugar.

A priority in the East African region could be improving the commercialization of tea and coffee and increasing local processing and value-added. Promoting organic agricultural production for the premium export market might also be a priority for both the economic and environmental benefits.
CONCLUSIONS

The meeting was conducted in a positive and participatory manner. Participants showed their interest in working on policies and projects to promote sustainable consumption and production on Africa, which could make important contributions to poverty reduction and economic development. The adoption of sustainable consumption and production requires policy integration, public-private partnerships, education and capacity building, dissemination of best practices and information sharing.

Participants welcomed the establishment of the African Roundtable on Sustainable Consumption and Production (ARSCP) as a non-governmental, not-for-profit regional coordinating institution. They noted that the ARSCP would play an important role in promoting sustainable consumption and production in the region.

Participants agreed that awareness and understanding of sustainable consumption and production issues should be promoted among policy makers at national and regional levels. In particular, at the regional level, sustainable consumption and production should be included in the work programme of the African Ministerial Conference on the Environment (AMCEN), including in the implementation of the Action Plans of the NEPAD Environment Initiative and Science and Technology Programme.

Participants discussed and agreed on the Casablanca Statement on Sustainable Consumption and Production (Annex I), to be submitted to AMCEN at its 10th regular session, to be held in Tripoli, Libya, in June 2004. They requested the government of Morocco, as host country of the Expert Meeting, in cooperation with UNEP, as AMCEN secretariat, to transmit the Casablanca Statement to AMCEN for consideration.

Participants requested the United Nations system, including UNEP, UNIDO and UNDESA, and other international and regional organizations, as well as development partners to strengthen their support to national, sub-regional and regional efforts in Africa to promote sustainable consumption and production, as part of the 10-year framework of programmes.

Participants requested the UN DESA and UNEP secretariats to disseminate the present report, including through the joint UN DESA – UNEP Marrakech Process website, and to consider organizing a second African expert meeting on sustainable consumption and production, in consultation with the African Roundtable on Sustainable Consumption and Production, to further develop a regional strategy on sustainable consumption and production and an action plan for capacity building. They also requested the secretariats to bring the present report and information on follow-up activities in Africa to the attention of the second international expert meeting on the 10-year framework.
Participants expressed their appreciation to the Moroccan Cleaner Production Center and the Secretariat of State for the Environment of Morocco for the excellent arrangements for the meeting and the generous hospitality shown to participants.
Meeting of the African Ministerial Conference on the Environment
Tenth session, Tripoli, 26–30 June 2004
Item 11 of the provisional agenda *

Adoption of the report of the expert group meeting

First African Expert Meeting on Sustainable Consumption and Production, Casablanca, 19 and 20 May 2004
Casablanca statement on sustainable consumption and production For submission to the tenth session of the African Ministerial Conference on the Environment

The First African Expert Meeting on Sustainable Consumption and Production, meeting in Casablanca, in the context of the Third African Roundtable on Sustainable Consumption and Production, 17–20 May 2004:

Recognizing that sustainable consumption and production can make an important contribution to sustainable development and poverty reduction in Africa;

Noting the work that has been accomplished in Africa in promoting sustainable consumption and production, including the work of the National Cleaner Production Centres, governments and non-governmental organizations;

Emphasizing the benefits of regional and international cooperation and information exchange, education, training and technology transfer for supporting national efforts to promote sustainable consumption and production;

Acknowledging the international support that has been provided to regional subregional and national efforts towards sustainable consumption and production by the United Nations system, including the United Nations Environment Programme (UNEP), United Nations Industrial Development Organization (UNIDO) and United Nations Department of Economic and Social Affairs (UN DESA), and development partners;

* UNEP/AMCEN/10/INF/2
Noting too the call of the World Summit on Sustainable Development in the Johannesburg Plan of Implementation for the development of a 10-year framework of programmes in support of regional and national initiatives for sustainable consumption and production; Noting also the results of the First International Expert Meeting on Sustainable Consumption and Production, held in Marrakech, 16–19 June 2003, and work on the Marrakech Process, which includes strengthening regional processes for promoting sustainable consumption and production;

