

MAKING THE MARRAKECH PROCESS WORK

Discussion Paper

**2nd International Expert Meeting on
The 10-Year Framework of Programmes on
Sustainable Consumption and Production**

San José, Costa Rica, 5-8 September 2005

28 August 2005

This paper has been jointly prepared by the Division for Sustainable Development of UN-DESA, the United Nations Environment Programme, and the UNEP/Wuppertal Institute Collaborating Centre on Sustainable Consumption and Production (CSCP).

TABLE OF CONTENTS

1. THE MARRAKECH PROCESS	3
1.1 THE MARRAKECH INTERNATIONAL EXPERT MEETING	3
1.2 REGIONAL EXPERT MEETINGS.....	4
1.3. ACTIONS BY INTERNATIONAL AGENCIES	6
1.4 AIMS OF THE COSTA RICA MEETING.....	6
2. ANALYSIS OF REGIONAL PRIORITIES, NEEDS & CHALLENGES	8
2.1 IDENTIFICATION OF REGIONAL SCP PRIORITIES.....	8
2.2 KEY SECTORAL PRIORITIES AND CHALLENGES	9
2.3 INSTITUTIONAL ACTORS AND CHALLENGES	11
2.4 INTERNATIONAL COOPERATION PROGRAMMES ON SCP	14
2.5 TASK FORCES.....	14
2.6 CONCLUSIONS.....	15
3. ISSUES FOR DISCUSSION IN WORKING GROUPS	16
WORKING GROUP 1: PRODUCTION PROCESSES AND INDUSTRIAL DEVELOPMENT.....	16
Introduction.....	16
Conditions and trends.....	16
Forthcoming challenges.....	19
Some questions for discussion	20
WORKING GROUP 2: URBAN PLANNING AND WASTE MANAGEMENT	21
Introduction.....	21
Conditions and Trends	21
Forthcoming challenges.....	28
Some questions for discussion	28
WORKING GROUP 3: SUSTAINABLE CONSUMPTION AND PRODUCT DEVELOPMENT.....	29
Introduction.....	29
Conditions and trends.....	30
Forthcoming challenges.....	32
Some questions for discussion	33
WORKING GROUP 4: REGIONAL AND NATIONAL STRATEGIES FOR SCP	34
Introduction.....	34
Conditions and trends.....	34
Forthcoming challenges.....	37
Some questions for discussion	38
WORKING GROUP 5: ENERGY, CLIMATE AND AIR POLLUTION.....	39
Introduction.....	39
Conditions and Trends	39
Some questions for discussion	46

ENDNOTES.....47

1. THE MARRAKECH PROCESS

1. Recognising that consumption and production patterns are increasingly global and that international cooperation is needed to help societies move towards more sustainable patterns, the Johannesburg Summit called for actions at all levels to:

“Encourage and promote the development of a 10-year framework of programmes in support of regional and national initiatives to accelerate the shift towards sustainable consumption and production to promote social and economic development within the carrying capacity of ecosystems by addressing and, where appropriate, delinking economic growth and environmental degradation through improving efficiency and sustainability in the use of resources and production processes and reducing resource degradation, pollution and waste. All countries should take action, with developed countries taking the lead, taking into account the development needs and capabilities of developing countries, through mobilization, from all sources, of financial and technical assistance and capacity-building for developing countries.” (Chapter III, para.15)

2. Developing the 10-year framework of programmes (10YFP) and meeting the "implementation challenge" involve the following phases:

- (a) Organizing regional consultations in all regions to identify needs and priorities for sustainable consumption and production;
- (b) Building regional strategies and implementation mechanisms with regional and national ownership;
- (c) Implementing concrete programmes and projects on the regional, national and local levels;
- (d) Monitoring and evaluating progress and exchanging information and experience at the international level.

3. The Commission on Sustainable Development (CSD) will review progress on the 10YFP during its 2010/11 two-year cycle.

1.1 The Marrakech International Expert Meeting

4. The first International Expert Meeting on the 10-Year Framework of Programmes for Sustainable Consumption and Production was held in Marrakech, Morocco, in June 2003. It was agreed that follow-up at the international level would mainly consist of coordinating activities to support regional and national initiatives. The Marrakech meeting identified some priorities for substantive work and recommended the establishment of informal task forces or roundtables to promote the implementation of sustainable consumption and production policies

and strategies. The conclusions contained in the Chair's Summary¹ highlighted the importance of the following:

- (a) Integrating the three dimensions of sustainable development when formulating policies for promoting sustainable consumption and production; integrating sustainable consumption and production into national sustainable development strategies and, where applicable, into poverty reduction strategies;
- (b) Securing political commitment to sustainable consumption and production at the highest level in governments, international organizations, the private sector and civil society;
- (c) Specifying government priorities in the area of sustainable consumption and production in order to ensure effective and well targeted international co-operation;
- (d) Building institutional capacity, supporting development and diffusion of sustainable technologies, mobilizing financial resources for making the necessary investments, and initiating programmes for sustainable consumption and production;
- (e) Disseminating information to promote sustainable consumption and production and developing and applying practical tools, including awareness-raising, education, training, and use of the media and advertising;
- (f) Involving all stakeholders in work on SCP and promoting partnerships involving governments, the private sector, civil society and international organizations.

1.2 Regional Expert Meetings

5. During 2003-2005, eight regional meetings were jointly organized – in Africa, Asia-Pacific, Europe and Latin America – by UNEP and UN-DESA.² Host governments and donors (Belgium, Denmark, Finland, Germany, Netherlands, Norway, Sweden and the European Commission) supported these meetings.

6. The **Latin American** meetings on the 10-Year Framework (10YFP) were held in Argentina (April 2003) and Nicaragua (October 2003). As a result, a Regional Strategy on Sustainable Consumption and Production (SCP) was developed and a Regional Council of Government Experts on SCP was established, supported by the Latin American Forum of Environment Ministers. A third regional meeting was held in Nicaragua, 3-5 August 2005.

7. The **Asia-Pacific** meetings on the 10YFP were held in Indonesia (May 2003) and the Republic of Korea (November 2003). Preliminary ideas on a regional strategy for the Asia-Pacific region were developed, with indications of needs and priorities. The outcome of the meeting in the Republic of Korea was endorsed by the ESCAP Committee on Managing Globalization, which incorporated work on a regional 10YFP in its medium-term work plan.

8. In **Africa**, two regional meetings have been held. The first meeting was organised together with the African Roundtable on Sustainable Consumption and Production (ARSCP) in

Casablanca, Morocco, in May 2004, at which time the ARSCP was established as a permanent institution. A Statement on Sustainable Consumption and Production was submitted to and approved by the African Ministerial Conference on the Environment (AMCEN) at its 10th regular session, in Tripoli, Libya, in June 2004. The second regional meeting was held in Nairobi, Kenya, in February 2005, where priority areas were further discussed and potential pilot projects were identified for implementation in the short term. The outcome of the second African regional meeting was submitted to a Special Session of AMCEN on the New Partnership for Africa's Development (NEPAD), held in Dakar, Senegal, in March 2005. The Dakar Declaration, which was adopted at that meeting, endorsed the elaboration of an African Framework Programme on Sustainable Consumption and Production³.

9. In **Europe**, the Multi-Stakeholder Meeting on Sustainable Consumption and Production was held in Ostend, Belgium, in November 2004. The meeting produced recommendations on priorities for further work on SCP in the region for all key actors, and considered how Europe could work together with other regions to promote SCP. A sub-regional meeting of the Baltic States was held in Vilnius, Lithuania, June 2004. As a follow up to the Ostend Meeting, the German government, together with the European Commission and UNEP, will organise a conference focusing on Sustainable Energy Consumption to be held in Berlin, December 2005.

10. The main outcomes of the regional meetings in terms of actions at the strategic level are:

(a) The **Latin American** countries have established a Regional Council of Government Experts on SCP as well as a regional strategy on SCP. The first task is to elaborate an inventory of the principal activities on SCP in every country of the region with a view to evaluate and monitor the activities and impacts within the framework of the regional and national strategies.

(b) In **Africa**, the African Roundtable for SCP has been officially established as an ongoing dialogue forum and is now a key and active body for mainstreaming SCP. It is implementing 3 pilot projects on: (a) mainstreaming sustainable consumption and production as pilot projects in the Lake Victoria region; (b) SCP of plastics in Africa as a demonstration of integrated solid waste management; and (c) a regional training and awareness programme on Life Cycle Analysis as a planning and decision-making tool. The AMCEN 2005 Technical Segment discussed and endorsed the outcomes of the Second African meeting, to be used as the basis for the development and implementation of the 10 YFP on SCP in Africa. There has also been some discussion of linking SCP issues to the NEPAD Environmental Action Plan and regional poverty reduction strategies.

(c) **Europe** identified a need to improve coordination, integration and coherence among various strategies (the EU's Sustainable Development Strategy and the Lisbon Strategy on growth and jobs), the Sixth Community Environment Action Programme, the Cardiff Process on environmental integration). There is also a need to integrate SCP into the revision of the EU Sustainable Development Strategy, with timelines and concrete goals (e.g. on decoupling) and coherent follow-up mechanisms, including indicators and institutional set-up. The meeting also recommended creation of a forum of governments and stakeholders to monitor progress on sustainable consumption and production. The meeting further recommended the establishment of a fund to support the activities launched, open to contributions by interested governments, institutions and stakeholders. The meeting also

called for partnerships and pilot projects involving the private sector and other stakeholders as well as the launching of task forces on specific issues by lead governments or stakeholders.

(d) The **Asia-Pacific** meetings, in addition to placing SCP in the ESCAP work plan, called for the establishment of a “Help Desk on SCP” cooperatively by UNEP and ESCAP, in order to support and assist the development of indicators and databases for monitoring consumption and production in all relevant sectors in the countries of the region. There is also a need to integrate SCP issues into the programmes of other regional organizations such as the Association of Southeast Asian Nations (ASEAN), the Economic Cooperation Organization (ECO) and South Asia Co-operative Environment Programme (SACEP).

1.3. Actions by international agencies

11. Work on the Marrakech Process should be linked to other related international processes – for instance on water, energy, poverty and the Millennium Development Goals – and to the thematic issues of the multi-year programme of work of the CSD.⁴ Implementation of strategies for sustainable consumption and production can be facilitated by programmes carried out by UNEP, UN-DESA and other UN agencies, as well as bilateral, regional and other international organisations.⁵

12. Among the specific actions that have been undertaken thus far by international agencies in support of the Marrakech Process are the following:

- a) Creation and maintenance, by UNEP and UN-DESA, of an online database of International Activities and Programmes on Consumption and Production;⁶
- b) Establishment of a joint UNEP/UN-DESA website on the Marrakech process to facilitate information and experience sharing, network building, and dissemination of best practices;
- c) Preparation by UN-DESA, with inputs from UNEP, UN-HABITAT and others, of a report on the challenges and policy and programmatic responses relating to sustainable consumption and production in the areas of waste, transportation, construction, and water, indicating the scope for international support for national and regional efforts. This report was intended as background for the discussion of water, sanitation and human settlements during the 12th and 13th sessions of the Commission on Sustainable Development.

1.4 Aims of the Costa Rica meeting

13. The Marrakech International Expert Meeting and the regional meetings organised so far offer a preliminary set of priorities for regional and national action and for international support (see separate Appendix). These priorities are to be further developed and revised during the Second International Expert Meeting on the 10YFP to be held in San Jose, Costa Rica, September 2005. The purposes of the meeting are to:

- (a) Take stock of developments since the 1st International Expert Meeting, particularly with respect to regional processes;
- (b) Review the conclusions of the regional consultations under the Marrakech process and determine how international activities on SCP can best support regional and national priorities;
- (c) Establish ways to improve international cooperation and assistance for developing countries on priority issues;
- (d) Review the scope of the 10-Year Framework, reflecting the priorities of governments, and assess the need to further develop specific areas of work within the Framework;
- (e) Identify international focal points for exchange of information and cooperation on elements of the Framework;
- (f) Explore opportunities for building and/or strengthening international and regional partnerships for work on SCP;
- (g) Provide inputs to the Commission on Sustainable Development for consideration as part of its future work, in particular on integrating SCP issues into the Commission's discussions on energy, air pollution and industrial development at CSD 14 and 15.

14. In considering the various aspects of SCP in the Marrakech Process, particular attention should be paid to the following general issues:

Linkages of SCP with poverty reduction

15. Poverty eradication and social development have linkages with the SCP agenda, as was highlighted in global and regional meetings. In developing countries, consumption levels of large numbers of people are inadequate to maintain health, well-being and productivity. There, the challenge is to increase consumption, investment and production. Foreign investment and technology transfer, both official and private, can play an important role in supporting development based on sustainable consumption and production and poverty reduction. Technological leapfrogging may enable developing countries to accelerate improvements in living standards and bypass unsustainable patterns of consumption and production through new technologies. A number of governments are exploring the integration of SCP into national poverty reduction strategies; Ghana and Senegal, for instance, have initiated a project with UNEP for this purpose.

Testing policies

16. Developing and testing policy instruments, policy packages and programmes for sustainable consumption and production is a major challenge facing all countries. Various countries and stakeholders are developing approaches, tools and methodologies such as life cycle analysis, circular economy, integrated product policies, internalization of environmental costs and benefits, and dematerialization. Regulatory approaches focusing on the production side have historically been the main tools for environmental and social protection. Regulations,

however, are less easily applicable to consumer behaviour, and may not be economically efficient or politically feasible. Combining well-designed regulations with economic incentives, information and training, public-private partnerships and voluntary business initiatives can more effectively promote economic development together with resource conservation, environmental protection and social development, while ensuring political acceptability. Comparing and testing the relative cost-effectiveness of production-side and demand-side measures is important, for example the cost of building and operating a clean power plant versus the cost of reducing demand through energy-efficiency measures.

Funding and organizational support

17. Effective international support for the implementation of national and regional projects and programmes will require the involvement of international and national development aid agencies and regional and international development banks, as well as the participation of national and regional institutions and organisations, including government agencies, the private sector and civil society. Support from regional organizations and agencies such as the Latin American Forum of Environment Ministers, the African Ministerial Conference on the Environment (AMCEN) and the UN regional commissions is also important. So far, the major financial support for assistance projects specifically focusing on SCP has come from European ministries of Environment. There is also a need for greater international private sector investment in SCP, possibly through public-private partnerships.

