

TST Issues Brief: Sustainable Consumption and Production, including Chemicals and Waste¹

Introduction

Addressing current unsustainable patterns of consumption and production is imperative for the achievement of sustainable development in a world in which human population is projected to be 9,5 billion by 2050², and in which about 1.2 billion people currently live in extreme poverty and deprivation.³ Changing consumption and production patterns is vital for poverty and hunger eradication, and also for protecting and managing the natural resource base and ecosystems, which underpin development. Healthy ecosystems are vital for human well-being and resilience particularly of those living in poverty. Currently, over 60 percent of the ecosystems and their services upon which we rely are degraded, overexploited or already lost.⁴ Unsustainable consumption and production patterns are increasing water and air pollution, land and forest degradation, waste generation and the use of harmful chemical substances. Current pressures on the planet's natural resources and life support systems will increase with population and economic growth unless consumption and production patterns become more efficient and less polluting. Economic growth will have to be decoupled from resource use and environmental degradation, so that inclusive socio-economic development can be sustained.

1. Stocktaking

Achieving sustainable patterns of consumption and production is central to the sustainable development agenda. Chapter 4 of Agenda 21 recognized, in 1992, that *"the major cause of the continued deterioration of the global environment is unsustainable patterns of consumption and production, particularly in industrialized countries"*. Principle 8 of the Rio Declaration called for states to *"reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies"*, which need to be human rights based and gender sensitive. The Johannesburg Plan of Implementation (JPOI) of the 2002 World Summit on Sustainable Development (WSSD), and The Future We Want of the Rio+20 Conference in 2012, both recognized that *"poverty eradication, changing unsustainable patterns of production and consumption and protecting and managing the natural resource base of economic and social development are overarching objectives of, and essential requirements for, sustainable development"*. The JPOI called for the development of a ten-year framework of programmes in support of regional and national initiatives to accelerate the shift towards sustainable consumption and production (SCP) to promote social and economic development within the carrying capacity of ecosystems. At Rio+20, world leaders adopted the Ten-Year Framework of Programmes on Sustainable Consumption and Production Patterns (the "10YFP").⁵

¹ Prepared by the TST drafting group on SCP with inputs from the 10YFP Inter-Agency Coordination Group (IACG)

² UN Population Division. World Population Prospects 2013 revision

³ World Bank. 2013. *Global Monitoring Report 2013: Rural-urban dynamics and the Millennium Development Goals*. Washington, DC, World Bank.

⁴ Millennium Ecosystem Assessment. 2005. *Ecosystems and human well-being: synthesis*. Washington, DC, Island Press.

⁵ UNCSD (United Nations Conference on Sustainable Development). 2012. *The future we want*. Outcome of the UNCSD. A/CONF.216/L.1, para 226; and A/CONF.216/5.

Chemicals and waste management are closely related to sustainable consumption and production. Several multilateral environmental agreements (MEAs) are being implemented, including the Vienna Convention and its Montreal Protocol on Substances that Deplete the Ozone Layer, the Basel Convention on Hazardous Waste, the Rotterdam Convention on the Prior Informed Consent Procedure, and the Stockholm Convention on Persistent Organic Pollutants. The WSSD adopted the 2020 goal of producing and using chemicals in ways that help minimize significant effects on human health and the environment. The Strategic Approach to International Chemicals Management (SAICM) serves as a cross-sectoral, multistakeholder initiative supporting achievement of the WSSD 2020 goal, and the Minamata Convention on Mercury will be adopted in October 2013. Nevertheless, the Rio+ 20 outcome document notes that many countries, in particular the least developed countries and Small Island Developing States (SiDS), lack the capacity for sound management of chemicals and waste, implying the need for additional capacity building and technology transfer efforts.

Escalating resource use. Globally, increasing resource use, waste and pollution are undermining prospects for future development. There is also an inequitable use of resources and distribution of the impacts of pollution and environmental degradation – between the wealthy and the poor, urban and rural populations, and men and women. Consumption and production patterns in most economic sectors have to change significantly to address these challenges. During the twentieth century, total material extraction grew by a factor of about eight, while GDP rose 23-fold and world population almost quadrupled. Ores, minerals, hydrocarbons and biomass are currently being extracted at an annual rate of 60 billion tonnes.⁶ As economies expand and populations grow, material extraction is set to increase to 140 billion tonnes annually by 2050, if developed countries' rates of consumption do not change and developing countries follow a similar pattern.⁷ Similarly, an increase of food production of about 60 percent is needed between 2000 and 2050 to satisfy expected increase in demand,⁸ especially for resource-intensive and energy-dense foods. However, such an increase could be avoided if current very high rates of food losses and waste are reduced or prevented.