Welcoming the endorsement by the African Union Summit of the Action Plan for the Environment Initiative of the New Partnership for Africa’s Development, including the proposed projects for sustainable consumption and production (Annex II of the Action Plan for the Environment Initiative of NEPAD);

Appreciating the work of the African Ministerial Conference on the Environment (AMCEN) on promoting regional cooperation on environmental issues, including implementation of the Action Plan for the Environment Initiative of NEPAD;

Welcoming the establishment of the African Roundtable on Sustainable Consumption and Production (ARSCP) as a non-governmental, not-for-profit, regional coordinating institution during the Third African Roundtable on Sustainable Consumption and Production held in Casablanca, Morocco;

Calls upon the United Nations systems, including UNEP, UNIDO and UN DESA, other international and regional organizations as well as development partners, to strengthen their support to national, subregional and regional efforts in Africa to promote sustainable consumption and production, as part of the 10-Year Framework of Programmes;

Urges AMCEN to include initiatives that promote sustainable consumption and production in its work programme, including in the implementation of the Action Plan for the Environment Initiative of NEPAD and the science and technology programme;

Requests AMCEN to provide political support and overall policy guidance to the ARSCP and regional expert meetings on sustainable consumption and production, and to take into account the results of those meetings;

Further requests AMCEN to encourage governments in Africa to develop and strengthen national policies and programmes for sustainable consumption and production, and to participate in regional, subregional and international cooperative processes, including NEPAD initiatives and the Marrakech Process or 10-Year Framework.

Also requests AMCEN to consider holding a special session on sustainable consumption and production to elaborate a regional strategy on sustainable consumption and production and an action plan for capacity-building;

Calls on AMCEN to recommend that governments in Africa mainstream the issue of sustainable consumption and production into existing national poverty reduction strategies.
The Charter of the African Roundtable on Sustainable Consumption and Production (ARSCP)

Preamble

Recognizing the important contribution that the development of the industrial sector makes to the fulfilment of the Millennium Development Goals (MDGs) and NEPAD’s objectives on poverty reduction and sustainable development;

Underlining the WSSD statement that fundamental changes in the way societies produce and consume are indispensable for achieving global sustainable development and that all countries should promote Sustainable Consumption and Production (SCP) patterns;

Appreciating the support provided through the UNEP/UNIDO International Programme on Cleaner Production for the establishment of National Cleaner Production Centers (NCPCs) in African countries;

Saluting the encouraging results that have been registered by NCPCs and other SCP promoting institutions and individuals in promoting the adoption of cleaner production principles by industries, government agencies and academic institutions in the region;

Taking note of the need to create a regional institution that would provide support to activities at the national level and facilitate regional cooperation on sustainable consumption and production activities in the Region;

We, representatives of NCPCs, SCP promoting institutions and individual SCP experts have resolved to establish a regional coordination mechanism on sustainable consumption and production.

I. Establishment

The ‘African Roundtable for Sustainable Consumption and Production’ (herein after ARSCP) is hereby established by this Charter as a Regional non-governmental and not-for-profit organization.
II  The vision

The vision of ARSCP is to achieve sustainable development of African countries with an effective contribution to the reduction of poverty, improvement of well being as well as the protection and conservation of the environment.

III.  The Mission

The mission of ARSCP is to promote the development of national and regional capacities for the effective promotion and implementation of sustainable consumption and production principles and serve as the regional clearinghouse for sustainable consumption and production activities in the region.

IV.  The objectives

The overall objective of the ARSCP is to facilitate the development of national and regional capacities for sustainable consumption and production and promote the effective implementations of the concepts and tools of sustainable consumption and production in African countries. The following are the specific objectives of ARSCP under the overall objective.

4.1  To promote the establishment of national cleaner production centres in countries where there are no NCPCs or SCP promoting institutions and facilitate support to strengthen existing NCPCs and SCP promoting institutions in African countries.