Strengthening delivery mechanisms

18. Awareness raising, training and capacity building for key actors at local and national levels are essential for delivering results. Business, including small and medium-sized enterprises, need opportunities to contribute to and benefit from the SCP agenda. National Cleaner Production (and Consumption) Centres are a key mechanism to deliver training and information on SCP.

2. ANALYSIS OF REGIONAL PRIORITIES, NEEDS & CHALLENGES

19. Based on an analysis of the outcomes of the regional meetings on the 10YFP that were held during 2003-2005 in Africa, Asia-Pacific, Europe and Latin America, this section presents the main priorities, needs and challenges for national, regional and international efforts on SCP. Instead of describing the outcomes of the meetings region by region, this section provides a synopsis of common needs and priorities, while also noting the differences. For the priorities of each region, refer to the summaries in the appendix or the meeting reports, which are available on the UNDESA/UNEP website.⁷

2.1 Identification of regional SCP priorities

20. The regional consultation meetings that have taken place in Africa, Asia-Pacific, Europe and Latin America have followed different priority-setting approaches. Latin America and Africa followed a functional and sectoral approach by first identifying the priority thematic issues of SCP and then linking the relevant stakeholder groups to these issues. Europe and Asia started

from an actor-driven institutional approach, identifying challenges and proposing actions that the main sectoral actors can take to advance SCP objectives.

21. In terms of the participation in the regional meetings, Europe (including the sub-regional meeting of the Baltic States) and Asia were stakeholder-based and were attended by experts representing government agencies, business, civil society organizations, consumer organizations, research and academic institutes and international organizations. In Latin America and Africa, government representatives, SCP experts and international development partners were the main participants in the expert meetings.

22. In all regions, both environmental and social issues were considered important in moving towards sustainable consumption and production. Especially in Latin America and Africa, social issues such as poverty alleviation, overcoming inequity and meeting basic human needs ranked high in priority. In the African regional meetings, a working group was set up to focus on linkages of SCP with poverty alleviation and social issues. Europe and Asia also link SCP increasingly to social aspects, with an emphasis on health issues and employment creation opportunities. Strengthening micro, small and medium sized enterprises, in combination with effective support for investment and training, will contribute to social goals such as employment and poverty alleviation.

2.2 Key sectoral priorities and challenges

23. The different regional expert meetings and roundtables have identified a variety of sectoral priorities, summarized here. For more detailed descriptions, please refer to the appendix.

Energy

24. Affordable, sustainable energy for all is prioritized in all regions. In Europe, the focus lies on improving energy efficiency and enhancing renewable energy sources. A key challenge identified by European countries is de-coupling economic growth from environmental degradation by addressing both supply and demand, with an emphasis on promoting eco-efficiency in sectoral policies.

25. In the developing regions, besides ensuring affordable energy access, notably to rural communities, there is also potential for increasing energy efficiency and diversifying energy supply towards cleaner energy sources, including electricity, renewable energy and natural gas. This may require development of legal and economic frameworks that allow decentralized power generation and provide economic and financial incentives to promote cleaner energy sources. Technology transfer, capacity building and environmental education and information campaigns are needed to promote energy saving and informed choices for energy efficient appliances.

Solid and hazardous wastes

26. Reducing waste generation and properly disposing of solid and hazardous wastes is a high priority, especially in African, Asian and Latin American urban areas. Technical assistance can prove valuable in introducing Integrated Solid Waste Management (ISWM) systems in order to improve waste management both for municipal and industrial waste, and to promote waste prevention, minimization, reuse and recycling. Major challenges are the establishment of effective infrastructures, better integration between the informal sector and formal waste management systems, and adoption of appropriate technology to manage waste. Further challenges are to improve knowledge of effective waste management, capacity building and technology transfer, and education and support for ISWM implementation.

27. Waste is also a priority in Europe. The volume of waste generated has continued to increase, notably in Central and Eastern Europe, where living standards are rising and consumption is increasing. Lack of proper management systems for industrial and municipal waste poses a clear threat to the environment and human health. In Central and Eastern Europe as well as Central Asian countries, material recovery levels are low, due to lack of adequate recycling or material recovery capacities. The current very low level of separation and recycling of household waste is an obstacle to more efficient use of materials.

Water and sanitation

28. 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 countries in Africa, Asia-Pacific, and Latin America.

29. In those regions, a need was identified for capacity building for integrated water resource management and for introduction of water conserving techniques in agricultural and industrial use. Further, there is interest in the introduction of economic tools, along with technology and technical assistance, to reduce water wastage. Environmental education for households is seen to be crucial to raise awareness of potential water saving measures and to raise sanitary standards.

30. In Latin America, high priority is put on management of coastal areas and their resources, achieving better quality of inland waters and improving freshwater supply. Africa and Asia have emphasized promotion of “public-private” partnerships for the conservation and management of water resources and natural resources, complemented by participation of non-governmental organisations.

Urban planning and urban mobility

31. Urban planning and urban mobility are judged medium to high priority issues across all regions. Transport, or mobility, is a high priority for Europe. One of the concrete initiatives recommended in the Ostend meeting was to discourage traffic congestion, with governments and local authorities making use of instruments such as road pricing, car free zones and congestion charges, and to encourage behavioural change. In the case of African transport, a high priority is the improvement of the road, rail and other transport infrastructures. Regulatory reforms could help to promote more efficient use of energy in the transport sector. For

example, a high import tariff increases the cost of bicycles in a number of African countries. Removal of this tariff can improve the affordability of bicycles. Uganda and Kenya provide evidence that parking space charging schemes can influence urban transport patterns towards wider use of mass transit and non-motorized systems.

32. Providing a wider range of transportation options can help to improve the mobility of low-income people, hence improving their access to job opportunities and a range of facilities and services.

33. In the area of urban planning, priority lies with the development of integrative city development strategies and upgrading unplanned settlements in developing countries. There is a need to strengthen institutional capacity to implement urban plans, and to promote transparency and accountability of planning and budgeting. Integrating rural and urban planning strategies should aim to encourage economic activities in rural areas to reduce urban migration so as to prevent the expansion of unplanned settlements.

34. Challenges in the field of construction are to promote “green building” through ecological design, including natural lighting, local construction materials, improved insulation and higher standards for energy and water efficiency. Design and promotion of low-cost housing could be promoted using alternative “green” technologies where they are economically justified.

2.3 Institutional actors and challenges

Government & Agencies

35. In all regions, government agencies are key actors, particularly for developing a coherent strategic framework for SCP and implementing policies on SCP. All regions recognize the importance of economic instruments, elimination of harmful subsidies, internalisation of environmental costs, and regulatory and voluntary instruments. Leveraging financial investments through national funds financed by environmental taxes can support the development of new sustainable products and services. Governments have the main role to play in ensuring sustainable procurement policies, promoting consumer protection through the UN Guidelines,⁸ and encouraging integration of sustainable consumption and production in all sector policies and development plans.

36. It was concluded in all regions that governments should provide incentives, information and training material for creating awareness and support for changing unsustainable patterns of consumption and production, including information on success stories and best practices, and information on the benefits for economic growth and competitiveness. All regions face the challenge of developing national and regional SCP agendas/strategies and/or integrating SCP issues into existing development strategies and plans.

Industry & business

37. Industry and business, including distributors and retailers, have a key role to play in achieving SCP and sustainable development as supplier of the goods and services required by

society, as a source of job creation and as active participants in community life. Within the context of a coherent and effective legal framework, approaches such as Corporate Social Responsibility (CSR), Cleaner Production (CP), Eco-Design, Product Services Systems (PSS), Environmental Management Systems (EMS), workplace assessments, alternative business models, and voluntary agreements, are examples of business action for sustainable development.

38. National Cleaner Production Centres (NCPCs), initiated and supported by UNIDO and UNEP, can provide an effective mechanism to promote SCP and support the implementation of the Marrakech agenda in industry and business. In Africa, for instance, the NCPCs, as members of the African Roundtable on SCP, are taking an active role in implementing a project on SCP in the Lake Victoria region.

39. Considering regional priorities in industrial and business development, Africa sets a high priority on the expansion of value chains for agricultural products, including through development of new industrial uses and of markets for sustainable goods and services. Another concern of African business is to ensure that their products can meet the quality and environmental standards required for access to export markets. 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 key obstacles.

40. The Asia-Pacific region emphasized capacity building and transfer of technology, particularly for major polluting industries. The region prioritized the preparation and dissemination of guidelines on tools for sustainable consumption and production, including environmental management tools such as product life-cycle assessment (LCA) and environmental management accounting (EMA). Businesses face concrete challenges, such as carrying out self-assessments and defining strategies and action plans to address environmental and social concerns. Possible approaches include self-declarations on products and performance, development of codes of conduct on a national or regional basis, and assisting small and medium-sized enterprises linked to supply chains to adopt sustainable consumption and production practices.

41. Besides capacity building in business and industry through workshops, training, information and technical assistance, Latin America put a high priority on promoting a strategy to link the productive sector with research and development institutions in order to generate, disseminate and implement technologies that support sustainable development.

42. One priority for stimulating sustainable business initiatives in Europe is the development and implementation of voluntary agreements including concrete targets and reporting mechanisms. Another is raising investment in research on sustainable products and services. Priority is also placed on partnerships for SCP, including marketing strategies for sustainable products and services and for promoting sustainable lifestyles. Priorities in the Baltic States are the implementation of modern and environmentally-friendly technologies, environmental management systems (EMS) and cleaner production methods in order to increase eco-efficiency in production and to decouple economic growth from environmental impacts.

43. A special focus has been put in all regions onto small and medium sized enterprises (SMEs). Improving their productivity requires policies targeted to their needs, including

innovative mechanisms to help them bear the incremental costs of the adoption of new technologies, as well as assistance in technology transfer, including South-South cooperation. Economic incentives to get SMEs more involved in SCP measures need to be developed.

44. Regional cooperation was considered important, as it promotes technology transfer and synergies. It was noted that NCPCs provide an effective mechanism to promote SCP and that networking among the Centres and other organizations promoting sustainable consumption and production needs to be strengthened.

Financing for SCP

45. Regarding the financial sector, in developing countries, a lack of access to financing for sustainable development investments remains a main barrier to making consumption and production more sustainable. Support and capacity building for companies in identifying and approaching sources of funding, as well as support to financing institutions to identify sustainable development investments, is a critical issue for overcoming financial obstacles.

46. Key priorities in Europe in the field of finance are dissemination of best practices for the stimulation of social investment and stimulating the involvement of the public in sustainable investment, such as through setting up dedicated seed and risk capital funds and networks. Other priorities include training activities on sustainable investment for entrepreneurs, bankers and project developers, fostering dialogue between governments and stakeholders, and harmonisation of national rules governing sustainability funds in the region.

47. In all regions, particularly in the developing world, international support for the implementation of concrete projects, including demonstration projects, will require the involvement and commitment of development aid agencies, regional and international development banks, as well as the participation of national and regional institutions/organizations, including governments, private sector and civil society.

Civil society and media

48. Civil society, including NGOs, consumer organizations, trade unions, women and youth, is recognized as playing a crucial role in promoting sustainable consumption and production patterns. Training to assist such organizations in policy monitoring could be enhanced, and linkages with research institutes and academia could be strengthened.

49. A high priority in all regions lies in enhancing education and awareness to produce behavioural change. Challenges are to sell SCP by positive - not guilt-laden - approaches and to integrate SCP in other policy areas, especially consumer policies. For example, encouraging consumer preference for sustainable goods and services would require a change of attitude, better promotion of sustainable products through professional marketing campaigns, and activities to improve the quality of sustainably produced goods and services.

50. The media, including advertising, is recognized as a major driver for awareness-raising among consumer groups. In Europe, there is a high potential for reaching out to relevant target groups by developing new communication strategies for businesses and NGOs, in addition to the mass media. Asia-Pacific and Latin America place priority on capacity building and awareness raising among media organisations on SCP topics and mobilizing the major media

in information, education and communication campaigns for sustainable consumption and production. In all regions it was noted that consumer information concerning sustainability should be conveyed in a positive way rather than by moralistic messages or in conceptual or abstract language. Messages should be personal and practical, showing the consumer the benefits of more sustainable alternatives.

2.4 International cooperation programmes on SCP

51. UN-DESA maintains the Sustainable Consumption and Production Database, which contains information on initiatives for international cooperation on SCP. The database is publicly accessible on the web-site of the Marrakech Process.⁹ As of April 2005, it included 93 programmes, providing information on areas of work, type of activities and target groups. Eighty-five programmes identified areas of work and activity types. Analysis of these 85 programmes indicates that 66 programmes involve information sharing, 52 involve technology transfer, 40 involve advisory services, 35 involve capacity-building, 32 involve research, and 21 involve policy coordination.

52. With regard to target groups, almost all programmes (80) identified national governments as their target group. About half of them (43) also addressed the private sector, while fewer included civil society (37) and local government (33). This may be attributable to the fact that many of the information providers were national development cooperation agencies, whose counterparts are national governments. Considering that implementation at the local level is crucial for promoting sustainable consumption and production, it may be desirable for more attention to be given to local government. At the same time, there is a need to involve the other major stakeholders, namely the private sector and civil society.

53. Among the areas of work, 26 programmes dealt with education and public information and 24 with industrial energy efficiency. While urban planning and waste management were also the focus of many programmes, few emphasized *integrated* solid waste management. Another area with many programmes is climate change and energy. A somewhat surprising result is that, despite the importance of consumer organizations in promoting sustainable consumption, only one programme targeted such organizations.

54. A comparison of the priorities identified in the regional meetings with the coverage of the existing international programmes on SCP in the database suggests areas where there may be gaps in international support and cooperation.

2.5 Task Forces

55. The 2003 Marrakech Meeting called for informal task forces or roundtables on specific issues, with participation of experts from developing and developed countries, to promote progress on the 10-year framework and the implementation of Chapter 3 in the Johannesburg Plan of Implementation. As the Marrakech Process is intended as an informal, decentralized, and largely bottom-up process, no formal process for approving such task forces is envisaged. Rather any group of countries, perhaps with the participation or support of international organizations, can form a task force on any topic within the scope of the Marrakech Process, generally taken as the scope of Chapter 3 of the Johannesburg Plan of Implementation. For such task forces to be considered part of the Marrakech Process, they should be open to

participation by experts from developed and developing countries and should report to the biennial international expert meetings on the 10-year framework and other relevant meetings. Regional task forces, open to countries of a region, could be part of regional processes, reporting to the biennial meetings through regional reports.

