



# ARSCP-3

## The Third African Roundtable on Sustainable Consumption and Production

17- 20 May 2004, Casablanca, Morocco

*Hosted by:*  
*The Cleaner Production Centre of Morocco*  
*and*  
*Ministry of Land Management, Water & Environment of Morocco*



المركز المغربي للإنتاج النظيف  
Centre Marocain de Production Propre



*Organised by:*  
The United Nations Environment Programme (UNEP)

*In collaboration with:*  
The United Nations Industrial Development Organisation (UNIDO) &  
*In consultation with:*  
DESA - Division for Sustainable Development (UNDESA)

*Financed by*  
*The Royal Norwegian Ministry of Foreign Affairs and*  
*The Federal Ministry of Environment of Germany*





UNEP

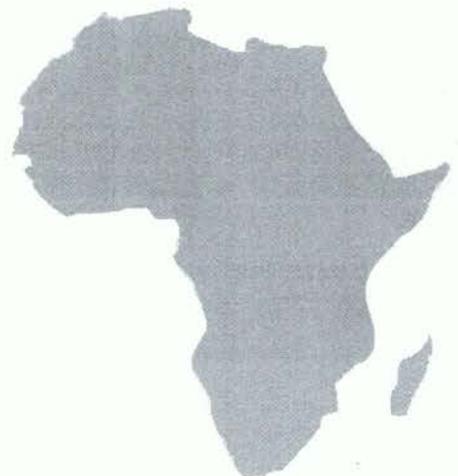


Man  
Tools  
(6)3

# **The Third African Roundtable on Sustainable Consumption and Production**

17- 20 May 2004, Casablanca, Morocco

*Work Programme & Compendium of Abstracts*



067116

## The background

UNEP launched the International Programme on Cleaner production in 1989 with an objective of applying integrated preventive environmental strategy to increase overall efficiency and reduce risks to humans and environment. In 1994, UNEP and UNIDO joined forces and launched the National Centre Production Centres (NCPCs) programmes for promoting cleaner production in developing countries and countries in transition. The Sustainable Consumption programme of UNEP started in 1998. The programme focuses on understanding the forces that drive consumption patterns around the world and how to translate those findings into tangible activities for business, governments and other stakeholders.

The UNIDO/UNEP Programme for NCPCs is a unique programme of capacity development to help achieve adoption and further development of the cleaner production concept at the national level. Over the last ten years, twenty-four National Cleaner Production Centres (NCPCs) have been established under the programme in developing countries and economies in transition out of which nine are in Africa. With the increasing number of NCPCs and CP promoting institutions at the national level, Regional Roundtables emerged as a useful forum for experience sharing and information dissemination at the regional level. UNEP has been assisting the launching of Regional Roundtables particularly in the developing world. Accordingly, in August 2000, UNEP organised the First African Roundtable on Cleaner Production and Consumption in Nairobi Kenya. The Second African Roundtable on Sustainable Consumption and Production was organised by the Cleaner Production Centre of Tanzania (CPCT) in collaboration with UNEP and was held in January 2002, in Arusha, Tanzania.

The Third African Roundtable on Sustainable Consumption and Production (ARSCP-3) is being organised by UNEP in collaboration with UNIDO and the Cleaner Production Centre of Morocco. The ARSCP-3 will be held from 17-20 May in Casablanca, Morocco and will be attended by representatives of NCPCs, CP promoting institutions, government agencies, industry associations, consumers' associations and youth associations. The ARSCP-3 is organised as part of the activities under the project on 'Institutionalising the African Roundtable on Sustainable Consumption and Production' that is financed by the Government of Norway and implemented by UNEP. The second part of the meeting is a follow-up to the recommendation from the WSSD related to the development of a ten-year framework of programmes in order to support regional and national initiatives on sustainable consumption and production. The first African Meeting meeting to develop a regional strategy under the 10-year framework of programmes is being supported by the Government of Germany and will be organised in co-operation with UN-DESA.

## Objectives of ARSCP-3

The overall objective of the ARSCP-3 is to provide a forum for further strengthening of the activities on cleaner production and sustainable consumption in Africa. The specific objectives are to:

- review the current status of activities on cleaner production and sustainable consumption in the region and facilitate experience sharing on best practices and strategies implemented in the region;

- provide the basis for the institutionalisation of the Regional Roundtable on sustainable consumption and production; and
- identify key areas of regional focus for the 10 year Framework plan on sustainable consumption and production.

## Structure of ASCP-3

ARSCP-3 is composed of two components in order to achieve the above stated objectives. The core theme of the first component is the review of the current status of activities on cleaner production and sustainable consumption including best practice initiatives and the institutionalisation of ARSCP. The thematic focus of the second part would be 'Africa's contribution to the 10 Year Framework Plan on Sustainable Consumption and Production'. The following is the detail of the thematic outline of each component.

### Part I: Institutionalization of the African Roundtable on Sustainable Consumption and Production (ARSCP)

17-18 May 2004

*Financed by the Government of Norway supported by UNIDO*

#### General

This will constitute the first two days of ARSCP-3 and it will focus on reviewing current status and best practices in the area of sustainable consumption and production and lay down the basis for the institutionalisation of the African Roundtable for Sustainable Consumption and Production. The following are the thematic sessions to be covered during the first two days.

**Session one: Status of sustainable consumption and production in Africa:** presents the general overview of the status of sustainable consumption and production to be prepared based on national reports and deliberates on future directions to be followed. This session is consisted of:

- Presentation of the regional status report.
- Panel discussion on future direction: selected panellists from the region will provide their viewpoints on identified issues to be followed by an open discussion.

**Session two: Innovative application of CP strategies:** facilitates experience sharing amongst the NCPCs by presenting the most innovative application of CP strategies that are implemented in the region and explores what new applications of CP could be undertaken in the region. The areas to be covered may include CP-MEA integration; CP-energy efficiency integration; CP in industrial estates; financing CP; CP in forestry sector; CP in products and services etc. It will also explore new areas of collaboration amongst different partners. The presentation to be made during this session will be solicited from national centres and CP promoting institutions through a combination of paper and poster session.

**Session three: Sustainable consumption in Africa:** This session covers the key aspects of sustainable consumption from the African context. This would include:

- Life cycle thinking and the African economy: exploring different ways of introducing the life-cycle thinking in Africa's development effort and presenting cases of applications, if there are any.
- Communication and multi-stakeholder approach: reviews the potential of the different tools (indicators, labelling, information network etc.) for information dissemination and communication and assess the role of different stakeholders (youths, consumers, governments, etc.) in promoting sustainable consumption in the region.

**Session four: Institutionalising the African Roundtable:** this session will focus on discussing the modalities of the institutionalisation of the African Roundtable. Two key issues to be addressed under this session are the draft charter of the African Roundtable on Sustainable Consumption and Production (ARSCP) and the election of the regional Steering (Executive) Committee of the Roundtable.