4.2  To facilitate the further integration of the concepts and principles of sustainable consumption and production in national policy frameworks in the region.

4.3  To provide the necessary support for the development, effective transfer and assimilation of Environmentally Sound Technologies (ESTs) that are of particular relevance to African economies.

4.4  To encourage specialization, facilitate information exchange and experience sharing between SCP promoting institutions and individual experts working within the region and at the international level.

4.5  To strengthen cooperation between NCPCs and SCP promoting institutions in African countries with UNEP/UNIDO and other international organizations and NCPCs in other regions.

4.6  To promote the development and integration of Sustainable Cleaner Production curriculum in educational institutions in the region.
V. Activities

The following are the major activities that are going to be conducted by ARSCP to fulfil its objectives:

5.1 Organize the African Roundtable on Sustainable Consumption and Production with a minimum of once every two years.
5.2 Support the organization of national and sub-regional roundtables with special emphasis given to countries where there are no formally organized NCPCs.
5.3 Facilitate information exchange through the appropriate combination of communication means, such as: newsletters, internet-based communications and/or special publications.
5.4 Develop and maintain a directory of African professionals with expertise in the area of sustainable consumption and production and make it available to interested parties.
5.5 Compile best cases of strategies and application of sustainable consumption and production and publish and disseminate through the appropriate means.
5.6 Provide technical and policy input to regional initiatives such as NEPAD and forums associated with sustainable consumption and production.
5.7 Develop sub-regional and regional projects that will be implemented in collaboration with a group of NCPCs and SCP promoting institutions.
5.8 Organize training workshops and seminars on selected topics that are of particular importance to develop the capacities of SCP promoters in the region.
5.9 Establish collaborative linkages with other regional roundtable on cleaner production and international programs on sustainable consumption and production.
5.10 Promote research partnerships in the area of sustainable consumption and production.
5.11 Carry out other activities that are found necessary for the fulfilment of its missions and objectives.

VI. Membership

ARSCP shall have the following three categories of membership:

- Patron institutions
- Institutional members
- Individual members

6.1. Patron institutions
Patron institutions are non-voting members of ARSCP that are going to be appointed by the General Assembly in recognition of their outstanding contribution to the promotion of sustainable consumption and production in the region.

6.2. Institutional members
Institutions that are directly engaged in the promotion of cleaner production and sustainable consumption in their respective countries within the region and that accept the charter can be institutional members of ARSCP.
6.3. Individual members
Individuals that are directly engaged in the promotion of cleaner production and sustainable consumption in the region and that accept the charter can be members of ARSCP.

VII Membership rights and obligations

7.1 Membership rights
Individual and institutional members have the following rights as members of ARSCP:

They have the right to vote and be elected as per the provisions given under this charter.

7.1.2 Each member of ARSCP has the right to have equal benefits from the services to be provided to the respective groups of membership.

7.1.3 Each member has the right to withdraw its membership of ARSCP without giving any explanation.

7.2 Members obligation
Members are obliged to fulfil the following obligation as members of ARSCP:

Members shall be willing to share information pertaining to sustainable consumption and production through ARSCP.

Members shall be willing to pay their membership fee as per the decision to be made by the General Assembly of ARSCP.

Members shall conduct themselves in the spirit of international cooperation and shall foster regional cooperation as embodied in ARSCP’s vision and mission.

VIII Organization

The organizational structure of ARSCP shall be consisted of the following three bodies:

- The General Assembly
- The Executive Board
- The Secretariat

8.1 The General Assembly

8.1.1 The General Assembly is the highest policy making body that consists of the institutional and individual members of ARSCP.

8.1.2 The General Assembly of ARSCP shall be convened in conjunction with the regional roundtable on sustainable consumption and production and shall have the following duties and responsibilities.
• Decide on the policies and strategies that would guide the activities and programmes of ARSCP.
• Approve the bi-annual work plan of ARSCP, the activity report and the audit report of the Executive Board.
• Elect the president of ARSCP and members of the Executive Board.
• Approve and revoke the appointment of the Patron Institutions of ARSCP.
• Revoke membership to ARSCP upon the recommendation by the Executive Board.
• Appoint the external auditor for ARSCP.