56. Ensuring the participation of developing country experts in an international task force normally requires financial support, as might the preparation of discussion papers. A task force would therefore normally require financial support from one or more donor countries or international organizations. A continuing task force would also require continuing arrangements for an organizational secretariat, perhaps rotating among donor countries, or based in an international organization.

57. The task forces could provide for in-depth exchange of information and experience by experts on the issue under consideration, for the establishment of networks of experts working in a particular field, and for the development of cooperative projects.

58. The Costa Rica meeting could consider priority issues for such task forces and the potential for donor support. This should be done by each Working Group within the scope of its work, with an overall review by the Plenary, based on the Working Group reports. The views of participants would be reflected in the summary of discussions in Costa Rica for consideration by the organizers and participants in each task force. A number of specific proposals for task forces are expected to be presented to the meeting for discussion.

2.6 Conclusions

59. As indicated above, SCP priorities and needs worldwide are diverse. The major common priorities, however, are:

- (a) Strengthening delivery mechanisms through capacity building and training on SCP
- (b) Developing policies and programmes to support and encourage SCP, including economic instruments, public procurement, product standards, etc.
- (c) Development of implementation tools and methods for key actors
- (d) Awareness raising and education on SCP at all levels of society
- (e) Establishment of innovative cross-sectoral partnerships and implementation networks
- (f) Building institutional frameworks and infrastructure to promote SCP
- (g) Securing financing.

3. ISSUES FOR DISCUSSION IN WORKING GROUPS

WORKING GROUP 1: PRODUCTION PROCESSES & INDUSTRIAL DEVELOPMENT

Introduction

60. The First International Expert Meeting on the 10-Year Framework, held in Marrakech in 2003, agreed that further work on the Marrakech Process should take into account the work programme of the Commission on Sustainable Development (CSD). For 2006-2007 (CSD-14 and 15), the Commission will be addressing the theme of industrial development (along with energy for sustainable development, climate change, and air pollution/atmosphere).

61. Industry plays a key role in sustainable development by generating economic growth, diversification and employment. It contributes to the shift toward sustainable production and consumption by developing sustainable production processes and sustainable consumer products. This section will focus on policies, incentives and support activities for stimulating the industrial sector's contributions to SCP. The issue of product design to address issues arising in the consumption and disposal phases is addressed in Working Group 3.

Conditions and trends

62. Production processes, particularly in manufacturing, are increasingly global. Taking the production of a mobile phone as an example, the extensive global supply chain for a phone manufacturer involves 80-100 1st tier suppliers, each of whom is supplied by about 5 to 20 2nd and 3rd tier suppliers, which results in a supply chain of up to 2000 producers. The phone is assembled from 200 to 500 components, each of them with up to 20 sub-elements. Within these supply chains, processes that are more labour intensive have been increasingly moved from developed to developing countries.

63. Foreign direct investment (FDI), particularly in developing countries, has increased rapidly since the 1990s as production has become globalized. Still, FDI flows to developing countries tend to be highly concentrated in a relatively small number of countries, with many low-income countries enjoying few of its benefits. The benefits include, in addition to employment and income, the transfer of modern, more efficient and cleaner production technologies and improved access to global markets.

64. The diffusion of new and cleaner technologies to developing countries can be hampered by limited capacity to use those technologies productively. National and Regional Cleaner Production Centres and Technology Demonstration and Diffusion Centres, such as those supported by UNIDO and UNEP, are examples of international efforts to support technology diffusion, transfer and adaptation. A review of that experience suggests that extended donor support for such centres may be necessary, as financial self-sufficiency or national financial support can be difficult to obtain.¹⁰

65. If developing country producers are to benefit from world market opportunities, they need to be able to satisfy the demands of consumers, particularly in high-income countries, for products of high quality, meeting health and safety standards and, increasingly, meeting environmental and social standards relating to their methods of production. Fair trade

programmes in developed countries can offer premium prices for products produced in developing countries according to certain standards.

66. Environmental taxes and charges, such as taxes on energy, carbon, leaded gasoline, SO₂ or other emissions, have been used with some success in many countries, both developed and developing, to reduce energy consumption or pollution. In many cases, to increase the political acceptability of new or increased taxes, the revenues are earmarked for environmental protection or “recycled” to industry for investments in environmental protection measures or reductions in business payroll taxes, or the public for reductions in income or other taxes.¹¹

67. Certification and labelling schemes and voluntary codes of conduct have proliferated in recent years, as global companies respond to demands from their shareholders, customers, and external pressure groups to ensure that their behaviour conforms to standards of environmental and social conduct. Such schemes and codes can be economical ways for companies to signal their commitment to high standards. One issue is whether these schemes are sufficiently open to participation of enterprises in developing countries, in particular SMEs.

68. Small and medium-sized enterprises (SMEs) can face particular challenges in improving product and process standards to conform with export market requirements such as certification and labelling schemes. Technical assistance to SMEs and efforts to improve their access to financing can facilitate their adaptation to new market conditions and consumer preferences.

69. In the case of the ISO 14001 environmental management standard (EMS), trends suggest a rapid growth in certification in some developing countries, even though European countries still dominate total certifications. For instance, from 1997 through April 2005, the number of certifications in China rose from 22 to 8,865, in India from 28 to 1500, in Thailand from 61 to 974, and in Brazil from 63 to 1800.¹² In total, almost 50,000 enterprises or other entities in 118 countries had ISO 14001 certification by the end of 2002. Among developing countries, there is an especially strong representation of the export manufacturing economies of East Asia, with very few African enterprises certified. A European survey of facilities with EMS indicates improvements in the efficiency of use of raw materials, water and energy, but not necessarily in regulatory compliance.¹³

70. The EU’s EMAS system, with more than 3000 organisations registered, is currently being reviewed in order to see how its effectiveness can be increased and synergies with the EU’s ecolabel maximised.¹⁴

71. Corporate Social Responsibility (CSR), as a voluntary approach for enhancing the contribution of businesses, especially multinational corporations, to sustainable development is steadily gaining ground. A number of private initiatives exist, some sponsored by specific industries or groups of industries, others by workers, NGOs and other stakeholders, still others as multi-stakeholder partnerships. The interest in CSR is to a considerable degree a response to the forces of globalization. Whereas a developed country corporation operating only in its own home country could provide assurances to shareholders and other stakeholders of its corporate responsibility by meeting or exceeding national regulations, it is much more difficult to demonstrate responsible behaviour where operations, often through contractors and sub-

contractors, are spread over many countries, some of whom may have weak environmental and social legislation, weak enforcement, or both.

72. With the proliferation of voluntary corporate codes of conduct, including the UN Secretary-General's Global Compact,¹⁵ the Equator Principles,¹⁶ and certification schemes such as Social Accountability International's SA8000,¹⁷ and AccountAbility's AA1000,¹⁸ as well as the OECD Guidelines for Multi-National Enterprises,¹⁹ there is some pressure for rationalization and standardization of approaches. Acknowledging this, the International Organisation for Standardization (ISO) is currently considering extending its standardisation activities into the area of CSR.

73. The EU has issued a Communication on CSR, entitled "A Business Contribution to Sustainable Development". In addition, European businesses have adopted a common approach to "ethical sourcing" through the Business Social Compliance Initiative (BSCI),²⁰ based on the labour standards of the International Labour Organization (ILO), as well as on the UN Charter on Human Rights and national regulations. The initiative aims at continuously improving the social performance of suppliers, leading eventually to SA8000 certification or equivalent.²¹

74. Within the investment community, socially responsible investment (SRI), including social and environmental components, is gaining currency, with a thriving industry to support it. There are numerous funds specializing in SRI, SRI research and rating firms, and stock indices like FTSE4Good and the Dow Jones Sustainability Index (DJSI). There are negative and positive approaches to SRI: the negative approach avoids companies that cause environmental or social harm; the positive approach invests in companies that generate healthy earnings while providing goods and services that contribute to a healthy environment.

75. UNEP has launched a Finance Initiative²², whose mission is to identify and promote the adoption of best environmental and sustainability practices in financial institution operations. The Initiative involves some 200 financial institutions, including a number of leading banks and insurers, who are concerned with the potential impact of environmental problems such as climate change and future environmental liabilities on their operations and profits.

76. Corporate social and environmental reporting (CSR reporting) is also a growth industry. There are a number of major initiatives, with the Global Reporting Initiative (GRI) seeking to provide an overarching framework for ensuring quality control and consistency. GRI uses a multi-stakeholder process to develop and disseminate Sustainability Reporting Guidelines.

77. A major challenge facing an international company concerned with CSR issues is the management of its global supply chain to ensure compliance by all suppliers with its environmental and social standards. Contracting out the monitoring and verification process to third parties is one option that can reduce costs for those companies not large enough to justify implementing their own in-house process. Where there is a risk to the company's reputation from adverse publicity, the loss of control from contracting out these services needs to be weighed against any potential cost savings. GRI is currently working on expanding the coverage of its sustainability reporting guidelines to include suppliers.

78. Where voluntary codes of conduct are adopted, labour issues tend to be emphasized in sectors such as garments, footwear, toys and retailing, while environmental codes are most commonly used in process industries such as chemicals, forestry, oil and mining.

79. While mostly voluntary, corporate social and environmental responsibility programmes have also been initiated in some instances by governments. The Cambodian Government, for instance, provides assurances to foreign buyers and investors that its textile and garment industry meets certain labor standards.²³ Similarly, the Government of Pakistan has approved a plan to support the implementation of global social accountability standards for 250 major export units. This could evolve into a sort of “race to the top” competition among countries to attract foreign investment, but it is ultimately constrained by the willingness of developed-country customers to pay a higher price for the assurance of products that meet their standards, for example “sweatshop-free” clothing.²⁴

80. Pollution registers have been used by a number of governments in both developed and developing countries to put public pressure on industry to improve their environmental performance. The European Pollution Release and Transfer Registries (PRTR), the United States Toxic Release Inventory (TRI) and the Indonesian PROKASIH programmes are examples of government requirements for public disclosure of industrial pollution emissions that allow the public and the media to press industry for better environmental performance.

81. To assist governments and industry in meeting environmental objectives in the most cost-effective way, the United Nations has been working with governments, experts and industry to develop procedures for environmental management accounting (EMA). Publications on principles and practices for EMA have been developed and disseminated, and a set of guidelines has been adopted by the International Federation of Accountants (IFAC) to guide the work of accountants.²⁵

82. Industrial ecology, reducing waste and linking industries so that one company’s waste becomes another company’s raw materials, is being developed in a number of countries and is intended to be part of China’s Circular Economy approach.

Forthcoming challenges

83. Initiatives and approaches addressing industrial development and SCP focus largely on the production side, neglecting impacts from consumption and disposal. An integrated perspective, linking production and consumption through life-cycle analysis is also needed.

84. Building on the existing network of Cleaner Production and Consumption Centres, the transfer of economically and environmentally sound technologies needs to be supported by a transfer of relevant know-how and enhancement of recipients’ absorptive capacity. To maximize the dissemination efforts, local networks for cleaner production need to be developed and strengthened.²⁶ Integrated technology assessments can help ensure that technologies transferred to developing countries meet both economic and environmental needs.

85. Mechanisms to help SMEs achieve cleaner production need to be further improved. Despite significant efforts, adequate ways to assist the huge number of such enterprises have yet to be found. The limited resources and capital market access of SMEs are major obstacles

to the further dissemination of cleaner technologies. However, some projects targeting SMEs have shown that it can be done successfully.²⁷

86. Globalisation of production increases the difficulty of understanding, managing and improving production processes. A variety of actions can help to address these challenges:

- (a) Collective actions, integrating the contributions of business, government and other stakeholders, can be promoted. Partnerships and voluntary initiatives could be used to promote the concept of SCP at the sectoral level;
- (b) Ensuring compliance with codes of conduct needs to be supported by capacity building measures customized to assist the target group;²⁸
- (c) Policy approaches and tools need to be developed and disseminated to address the linkages between production and consumption;
- (d) Policy approaches and tools need to be developed to integrate social and environmental issues relating to CSR debates, including integration of Fair Trade and environmentally friendly trade initiatives;
- (e) Public procurement can be used to develop national markets for sustainable production and products;
- (f) Environmental management accounting (EMA) can be used by enterprise managers to identify opportunities to save money by reducing waste and emissions and to meet environmental standards in the most cost-effective manner.

87. Financial markets play a key role in industrial development. Policy makers can work together with financial institutions towards:

- (a) The integration of social and environmental criteria in investment and financial analysis and ratings;
- (b) Wider availability of micro-finance loans to support sustainable production.

88. Some questions for discussion

- (a) What is the role of government in promoting cleaner production and corporate social performance? What are the roles of regulations, technical assistance and voluntary initiatives?
- (b) What are the most effective policies and programmes for improving resource productivity and reducing pollution and waste in industry?
- (c) How can best practice policies and programmes be disseminated and supported?
- (d) How can support best be provided to developing-country producers, especially SMEs, to improve productivity and resource efficiency and meet health, safety, environmental and other criteria in international markets?
- (e) What are the opportunities and challenges facing developing country producers in marketing sustainable products?

- (f) How can financial markets drive sustainable production? How can investments be supported financially? What is the role of loan guarantee funds, green investment funds etc.?
- (g) How can technological innovation be encouraged and supported? How can the capacity to absorb and efficiently utilize cleaner, more efficient technologies be strengthened, particularly in developing countries?
- (h) Which policies and programmes can help put CSR or sustainable production into practice?
- (i) What is the role of developing-country governments, industry and other actors in the application of CSR by multi-nationals in their international supply chains?
- (j) What might be some priority issues for international task forces relating to production processes and industrial development?

WORKING GROUP 2: URBAN PLANNING AND WASTE MANAGEMENT

Introduction

89. Following up on the discussions at the Marrakech Meeting and the discussions on human settlements at CSD-12 and 13, Working Group 2 will consider sustainable consumption and production issues relating to urban planning and waste. Related topics such as transportation, construction, and water supply are also covered. However, the issue of cleaner, more fuel-efficient vehicles is addressed in Working Group 5.