---

## **Part II: Africa's Forum on the 10-Year Framework of Programmes on Sustainable Consumption and Production**

### **19-20 May 2004**

*In consultation with UNDESA and financed by the Federal Ministry of Environment, Germany*

### **General**

The second part of the ARSCP-3 will be aimed at providing an overview of the 10-Year Framework of Programmes on Sustainable Consumption and Production (SCP) in support of regional and national initiatives in Africa. It will identify regional and national priorities and needs to develop a framework to promote sustainable consumption and production patterns that contribute to poverty alleviation and economic development in Africa. The following are the thematic sessions for Part II of the ARSCP-3:

**Session One: The Marrakech Process – global support for regional applications.** The session will look at some of the global parameters of the 10-year framework of programmes initiated at WSSD and its implications in the African context. Primarily, the session lay out how the Marrakech process can promote a basis for implementation of more sustainable consumption and production patterns in Africa.

**Session Two: Regional priorities, activities and needs – challenges and opportunities.** The objective here is to develop an overview of the priorities, activities and needs in the various regions in Africa, drawing on the input and knowledge brought forward in part one of the ARSCP. It will also discuss the programs and actions that must be taken to implement these initiatives based on the priorities described by the World Summit on Sustainable Development. The outcome of this session will be used to draw up more specific strategies as basis for implementation projects.

**Session Three: Contributing to poverty alleviation and economic development – developing a regional strategy.** Drawing on the findings of session two, the session will identify and analyse the linkages of poverty alleviation and sustainable consumption and production.

**Session Four: Policies and opportunities for implementation.** Participants will be asked to discuss and identify policies to promote sustainable consumption and production at the sub-regional and national levels.

**Session Five: Next steps - a call for commitment.** Key conclusions will be drawn up, in order to be presented at the next meeting of AMCEN to be held in Libya, June 2004. Moreover, participants will be asked to confirm their commitment to implementation of pilot and demonstration projects to be further developed at the Tanzania meeting in the fourth quarter of 2004.

---



# Work Programme of the Third African Roundtable on Sustainable Consumption and Production (ARSCP-3)

## Part one: Roundtable on sustainable consumption and production

17-18 May 2004

### Day One: 17 May, Monday

8:30-9:00	Registration
9:00-9:30	<b>Opening session</b> <b>Presiding:</b> Dr. Desta Mebratu, UNEP-ROA <ul style="list-style-type: none"><li>• Welcoming remark, Mr. Smail Al Hilali, Director, CMPP</li><li>• Welcoming statement, Dr. Sekou Toure, Director, UNEP Regional Office for Africa</li><li>• Keynote Address: Ministry of Industry</li><li>• Opening Address, Mr. Mohamed Elyazghi, Minister of Land Management, Water and Environment</li></ul>
9:30-10:00	<b>Break</b>
10:00 – 11:00	Session one            Chair person: Dr. Patrick Mwesigye
10:00-10:30	Regional status report on sustainable consumption and production UNEP-ROA - Dr. Desta Mebratu
10:30-11:30	Panel Discussion on SCP in Africa
11:30-12:30	Session two A        Chair person: Ms. Jane Nyakang'o
11:30-11:50	The Eco-Benefit programme in Uganda Dr. Patrick Mwesigye, UCPC
11:50-12:10	Cleaner Production in Municipalities Mrs. Anne Magashi, CPCT
12:10-12:30	Discussion



<b>12:30-14:00</b>	<b>Lunch</b>
14:00-15:30	Session two B      Chair person: Mr. Moris Chidavaenzi
14:00-14:20	Application of Eco-efficiency tools in textile industry Smail AlHilali, CMPP
14:20-14:40	Cleaner Production and MEAs Mr. Benalias, CPCT
14:40-15:00	<b>The Role of Cleaner Enterprise Programme (CEP) in Environmental Governance in Kenya</b> , Ms. Jane Nyakang'o, KNCPC
15:00-15:30	Discussion

**15:30-16:00      Coffee Break**

16:00-17:30	Session two C      Chair person: Dr. Christopher Masuku
16:00-16:20	Capacity Building for the Implementation of the Environmental Framework Law in Kenya, Prof. David Mungai
16:20-16:40	The Viability, Feasibility and Potential for Product Development and Process Innovation for Mine Waste in Zimbabwe Mr. Moris Chidavaenzi
16:40-17:00	Capacity Building for Profitable Environmental Management Dr. Edith Kürzinger
17:00-17:30	Discussion

**Day two:      18 May, Tuesday**

9:00 - 12:30	Session three: Sustainable consumption in Africa
9:00 - 10:30:	Session 3A      Chair person: Professor C. Buckley
9:00- 9:20	Using Life Cycle Assessment to Inform Policy Relating to Energy Products from the Sugar Industry: A Review of Studies from Mauritius and South Africa Dr. Toolseeram Ramjeawon, University of Mauritius
9:20-9:40	Shifting peak electricity demand, a sustainable business strategy Ms. M. Rambharos
9:40-10:00	Life Cycle Development: Linkages between Local and Global Sustainable Consumption and Development Dr. Gregory A. Norris, Harvard School of Public Health

10:00-10:20 Promoting the utilization of Sisal plant for African region through CDM  
Dr. Azza Morssy, UNIDO

10:20-10:30 Discussion

**10:30 - 11:00 Coffee Break**

11:00- 12:30: Session 3B: Chair person: Dr. T. Ramjeawon

11:00-11:20 Towards Sustainable Consumption and Production in Africa: The Role of  
Research Partnerships  
Dr. Evans Kituyi, Industrial Ecology Institute

11:20-11:40 The impacts of flows of resources and products (imports, exports and aid)  
between north and south: *Case study: the flow between EU and East Africa*  
Mr. Getachew Assefa, Stockholm Institute of Technology

11:40-12:00 Improving air qualities in African Cities through shift in consumption  
Dr. Chipindu Barney, Air Pollution Information Network-Africa

12:00-12:30 Concluding discussion

**12:30 - 14:00 Lunch Break**

14:00 - 17:30 Session four: Institutionalizing ARSCP

14:00 - 15:30 Session 4A Chair person: Professor C. Migiro

14:00 - 14:20 Presentation of the Draft Charter of ARSCP  
Dr. Patrick Mwesigye, UCPC

14:20 - 15:20 Discussion and approval of the charter of ARSCP-3

15:20 - 15:30 Establishment of the electoral committee

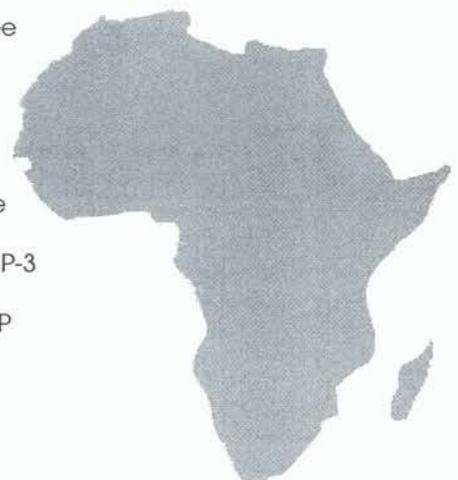
**15:30 -16:00 Coffee Break**

16:00 - 17:30 Session 4 B Electoral Committee

16:00 -16:30 Election of the Executive Board of ARSCP-3

16:30 - 17:30 Discussion on the way forward for ARSCP

**17:30: Closing remark:** Dr. Azza Morssy, UNIDO



## **Part II: Africa's Contribution to the 10-Year Framework of Programmes on Sustainable Consumption and Production**

**19 - 20 May, 2004.**

### **OBJECTIVES**

The Johannesburg Plan of Implementation calls for the development of a 10-year Framework of Programmes on Sustainable Consumption and Production (10YFP) in support of regional and national initiatives. In response, UNEP and the Moroccan National Cleaner Production Center, in consultation with UN DESA, are organising the First African Expert Meeting on the 10YFP.