8.1.3. The members that attend the Regional Roundtable on Sustainable Consumption and Production shall constitute the quorum of the General Assembly.

8.2 **The Executive Board**

8.2.1 The Executive Board shall be consisted of four institutional members and one individual members to be elected by the General Assembly.

8.2.2 The term of office for the executive Board members is two years; but members can be elected for another two-year term.

8.2.3 The Executive Board shall consist of the following members:

- President
- Secretary
- Treasurer
- 2 Committee Members

8.2.4 The outgoing president and Secretary shall serve as ex-officio members of the Incoming Executive Board for one additional term to ensure continuity.

8.2.5 The Executive Board shall provide general guidance to the Secretariat of ARSCP through the President of ARSCP. This will include:

- Provision of guidance on the implementation of the workplan approved by the General Assembly;
- Recruitment and employment of the necessary staff for the secretariat of ARSCP;
- Preparation of the activity and audit report of ARSCP to be presented to the General Assembly;

8.2.6 The President of ARSCP, who will be directly elected by the General Assembly, shall provide the leadership to the Executive Board, including:

- Provision of general guidance to the Secretariat of ARSCP on behalf of the Executive Board;
- Official representation of ARSCP in public forums and communications;
- Supervision of the Officer(s) of the Secretariat of ARSCP;
• Chairing the meetings of the Executive Board and the General Assembly of ARSCP;

8.2.7. The Executive Board shall select the Secretary of ARSCP from its members. The Secretary of ARSCP shall:

• perform the duties of the President, in the absence of the President;
• preparing the agenda and minuting of the meetings of the EB of the Roundtable;
• keeping the records of the Executive Board.

8.2.8. The Executive Board shall appoint a Treasurer from its members. The Treasurer shall be responsible to ensure that the financial management of ARSCP including developing financial policy and procedure are in place, and supervises the preparation of annual budget, and arrangement for audit.

8.3 The ARSCP shall have a Secretariat that will conduct the day to day activities of the Roundtable under the leadership of the Executive Board of ARSCP. In the interim period, the NCPC that will host the ARSCP shall serve as the interim secretariat.

8.4 The Executive Board shall have the right to co-opt additional members to the Board as and when it finds it necessary between the convening of the General Assembly.

IX. Source of financing

9.1 The following are the major sources of financing for the activities of ARSCP:

- Membership fee
- Donations, grants and special contributions
- Project financing
- Revenues from workshops, conferences, seminars, etc.
- Sales of publications
- Any other appropriate sources

9.2 The Executive Board shall prepare a guideline on rules, procedures and ethical consideration on accepting donations, grants and special contributions to ARSCP.

9.3 Accounts shall be regularly audited, as per the fiscal year to be adopted by the Board, and audit reports shall be submitted to the subsequent General Assembly meeting.

X. General provisions

10.1 Amendments

10.1.1 This charter can be amended by a simple majority vote of the membership attending a given General Assembly of ARSCP with due prior notice and circulation of the proposed changes to all members.
10.1.2 Amendments shall enter into force based on a timetable established by the Executive Board but no later than 90 days.

10.2 Dissolution and Liquidation
10.2.1 The ARSCP shall be dissolved by the decision of the two third vote of the members attending a given General Assembly or if the number of its members go below the legal requirement of the country of registration.

10.2.2 Upon dissolution of ARSCP, any net assets shall be transferred to an organization of similar nature that will be determined by the General Assembly or the Executive Board.

XI. Legal enforcement

11.1 This charter shall enter into force upon the signing of five institutional members on the charter.

11.2 ARSCP becomes a legally constituted entity upon its registration in one of the countries of the founding members as a regional non-governmental and not-for-profit organization.