Conditions and Trends

Urban planning

(a) Integrated urban planning approaches

90. Cities with high population densities use substantially less land, energy and water per person than low-density cities or suburban areas with large and widely spaced individual houses. The spatial development of cities, whether compact and high-density or sprawling and low-density, depends on long-term urban planning and on fiscal structures and economic incentives. Zoning regulations govern housing density and mixes of residences, shops, offices and factories, as well as public services such as schools and hospitals. Government tax incentives and subsidized mortgages for house building and home ownership generally promote the development of suburbs with separate private homes. Rental apartments in high-density urban areas, although generally more environmentally sustainable, are rarely given economic incentives. Zoning that separates residential areas from commercial areas, rather than mixing the two, also promotes the use of cars, rather than walking or cycling, and increases average trip length. Public spending on transportation infrastructure that goes disproportionately to road building also promotes the use of cars, which facilitates low-density development.

91. Improving urban planning to make cities more sustainable, to make housing, transportation and public services accessible to low-income people, to and to improve the quality of urban life generally, requires integrated urban planning and management, involving

cooperation among a number of agencies, including those responsible for land use, environment, transportation, and other services. Such agencies, however, may have different and often conflicting priorities. National spatial planning agencies can therefore help in setting integrated national standards and policies. Some large cities that consist of a number of municipalities with separate political and financial structures have established metropolitan agencies to coordinate roads, transportation systems, land use planning, schools and water supply for the metropolitan area. The involvement of citizens in the planning process can also strengthen urban planning and management for sustainability.

92. Some cities, notably in Brazil, have introduced “participatory budgeting,” with public debates on municipal programmes and priorities, including issues such as transportation, education, leisure and culture, health services, taxation and urban development.²⁹

(b) Mass transit planning and systems

93. The economics of urban transportation depends to a large extent on population density. In large low-density sprawling cities, public transit may not be cost-effective, and distances are too large for walking or cycling for most people. In some low-density cities in the United States, 95% of people commute to work in private cars. In many European cities, on the other hand, with higher population densities, efficient and attractive public transit, and arrangements for convenient and safe walking and cycling, a majority of people commute to work by public transit or non-motorized transport. In some major cities in middle-income countries, such as Bangkok and Kuala Lumpur, the majority of people commute to work in private cars despite the financial cost, due to the lack of attractive alternatives.³⁰ While most public funding for transportation in most countries goes to roads, in some, the share of funding going to public transit has increased in recent years.³¹

94. For the growing number of megacities, travel by private motorized transport is growing rapidly. In some, motorbikes still predominate, while in others the balance has already shifted towards automobiles. While motorbike traffic may reach higher densities than cars before congestion becomes a serious problem, riders are fully exposed to air pollution and accident rates can be very high. Travel by car, on the other hand, is commonly slow and expensive, due to congestion and the costs of car ownership, fuel and parking. In many large cities of the developing world, less than 10% of the land is devoted to roads (compared to 20% in many developed country cities), leading to greater congestion despite the smaller number of cars relative to population in the developing countries. The megacities of the developing world thus need efficient mass transit systems and other alternatives to cars even more than cities of the developed world.³²

95. Some cities in developing countries, such as Curitiba (Brazil), Bogotá and Jakarta, have developed innovative urban rapid transit systems based on dedicated bus lanes along radial routes from the city centre. Such systems can provide efficient and affordable high-volume rapid transit on main routes for less than 1% of what a subway would cost. Such systems can be public-private partnerships, with private bus operators providing much of the investment. The “finger plan” approach to long-term urban development, concentrating high-density development along radials with good transport infrastructure, can also help to promote public transit and reduce the need for cars.³³

96. Some cities, notably Singapore and London, have used “congestion charges” and road tolls that depend on the time of day and traffic conditions to optimise traffic flow while encouraging use of bus and light rail mass transit. Car-free days in a number of cities, such as Bogotá, help improve public awareness of the benefits of public transport.

97. In most large cities of the developing world, public municipal transport systems have not kept up with rapid urban growth, and informal, private, unregulated and often illegal transport services have grown rapidly to meet the growing needs and to respond to emerging demands for services not provided by the formal system. The informal transportation sector thus provides essential transport services, especially for informal settlements and poor people. This informal transport often complements municipal services, serving areas not served by municipal services and providing feeder services to large buses on main routes, or to subway or rail services. Late at night, informal services may be the only means of transport for people who cannot afford cars or taxis. The informal transport sector provides up to 15% of urban employment and is a particularly important source of employment for recent migrants to the city.³⁴

98. The rapid growth of informal transport, while meeting essential needs and contributing to economic growth and poverty reduction, has also posed major challenges to sustainable urban development, in part because of lack of regulation. The vehicles are often old, polluting and unsafe, and operators usually have no insurance to cover injuries or damage. Because there are no official and protected stopping places for informal vehicles, they often load and unload passengers in the middle of traffic, usually in the busiest locations. Intense competition in the unregulated market may cause aggressive driving, and competition with formal public transit may reduce revenues and financial viability for the formal system. Some cities are addressing these problems by licensing and regulating the informal sector, setting vehicle standards and insurance requirements, excluding pedicabs or other small, slow vehicles from major streets, limiting the number of informal transport vehicles, and establishing waiting and loading points off the busiest streets.³⁵

99. Bicycles can be an effective means of reducing traffic congestion and air pollution. Four to eight bicycles can use the road space occupied by one car, and 20 bicycles can park in the space occupied by each car. Cycling is less expensive than public transit, not to mention private car travel, and hence is more affordable for the poor. Lima, Peru, is promoting bicycle use, including through a revolving fund supported by the World Bank providing credit vouchers usable in bicycle shops. In Kenya, a luxury tax on bicycles at the rate of 80% until 1986 was gradually reduced, and finally eliminated in 2002, resulting in a large increase in bicycle sales. Most African countries still tax bicycle imports as luxury items, limiting access by poor people to low-cost and environmentally sound transportation.³⁶

100. A major deterrent to cycling is concern about safety, so construction of bicycle paths or separate bicycle lanes can be effective in promoting cycling. Denmark and the Netherlands have extensive systems of bicycle paths and lanes, and many Chinese cities reserve traffic lanes exclusively for bicycles. Mexico City, in 2004, inaugurated the first section of a planned 90 km bike-way network. Allowing and facilitating the transport of bicycles in subways and trains and providing safe and convenient bicycle parking at train stations allows a combination of local cycling and longer distance rail travel for trips that are too long for cycling and

inconvenient by rail alone. Some cities, however, as vehicle traffic has increased, have discouraged or even banned bicycles from some streets.

101. One international project addressing sustainable transport is the Sustainable Urban Integrated Transport (SUIT) Project, coordinated by UNEP DTIE, which is assisting developing countries to address the rapid growth in the urban transport sector in a holistic, sustainable manner. The project uses proven technologies for Bus Rapid Transport (BRT) systems, combined with neighborhood Non-Motorized Transport (NMT) in five “pilot cities” in Asia and Latin America. Another is the Global Initiative on Transport Emissions, undertaken by UN-DESA and the World Bank in cooperation with the private sector to facilitate the cooperation among automotive and petroleum industries, developing countries and international agencies to promote energy efficiency in the transportation sector and reduce air pollution.

(c) *Water conservation*

102. While cities consume less than 10% of the total water used globally, the concentrated nature of that demand poses a heavy burden on limited local water supplies, both in terms of volume of demand and pollution from wastewater discharge. The high costs of collecting, treating and distributing clean drinking water, as well as the costs of wastewater collection and treatment, are a major burden on public budgets and are beyond the capacity of municipal or national governments in most developing countries.

103. In the 1980s and 1990s, with growing demand for municipal water supplies facing the increasing cost and difficulty of developing new supplies of clean water, water agencies and utilities in many countries began to explore demand-side management approaches. In many cases, it was found to be more cost-effective to meet the growing demand for water services by increasing the efficiency of use of the available water supplies, rather than by increasing the volume of water delivered.

104. Improving water efficiency and reducing water pollution from industry are among the functions of National Cleaner Production Centres (NCPC) established in many developing countries and countries with economies in transition, in many cases with assistance from UNIDO and UNEP. In the Slovak Republic, for example, the NCPC assisted a paper factory to reduce water consumption in the production of cardboard from recycled paper by 48%, or almost 2 million cubic metres per year, with financial benefits of \$313,000 per year. In Costa Rica, the NCPC helped a fruit and vegetable processing plant to reduce its consumption of water for washing produce and equipment by 24%, providing savings of about \$10,000 per year for an investment of \$1000. The NCPC in India assisted an organic chemical factory to reduce water consumption by 22% through internal water recycling, with savings of \$33,000 per year on an investment of \$64,000. In the Republic of Korea, the NCPC helped a fabric dyeing company introduce a new enzymatic process for dyeing cotton, reducing water consumption by 33% and reducing the costs of water, chemicals and energy by \$9000 per year. In a Uganda fish processing plant, cleaner production methods reduced water consumption by 30%, with a savings of \$6000 per year.³⁷

105. Most cities are located on rivers and are dependent on reuse of water that has been used upstream and discharged into the river, with or without treatment. In Jordan, for example, municipal wastewater, treated and reused for irrigation, is an important part of the national

water supply. The country has 19 wastewater treatment plants serving about two-thirds of the urban population. Treated wastewater amounts to about 10% of available freshwater resources, and plans are to increase the amount to about 30% by 2020. There are, however, concerns about the safety of using treated wastewater on food crops.

Solid waste management and recycling

(a) Solid waste collection and disposal

106. Solid waste is a growing problem in cities all over the world. While developed countries have in recent years reduced the environmental impact of solid waste disposal through sanitary landfills and high-temperature incineration, the volume of waste is steadily growing. In the developing world, few cities have adequate waste collection and disposal systems, and the accumulating waste threatens health, damages the environment, and detracts from the quality of urban life.

107. In OECD countries, municipal waste averages 540 kg per person per year, ranging from 354 kg per person in Norway to about 800 kg per person in the United States. During the 1990s, total waste generation in OECD countries increased by about 14%, about half attributable to population growth and half to an increase in per capita waste generation. Most of the solid waste in OECD countries goes to landfills, but there is a growing trend toward incineration with energy recovery, with large differences between countries due in part to different geographical conditions and population densities.³⁸

108. Incinerators that burn municipal solid waste substantially reduce the volume of waste and can generate electricity and/or heat when the waste stream contains substantial combustible material. However, incinerators also produce substantial quantities of ash with concentrations of heavy metals and other toxic wastes, which must be handled as toxic waste and disposed of in special toxic waste landfills.

109. The relative costs and benefits of incineration and landfill for disposal of municipal solid waste depend largely on the combustible contents of the waste and the cost of land for landfill. The choice will also depend on political choices among the aesthetic and environmental impacts of incinerators versus landfills. The choice of disposal options will also depend on recycling policies, as collection and recycling of paper products and wood will make incineration less economic by reducing the combustibility of the waste.

110. Most developing countries do not have the financial resources to provide municipal solid waste collection services on a house-to-house basis, in particular in low-income neighbourhoods and informal settlements where access for large vehicles is limited. There, scavenging and informal recycling have long been the norm, and in some countries government policy has begun to focus on how to make such informal recycling systems work more effectively and safely, recognizing their importance not only to waste collection and recycling of useful materials, but also to employment of the unskilled. Support measures include legalizing scavenging activities, encouraging formation of scavenger cooperatives, awarding contracts for collection of mixed wastes and recyclables, and establishing public-private partnerships between local authorities and scavengers.³⁹

111. A problem for individual scavengers is that industry often demands a minimum quantity of recyclable material from suppliers, so individual scavengers have to sell through middlemen, who generally can take most of the profits as there are few of them and many scavengers. By forming cooperatives, scavengers can bypass the middlemen and increase their earnings, and refuse collection can be expanded at relatively low cost, creating jobs and benefiting low-income communities. Instead of being a problem, scavengers can be part of the solution to the problem of solid waste collection and disposal in the cities of low-income countries.⁴⁰ In most urban areas in Africa, there is no public municipal waste collection. In some areas, waste collection is undertaken by neighbourhood organizations or small entrepreneurs.

(b) Waste reduction and recycling

112. Recycling reduces the amount of solid waste going to landfills or incineration, while also reducing the demand for virgin natural resources. Most developed countries have been promoting recycling by both industry and households. In OECD countries, recycling rates are increasing and now average over 80% for metals, 40-55% for paper and cardboard, and 35-40% for glass.⁴¹ Recycling is generally more cost-effective for waste from industry, which often produces large volumes of uniform waste. Demand, and therefore prices, for recycled materials have generally been low, in part because industries are reluctant to invest in technology for processing recycled material – which often differs from the technology for processing virgin raw materials (e.g. recycled paper vs virgin wood pulp) – given the uncertainties of volume, price volatility and the variability in the characteristics of recycled waste. Transportation of recycled material from households, including collection from dispersed sources, also reduces the economic viability and environmental benefits of recycling. Economic analyses of municipal recycling of household waste indicate that it is often more expensive than landfill disposal, particularly where inexpensive land is available.

113. Waste prevention is also an important priority. Efforts have been made to encourage households to reduce waste generation and increase recycling by charging households per container of non-recyclable household waste. However, the effectiveness of such programmes is unclear; the number of containers decreases, but the amount of waste in each container increases. Furthermore, such programmes may increase illicit dumping, with substantially greater environmental damage than proper collection and landfill disposal, if disposal regulations cannot be effectively enforced.⁴² Waste prevention in industry, by increasing resource and production efficiency is addressed in Working Group 1 on Production Processes and Industrial Development.

114. To increase demand, and therefore prices, for recycled material, and to encourage the introduction of technologies using recycled material as input, some communities have passed laws requiring government offices, and in some cases even private business, to buy products such as paper with a certain proportion of recycled material. These measures, however, have been difficult to administer and enforce. The fact that waste collection and recycling is commonly the responsibility of municipal authorities rather than national governments can make it difficult to develop national policies or build national markets.

115. Governments and other organizations can also assist in municipal solid waste management by reducing the quantity of waste they generate, both in their own operations and through the materials they purchase.