The main objectives of the meeting are:

- Provide an overview of the 10YFP and consider the role of African countries in the process.
- Identify regional and national priorities and needs to develop a framework on sustainable consumption and production in Africa;
- Develop a framework and regional strategy to promote more sustainable consumption and production patterns contributing to poverty alleviation and economic development;
- Prepare a report by the Expert Meeting to be presented in the first instance to the African Ministerial Conference on the Environment (AMCEN), and to other regional institutions like NEPAD, ECA and the African Union.

### **Work programme**

#### **Day three: 19<sup>th</sup> May 2004.**

##### **09:00 Opening session**

- Opening by Mr. M'hamed El Morabit, Secretary State, Morocco
- Welcome Remarks by Dr. Ulf Dietmar Jaeckel, Federal Ministry of Environment, Germany.
- Welcome Remarks by Mr. Bas de Leeuw, UNEP DTIE.
- Welcome Remarks by Mr. Ralph Chipman, UNDESA.

**09:30**      **Session One: The Marrakech Process – global support for regional applications.**  
**Plenary Session**

- Presentation of programme structure and meeting objectives, UNEP
- Feedback from participants.

09:45      The 10 Year Framework on Sustainable Consumption and Production. Global and regional process (The Johannesburg, Marrakech Meetings and other regional initiatives), presented by UNEP-DTIE.

10:15      Questions & discussion

**10:30**      **Coffee break**

11:00      Challenges for Sustainable Consumption and Production in the African Context: background paper presented by UN DESA

11:20      Questions & discussion

11:35      Keynote presentation on sustainable energy consumption in Africa, by Mr. Stephen Karekezi, African Energy Policy Research Network.

12:00      Questions & discussion

12:15      Selection of working groups chairs and rapporteurs and of the drafting committee (with sub-regional representation) to prepare the statement to be presented at the AMCEN meeting June 2004.

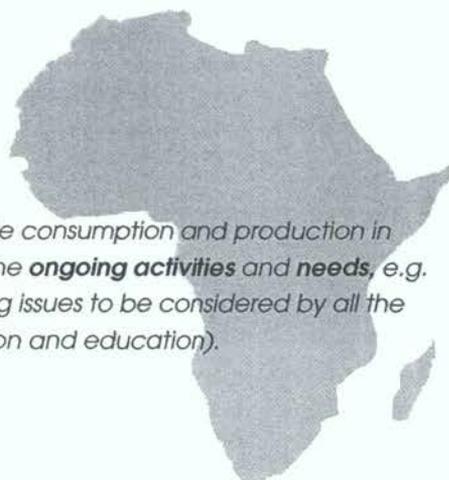
**12:30**      **Lunch**

**13:30**      **Session Two: Regional priorities and needs – challenges and opportunities**

Break into 4 groups:

- a) energy,
- b) water & natural resources,
- c) habitat & urban development, and
- d) industry.

*(Brainstorming on priorities and needs to achieve sustainable consumption and production in Africa. Identify the national and regional **priorities** on SCP, the **ongoing activities** and **needs**, e.g. on capacity building and technical assistance. Cross-cutting issues to be considered by all the groups are: health, gender perspective, consumer protection and education).*



15:00 **Coffee Break.**

15:20. **Session Three: Contribution of sustainable consumption and production to poverty alleviation – developing a regional strategy.**

Keynote presentation on approaches to sustainable consumption and production and the linkages to Poverty Reduction Strategies (PRS) and economic development. (20 min)

(same 4 groups as session one. Main task: to discuss the linkages between poverty alleviation/PRS and sustainable consumption and production, based on the outcomes of session two. Is there an opportunity for leapfrogging?)

17:30 Discussion in plenary. Rapporteurs present brief summary of the session and open the floor for question and comments.

18:00 **Close of session**

## 20<sup>th</sup> May

09:00 Summary from the first day. Introduce agenda and objectives for day two.

09:15 **Session Four: Policies and opportunities for implementation.**

Discussion and identification of policies to promote sustainable consumption and production at the sub-regional and national level. Keynote presentation on policies to promote sustainable consumption and production and the role of stakeholders (20 min)

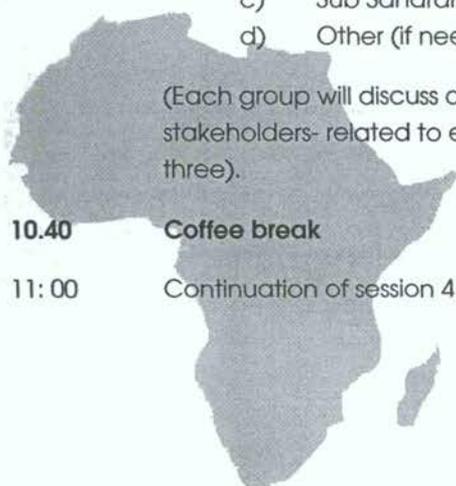
Break into 4 groups:

- a) North Africa,
- b) Sub-Saharan Africa (Francophone),
- c) Sub Saharan Africa (Anglophone),
- d) Other (if needed)

(Each group will discuss and make policy recommendations –identifying the role of stakeholders- related to each of the priority areas discussed in session two and three).

10.40 **Coffee break**

11: 00 Continuation of session 4



**13:00 Lunch**

\* Drafting Committee, in parallel will start preparing a draft statement of the meeting to be presented to the AMCEN.

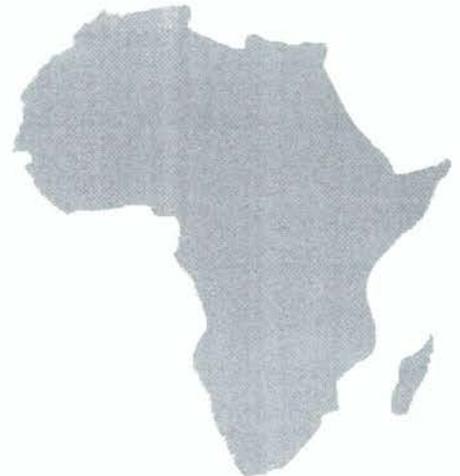
**14:00** Discussion in plenary. Rapporteurs present brief summary of the session 4 and open the floor for question and comments.