Environmental impacts. Many environmental challenges result from unsustainable production and consumption patterns. These include the continuous and increasing conversion of natural ecosystems for agriculture, the fragmentation of habitats, loss of biodiversity and degradation of various ecosystem services, overfishing, unsustainable agricultural practices and overexploitation of other renewable resources on which people and economies depend. Diverse negative environmental impacts are caused by various extractive and processing industries, as well as by waste disposal, especially dumping and burning around urban areas. Pollution damage is degrading ecosystems that provide key services underpinning human welfare, and often impacts directly on human health and economic productivity. The release of chemicals continues to affect the atmosphere, water, soil, wildlife, ecosystems and our

⁶ UNEP (United Nations Environment Programme). 2011. *Decoupling natural resource use and environmental impacts from economic growth*. A Report of the Working Group on Decoupling to the International Resource Panel. Fischer-Kowalski, M., Swilling, M., von Weizsäcker, E.U., Ren, Y., Moriguchi, Y., Crane, W., Krausmann, F., Eisenmenger, N., Giljum, S., Hennicke, P., Romero Lankao, P., Siriban Manalang, A., Sewerin, S.

⁷ Idem.

⁸ Alexandratos, N. and Bruinsma, J. 2012, *FAO. World agriculture towards 2030/2050: the 2012 revision*. . ESA Working Paper No. 12-03. Rome, FAO (available at <http://www.fao.org/docrep/016/ap106e/ap106e.pdf>)

food chain, with associated impacts on human health. Chemicals released to the atmosphere act as pollutants, contributing for example to acid rain, as greenhouse gases and as ozone depleters. They also contaminate water resources through direct discharges to bodies of water or via deposition from the air.

Waste generation is projected to increase dramatically in the next dozen years, from 1.3 billion tonnes per year today to 2.2 billion tonnes per year by 2025, with high increases in middle-income developing countries.⁹ In developing countries, 50-70 percent of waste is organic, much of which could be used to produce energy and fertilizers (through methanization and composting). This implies that only a fraction of current waste volumes should go to final disposal. Some of the foregoing impacts can be addressed by well-designed, high-density and mixed-use cities, which reduces their resource and wider ecological footprint – about 67 percent of the global human population will live in cities by 2050.¹⁰

Economic and social consequences. Current pressures on the planet's natural resources and life support systems will increase with population and economic growth unless consumption and production patterns become more efficient and less polluting. Poorer communities, depending directly on their local environment and associated natural resources, are the most vulnerable to these impacts. Marginalized groups such as small food producers, indigenous people and women will have increased difficulties to access natural resources as these will be scarcer and more costly. They require secure access to natural resources and support to develop and apply more sustainable production systems.

The increased frequency and intensity of climate change-induced extreme weather events caused by unsustainable patterns of consumption, including energy use, directly counteract poverty and hunger eradication efforts. Poor management of chemicals is incurring multibillion dollar costs worldwide – many of which are not borne by manufacturers or producers, but instead by workers, vulnerable populations and society as a whole. For example, costs incurred due to asbestos and contaminated drywall materials total over USD125 billion worldwide – and the figure is still rising. The global benefits from the phase-out of leaded fuel, including the economic and health benefits, amount to USD2.45 trillion, or 4 percent of global annual GDP.¹¹

In many least developed and developing countries, as well as countries with economies in transition, resource-inefficient economic growth is holding back development efforts. Embracing SCP policies, strategies and applications could offer opportunities to leapfrog to a more resource-efficient, profitable and cleaner development trajectory, enhancing net gains from economic activities. Economic benefits can arise directly from policies promoting SCP as these can help increase the amount of natural, physical and human capital available, increase efficiency, and stimulate innovation¹².

Governance. Inclusive and evidence based governance, based on broad and equal participation, non-discrimination and accountability, is key to achieving SCP patterns. Unfortunately, policy responses often neglect the interconnectedness of challenges, resulting in fragmented approaches. Responses

⁹ World Bank. 2012. *What a waste: a global review of solid waste management*. Washington, DC.

¹⁰ UN-HABITAT (United Nations Human Settlements Programme). 2012. *Sustainable housing for sustainable cities: a policy framework for developing countries*. Nairobi.

¹¹ UNEP. 2013. *Costs of inaction on sound management of chemicals*.