116. In 2000, the Japanese Government passed the “Recycling-Based Society Law” which aims to endorse a “3R” approach – reduce, reuse, recycle. The law establishes a hierarchy beginning with reducing resource consumption, and including reuse, recycling, energy recovery, and disposal. Extended producer responsibility for end-of-life products is also an element of the law. The EU is currently finalising a Thematic Strategy on the prevention and recycling of waste, setting objectives and outlining means for moving towards improved waste management, while simplifying and clarifying the existing legal framework.

(c) Hazardous waste: Management, waste separation, disposal

117. Computers and other electronic equipment, containing toxic elements including lead, barium, chromium, cadmium, beryllium, brominated flame retardants and PVCs, are of growing concern with respect to hazardous waste. A large quantity of discarded computers and other electronic products from the United States, Japan and the Republic of Korea is exported to China and other developing countries in Asia for recycling, often under unsafe conditions.⁴³

118. The EU adopted in 2003 a Directive on Restriction of Hazardous Substances in Electrical and Electronic Equipment (ROHS), banning, from July 2006, the use of lead, mercury, cadmium, hexavalent chromium and two brominated flame retardants used in plastics. China is developing regulations banning the same six substances, also beginning in July 2006, thus ensuring that Chinese products meet EU requirements.

119. Mexico has adopted a National Omnibus Waste Law, which took effect in 2004. It requires producers, importers and distributors of products containing hazardous wastes to develop waste management plans for those products. Products currently covered include mercury and NiCad batteries and other products containing mercury, cadmium or lead. Argentina, Brazil and Colombia are also preparing legislation with producer take-back provisions.

(d) Construction waste

120. The building sector produces a large amount of waste, mostly concrete and bricks from demolition, accounting for an estimated 10% to 44% of total solid waste in various OECD countries. As it is difficult to substantially reduce the amount of material in buildings without reducing performance, the potential for waste reduction is mainly from recycling materials.

121. To reduce the volume of demolition waste going to landfill or incineration, some OECD countries have imposed mandatory separation of demolition waste and restrictions on the disposal of recyclable construction material to landfills. In some cases, demolition contractors must get disposal plans approved before demolition can begin, which also helps to protect against illegal dumping. These measures are often in addition to general landfill taxes and virgin material taxes (e.g. aggregate taxes), which increase the economic incentive for recycling.

122. As governments account for a substantial share of construction (40% in the United Kingdom, 44% in Japan), practices in publicly funded construction and demolition can have a large impact on sustainable construction, both directly and indirectly.

Forthcoming challenges

123. Urban growth: From 2000 to 2050, the world population is projected to grow from 6 billion to 9 billion people, with virtually all of the growth taking place in the cities of the developing world.

124. Providing housing, water, sanitation, employment and transportation to this rapidly growing population, when many developing country cities already cannot provide for their existing populations, will be a critical and increasing challenge for sustainable development.

125. The role of smaller and secondary cities: Large cities will play a significant role in absorbing future anticipated growth, but the majority of urban residents still reside in smaller urban settlements. Most of the increase in urban population over the next 15 years will continue to be in towns and cities with fewer than one million inhabitants. Urban planners and policymakers should give further attention to how the rapid growth of smaller urban conglomerations can be more sustainable.

126. Urban traffic congestion is a worsening problem in many megacities of the developing world, calling for a multi-pronged response, from better traffic management – perhaps including congestion pricing – through greater investment in transport infrastructure, notably public transport systems.

127. Across Africa, only 30 percent of solid waste in urban areas is collected. In Asia, only a few cities have adequate waste disposal sites. The situation in Latin America and the Caribbean is not much better, with increasing amounts of non-biodegradable components, such as plastic and aluminium. In the Arab countries of West Asia, apart from increasing household waste, new industries are producing increasing amounts of hazardous waste.

128. Better protection of human health and the environment from increasing amounts of municipal and industrial waste, especially in urban areas of developing countries, and the creation of economic opportunities through better waste management, needs actions at different levels. This includes policy and legal development as well as infrastructure and technical solutions, which require important financial investments.

129. Even though advanced waste management systems in industrialised countries have reduced environmental impacts due to better disposal technology and increased recycling, the total amount of waste is still increasing due to increases in overall consumption. Hence, waste prevention through eco-design and dematerialization remains an important challenge.

130. Some questions for discussion

(a) What types of policies can effectively promote sustainable integrated urban planning and management? Can national spatial planning agencies help to integrate national standards and policies?

(b) What are the main financial challenges for municipal programmes and priorities? Can “participatory budgeting” assist in generating and focusing resources?

(c) How can urban transportation be made more efficient and sustainable, while supporting economic development?

- (d) How can people be persuaded to shift from cars to public transport or non-motorized transport? How can the efficiency and affordability of each type of transportation be improved and pollution reduced?
- (e) What policies and incentives are needed to motivate innovation in transportation, especially in developing countries?
- (f) How can improved cooperation among national, state, and local governments be accomplished in order to improve mass transit in the largest cities in the developing world?
- (g) How can solid waste be minimized and managed in developing country cities? Can informal recycling be integrated into modern waste management systems?
- (h) What should be the priorities for regional cooperation on urban planning and waste management?
- (i) What is the role of producers in minimising and managing waste, particularly hazardous waste?
- (j) How can governments and local authorities use public procurement to help shift toward sustainable cities, transportation and waste management?
- (k) What are the most effective mechanisms, both existing and prospective, for disseminating effective policies and practices among countries, including North-South and South-South dissemination?
- (l) How can the UN system more effectively promote sustainable consumption and production relating to urban planning and waste management? How can existing programmes be strengthened? What new programmes are needed?
- (m) What might be some priority issues for international task forces relating to urban planning and waste management?

WORKING GROUP 3: SUSTAINABLE CONSUMPTION & PRODUCT DEVELOPMENT

Introduction

131. The Johannesburg Plan of Implementation (JPOI), in Chapter III, calls on governments to "develop production and consumption policies to improve the products and services provided, while reducing environmental and health impacts, using, where appropriate, science-based approaches, such as life-cycle analysis." The First International Expert Meeting on the 10YFP agreed that further work under the Marrakech Process should include promoting efficient policies and actions to promote sustainable consumption and product development.

132. Promoting a shift to more sustainable consumption requires increasing both the supply of and demand for sustainable products. The challenge is to develop policies to induce both producers and consumers - as well as marketers, distributors and retailers - to take responsibility for the environmental and social impacts of the products and services that they

design, produce, use and dispose of. Changes are required in both “hardware” – the products and infrastructure that constrain consumer choice, and “software” – the culture and values underlying consumer behaviour.

Conditions and trends

133. Increases in productivity and resource efficiency together with cleaner technologies and cleaner products have resulted in reduced resource consumption and reduced pollution per unit of production. However, that increased resource efficiency has generally been offset by even greater increases in overall consumption. In addition, there is a “rebound effect” in which increased efficiency of resource use reduces demand and prices of raw materials, which tends to encourage increased demand.

134. The continuing increases in total resource consumption are accompanied by an extreme inequality in consumption between the developed and the developing world. The overall consumption of the richest fifth of the world’s population is 16 times that of the poorest fifth, with the latter deprived of most basic goods and services. Hence, raising the consumption levels of the poor is a crucial SCP issue. This requires, in the long run, establishing the conditions for strong economic growth in poor countries and achieving equitable distribution in all countries.

135. The focus here is on reducing the negative environmental and social effects that result from current consumption patterns. This involves both persuading consumers to choose more sustainable products and services, and increasing the availability of such products and services. Furthermore, consumer products and services are purchased not just by households, but also by businesses and public institutions, whose large volumes of purchases give them greater power to change markets.

136. Issues relating specifically to energy efficiency are not considered here as they are addressed in Working Group 5.

137. Most of the impacts arising from the consumption of products and services are determined in the design stage. Consumers are often “locked in” to unsustainable patterns of consumption by the availability and affordability of products and services and by the existing infrastructure. Sustainable consumption thus requires action by producers as well as by consumers, and action by producers depends on government incentives and regulations.

Development of Policies, Instruments & Tools to Promote Sustainable Consumption

138. Governments can play a catalytic role in shaping consumption patterns, both through public policies and through their own procurement practices. They have at their disposal a variety of policy instruments which they can combine in customized packages to fit particular circumstances, including economic instruments, regulations, product standards, information tools, and voluntary measures. The policy packages can include policies that address economic, environmental and social concerns. For each product or service, consideration needs to be given to the point in the production-consumption chain where intervention can be most efficient and effective.

139. In some instances, consumer behaviour can be difficult or costly to change, and intervention would be better targeted upstream in the chain. For example, consumers do not appear to be very responsive to changes in prices of transport fuels, with the consequence that high taxes on motor fuel may not, by themselves, be a very effective means of promoting more sustainable transport.

140. Life-cycle analysis can be one useful tool for assessing products' environmental and social impacts in an integrated manner along the entire product chain from raw material extraction through to waste disposal or recycling. This analysis offers opportunities for improving consumption in the most efficient and effective manner, with economic, environmental and social gains. The question is what incentives can be given to product designers and manufacturers to take into account downstream impacts.

141. There can also be significant environmental impacts related to the distribution process in the production-consumption chain. Moreover, these impacts may become more important with new consumption patterns – for example, declining transport costs and e-commerce increasing demand for home delivery services.

142. Policy makers are recognizing the need for policies that address impacts beyond the production phase, especially the environmental effects of the use and disposal of products. Policy measures such as Extended Producer Responsibility (EPR) is being used in Europe and Japan to promote recycling of cars, electronics, packaging and other products. While the practical applications of these principles have focused mostly on the end-of-life (EOL) phases, it is expected that producer responsibility for EOL management will encourage design changes to reduce EOL costs.

143. There have also been efforts to develop policies for particular products covering production, consumption and disposal. The Integrated Product Policies (IPP) of the European Union, based on “life-cycle” thinking, call for full stakeholder involvement and continuous improvement, with the flexible use of various policy measures. The UNEP/SETAC Life Cycle Initiative is seeking to catalyze efforts to promote life-cycle analysis on an international level, and is also exploring the feasibility of applying a life-cycle approach to social impacts.

144. As governments and other public institutions are large consumers and can often specify the products and services they purchase, they have a particular power to influence markets and promote new products. This consumer power has been used by a number of governments to increase demand for recycled products, energy efficient equipment and appliances, sustainable buildings, cleaner vehicles, non-toxic cleaning products and other sustainable products and services. The OECD has prepared a study on The Environmental Performance of Public Procurement and has issued a Recommendation on the subject.⁴⁴

145. Some large enterprises incorporate life-cycle thinking and eco-design practices into their operations. Their motivation usually stems from opportunities for improvements in the area of material efficiency and product quality, and to anticipate future regulations. Life-cycle analysis can also assist concerned consumers in comparing different product/service options. Some standardised and widely recognized tools, such as BASF's Eco-Efficiency Analysis, have been developed by companies.

146. Life-cycle analysis and policy measures to apply the analysis to products are complicated by the increasingly international nature of consumption and production. Furthermore, depending on the nature of the regulatory framework, extended producer responsibility and similar measures that address issues across the life-cycle may raise concerns about their effect on market access and international trade.

Implementation & Communication

147. Policy initiatives for changing consumer behaviour include information-based and education-related instruments, as well as economic incentives. Labelling and voluntary environmental product declarations (EPDs) are becoming common instruments in many countries assisting consumers to make informed choices. Many labels, such as the Energy Star, address a single aspect or life-cycle phase of a product, which limits their impact, but also makes them simple to understand. Highly technical or complex information may be of limited use to the average consumer. The existence of a variety of labels can be confusing for consumers and guidance from policy makers might be needed (e.g. the Sustainable Shopping Basket of Germany).

148. Educational programmes in schools can play an important role in raising public awareness of the impacts of consumption patterns. Integration of sustainability issues into formal and informal education has already started in some countries. Support from media and civil society organisations (especially consumer organisations) is crucial for the success of public information campaigns and responsible marketing. The UN Decade of Education for Sustainable Development is one major initiative promoting further engagement of governments and civil society, with the youthXchange programme as a pilot project to promote SCP to young people in an appealing way.⁴⁵

149. In developing national policies for sustainable consumption, the expanded UN Guidelines on Consumer Protection⁴⁶ offers governments a useful base. At the Marrakech Meeting, the participants considered them useful for implementing sustainable consumption policies, for integrating sustainable consumption considerations in consumer protection policies, and as a starting point to build new partnerships with civil society.

Forthcoming challenges

150. Promoting sustainable consumption by governments and other large institutions, public and private, through sustainable procurement can be a useful channel not only for reducing the negative impacts of those institutions, but also for developing markets for sustainable products, creating economies of scale, reducing prices and stimulating product innovation. This calls for procurement policies, guidelines and information, cooperation between experts in environment agencies and procurement offices, and capacity building for procurement officers to implement the sustainable procurement policies.

151. Promoting life-cycle thinking in product design is critical to reducing the negative impacts of subsequent phases of the production-consumption-disposal process. Developing incentives for sustainable design that addresses the full life-cycle, as well as promoting skills in the private sector for life-cycle analysis and sustainable design, remains a challenge.

152. Governments, in cooperation with businesses, technical experts, and other relevant groups may wish to develop indicators, methodologies and databases to measure – and encourage - progress towards sustainable consumption, as called for in the UN Consumer Protection Guidelines. International technical cooperation may be helpful in this process. Addressing consumption impacts in a life-cycle framework and in a globalized economy pose particular methodological challenges.

153. Sustainable consumption is a multi-aspect and multi-dimensional challenge. Designing appropriate policy packages that achieve the best balance among different instruments – regulatory, economic, informational, voluntary – is still more art than science. Policy makers can benefit from broad international experience-sharing as well as from broad domestic consultation with relevant stakeholders.

154. An important issue for consideration is consumer preferences and behaviour, how they influence what is produced, and how consumer preferences and behaviour can be shaped in ways that promote more sustainable products.

155. Public communication and advertising have key roles to play to make sustainable consumption understandable and fashionable. Informing, motivating and creating committed people are important needs. However, communicating effectively about sustainable lifestyles is a challenge. One needs to consider not only what to communicate, but how to communicate it. Many of these messages are guilt-laden or disapproving. Instead of turning people on to environmental protection, they risk turning them off. Communication styles have to be positive and tailored to specific cultural contexts.