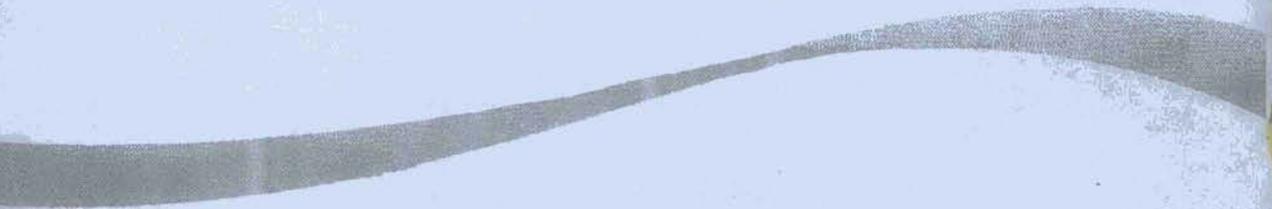
**15:00 Coffee break**

**15.30 Session Five, Plenary: Next steps – a call for commitments**

- Drafting committee presents and gets feedback on the draft statement
- Next steps- transmission of the meeting report and statement to AMCEN (June 2004), and NEPAD. Preparation of Tanzania follow-up meeting, and development of proposals for pilot projects.

**17:30 Summing up and closure.**





## Compendium of Abstracts

1. **The Eco-benefits Programme in Uganda**, Patrick K. Mwesigye
2. **Cleaner Production at Municipality Level: The Tanzania Experience**  
Cleophas L. C. Migiro, Anne N. Magashi and Binelias. S. E. Mndewa
3. **Introduced Eco-efficiency in textile companies in Morocco through Morocco Cleaner Production Centre and UNIDO partnership with BASF**  
Azza Morssy & Smail AlHilali
4. **The experience of the Cleaner Production Centre of Tanzania in the implementation of Multilateral Environmental Agreements**  
Cleophas L. C. Migiro, Binelias. S. E. Mndewa and Anne N. Magashi
5. **The Role of Cleaner Enterprise Programme in Environmental Governance in Kenya**, Jane Nyakang'o
6. **Capacity Building for the Implementation of the Environmental Framework Law in Kenya**, David Mungai
7. **The Viability, Feasibility and Potential for Product Development and Process Innovation for Mine Waste in Zimbabwe**, Morris Chidavaenzi
8. **Capacity Building for Profitable Environmental Management**  
Edith Kürzinger
9. **Using Life Cycle Assessment to Inform Policy Relating to Energy Products from the Sugar Industry: A Review of Studies from Mauritius and South Africa**,  
*Toolseeram Ramjeawon and Harro von Blottnitz*
10. **Shifting Peak Electricity Demand, A Sustainable Business Strategy**  
M. Rambharos
11. **Life Cycle Development: Linkages Between Local and Global Sustainable Consumption And Development**, *Gregory A. Norris*
12. **Promoting the utilization of Sisal Plant through CDM**, *Azza Morssy*
13. **Towards Sustainable Consumption and Production in Africa  
The Role of Research Partnerships**, *Evans Kituyi*
14. **The impacts of flows of resources and products (imports, exports and aid) between north and south: Case study: the flow between EU and East Africa**,  
Getachew Assefa and Ronald Wennersten
15. **Improving air qualities in African Cities through shift in consumption**  
Barnabas Chipindu, APINA

---

## **The Eco-benefits Programme in Uganda**

**Patrick K. Mwesigye**

**Uganda Cleaner Production Centre**

**Email: [pmwesigye@ucpc.co.ug](mailto:pmwesigye@ucpc.co.ug), Website: [www.ucpc.co.ug](http://www.ucpc.co.ug)**

The ECO-BENEFITS Programme is a ten-month package that was developed by Uganda Cleaner Production in March 2002 and is aimed at introducing Cleaner Production concepts in enterprises. The programme provides staff of enterprises with comprehensive know-how and on the job training in Cleaner Production and enables the enterprise to keep improving continuously through its own in-house capacities. The programme also trains consultants as part of capacity building in CP concepts and these train together with participants from enterprises. This has enhanced cooperation between enterprises and UCPC and has eased implementation of the generated CP options during the programme. Experts from Uganda Cleaner Production Centre provide comprehensive technical assistance and supervision of the in-plant-assessment as well as in the implementation of CP options during the 10-month programme.

The Programme consists of four phases that include:

- Phase A: Guided Cleaner Production Assessment (2 months)
- Phase B: Implementation of CP options and energy saving measures (5-6 months)
- Phase C: Evaluation of progress of the Programme with special emphasis on environmental, socio-economic and technical benefits (2-3 months)
- Phase D: Award of Certificates

The training component of the programme (Phase A) consists of ten modules that include introduction to CP and waste minimisation, material flow analysis, energy management, occupational health and safety, environmental legal framework, generation and evaluation of CP options and preparation of CP Assessment Report. Phase B is jointly carried out by participants from enterprises and trained consultants to implement the identified opportunities and measures. Evaluation of the Programme (Phase C) is carried out by the Centre and CP Award Commission that is composed of CP stakeholders in Uganda. Previous award commissions have involved stakeholders from National Environment Management Authority (NEMA), Uganda Manufacturers' Association (UMA), Makerere University, Government Chemist, UNIDO Uganda Integrated Programme, National Agricultural Research Organisation (NARO), Department of Occupational Safety and Health and Uganda Small Scale Industries Association (USSIA).

Enterprises that successfully completed the full programme, receive a Cleaner Production Award valid for one year. The awards are renewed after an extensive evaluation exercise involving independent award commission from CP stakeholders. The participants who successfully complete

the programme receive a CP certificate and can apply for a CP license from the Centre. The license allows the holders to use the Eco-Benefits methodology for carrying out (independently or in collaboration with the Centre) CP assessments in enterprises. The license is valid for one year and its renewal depends on the output of the holder in promoting CP in Uganda.

The Centre has so far carried four programmes with a total of 28 enterprises participating. Of these 28 enterprises, 2 have failed to meet the minimum standards for the CP award. A total of 106 participants have attempted the Programme and 99 of them have received CP certificates and 14 have applied and granted CP licences since May 2002. A total of 7 participants failed to complete during the last three Programmes. A total of over 1.5 million US dollars has been saved as a result of the different CP options implemented since the Programme started. In addition, the enterprises have achieved environmental compliance and their cooperation with National Environment Management Authority (NEMA) has been enhanced. This participatory approach, where UCPC works closely with staff of enterprises and consultants, has built capacity within enterprises and promoted CP as a business tool in achieving environmental compliance and reducing costs of production.

The Eco-Benefits Programme has acted as a preamble for successful companies to embark on the ISO 14001 certification Programme. Since December 2003, UCPC has been working with 7 enterprises with technical back up from UNIDO and STENUM (Graz, Austria) and the certification process is due to be held in August 2004. This approach has also encouraged resisting companies to join Eco-Benefits Programme and further promote CP in Uganda.

The main challenge facing the implementation of the Eco-Benefits Programme is the lack of financing for CP options that require high investments.

---

## **Cleaner Production at Municipality Level: The Tanzania Experience**

**Cleophas L. C. Migiro, Anne N. Magashi and. Binelias. S. E. Mndewa**  
**Cleaner Production Centre of Tanzania (CPCT)**  
**P. O. Box 23235 Dar es Salaam**

Since independence, the industrial growth in Tanzania has been driven by the need to fulfill the socio-economic needs of the growing population and inadvertently ignoring the impact of the same on the environment. Industries in Tanzania are concentrated in major towns and cities where the infrastructure and utilities are conducive. However, most of these establishments lack proper environmental management systems for wastes and emissions, resulting into pollution of the cities and towns indiscriminately. The major cities and towns in Tanzania that host industries are Dar es Salaam, Mwanza, Tanga, Arusha, Morogoro, Moshi, Iringa, Mbeya and Zanzibar.