¹² World Bank, 2012, *Inclusive Green Growth: The Pathway to Sustainable Development*

from governments may be uncoordinated because different departments are responsible for different but interlinked issues. An adaptive, interconnected and responsive institutional framework, including policies, laws, financing, technology, diverse stakeholders and practices should, in the words of UN Secretary-General Ban Ki-moon, help connect the dots between various sustainable development challenges. These include climate change, water scarcity, energy shortages, global health, food security and women's empowerment. "Solutions to one problem must be solutions for all."¹³

Enabling conditions should be created for innovations and emerging solutions by using a mix of regulations and economic instruments, new and existing technologies, empowerment of stakeholders, and more adaptive approaches. These tools need to be deployed across traditionally segmented institutional management and production systems, to achieve more sustainable consumption and production patterns.¹⁴

The complexity, magnitude and interconnectedness of sustainable development challenges does not mean that decision-makers are faced with the stark choice of "doing everything at once in the name of integrated approaches or doing nothing in the face of complexity." Identifying interlinkages offers immediate opportunities for more effective responses at local, national, regional and global levels.¹⁵

2. Overview of proposals

SCP¹⁶ and chemicals and waste management were not explicitly included in the Millennium Development Goals (MDGs). However, these important objectives should be addressed in this current round of goal-setting. SCP offers opportunities to attain vital development goals, on a *sustained* basis, and improve quality of life by promoting efficient, responsible and clean production systems, and sustainable lifestyles. Conversely, unsustainable consumption patterns and management of chemicals and waste can impede achievement of these goals¹⁷ and impacts on human health directly.

The 10YFP provides a global, cooperative framework to help accelerate the shift towards SCP patterns in both developed and developing countries. Objectives of the 10YFP include contributing to resource efficiency and decoupling economic growth from environmental degradation and resource use, while creating decent job and economic opportunities and contributing to poverty eradication and shared prosperity. The framework will also support capacity building and facilitate access to financial and technical assistance on SCP for developing countries.¹⁸

Some MEAs refer to SCP, such as the Aichi Targets adopted by the Convention on Biological Diversity (COP 10). Target 4 reads "*By 2020, at the latest, Governments, business and stakeholders at all levels*

¹³ UN. 2011. UN Secretary-General's Report to the General Assembly "We The Peoples", 21 September 2011, United Nations, New York (available at <http://www.un.org/sg/statements/index.asp?nid=5547>).

¹⁴ UNEP. 2007. *GEO-4 Summary for Decision Makers (SDM)* (available at http://www.unep.org/geo/GEO4/media/GEO4%20SDM_launch.pdf).

¹⁵ *Ibid.*

¹⁶ United Nations. 2013. Report of the High Level Panel of Eminent Persons on the Post-2015 Development Agenda (available at http://www.un.org/sg/management/pdf/HLP_P2015_Report.pdf).

¹⁷ UNDP. 2009. *UNDP Technical Guide for Integrating the Sound Management of Chemicals in MDG-Based Policies & Plans* (available at <http://www.unpei.org/sites/default/files/PDF/resourceefficiency/KM-resourceUNDPTechnicalGuidIntegratingSMgmtChemicals.pdf>).

¹⁸ A/CONF.216/5.

have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits". Other goals from international agreements are relevant such as those on reducing greenhouse gas emissions of the United Nations Framework Convention on Climate Change (UNFCCC) and those on sustainable land management of the United Nations Convention to Combat Desertification (UNCCD). The Montreal Protocol's contribution to eliminating consumption and production of ozone-depleting substances, and those of the various chemicals conventions and SAICM, all further the sound management of chemicals, often in the context of product life cycles.

Progress on SCP would contribute to achieving key objectives and goals on food security and energy, such as those spelt out in the Secretary-General's initiatives. The Zero Hunger Challenge has five main objectives: to achieve 100 percent access to adequate food all year round; to end malnutrition in pregnancy and early childhood; to make all food systems sustainable; to increase growth in the productivity and income of smallholders, particularly women; and to achieve a zero rate of food waste. The Sustainable Energy for All Initiative (SE4All) sets out the vision and has three linked objectives – energy access, renewable energy and energy efficiency – designed to achieve the goal of sustainable energy for all by 2030. The UN Decade of Education for Sustainable Development's basic vision is of *"a world where everyone has the opportunity to benefit from education and learn the values, behaviour and lifestyles required for a sustainable future and for positive societal transformation"*. Initiatives launched for this decade, such as the UNESCO-UNEP led YouthXChange, are specifically oriented towards achieving SCP patterns.

Underscoring the importance of SCP in industrial production, 21 national governments from Asia adopted the Ministerial "Manila Declaration on Green Industry in Asia", which in turn led to launching the UNIDO-UNEP Green Industry Platform.¹⁹

3. Main elements for the way forward

Achieving SCP patterns and decoupling socio-economic development from rising resource use and environmental degradation require major changes to production systems, employment patterns and technologies in every country, as well as accompanying behavioural changes influencing consumption. International human rights standards mandate these changes by, for example, calling for international cooperation for development, including the prevention and mitigation of the negative impacts of environmental harms, guaranteeing the right of all persons to benefit from scientific progress, and demanding protection of basic rights, including the rights to food, health and water.