156. Some questions for discussion

- (a) What policies or policy mixes are effective or ineffective in changing consumer behaviour?
- (b) Which policies or incentives can motivate innovation and development of sustainable products and services? How can industry be induced to take responsibility for the impacts of the consumption and disposal of the products and services they offer?
- (c) How useful, feasible and cost-effective is life-cycle analysis as a policy tool? What other methodologies may be both simple and effective in evaluating the sustainability of consumption choices?
- (d) What is required to make public procurement a driving force for sustainable consumption and production? How can international cooperation contribute?
- (e) How can industry be encouraged to take responsibility for impacts of products at the consumption and disposal stages?
- (f) What kinds of communication, information and environmental labelling are effective in influencing consumer choice?
- (g) How can international cooperation improve the performance and availability of sustainable products?
- (h) Are measures necessary to ensure that domestic policies to encourage sustainable consumption do not restrict international trade?

- (i) How can the capacity of developing country producers to supply new markets for sustainable products be strengthened?
- (j) What is required to promote wider use of the UN Guidelines on Consumer Protection?
- (k) What might be some priority issues for international task forces relating to sustainable consumption and product development? Does the Sustainable Products Task Force proposed by the United Kingdom take the right approach?

WORKING GROUP 4: REGIONAL AND NATIONAL STRATEGIES FOR SCP

Introduction

157. This working group will focus on the development and implementation of national and regional integrated strategies for sustainable production and consumption.

Conditions and trends

158. Only recently have countries and regions started to develop broad SCP strategies. The UK “Framework for Sustainable Consumption and Production”, introduced in 2003, was one of the first dedicated national SCP strategies and has since been subsumed within the 2005 UK Sustainable Development Strategy. Japan, in 2003, adopted the “Basic Plan for a Sound Material Cycle Society” as its 10-year programme on sustainable consumption and production, in implementation of the 2000 “Recycling-Based Society Law”. Recently, Finland has launched a national programme to promote SCP. Various other countries have integrated SCP issues into their national Strategies for Sustainable Development or announced intentions to develop SCP strategies.

159. China’s “Circular Economy” approach, which became law in 2002, contains various elements of SCP, such as decoupling economic growth from environmental degradation through eco-efficiency and recycling. The SC.Asia project, which encourages and supports the development of national Action Plans on sustainable consumption, has developed a manual on a methodology for such action plans in Asian countries, drawing on the UN Guidelines on Consumer Protection. Draft versions of plans for some countries are already available. Argentina is also starting the process of developing a national strategy on sustainable consumption with UNEP support.

160. The regional meetings under the Marrakech Process have generated some momentum towards developing broad regional strategies, notably in Africa and Latin America. Ultimately, implementation will require country-specific plans and policies, with regional activities providing an experience-sharing and coordinating function.

161. Environmental issues are addressed in various plans and strategies, especially with respect to eco-efficiency and resource use. The link to economic development is normally made through a focus on resource efficiency as a competitiveness issue. While social issues are also addressed in various plans and strategies, there is limited focus on the linkages between environmental and social issues.

162. Regarding the balance of production-side and consumption-side or demand-side issues, differing approaches can be used. The United Kingdom strategy aims for a major shift to deliver new products and services with lower environmental impacts across their life cycle, while at the same time boosting competitiveness. Finland's strategy comprehensively deals with production issues, but also aims at "providing information and skills to facilitate sustainable choices" by consumers. SCP-oriented education and information efforts are also being considered as part of such strategies.

163. As global product chains link consumption and production in different parts of the world, strategies are beginning to address trans-national issues and to consider cooperation across national borders. It is important to consider the impact of domestic consumption patterns, and changes in those patterns, on foreign resource use, environmental conditions and economic and social well-being. Environmental impacts should be reduced, not simply shifted to another country. Furthermore, increased resource efficiency and reduced resource consumption in developed countries could affect global commodity prices and the growth prospects of commodity-dependent economies. In that case, helping low-income developing countries adjust to such changes in production and consumption in the developed countries could be considered an integral part of SCP strategies.

164. Among the different actors, public authorities are generally seen as having the main responsibility both for direct measures (e.g. for cost internalisation) and for encouraging efforts by other actors in society. SCP strategies may allocate different responsibilities to different ministries (as in China and the UK), or they may develop work plans for cooperative action by all relevant actors.

Inter-linkages to other development strategies

165. Different approaches can be used to address the relationship of SCP strategies to other development strategies and plans, particularly national sustainable development strategies and poverty reduction strategies. SCP issues often overlap with those addressed in other strategies, so proposed SCP measures can either support or hinder the achievement of other agendas and vice versa.

166. Some issues from other strategies may be taken up by the SCP strategies themselves, thereby establishing a strong linkage between them. This is widely done for competitiveness, for example, and for other economic issues.

167. In the regional consultations under the Marrakech Process, the need to establish strong linkages between SCP and poverty reduction was emphasized, in particular in Africa.⁴⁷ This includes both encompassing within SCP the low-income countries' priority for raising consumption by poor people of a broad range of goods and services, while achieving the greatest possible economies in resource and energy use, and also helping those countries to exploit global market opportunities, including those created by changing consumption and production patterns in the developed countries.

Capacity building and Implementation of strategies

168. Awareness raising among all stakeholders and capacity building for the key implementing bodies are critical tasks. For instance, the UK strategy cites a "skills gap" that

has to be addressed by the government, calling for further information and capacity-building efforts. The regional SCP strategies for Africa, Latin America and Asia-Pacific reflect the need to strengthen the capacity of government institutions, personnel and decision makers to understand the concepts of SCP in order to position the issues effectively within governmental structures and to improve capacity for policy development. Of particular concern for the success of SCP strategies is cooperation among government agencies as well as between governments and non-government actors in both policy design and implementation.

169. SCP strategies generally include a mix of existing and newly developed instruments. The strategies build on a variety of previously implemented measures as well as developing new programmes and regulations. Some SCP strategies focus on providing economic incentives and internalising external costs, as stressed in the UK and Finland strategies; China's strategy highlights economic instruments, but also has a strong focus on legal liability. The Japanese plan, with the involvement of all stakeholders, includes specific targets, such as a 40 per cent increase in material productivity and a 20 per cent reduction in waste per person per day over a 10-year period.

Indicator development and monitoring

170. Indicators and monitoring systems are important both for target setting and for assessing the state of implementation of SCP strategies. The information gathered can form the basis for evaluation, learning and corrective action measures. The regional SCP strategies for Latin America and the Caribbean and for Asia-Pacific recommend the development of indicators to evaluate and monitor activities relating to SCP. Both strategies also suggest the use of indicators and benchmarks to monitor policy effectiveness with respect to SCP objectives.

171. General sustainability indicator sets are now widely applied and normally include some indicators on SCP. UN DESA has developed a set of indicators on consumption and production patterns,⁴⁸ some of which have been incorporated in the general Sustainable Development Indicator set.⁴⁹ Some countries have started working on dedicated indicators for sustainable production and consumption. In 2005 the UK Government released "Sustainable development indicators in your pocket 2005", providing new data on the original indicators for the SCP strategy and extending their scope to cover the social and economic pillars. This indicators set shows the progress made and challenges encountered in a clear comprehensible overview.

Learning processes (National / International)

172. Experience with developing and implementing SCP strategies is still very limited, as the strategies have only been developed in recent years. No major assessments of the effectiveness of SCP strategies or implementation efforts have been undertaken so far.

173. Knowledge exchange and capacity building on an intergovernmental level are central aspects of the Latin American regional SCP strategy. While national activities are proposed, these are always coupled with policy discussions and exchanges on the international level.

Forthcoming challenges

Development of National Strategies

174. As only a few countries have developed specific SCP strategies so far, promoting the further development of such SCP strategies remains a central challenge. Dissemination of information on the potential benefits of such strategies and on successful cases could motivate other countries.

175. The variance in scope, dimensions and actors involved in SCP strategies reflects country-specific circumstances and priorities. Further work is needed on how to ensure completeness, consistency and clarity while addressing local conditions.

176. International issues raised by global supply chains remain a key challenge for national SCP strategies, particularly in developed countries.

177. As environmental issues currently dominate the SCP strategies, the inclusion of economic and social issues, particularly those related to poverty reduction, remains a significant challenge.

Inter-linkages to other development strategies

178. The clear overlap between SCP efforts and other strategies in terms of content as well as implementation, monitoring and reporting mechanisms can provide opportunities for improved cooperation between actors. Initially, this can present a significant difficulty, in particular for governments with limited resources; however, the potential remains for significant synergies and greater efficiency and effectiveness in the future.

179. Consumption and production patterns are affected by policies in a variety of sectors. Clarifying the role of SCP in socio-economic development and linking it to other issues such as competitiveness and poverty reduction could help to resolve conflicts and contradictions with other strategies and policies.

Implementation of strategies

180. Implementing strategies across governmental institutions with strong traditions and practices can be a major challenge. Mutual learning and capacity building on strategy implementation in the public sector could facilitate this process. Understanding the interdependency between national regulatory frameworks and measures taken to implement SCP strategies is crucial to facilitate implementation.

181. Instruments and tools for developing and implementing SCP strategies need to be developed and distributed on a global scale, taking into account regional and national specific circumstances.

Indicator development and monitoring

182. The development of indicators and data collection pose a challenge for policy makers. Data availability on a range of SCP issues may be low if national statistical institutions are lacking resources. Capacity building and improved coordination of data collection across

government institutions will enhance the reliability of data for evaluating progress toward SCP goals.

Learning processes (National / International)

183. Current knowledge exchange on SCP is largely limited to the transfer of knowledge from international organisations to developing countries. Mutual learning processes on a peer-to-peer basis could improve motivation and help build capacities for SCP strategies.

184. Regular review and revision of SCP strategies to incorporate experience gained in the course of implementation phase could make SCP strategies more relevant and effective.

185. Some questions for discussion

(a) Should countries and/or regions develop specific SCP strategies or integrate SCP goals into existing strategies such as national sustainable development strategies or poverty reduction strategies?

(b) How can the coherence among different strategies be improved? How could they be made mutually supporting?

(c) What sort of institutional mechanisms can help to produce a strategy or action plan on SCP? What sort of mechanism would be most useful for assessing the effectiveness of the strategy or action plan?

(d) How can SCP policies be evaluated in terms of the effectiveness of different policy instruments and approaches for influencing the behaviour of various actors?

(e) What are the most important sectors of the economy for initial SCP action in different countries and regions – e.g. energy, transport, manufacturing, food?

(f) How can societal actors other than governments be involved in SCP strategy development and implementation, and how should governments engage with different actors, especially with business in key sectors?

(g) What are the main international organizations that can promote and support SCP strategies? What are the next steps and actions they could take?

(h) In what areas would international collaboration be most beneficial for the development of SCP strategies, and what are the options for developing such collaboration?

(i) Could international work on SCP indicators and methodologies facilitate and improve national monitoring and measurement efforts?

(j) What might be some priority issues for international task forces relating to national and regional SCP strategies?

WORKING GROUP 5: ENERGY, CLIMATE AND AIR POLLUTION

Introduction

186. In its 2006-2007 work cycle (CSD14-15), the UN Commission on Sustainable Development will consider the thematic cluster of energy for sustainable development, air pollution/atmosphere and climate change (along with industrial development, to be addressed in Working Group 1). This section will consider energy, climate and air pollution from the perspective of sustainable consumption and production. It will not attempt to cover all aspects of energy and climate change. A broad range of climate issues and measures to address them are being considered in detail under the UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, and it does not appear useful to repeat those discussions under the Marrakech Process. This section will address energy conservation, renewable energy, clean fuels and air pollution reduction, which are common issues for energy, climate and air pollution. The report of the meeting with a summary of the discussions will be submitted to CSD-14 IN April 2006.

187. The focus here will be on energy consumption in households and offices and in transportation, as well as the air pollution resulting from transportation. Energy efficiency in industry is addressed as part of cleaner production in the section on production processes and industrial development (Working Group 1). Energy resources, energy production and management of the energy sector will not be addressed, as they are part of the broader energy agenda and outside the scope of sustainable consumption and production patterns. Similarly, issues relating to stratospheric ozone are addressed in detail under the Montreal Protocol and will not be addressed here.

Conditions and Trends

Energy consumption

188. Final energy consumption (excluding primary energy used to generate electricity) is commonly divided for analytical purposes into three major sectors: industry, transport, and other sectors, the last including residential, commercial, public services and agriculture. In the OECD countries and in Latin America, these three sectors each consume about one-third of final energy consumption. In other developing regions and in the countries with economies in transition, the residential sector is generally the largest energy consumer, followed by the industrial sector.⁵⁰ In sub-Saharan Africa (excluding South Africa), most energy consumption is in the form of household consumption of traditional biomass, ranging from 55% to over 90% of total national energy consumption, even in the oil exporting countries.⁵¹

189. In OECD countries, energy consumption per capita is 4 to 10 times the consumption in most developing countries and continues to grow, although at a lower rate than economic growth. The most rapid growth in energy consumption has been in the transport sector, with consumption almost doubling over the last 30 years, while energy consumption in the industrial, residential and other sectors has grown slowly. In Latin America, energy consumption has increased rapidly in both the industry and transport sectors, while in developing Asia, energy consumption has grown most rapidly in the residential sector.

190. In all regions except for sub-Saharan Africa, most energy is consumed in the form of petroleum products and natural gas for transportation and industrial heat. In Africa and developing Asia, traditional biomass remains the predominant source of energy in the residential sector, used mostly for cooking but also for heating, often causing serious indoor air pollution. In sub-Saharan Africa, despite relatively rapid growth in modern energy consumption, traditional biomass consumption has been steadily growing along with population. Most of the rest of world energy consumption is electricity generated from fossil fuels and used for residential heating, cooking, appliances and lighting, as well as commercial office and industrial use.

191. In OECD countries, renewable energy, including hydropower as well as geothermal, wind and solar (but excluding biomass), is used mostly by energy utilities for generating electricity. The generation and use of energy from renewable sources directly by consumers (including industry, commerce and public institutions) is small and is mostly for residential use. Residences, which consume about 20% of total energy, account for over 75% of non-utility renewable energy generation. For modern biomass, on the other hand, the main user in OECD countries is the pulp and paper industry, which burns residues for process heat.