For the past five years, the Cleaner Production Centre of Tanzania (CPCT) has been working with Municipal/City Authorities to promote the cleaner production concept for purposes of building

capacity in cleaner production at the local level. This localized approach is mainly geared towards creating ownership and/or sustainability of the concept by involving various stakeholders within the Municipality, as well as changing the image of the Municipal authority from "policing" to a guidance provider.

The paper discusses the promotion and sustainability of cleaner production at local level by presenting the experiences of introducing cleaner production in Mwanza and Tanga Municipalities. The strategies used to entice the enterprises and other stakeholders to participate in the CP programmes in the respective Municipalities and the results thereof are presented and analyzed. The opportunities and challenges of using the Sustainable Cities Programme, a UNCHS and UNDP initiative based on a participatory Environmental Planning and Management (EPM) strategy, as a means of integrating cleaner production in Municipalities are also highlighted.

---

---

## **Introduced Eco-efficiency in textile companies in Morocco through Morocco Cleaner Production Centre and UNIDO partnership with BASF**

**Dr. Azza Morssy, UNIDO & Mr. Smail AlHilali CMPP**

Eco-efficiency analysis makes it possible in the development and optimization of products and processes to consider economy and ecology side by side and to select the most eco efficient alternative. This was done in Morocco textile factories based on UNIDO experience and through partnership with BASF the objective is to identify products combining the optimum in application with good environmental performance and to do this as the lowest cost supplier. The analysis yields clear indications of possible improvements in the products and processes employed. In an analysis, scenarios and variants make it possible to show the distance between potential new products and existing solutions.

Eco-efficiency analysis is a strategic instrument, which assists Professionals to decide which product lines and processes to target with future investments and which not to favor in this way. It compares economic and ecological advantages and disadvantages across several product or process solutions, which can fulfill the same function for customers.

It is about making more efficient use of the materials and energy and minimizing the generation of wastes and emissions and avoids trade barriers. In addition, the entire economic picture, costs for example, is recorded and the economic and ecological advantages and disadvantages are compared. In doing this, the method goes beyond the isolated consideration of in-house products

and also includes alternatives from outside BASF. Thus, all relevant decision factors are analyzed, while concrete customer benefits are always the focus of attention.

---

## **The experience of the Cleaner Production Centre of Tanzania in the implementation of Multilateral Environmental Agreements**

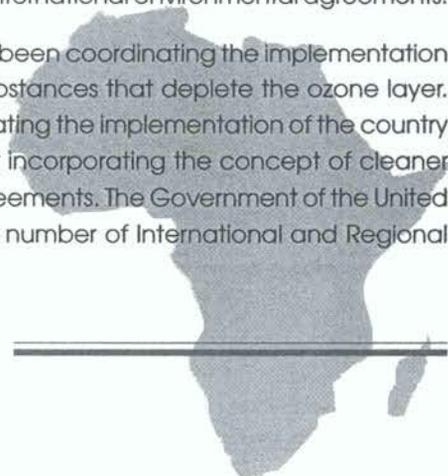
**Cleophas L. C. Migiro, Binelias. S. E. Mndewa and Anne N. Magashi**  
**Cleaner Production Centre of Tanzania (CPCT)**  
**P. O. Box 23235 Dar es Salaam**

### **Abstract**

Multilateral Environmental Agreements (MEAs) are important tools for fostering global commitment to resolve global environmental issues. They are the main instruments of international coalition in environmental management. These instruments share a common goal of sustainable development and the embedment of an implied preventive philosophy in each of them. However their implementation has relied heavily on conventional end-of-pipe approaches based on controlling the impacts of pollution **after** the pollution has been generated (**reactive approach**). Cleaner Production can help to find ways to meet those challenges and explore new opportunities through preventive strategies (**proactive philosophy**).

The important common ground between international law and cleaner production lies in the precautionary approach born in the UN Rio Declaration which emphasizes the need for preventive measures. As a strategy for the practical application of the precautionary approach, cleaner Production is of major importance for the implementation of international environmental agreements.

The Cleaner Production Centre of Tanzania (CPCT) has been coordinating the implementation of the country programme for the Montreal Protocol on substances that deplete the ozone layer. The paper discusses the experience of the Centre in coordinating the implementation of the country programme for the Montreal Protocol and opportunities for incorporating the concept of cleaner production in implementing international environmental agreements. The Government of the United Republic of Tanzania is signatory to and has acceded to a number of International and Regional environmental treaties.



---

# The Role of Cleaner Enterprise Programme in Environmental Governance in Kenya

**Ms. Jane Nyakang'o**  
**Director, Kenya National Cleaner Production Centre**  
**P.O. Box 1360, 00200 City Square, Nairobi**  
**E-mail: [info@cpkenya.org](mailto:info@cpkenya.org)**

This paper describes the Cleaner Enterprise Programme (CEP) which is being implemented by the Kenya National Cleaner Production Centre (KNCPC) to make businesses more competitive and to reduce environmental costs. The major goal of the CEP is to provide businesses with consultative and technical support for *self-help* to facilitate adoption of integrated environmental management practices and to switch to cleaner production methods. The ultimate goal is to have enterprises that are environmentally responsible and able to generate more employment and national wealth.

The program is outstanding because it fosters co-operation between industry, regulators and consultants. It also builds capacity for *self-help* in enterprises and paves the way for reduction of compliance costs. The resultant successful CEP projects serve as case studies suitable for replication in other sectors and regions of Kenya.

CEP is a voluntary and participatory cleaner production audit programme that takes 2 months to complete. Participating companies are provided with information and technical assistance in order to identify and implement cleaner production techniques, technologies and process changes. The programme gives companies 4 months to implement identified waste minimization measures. By March 2004, 24 enterprises had satisfactorily completed the CEP with 50 pollution prevention measures implemented. Savings of approximately US \$ 698,000 were realized. The reduction in wastes and water consumption were 200 and 500 tons respectively.

As a result of the CEP, there has been a notable increase in demand for more sector-specific CP services and products. There also has been improved transparency and accountability which has led to better environmental governance. The participating industries share information with stakeholders and decisions are made in an open and transparent process. The participation of the regulators in the CEP has assisted in ensuring that appropriate policies that promote sustainable businesses are put in place. For instance the National Environment Management Authority (NEMA), who have been involved in the CEP, have put place mechanisms to develop various regulations and guidelines such economic instruments for environmental management. The enterprises on their part have worked hard to thaw the bad relations that existed between them and the some of the regulators.

To consolidate our effort and to replicate the successes of the CEP in other regions of Kenya, the Centre has started working with new sectors; this include the plastics and sugar sectors in which the Centre is working to strengthen private-public partnerships to address common problems.