Improving access to natural resources and moving to more resource-efficient and less pollution-intensive food production systems will, for example, contribute to long-term food security and nutrition, through rural development, sustainable agriculture and land management which are more socially inclusive. Recycling and recovery of electrical and electronics equipment, or e-waste, can reduce impacts on public health, recovering precious metals and other valuable resources. Sustainable infrastructure

¹⁹ Available at www.unido.org/fileadmin/user_media/Services/Green_Industry/Manila_declaration.pdf

and energy systems, cities and transport systems, all part of the shift to SCP, will also contribute to climate change mitigation and disaster risk reduction and can reduce inequalities.

Achieving SCP patterns will require a mix of policies, integrating economic, social and environmental objectives, and engaging and building the capacity of stakeholders to drive the necessary transformative change of the economy. Achieving the shift will require the following actions, including avoiding the rebound effect whereby efficiency gains are cancelled out by resulting increases in consumption. In particular, policy- and decision-makers will need to:

- **Address the drivers of unsustainable consumption and production patterns** such as lack of knowledge and know-how, investment or technologies for sustainable production, limited product life spans, product prices not reflecting true resource, environmental and social costs, high consumer demand, limited incentives for recycling and reuse, and the absence of sustainable alternatives or reliable consumer information.
- **Adopt a life-cycle approach**, aiming at resource efficiency and increased supply and demand of sustainable products, which avoids burden shifting between different stages of product life cycles.

Achieving SCP patterns will also require:

- **Mainstreaming SCP in decision-making at all levels** – through national plans on SCP, or integrating SCP objectives into relevant national plans and strategies and sectoral policies;
- **Designing policies and legal frameworks** that take into account different national realities, capacities and levels of development, cultural factors and sectoral priorities of countries, guided by related indicators for measuring the shift towards SCP;
- **Addressing “market failure”**, through regulation and pricing that internalizes environmental and social costs, and incentives for innovation, international cooperation and investment in SCP;
- **Actively engaging all stakeholders**, notably the private sector (including farmers, small-scale producers), workers’ organisations, women, and the informal sector, as well as researchers, educators, non-governmental organizations (NGOs) and consumers;
- **Consumer education and awareness-raising** to shift to more sustainable lifestyles and products, especially as the largest cohort of youth ever will shortly move into adulthood;
- **Changing approaches and perspectives on waste** to shift from end-of-pipe solutions to reduce, reuse, recycle (3R) approaches, which close material loops and reduce resource extraction needs;
- **Innovation, technological change, skills upgrading and access to environmentally sound technologies** that need to be fostered and facilitated– and which offer major opportunities to deliver vital services more efficiently to more people at lower cost;
- **Greater emphasis on resource productivity**, involving structural change towards less resource-intensive activities and broad diffusion of efficiency-enhancing technologies, including through measures such as environmental tax reforms and the phasing out of environmentally harmful subsidies;
- **Addressing inequalities** that result in poor, marginalized, minority groups and women bearing disproportionate impacts from current consumption and production patterns; and

- **Ensuring a smooth transition** through policies that encourage investment and employment creation in environmentally friendly economic sectors while reducing the costs of adjustment.

All of the foregoing actions and objectives will also contribute to safer management of chemicals and more sustainable waste management. The options of avoiding use or preventing release of toxic chemicals, by using safer alternatives, will generally offer far safer and cheaper options than remediating chemical hazards, including their health impacts on current and future generations. Similarly, volumes of waste and their negative impacts can be dramatically reduced by the design and use of more efficient and longer-lasting products, and recycling of waste. Recycling one tonne of paper, aluminum or glass can respectively save more than 600 kg, 10 tonnes and 500 kg of CO₂ equivalent.²⁰

More research, development and diffusion of cutting-edge technology for SCP, and partnerships, including with business, will also be required. Making this global shift will require leadership from developed countries, as recognized in a number of international declarations.²¹ The High Level Panel of Eminent Persons on the Post-2015 Development Agenda identified the need for an equitable and sustainable approach to managing these consumption and production patterns, and joint mobilization of economic, social and environmental action, to *irreversibly* reduce poverty (emphasis added).²²

Sustainability and long-term thinking: Rio+20 recognized the need for elaborating sustainable development goals building on the MDGs. Attaining the Sustainable Development Goals (SDGs) will require a combination of policies, international cooperation, capacity-building and technical assistance directed towards long-term sustainability, as well as a strengthening of the implementation of MEAs. A truly integrated set of policies and actions will be required from all stakeholders influencing consumption and production patterns. This will entail consideration of the interlinkages between different goals and economic sectors as well as an integrated approach to social, economic and environmental objectives.