192. Globally, emissions of CO₂ from fossil fuel combustion are increasing steadily and in 2002 were about 13% above 1990 levels. Emissions in OECD countries increased by about 13%, while emissions in Eastern Europe and the former Soviet Union declined by 36%, and emissions in developing countries increased by about 53%. Among the OECD countries, Denmark, Germany, Luxembourg and the United Kingdom had CO₂ emissions in 2002 below 1990 levels.⁵²

Air pollution

193. Urban air pollution, particularly particulate matter and SO₂ which are the most damaging to health, has generally been declining since the 1970s in OECD countries, increasing in low-income countries, and showing mixed trends in middle-income countries. This exemplifies the “environmental Kuznet’s curve”, in which air pollution increases in the early stages of industrialization, then levels off and declines as income increases and environmental protection measures are introduced and enforced. As a result, the worst outdoor air pollution occurs in the megacities of the middle-income, rapidly industrializing developing countries.

194. In the United States, following the introduction of clean air policies in the 1970s, average urban SO₂ levels declined about 50% between 1982 and 2001, while airborne lead declined by over 90%, and carbon monoxide by 60%. Particulate matter (PM₁₀) declined by about 15% between 1992 and 2001.⁵³ In the United Kingdom, average urban SO₂ levels declined by about 80% between 1990 and 2002, while particulate matter (PM₁₀) declined by about 50%.⁵⁴ In Seoul, in the 1990s, particulate levels were reduced by 60% and SO₂ levels by 26%, largely as a result of switching from high-sulfur coal to low-sulfur coal and natural gas.⁵⁵

195. In China, rapid economic growth and industrialization from the late 1970s to the 1990s, combined with increased numbers of vehicles since the 1990s, resulted in increasing levels of air pollution, mostly particulate matter and SO₂ from burning burning. Since the mid-1990s, improved emission controls on power plants and industrial sources, switching from soft coal to

low-sulfur coal and natural gas, and strengthening emissions standards for vehicles have reduced air pollution in some cities, such as Shanghai and Guangzhou.⁵⁶

196. In sub-Saharan Africa and in rural South Asia, the greatest air pollution hazard is indoor air pollution from the burning of traditional biomass for cooking and heating, causing high levels of respiratory infections and mortality among women and children.

Promoting energy efficiency, renewable energy and air quality

Energy efficiency: the Building Sector

197. Buildings, including residences and offices and the equipment and appliances used in them, consume about 35-40% of final energy consumption in most OECD countries, and the share has generally been increasing. Space heating is generally the largest component of this energy consumption, particularly in residential buildings, where it accounts for 66% of household energy consumption in the European Union and 51% in the United States. Energy is also consumed in buildings for air conditioning, hot water heating, lighting, appliances and equipment. Smaller amounts of energy are used in building construction.

198. Following the oil price shocks of the 1970s, most OECD countries introduced mandatory energy efficiency standards for new buildings to supplement older standards for structural strength and fire safety. In addition, countries have offered tax incentives, subsidies and low-interest loans for builders who go beyond the regulatory standards, as well as information and technical assistance to encourage builders and buyers to adopt more energy-efficient practices.

199. Studies of consumer choice indicate that buyers of buildings are mainly concerned with the purchase cost and are only prepared to pay extra for energy-efficient buildings if the investment is paid back very quickly. Builders therefore have little market incentive to invest in energy-saving features. Policies for increasing the energy efficiency of buildings have generally been regulations, such as construction codes, and to a lesser extent economic incentives. Another complication is the large numbers of small-scale builders and the diversity of buildings and their elements, where there is little standardization. In the European Union, 93% of enterprises in the construction sector have fewer than 10 employees and have little capacity for keeping up with new or specialized technical innovations.

200. OECD countries generally began by introducing energy-efficiency standards for each building element, including windows, walls, roofs, and systems for space heating, water heating, ventilation and air conditioning. Some countries have since introduced overall building performance standards, taking into account the components and other factors such as passive solar heating from building orientation and design. Regular review and updating of building codes on the basis of current technologies and best practices can ensure a steady and cost-effective strengthening of regulations, as exemplified by California state regulations in the United States.⁵⁷

201. In the United Kingdom, electricity and gas suppliers are required to assist customers in improving energy efficiency through low-cost methods, with a particular focus on low-income households. In Denmark, the United States and other countries, building owners have been

able to request free energy audits, including recommendations on cost-effective energy efficiency measures. Surveys indicate that the majority of households participating in such programmes have undertaken at least some of the energy conservation measures recommended. In the United States, some states and communities have passed Residential Energy Conservation Ordinances (RECOs) requiring buildings, when sold or renovated, to undertake some basic low-cost energy-efficiency measures such as insulation, weather stripping and caulking. Germany, in 2002, began to require energy efficiency measures in existing buildings, including replacement of old boilers, insulation of attics, and insulation of pipes in unheated rooms.

202. Some countries have introduced incentives for buildings that perform better than regulatory standards. In Canada, for example, the Commercial Buildings Incentive Program offers subsidies for investments in energy efficiency based on projected annual energy saving. In other countries, tax credits have been used for the same purpose. Analysis of such approaches suggests that subsidies at the design and construction stage have substantially greater impact on building performance than incentives based on operating costs, such as energy taxes. Some countries, such as the United Kingdom and Denmark, have introduced mandatory labelling of the energy efficiency of buildings.

Energy Efficiency: Appliances

203. An important tool for improving energy efficiency on the consumption side is life-cycle cost analysis and consumer information programmes that indicate when the purchase of energy-efficient lighting and appliances will result in rapid payback through lower operating costs. However, surveys have often found that purchasing decisions on energy-consuming appliances are based primarily on the initial cost and neglect the operating costs.

204. The most effective measures for improving the efficiency of appliances have generally been mandatory energy-efficiency standards applied to manufacturers. In the United States, mandatory standards for a number of appliances, such as refrigerators and air conditioners, have been established and gradually strengthened. In the EU, voluntary agreements have been negotiated with manufacturers to improve the energy efficiency of a range of consumer appliances, including power supply units, televisions and DVD players.⁵⁸ As a result of such measures, even the least efficient refrigerator on the market today in OECD countries consumes about half of the energy of the least efficient product eight years ago. It is estimated that, in the EU, further measures of this sort applied to a range of products could reduce total energy consumption by 10% by 2020.

205. In some countries, electricity utilities have given away energy-efficient compact fluorescent light bulbs as a cost-effective means of meeting growing demand for energy services while avoiding the costs of building new power plants and controlling air pollution. Public information campaigns can help consumers recognize the financial savings that can be achieved through energy efficiency.

206. Energy labelling has been widely used to encourage the adoption of energy-efficient products. These labels are commonly of two types, either mandatory labelling identifying the energy consumption of all products within a particular category, or voluntary labelling identifying the most energy-efficient products, such as Energy Star. Studies indicate that

mandatory descriptive labelling is more effective as it allows consumers to compare all products and consider energy-efficiency along with other characteristics in their purchasing decisions. Mandatory descriptive energy labelling often includes not only energy consumption, but also the estimated operating costs of different models, allowing consumers to easily identify the cost savings

207. Public procurement can be effectively used to promote energy efficiency, as exemplified by Energy Star computers in the United States. After the Energy Star label had been introduced in the United States in 1992 as a voluntary label for computers meeting energy-efficiency criteria, all federal government agencies, beginning in 1993, were required to procure personal computers, monitors, and printers meeting the Energy Star criteria. The US Government spends nearly \$4.6 billion annually to buy about 1 million computers, about 3 per cent of the total market. As a result of the Energy Star procurement requirement, the number of computer manufacturers making Energy Star labeled computers rose from 10 in 1992 to 600 by 1998, and sales of such computers accounted for a majority of the total market for personal computers. The standard for public procurement thus became a general standard for the entire market.⁵⁹ After the initial focus on computers, the Energy Star programme was subsequently expanded to other products, including major appliances, office equipment, lighting, consumer electronics, residential heating and cooling equipment, new homes and other buildings, and a number of other products.⁶⁰

Traditional biomass cooking

208. As noted above, in sub-Saharan Africa, as well as in much of South Asia, most residential energy is consumed in the form of traditional biomass, including fuelwood, agricultural residues and animal dung. The traditional stoves used for cooking, often in unventilated cooking spaces, use the fuel very inefficiently and give off large quantities of smoke, carbon monoxide and other harmful pollutants. Efforts to address this problem include promotion and dissemination of improved biomass cookstoves, which can conserve fuel as well as reduce air pollution, and ventilating cooking spaces, and improving access to cleaner fuels such as liquefied petroleum gas (LPG). These efforts have included information campaigns, expanding distribution networks and providing subsidies or micro-credit for the purchase cost of cleaner stoves. Campaigns to promote use of biogas generated from animal manure and used for cooking and lighting have been used in China, India and other countries to reduce indoor air pollution and reduce deforestation due to fuelwood collection.

Renewable energy

209. Renewable energy sources, including large hydropower, account for about 5% of total energy production and consumption. As noted above, most renewable energy in OECD countries, particularly hydropower and geothermal energy, is generated or purchased by utilities and sold together with electricity generated from fossil-fuel sources. Policies for promoting increased use of renewable energy by utilities have included requirements and/or incentives for utilities to increase their share of energy from renewable sources, and mechanisms to allow consumers to specify that their payments should be used by the utilities to generate or purchase renewable energy.

210. Stand-alone renewable energy systems, such as photovoltaic (PV) solar panels or wind generators, require storage batteries to even out power generation and consumption, which increases the cost and reduces the environmental benefits. Investment in renewable energy in areas served by a grid is therefore more economic and sustainable if the consumer can buy energy from the grid when required and sell surplus consumer-generated energy to the grid, thus eliminating the need for storage batteries, as well as making full use of available wind or sunlight or other renewable energy sources. Utilities have often refused to buy power from private sources in such situations, sometimes citing technical difficulties in accepting power that does not conform to their operating specifications. In Germany, a 1991 “feed-in law” requires utilities to purchase all renewable energy offered to them at a minimum of 90% of the retail price. Germany also promoted investment in wind energy by guaranteeing a minimum purchase price of 8.5 euro cents (\$0.11) per kWh for the first five years (12 years for offshore installations) and 5.4 euro cents (\$0.07) for the rest of a 20-year period. These policies have made Germany the global leader in wind energy capacity.⁶¹

211. In Germany, incentives for private solar photovoltaic installations began in 1999 with interest-free 10-year loans and a guaranteed “feed-in” price of 8.5 euro cents per kWh. With the Renewable Energy Law in 2000, the guaranteed purchase price jumped to about 50 euro cents per kWh for 20 years, much above the price of conventional power, creating a strong incentive for private investments in solar power. Solar thermal water heaters are also subsidized.⁶²

212. A number of countries have introduced requirements for utilities to include a specified share of renewable energy in their supplies. In California, a “Renewables Portfolio Standard” (RPS) that took effect in 2003 requires investor-owned utilities to obtain 20% of their power from renewable sources by 2017, with a phase-in requirement of 1% per year.⁶³ About 18 other states in the United States have RPS requirements, and a national requirement is under consideration.

213. Public procurement can also be used to promote renewable energy through the market. In Canada, in 1996, the federal government announced plans for green power purchases, including electricity generated from new or newly expanded renewable energy sources with the EcoLogo certification, including wind, water, biomass and solar. In 1997, the ministries of Natural Resources Canada (NRCan) and Environment Canada made commitments to purchase 15% to 20% of their electricity in the form of green power by 2010, and began purchasing green power from the electric utility in Alberta to run their facilities in the province, with a commitment to 10 years of such purchases. In addition to providing renewable energy for government operations, the programme is also intended to promote the development of green power markets for other consumers.⁶⁴

Transportation, energy and air pollution

214. Air pollution from motor vehicles has been reduced dramatically in the developed countries since the 1960s, mostly due to regulatory controls imposed on vehicle manufactures and fuel refiners. Mandatory emission standards for new cars were introduced in the United States in the state of California in 1965 and were subsequently introduced nationwide, covering hydrocarbons, carbon monoxide (CO) and nitrogen oxides (NO_x). Stricter standards have been phased in over the years since then. Japan introduced similar standards beginning

in 1986. The European Union introduced the Euro 1 standards in 1992, followed by the stricter Euro 2, 3 and 4 standards. The most recent standards have reduced emissions by about 98% compared to typical vehicles of the 1950s and 1960s.⁶⁵

215. A number of developing countries have addressed the problem of growing urban air pollution due to motor vehicles by adopting developed country standards, sometimes first in major cities, then nationwide. The Republic of Korea in 1993 introduced standards similar to those of the United States and the EU. China and India in 2000 adopted the European Union's 1992 Euro-1 emission standards for new vehicles, and more recently the 1997 Euro-2 standards, with Euro 3 and 4 scheduled to be applied in the future. Argentina, Brazil, Chile, Singapore and Thailand have also introduced emissions standards based on EU or United States standards.⁶⁶

216. Removing lead from gasoline has been important for reducing airborne lead pollution, which causes mental damage, particularly in children. In the United States, mandatory reductions in the lead content of gasoline produced by refineries were phased in between 1976 and 1986, resulting in a 95% reduction in lead emissions, with a total ban on lead in gasoline imposed in 1996. The reductions were combined with a flexible mechanism allowing companies to trade phase-out requirements among refineries. The trading mechanism reduced the cost of compliance and made it more acceptable to industry.