---

---

# Capacity Building for the Implementation of the Environmental Framework Law in Kenya

**Prof. David Mungai**  
**University of Nairobi**  
**P.O. Box 633-00200 City Square, Nairobi, Kenya**  
**E-mail: [d.mungai@cpcKenya.org](mailto:d.mungai@cpcKenya.org) or [d.mungai@cgiar.org](mailto:d.mungai@cgiar.org)**

This paper discusses the efforts of the Kenya National Cleaner Production Centre (KNPCPC) to build capacity in Environmental Impact Assessment (EIA) and Environmental Audit (EA) in support of the implementation of the Environmental Management & Coordination Act (EMCA, 1999) and the Environmental (Impact Assessment and Audit) Regulations (2003). Both the framework law and the subsidiary legislation require old enterprises and those that have undergone an environmental impact assessment (EIA) to undertake annual environmental audits (EA) while all new development projects which are listed in the *Second Schedule* to the Act are subjected to EIA. The law further prescribes that the environmental audit and environmental impact assessment studies and reports should be conducted by individual or firms of experts who have been registered by the National Environment Management Authority (NEMA).

The successful implementation of the Environmental Management and Coordination Act (1999) in general and of the Environmental (Impact Assessment and Audit) Regulations (2003) in particular, depends to a large extent on the availability of a pool of well-trained and competent experts in environmental impact assessment and environmental audit. Kenya does not appear to have sufficient capacity in these areas; less than 200 professionals have recently qualified as either Lead or Associate experts in environmental impact assessment and environmental audit. This arises due to inadequate specialized training in both EIA and EA in Kenya.

Given the demand side of EIA/EA professional services and the lack of adequate EIA/EA training capacity in Kenya, the Centre has taken the challenge and is now conducting training on EIA and EA. The major aim of the courses is to improve EIA/EA practice in Kenya by developing the understanding and capabilities of the key actors who are involved in, and influence, the EIA and EA process. The courses are meant for trainers, practitioners, managers, lawyers, decision-makers, policy-makers, members of non-governmental organizations, interest groups, regulators etc. The Centre aims to build a "critical mass" of the required environmental auditing and environmental impact assessment professional cadre in Kenya who are capable of taking forward the agenda of sustainable development.

The Centre is collaborating with UNEP DTIE Trade and Economics Branch in the design and delivery of the EIA courses.

---

---

---

---

# **The Viability, Feasibility and Potential for Product Development and Process Innovation for Mine Waste in Zimbabwe**

**Morris Chidavaenzi**  
**Director – Cleaner Production Centre**  
**mtchidavaenzi@hotmail.com**

Sustainable development is a serious matter that requires collective intervention of the private and public sectors. Hence new and strategic partnerships are required to design and implement sustainable development projects in southern Africa. Consequently, a strategic private-public sector partnership was proposed for the Southern African region during the last World Summit on Sustainable Development held in Johannesburg, South Africa, in 2003. Key partners include Anglo-American Corporation representing the private sector, the Scientific Industrial Research and Development Centre (SIRDC) a government R&D institute representing public sector views, and Coaltech 2020 a South African consortium of both public and private sector entities working on problems affecting industry. UNIDO is the partner that assists with methodological support to facilitate dialogue and program development. The partnership seeks to identify critical areas for rapid and sustainable industrial development and to develop integrated action plans in areas that currently are being overlooked by industry, governments or donors.

The private sector is the dominant force behind economies and industrial growth in Zimbabwe and southern African region. Therefore, the private sector has a significant role to play and a corporate social responsibility to address the Millennium Development Goals such as poverty eradication, primary education, reduction of child mortality and ensuring environmental sustainability by participating in national, regional and global partnership for development.

As a follow up to the World Summit on Sustainable Development (WSSD) and the proposed areas of development outlined in the Millennium Development Goals, a strategic private-public sector partnership was proposed for the Southern African region. The main aim of this alliance is to identify critical areas for rapid and sustainable industrial development in the southern African region and to map strategies for integrated action plans that currently are not yet effectively being addressed by industry, government or donors. In many countries, public-private partnerships have contributed significantly to these objectives. The mutual support for government and industry to deal with key issues of globally sustainable development and sustainable consumption and production in a comprehensive manner is a role for inter-governmental organizations such as UNIDO, UNEP, UNESCO and UNDP. Consequently, UNIDO was approached to assist with methodological support and to facilitate dialogue and programme development. The partners undertook consultative activities in Zimbabwe during the first week of March 2004 to assess in detail the potential for defining and funding pilot projects in one of the five thematic areas focusing on product innovation for improved mine waste management.

---

---

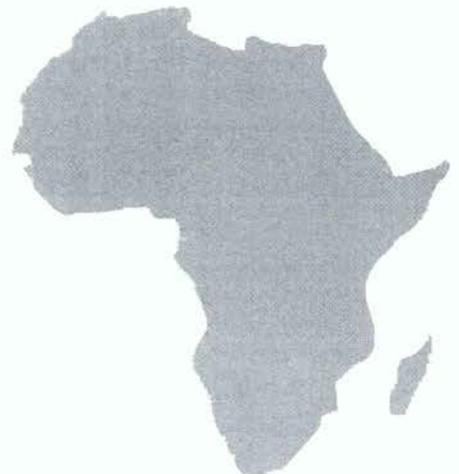
## Capacity Building for Profitable Environmental Management

### **Dr. Edith Kürzinger (GTZ-P3U) – Pilot Programme for the Promotion of Environmental Management in the Private Sector of Developing Countries\***

On behalf of the German Ministry for Economic Co-operation and Development (BMZ), the P3U Programme of the German Agency for Technical Co-operation (GTZ) has developed, since 1995, an integrated concept for the promotion of environmental management, suitable especially to small and medium sized businesses (SME): "Profitable Environmental Management" (PREMA®) is implemented by potential multipliers in selected developing countries, as well as in Germany, as market-oriented consultancy services to SME.

Experience shows that a considerable number of SME are interested in a systemic approach to improvements which starts from their core interest, profit, and allows for the realisation of a "triple win": cost savings (and a better environmental performance) through the reduction of Non-Product Output, as well as organisational development through structured learning processes. The resulting variety of organisational and technical improvements in the production process of SME are based on changes in human behaviour as well as the management (system), can lead to continuous improvements, and, eventually "bottom-up", to ISO certification.

While SME easily undertook Good Housekeeping-type measures according to the broader PREMA definition, which show quick results with little investment, measures which require larger sums of investment and longer payback periods (more than 6 or 12 months), however, were only undertaken at a later stage of the economic-environmental-organisational change process in the company, by bigger companies, and under political and economic stability. The possible barriers regarding information, technology and finance may be overcome mostly by the SME themselves, by tapping the problem-solving capacities in the companies throughout the systemic, not mainly environmental, change process. The wide-spread application of triple win measures makes production processes and management more profitable and more environmentally sound.