Central objectives should be improving and sustaining the quality of life and health for all, while decoupling socio-economic development from escalating resource use and environmental degradation. SDGs could importantly address critical issues such as irreversible damage to the global environment, and key “tipping points” that trigger feedbacks leading to “runaway” negative impacts. Targets and indicators for the goals could be designed to promote such decoupling and improve resource efficiency throughout product life cycles, increasing recycling and reducing waste, thus reaping important economic gains and higher contributions to human welfare.

Interlinkages of policy responses: There is a need for an interlinked approach to policy responses. In developing the SDGs, it will be important to consider carefully complex interlinkages among them, both mutually reinforcing and competing, and to develop *integrated* goals. SCP can contribute to progress on

²⁰ UNEP. 2010. *Waste and climate change: global trends and strategy framework* (available at <http://www.unep.or.jp/ietc/Publications/spc/Waste&ClimateChange/Waste&ClimateChange.pdf>).

²¹ 2000 World Summit Declaration (GA resolution 55/2) and 2005 Secretary-General report.

²² High Level Panel of Eminent Persons on the Post-2015 Development Agenda. Report (May 2013). *A new global partnership: eradicate poverty and transform economies through sustainable development* (available at <http://www.post2015hlp.org/wp-content/uploads/2013/05/UN-Report.pdf>).

social goals or poverty reduction without an increase in the global use of resources, materials and chemicals and, thereby, sustain this progress over time. This involves production processes becoming increasingly clean and efficient and wealthier consumers becoming more aware of the impacts of their consumption patterns, and adjusting them accordingly, supported by systemic efforts to correct market failures and introduce regulation. The SDGs could take the form of a limited number of integrated goals – that embody the social, economic and environmental aspects of sustainable development – and could be underpinned by a mix of targets, some integrating all three objectives, and others emphasizing one or two of them. Such goals could retain a tight focus on development, while embodying targets and indicators that promote a decoupling of economic development from the depletion of natural resources and environmental degradation.²³

Universal relevance: SCP is a universal concept. In developed countries, it implies shifting towards more resource- and energy-efficient economies and more emphasis on adopting sustainable lifestyles that reduce overconsumption. The concept recognizes the needs and capabilities of developing countries, as well as the opportunity they have to leapfrog to more resource-efficient, environmentally sound and competitive practices and technologies. In all countries, more resource-efficient production processes result in lower costs and important economic savings for business, governments and civil society, when long term benefits and impacts are factored in. International cooperation in the context of the 10YFP, and on the finance, innovation and technologies required to achieve SCP, is essential to progress towards sustainable development goals.

Capacity building for SCP: A broad array of capacity-building activities and international cooperation, including the 10YFP, will be crucial for the design and implementation of government policies and private sector management practices, adoption of technologies and delivery of information tools and education for consumers to trigger the shift towards SCP patterns. The specific capacity building needs of the least developed countries and SIDS need particular consideration. The UNIDO/UNEP-supported Resource Efficient and Cleaner Production Network, with over 50 members worldwide, working with companies and governments to scale up sustainable production practices, will be a key delivery mechanism for such capacity building.²⁴ The Rio+20 outcome document recognized that the green economy is one of the important tools available for achieving sustainable development, and that green economy policies should promote SCP.²⁵ The design and application of SCP indicators, which could orient “integrated” SDGs to achieve the necessary decoupling of economic development from environmental degradation and resource use, could have a key role in guiding policies and actions to support sustainable development. The diverse range of policies, actions and capacity-building required does in any case imply the need for a truly integrated effort from governments, the UN system and their partners to achieve the shift to SCP patterns.

²³ UNEP. 2013. *Embedding the environment in Sustainable Development Goals*. UNEP Post-2015 Discussion Paper 1. Nairobi (available at [http://www.unep.org/pdf/UNEP_Post_2015_Discussion_Paper_1_\(Version2\).pdf](http://www.unep.org/pdf/UNEP_Post_2015_Discussion_Paper_1_(Version2).pdf)).

²⁴ See <http://www.unido.org/how-we-work/convening-partnerships-and-networks/networks-centres-forums-and-platforms/ncpc/global-recpnet-regional-networks.html>

²⁵ UNSCD. 2012. *The future we want*. Outcome of the UNCS D. A/CONF.216/L.1, para 56 and para 58(o).