217. In the EU, unleaded gasoline was introduced in 1986, together with higher taxes on leaded fuel, and leaded fuel was largely banned in 2000. Based on the experience and technology of the United States and the EU, many Eastern European countries and Asian countries have quickly switched from leaded to unleaded gasoline. Most African countries still have leaded gasoline, and efforts are now underway to shift to unleaded in those countries. In addition to reducing airborne lead pollution, the use of unleaded gasoline allows the use of catalytic converters on cars, which is essential for the large reductions in vehicle emissions that have been achieved in OECD countries. As a result of the large benefits and the modest costs of phasing out leaded gasoline, completing this change in consumption and production, particularly in sub-Saharan Africa, is a priority for a number of international organizations.⁶⁷

218. Since the Toyota Prius was introduced in 1997, there has been a steady growth in sales of cars with hybrid gasoline-electric engines that are both more fuel-efficient and less polluting. Honda has since introduced cars with hybrid engines, Ford introduced a hybrid sports utility vehicle in 2004, and other carmakers are planning to introduce hybrid models. As of mid-2005, consumers have bought almost 500,000 such cars, the most efficient of which consume fuel at about half the rate of comparable cars with conventional internal combustion engines. While these cars cost about \$3000 more than comparable conventional cars, the savings on fuel over the lifetime of the car cover the extra cost. The United States offers a deduction of up to \$2000 from taxable income for the purchase of a hybrid or other "clean fuel" vehicle (including vehicles powered by natural gas, 85% ethanol (E85) or electric vehicles).⁶⁸

219. Governments, local authorities and large institutions, as major consumers of goods and services, can use their large purchasing power to take a leading role in changing consumption patterns. Public green purchasing is part of a broad traffic programme initiated by a number of cities in Sweden in 1995, including the introduction of cleaner vehicles. The project is intended not only to reduce the environmental impacts of public vehicles, but also to serve as a model

for the public, to inform them about the use of such vehicles, to demonstrate their practical use, and to stimulate public demand. Other elements of the programme were a municipal bicycle fleet and a requirement that road construction contractors comply with environmental criteria and have an environmental management system (e.g. EMAS, ISO 14001). By 1999, 23 per cent of the municipal vehicle fleet was powered by electricity, compressed natural gas or bio-diesel, and 75 per cent of municipal buses were powered by natural gas. The municipal programmes have also had an impact on the development of Swedish national legislation and guidelines.⁶⁹

220.

221. New York City has had an Alternative Fuels Program since 1993. The main objectives of the programme are reducing air pollution and promoting the use of alternative fuels by both public and private vehicles. Under this programme, public fleets in New York are being replaced with alternative fuel vehicles, currently including over 6000 natural gas, hybrid, E85 (ethanol) and electric vehicles. The main alternative fuel at present is compressed natural gas (CNG). Natural gas buses produce an average of 97% less particulate matter, 84% less carbon monoxide and 58% less nitrogen oxide compared with conventional diesel engines. The CNG fueling sites for the vehicles also offer service to the public. At the United States federal level, an Executive Order issued in 2000 requires any federal agency operating 20 or more motor vehicles to reduce petroleum fuel consumption by 20 per cent by 2005 compared to 1999. To meet the objective, agencies are required to acquire alternative fuel vehicles and to increase the average fuel economy of new vehicle operations by 3 miles per gallon (mpg) by 2005 compared to 1999.⁷⁰

222. Following the lead of California's 2002 Vehicle Global Warming Law, eight other states in the United States now require that future cars sold in those states reduce their emissions of greenhouse gases by about 22% by 2012 and 30% by 2016. It is estimated that the higher costs of the vehicles – \$300-\$1000 – will be paid for by reduced fuel costs in 1.5 – 3.5 years. In Canada, the government has negotiated an agreement with car-makers to reduce greenhouse gas emissions by 17% by 2010.⁷¹

223. Some questions for discussion

- (a) What are the priority issues for different countries and groups of countries concerning sustainable consumption and production relating to energy, climate and air pollution?
- (b) What types of policies (regulations, economic incentives, public procurement, information, training, etc.) are the most feasible and effective in different countries for addressing those issues?
- (c) Are there cost-effective policies and measures that can yield sizeable co-benefits of local air pollution control and greenhouse gas abatement simultaneously?
- (d) What are the roles of various actors (government, local authorities, industry, consumers, NGOs, etc.) in changing patterns of energy consumption?
- (e) What are the best ways to encourage the various actors to contribute effectively and cooperatively?
- (f) Where is international collaboration most needed?

(g) What are the most effective mechanisms, both existing and prospective, for disseminating effective policies and practices among countries, including North-South and South-South dissemination?

(h) How can the UN system more effectively promote sustainable consumption and production relating to energy, climate and air pollution? How can existing programmes be strengthened? What new programmes are needed?

(i) What might be some priority issues for international task forces relating to energy, climate and air pollution?

ENDNOTES

¹ Full report available at www.uneptie.org/pc/sustain/10year/regional.htm

² The international and regional meeting reports are available at the joint UNEP-UNDESA website on the Marrakech Process: www.unep.fr/pc/sustain/10year/regional.htm and www.un.org/esa/sustdev/sdissues/consumption/Marrakech/conprod10Y.htm

³ See UNEP (2005), *The African 10 Year Framework Programme (10YFP) on Sustainable Consumption and Production*, Nairobi.

⁴ See www.un.org/esa/sustdev/csd/csd11/CSD_multyear_prog_work.htm

⁵ UNEP's activities on SCP include a variety of methodologies, tools, initiatives, training packages and programmes such as Life Cycle Analysis, Cleaner Production, Product-Service Systems (PSS), Eco-design, Sustainable Procurement, the UN Guidelines for Consumer Protection, Advertising for Sustainable Consumption, Education and Awareness Raising. The work of UN DESA on SCP currently focuses on Environmental Management Accounting (EMA), Sustainable Public Procurement, and Clean Technology Strategies. UN DESA also works on energy efficiency, renewable energy, sustainable transport and water and sanitation.

⁶ See under the Marrakech Process: www.un.org/esa/sustdev/sdissues/consumption/Marrakech/conprod10Y.htm or directly at: <http://webapps01.un.org/dsd/scp/public/Welcome.do>

⁷ www.unep.fr/pc/sustain/10year/regional.htm and www.un.org/esa/sustdev/sdissues/consumption/Marrakech/conprod10Y.htm

⁸ www.un.org/esa/sustdev/sdissues/consumption/cpp1225.htm

⁹ <http://webapps01.un.org/dsd/scp/public/Welcome.do>

¹⁰ R. Luken and J. Navratil (2004), "A programmatic review of UNIDO/UNEP national cleaner production centres", *Journal of Cleaner Production*, 12, 195-205.

¹¹ *Environmental Taxes: Recent Developments in China and OECD Countries*, OECD, 1999.

¹² Reinhard Peglau, Federal Environmental Agency, Berlin, Germany

¹³ “Strong Evidence of a Link between EMS AND Improved Site Operations”, Remas no.9, 2005, <http://remas.ewindows.eu.org/pdf/newsletters/9.pdf>

¹⁴ http://europa.eu.int/comm/environment/emas/news/index_en.htm#11)

¹⁵ www.unglobalcompact.org

¹⁶ www.equator-principles.com

¹⁷ www.cepaa.org

¹⁸ www.accountability.org.uk

¹⁹ www.oecd.org/department/0,2688,en_2649_34889_1_1_1_1_1,00.html

²⁰ www.bsci-eu.org

²¹ www.bsci-eu.org/content.php?page=BsciHomePage

²² www.unepfi.org/

²³ “When labor violations are found, the ILO process involving government, management and labor officials facilitates a resolution, say industry watchers. ‘We are very impressed with these programs, and we are fully supportive of the ILO project,’ says Carolyn Wu, a Shanghai-based Nike spokeswoman.” In: David J. Lynch, “Cambodia’s Sales Pitch: sweatshop-free products”, *USA Today*, 4 April 2005.

²⁴ “The really big question is: Do consumers care?’ says Bama Athreya, deputy director of the International Labor Rights Fund, a Washington, D.C.-based non-profit group”. David J. Lynch, “Cambodia’s Sales Pitch: sweatshop-free products”, *USA Today*, 4 April 2005.

²⁵ www.un.org/esa/sustdev/sdissues/technology/estema1.htm

²⁶ An example of a project aimed at broadening the capacities and services of Cleaner Production Centres around the globe is the Environmental Management Navigator program, which has supported the qualification of CPC representatives in a variety of environmental management instruments (www.em-navigator.net).

²⁷ A good example is the Efficient Entrepreneur, a calendar which guides businesses through a programme that simultaneously saves money, increases efficiency, and reduces environmental impacts. More than 10,000 copies in 8 languages have already been distributed (www.efficient-entrepreneur.net).

²⁸ A good example for a project supporting the capacity building process in Asia is the e-textile toolbox (www.e-textile.org).

²⁹ Sustainable Development Notes, March 2003, World Bank, www.worldbank.org/participation/sdn/snd71.pdf

³⁰ WorldWatch Institute, State of the World 2004, p. 30; and Molly O’Meara Sheehan, City Limits: Putting the Brakes on Sprawl, WorldWatch Working Paper 156, 2001, pp. 10-11.

³¹ For the United States, for example, see US Department of Transportation, www.fhwa.dot.gov/tea21/factsheets/index.htm, 12 April 2004.

³² Informal Transport in the Developing World, UN-HABITAT, Nairobi, 2000, p. 85.

- ³³ Molly O’Meara Sheehan, *City Limits: Putting the Brakes on Sprawl*, WorldWatch Working Paper 156, 2001, pp. 27, 33.
- ³⁴ *Informal Transport in the Developing World*, UN-HABITAT, Nairobi, 2000.
- ³⁵ *Ibid.*
- ³⁶ Institute for Transportation and Development Policy, *Sustainable Transport e-update*, February 2004, www.itdp.org
- ³⁷ UNEP Division of Technology, Industry and Economics, www.uneptie.org/pc
- ³⁸ *Waste Generation and Related Policies*, Soizick de Tilly, in *The Economics of Waste*, OECD 2004. See also WorldWatch SOW 2004, p. 16.
- ³⁹ “The Economics of Residential Solid Waste Management”, by Thomas Kinnaman and Don Fullerton, NBER Working Paper 7326, p. 19, www.nber.org/papers/w7326, and “Waste generation and related policies: Broad trends over the last ten years, Soizick de Tilly, in *The Economics of Waste*, OECD 2004.
- ⁴⁰ UNU/IAS Working Paper No. 24, Martin Medina, 1997, www.gdrc.org/uem/waste/swm-ias.pdf
- ⁴¹ *Waste Generation and related policies: Broad Trends over the last ten years*, Soizick de Tilly, *The Economics of Waste*, OECD 2004.
- ⁴² “The Economics of Residential Solid Waste Management”, by Thomas Kinnaman and Don Fullerton, NBER Working Paper 7326, www.nber.org/papers/w7326
- ⁴³ WorldWatch Institute, *State of the World 2004*, pp. 44-45.
- ⁴⁴ www.oecd.org/document/0/0,2340,en_2649_34297_1812864_1_1_1_1,00.html
- ⁴⁵ www.youthXchange.net
- ⁴⁶ http://www.un.org/esa/sustdev/sdissues/consumption/dec54_449.pdf
- ⁴⁷ UNEP (2005), *The African 10 Year Framework Programme (10YFP) on Sustainable Consumption and Production*, Nairobi.
- ⁴⁸ The methodology sheets for these indicators are on:
www.un.org/esa/sustdev/sdissues/consumption/cpp1224m.htm
- ⁴⁹ The web-site on the Indicators of Sustainable Development:
www.un.org/esa/sustdev/natlinfo/indicators/isdms2001/table_4.htm
- ⁵⁰ IEA, *Energy Balances of Non-OECD Countries, 2000-2001* (2003)
- ⁵¹ For a detailed analysis of energy consumption in Africa see *Sustainable Energy Consumption in Africa* by Stephen Karekezi, Jennifer Wangeci and Ezekiel Manyara, African Energy Research Policy Network (AFREPREN), available at www.un.org/esa/sustdev/sdissues/consumption/Marrakech/conprod10Yafr.htm
- ⁵² US Energy Information Agency, www.eia.doe.gov/emeu/international/envirom.html#IntlCarbon (7 July 2005, data through 2002)

- ⁵³ EPA draft report on the Environment 2003, p.1-11, www.epa.gov/indicators/roe/pdf/tdAir1-1.pdf
- ⁵⁴ Environment Agency of England and Wales, www.environment-agency.gov.uk/commondata/103196/v3-2a?referrer=/yourenv/eff/air/222825/222869/
- ⁵⁵ “Urban Air Quality Management and Practice in Asian Cities: Seoul”, www.york.ac.uk/inst/sei/rapid2/benchmarking/seoul.pdf; [“Reanalysis of the Effects of Air Pollution on Daily Mortality in Seoul, Korea” in *Environmental Health Perspectives*, vol.107, no.8, August 1999, ehp.niehs.nih.gov/members/1999/107p633-636lee/lee-full.html]
- ⁵⁶ Urbanization, Energy and Air Pollution in China, www.nap.edu/books/0309093236/html; Environment and People’s Health in China, WHO Western Pacific Regional Office, p.21-25, www.wpro.who.int/health_topics/air/
- ⁵⁷ See BP 11, para.9
- ⁵⁸ UK Government Sustainable Development Strategy, *Securing the Future*, Chapter 3: “One Planet Economy”.
- ⁵⁹ 2001 Annual Report on Energy Star and Other Voluntary Programs, Environmental Protection Agency, United States, 2002.
- ⁶⁰ www.energystar.gov/default.shtml
- ⁶¹ Energy Bulletin, www.energybulletin.net/5000.html
- ⁶² Energy Bulletin, www.energybulletin.net/5000.html
- ⁶³ www.dsireusa.org/library/includes/incentive2.cfm?IncentiveCode=CA25R&state=CA&CurrentPageID=1
- ⁶⁴ “The winds of Prince Edward Island to provide green power”, Press Release, 1 June 2001, Government of Canada, Government of Prince Edward Island and Maritime Electric Company Ltd.; “Government of Canada Invests in Green Power in Saskatchewan”, Press Release, October 12, 2000, Government of Canada.
- ⁶⁵ For the United States see www.epa.gov/otaq/consumer/12-miles.pdf; for the European Union, see www.vcacarfueldata.org.uk/information/emissions.asp
- ⁶⁶ www.dieselnet.com/standards.html
- ⁶⁷ www.unep.org/pcf/
- ⁶⁸ US Department of Energy, www.fueleconomy.gov/feg/tax_afv.shtml#cleanfuel
- ⁶⁹ www.iclei.org/egpis/egpc-160.htm
- ⁷⁰ New York City Department of Transportation, www.nyc.gov/html/dot/html/motorist/alternativefuel.html.
- ⁷¹ World Watch, Vol.18, no.4 (July/Aug 2005), p.10; Union of Concerned Scientists, www.ucsusa.org/clean_vehicles/cars_and_suvs/page.cfm?pageID=1510