---

---

## Using Life Cycle Assessment to Inform Policy Relating to Energy Products from the Sugar Industry: A Review of Studies from Mauritius and South Africa

Toolseeram Ramjeawon<sup>1</sup> and Harro von Blottnitz<sup>2</sup>

<sup>1</sup> Department of Civil and Environmental Engineering, University of Mauritius  
phone: 230-4541041; fax: 230-4657144; e-mail: ramjawon@uom.ac.mu

<sup>2</sup> Dept. of Chemical Engineering, University of Cape Town  
phone & fax: +27.21.650 2512; e-mail: hvb@chemeng.uct.ac.za

Sugar cane, grown widely in African countries, is known to be one of the most productive species in terms of its conversion of solar energy to chemical potential energy. Owing to events taking place at the international level, the sugar cane industry is at a cross roads. It has to undergo changes to ensure its sustainability and competitiveness in the context of the globalisation of the economy. In the past, the sugar industry depended on sugar alone for its commercial viability. But along with the imperative of harnessing energy from renewable sources to drive development on the continent, the opportunity of harnessing energy co-products from this industry is becoming increasingly attractive. A number of options exist, ranging from co-generation via bagasse-combustion/gasification and cane-trash utilization as fuel, via composting which could lead to increased crop productivity, to the production of ethanol from molasses or whole cane, or in the future even from the bagasse via cellulose hydrolysis processes. Comparing these options, even from a point of net productivity only, is a complex task, and it becomes more complex when economic and environmental issues have to be taken into account as well.

Agricultural, environmental and energy policy-making in countries with sugar industries will have to increasingly engage with this potential of better utilisation of crops. Life Cycle Assessment (LCA) is a suitable tool for assessing the various potential practices, especially because it is able to deal with the above-mentioned complexity.

Indeed, a number of life cycle assessments have been completed on questions of sugarcane processing in African settings, notably in Mauritius and in South Africa. This paper presents a review of 5 completed LCAs and draws some generic conclusions regarding policy and strategy related to possible future energy products from this industry:

- The nature of the fossil-based energy product to be replaced by a cane bioenergy product will have to be understood.
- Making mills more energy-efficient will be an important element in any strategy to get more out of this resource.
- Integration of downstream-value adding into existing sugar mills could help to improve overall energy-efficiency.

- Net productivity of land already used for cane growing needs to be maximised, but subject to energy and environmental accounting for input materials.

It is concluded that this industry has the potential to make a significant contribution to the provision of renewable energy in a sizeable number of countries on the continent, probably of the order of 5 to 30% of primary energy, but that strategic choices will have to be made in order to guarantee sustainability of such practices.

---

---

## **Shifting Peak Electricity Demand, A Sustainable Business Strategy**

**M. Rambharos, Senior Advisor, Corporate Sustainability and Environment  
ESKOM, South Africa**

One of the high prices we pay for progress is the toll exacted on the sustainability of the planet. Estimates suggest that wealthy western societies are so demanding that the average individual uses a 'footprint' of some six hectares of the earth's surface to fulfil his or her needs. If all human beings were this demanding we would require three earths to support our consumption and waste. Energy consumption is a key indicator of this 'consumption' stress placed on resources. The more energy we use, the more resources are required to produce that energy. In South Africa, for example, a drop of one degree in the average winter temperature results in an increase in demand of 500 MW of power.

Eskom's Demand Side Management (DSM) Department aims to address increasing demands for energy in a manner that is at the heart of sustainable consumption for developing countries – and that is consuming differently. DSM encourages customers to use less electricity at peak times. Through this peak load reduction and energy efficiency initiatives, Eskom will, over the next 20 years, defer the need for the construction of an entire power station. Accordingly, Eskom has launched a number of initiatives aimed at reducing demand or shifting demand away from peak times. These include, Residential Load management – a way to reduce energy consumption of household geysers during peak times, the efficient lighting initiative - a campaign to convert consumers from inefficient traditional incandescent light bulbs to low energy compact fluorescent lights, and industrial and commercial energy efficiency and load management initiatives.

Besides the obvious saving to the country in terms of natural resources these initiatives offer an element that is crucial to development in Africa – that is, affordability of electricity. In other words, energy efficiency and demand side management result in multiplier benefits along the production and consumption supply chain from reduction in household electricity bills to reduced demand by large industrial customers implementing energy efficiency programmes.

Further, Eskom is expanding the DSM programme into the SADC through the cooperative mechanism of the SAPP, embracing the concept of replicability of programmes that work. These initiatives and successes are expanded on in the paper.

## **Life Cycle Development: Linkages Between Local and Global Sustainable Consumption And Development**

**Gregory A. Norris**  
**Harvard School of Public Health / Sylvatica / New Earth, Inc.**

Sustainable development has been famously defined as meeting the needs of the present without compromising the ability of future generations to meet their needs.

Development is increasingly understood as collective action through which people expand their capabilities to live lives of value to them; Amartya Sen has called this "development as freedom." This perspective helps emphasize that while *meeting needs* is an ethical imperative in its own right, and while development is now internationally recognized as a human right, meeting needs is *also* a prerequisite for enabling persons to participate and contribute to the ongoing process of development, for the betterment of their societies and all the earth. It is a re-visioning that casts sustainable development in terms of *empowering increased flourishing*, rather than filling deficits of need at reduced rates of deterioration.

This same re-visioning can and should be brought to bear on the topics of sustainable consumption and the tools that support it, including life cycle assessment (LCA) and eco-labelling. Rather than ask "how can we consume or produce in ways that cause the least damage", we should ask how production and consumption can, in concert with other activities, promote *more* flourishing of people and the planet than would happen otherwise. While individual consumers around the globe can be part of this solution, there are also essential roles for collective action to bring such progress fully into being.

Health is a primary human need; it is also a primary indicator of levels of satisfaction of other basic human needs; finally, it is an enabler of development. Consumption behaviour by one person or nation has impacts on the economic activity and development of other persons in the same nation and around the world. These economic development impacts in turn have been shown to

have a major influence on health, through two primary pathways: reduction of income poverty, and increasing public investments in human development and basic infrastructure. This paper will describe and demonstrate, including basic case studies involving G-77 countries, an approach for estimating the health consequences of the development impacts of sustainable consumption policies and the design of goods and services. We could call this modification of LCA "Life Cycle Development." It is practical for immediate use and integration with today's methods and databases for life cycle assessment. Initial case studies have shown that the health benefits of G-77 economic development within global supply chains can be extremely influential in total life cycle results. LCD can also be used to bring development impacts into eco-labelling, which could begin to address concerns about trade barriers in relation to sustainable consumption and production. The presentation will summarize the ideas behind LCD, the basic method, initial results, and future application possibilities. It will also stress the importance of creating interdisciplinary teams and projects to enrich and improve the method through practical case study applications.

---

## **Promoting the utilization of Sisal Plant through CDM**

**Dr. Azza Morssy, UNIDO**

UNIDO is promoting the utilization of Sisal plant for African region through CDM as an instrument for Agriculture Waste Management for production of biomass for rural development and poverty Alleviation. This paper discusses the approaches and benefits of the above approach.

---

## **Towards Sustainable Consumption and Production in Africa The Role of Research Partnerships**

**Evans Kituyi**

**Industrial Ecology Group, Department of Chemistry, University of Nairobi, PO  
Box 30197, Nairobi, Kenya.  
E-mail: [ekituyi@uonbi.ac.ke](mailto:ekituyi@uonbi.ac.ke)**

Cleaner production (CP) and sustainable consumption (SC) are continuous processes with the potential to lead to wealth creation and the eradication of poverty. These processes will take very

different forms, depending on local livelihoods, sectoral contexts, existing institutions and resources. Universal analyses and standard solutions will rarely be applicable. Therefore, CP & SC need to be information and knowledge-intensive—hence the strong role for research. Local knowledge and research capacities—and their engagement with policymakers, producers and consumers on a continuing basis—are central requirements for sustainable development. But they are often neglected or weak, and are poorly coordinated particularly in developing countries.

This paper seeks to elucidate how partnerships among researchers, policymakers, advocacy groups, business and community organisations could engage with local knowledge and research capacities in informing sustainable consumption and production processes. Using the newly formed African Life Cycle Analysis Network (ALCAN) as an example, the paper proposes how well-governed knowledge networks targeting specific sectors in African economies could provide the much-needed institutional and organizational framework for establishing research partnerships. These could then define sustainable development research agenda, project execution mechanisms and influence national policy towards CP & SC.

---

## **The impacts of flows of resources and products (imports, exports and aid) between north and south: *Case study: the flow between EU and East Africa***

**Getachew Assefa and Ronald Wennersten**  
**Division of Industrial Ecology**

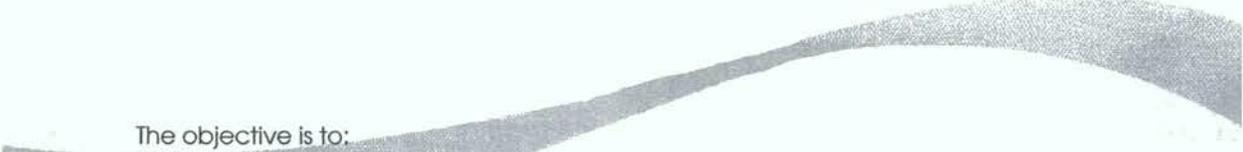
**Royal Institute of Technology, Teknikringen 34, 10044 Stockholm, Sweden.**  
**Tel. +46 8 790 9331, Fax. +46 8 790 5034, E-mail: [getachew@ket.kth.se](mailto:getachew@ket.kth.se)**



This is a research idea under development at the Division of Industrial Ecology, Royal Institute of Technology, Stockholm, Sweden for SIDA's and EU's fund application. The general framework of the research is described as follows.

The flow of resources and products between the north and south is socially, economical and ecologically important for sustainable development in both the north and south. These resources and products include materials embedded in import, export and aid products. The social and economic implication of such flows is no doubt highly relevant to Africa's development.

The research aims to assess the positive and negative impacts of such flows.



The objective is to:

1. develop a methodology/tool for describing and calculating the ecological, economic and social impacts
2. correlate the current and future flows of these resources and products with the UN millennium developments of goals (specifically goals 1, 7 and 8) and goals of SIDA's research and development programme
3. propose desirable scenarios of the flows for global benefit in terms of ecological, economic and social aspects

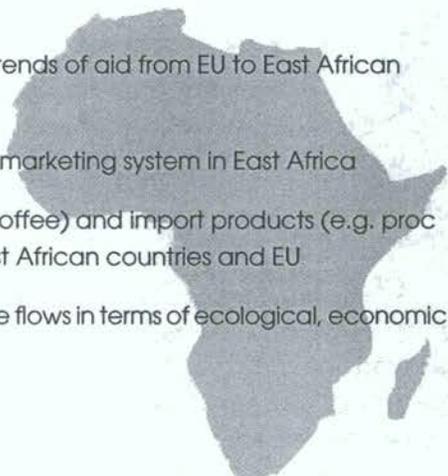
This would help increase understanding of the global metabolism of flow of materials and inform policy makers in both north and south on the impacts of aid and trade policies thereby indicating a desirable scenario. In doing so, the use of scientific method in describing and understanding the sustainability of trade and aid interaction between the north and south would be enhanced

The following tools and concepts will be used in the research:

- Life cycle Assessment
- Environmental space
- Global metabolism (global industrial ecology)
- Risk Assessment
- Social Impact Assessment
- Case study methodology

The research will be initiated with a focus on specific case study areas namely EU and East Africa. As case study products Coffee (export from East Africa), processed food (import from EU) and Wheat (aid from EU?) will be used.

## Tasks

- Study past and present data as well as future trends of aid from EU to East African countries
  - Qualitative survey of the local production and marketing system in East Africa
  - Look at the statistics of export products ( e.g. coffee) and import products (e.g. processed food) and aid (e.g. wheat) between East African countries and EU.
  - develop a methodology/tool to characterize the flows in terms of ecological, economic and social indicators
- 

## Five possible Scenarios

1. Business-as-usual flow of trade and aid items
2. Increased trade in both directions
3. Increased aid from north
4. Replace all aid-in-kind with aid-in-cash
5. Restructure the global production system

## Expected result

- Methodology/tool for describing /calculating impacts of north-south flow of resources and products
- Development and identification of relevant ecological, economic and social indicators
- Ecological, Economic and Social profiles (Indicator per Kg ) For the imports, exports and aid between EU and East Africa

This interdisciplinary research will be carried out in cooperation between researchers from the Royal Institute of Technology in Stockholm and Universities in East African countries and other EU research institutions.

---

---

## Improving air qualities in African Cities through shift in consumption

**Barnabas Chipindu, APINA**

### Abstract

As African countries become industrialized, emissions of sulphur, nitrogen oxides and other compounds into the atmosphere are likely to increase. Population growth, increasing urbanization, increased energy demands and vehicle numbers will contribute to the air quality problems in Africa especially in the cities. The increasing threat of air pollution in Africa and the consequent rise in the concentration of pollutant gases and acid deposition will have serious implications for human health, the functioning of ecosystems and corrosion of materials.

To address the issues related to air quality, a regional network of scientists, policy-makers and non-governmental organizations, known as the Air Pollution Information Network-Africa (APINA), has been established. Similar networks have been established in Asia (APINAP) and Latin America (APINLA). This forms part of a Programme on Atmospheric Environment Issues in Developing Countries coordinated by the Stockholm Environment Institute (SEI) and funded by the Swedish International Development Cooperation Agency (Sida) under a project entitled "Regional Air Pollution in Developing Countries (RAPIDC).

The main role of APINA is to form a strong link between the air pollution scientific community and policy makers at national and regional levels. It acts as a conduit of knowledge and data derived in the scientific programmes and existing research to influence policy and decision-makers in matters related to air pollution. APINA acts as a link between different networks and programmes on air pollution in Africa.

This paper presents the outcome of workshop on achieving better air quality in African cities, hosted by APINA in Johannesburg, South Africa, from 21 to 23 April 2004. Key challenges in achieving better air quality in African cities that were identified during the workshop are presented. The roles and specific actions of APINA in achieving better air quality in African cities are also highlighted. Potential APINA partners and their specific roles are outlined.



*For further information, please contact:*

*Mr. Desta Mebratu*

*P.O.Box: 30552, Nairobi Kenya*

*Tel: +254 20 62 4044*

*Fax: +254 20 62 3928*

*E-mail: [desta.mebratu@unep.org](mailto:desta.mebratu@unep.org)*