

International Panel for Sustainable Resource Management



**International Panel
for Sustainable
Resource Management**



**Achieving Synergies for Resource
Efficiency: a global perspective**

November 2008

**Third Meeting of the International Panel for Sustainable Resource
Management,**

Santa Barbara, USA, 19-21 November 2008

Introduction

Sustainable resource management is getting higher priority on the policy agenda, due to the financial turmoil, increasing commodity price volatility and related development and environmental concerns. Governments and international organizations such as UNEP and the OECD, as well as the G8, have been continuously adjusting their activities to strengthen their resource management activities over the last months.

This paper summarizes some recent developments among key players in the field of sustainable resource management and useful synergies for the Resource Panel, synergies that are expected to increase its visibility and relevance, develop mutually reinforcing joint activities and/or add value to respective objectives and activities:

- The agenda of UNEP's 25th Governing Council/Global Ministerial Environment Forum includes key topics and initiatives of relevance for sustainable resource management;
- The members of the Advisory Committee for the preparation of the 10 Year Framework of Programmes on SCP, in the context of the Marrakech Process, have recently considered ways to increase the synergies between their activities and the Resource Panel, stating that resource efficiency is a core dimension in SCP policies; ideas from the Resource Panel on ways and means for achieving synergies would be welcome;
- The follow-up of the reference to the Resource Panel made by the G8 (The G8 has met in Kobe, Japan in April 2008, and has included the Resource Panel in its Kobe 3R Action Plan) ;
- A first 'World Resource Forum' will be organised, in Davos, Switzerland, September 2009, and the organizers have requested cooperation with the Resource Panel;
- The Dutch government has explored ways for the Resource Panel to cooperate with the World Watch Institute on a 'vision report'.

This overview is presented for information and as a basis for a discussion on the specific activities the Panel and its Steering Committee may wish to undertake so as to develop and strengthen synergies with relevant partners and programmes.

I. UNEP Governing Council and the Green Economy Initiative

The 25th session of UNEP Governing Council (GC25, to be held in Nairobi, Kenya, 16-20 February 2009) will address key themes that are critical in the perspective of resource management. The meeting will decide on the objectives and expected accomplishments of the 6 thematic sub-programmes that structure the UNEP's Mid Term Strategy (MTS) for 2010-2013, which includes Resource Efficiency/Sustainable Consumption and Production (RE-SCP) as one of its six priorities.

The objective of the RE-SCP sub-programme is that natural resources are produced, processed and consumed in a more environmentally sustainable way. A decoupling of growth in production and consumption of goods and services from resource depletion and environmental degradation will be promoted, and the scientific base for doing so will be strengthened. The main expected accomplishments are:

- resource efficiency should be increased and pollution reduced over product life cycles and along supply chains;
- investment in efficient, clean and safe industrial production methods should be increased through public policies and private sector action; and
- consumer choice should favour more resource efficient and environmentally friendly products.

The principal topic for the ministerial consultations is: 'Globalization and the Environment – 'Global Crises: National Chaos?'. This session will provide the world's environment ministers with the opportunity to address in a comprehensive manner how:

- to meet multiple environmental and development challenges at the country level, and to capture the opportunities that might arise; and
- national and international environmental governance, including financing mechanisms, could better support such endeavours.

Inputs for the meeting and the various side-events will be provided by the UNEP secretariat, including information on the Resource Panel and the **Green Economy Initiative**. This initiative was launched in October 2008, and aims at promoting growth, combating climate change and triggering an employment boom in the 21st century. Investments in clean technologies and 'natural' infrastructure, such as forests and soils, will be strengthened through this new initiative. The Green Economy Initiative will draw on the existing and considerable body of work generated by UNEP, the UN-system and others. In 18 to 24 months, it should deliver a comprehensive assessment and tool kit for making the necessary transition.

II. Marrakech Process and 10YFP

In its recent meeting, held in Paris, October 23, the Advisory Committee of the Marrakech Process has welcomed the opportunity of cooperation with the Resource Panel, in line with the outcomes of the Rome Panel and Steering Committee meetings. It also recommended that these synergies are further explored in the coming months and a comprehensive list of common activities is effectively compiled by the respective Secretariats of both initiatives.

The Marrakech Process was launched as a response to the call, in the Johannesburg Plan of Implementation, for actions at all levels to “accelerate the shift towards sustainable consumption and production (...) by de-linking 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”.

The Resource Panel, which was officially launched in 2007 in Budapest, shares the same vision. Its general aim inscribes in the Marrakech process vision, while focusing on the environmental and socio-economic impacts of global resource use. It relies on the same assumption: broad awareness and cooperation amongst developed and developing countries and proper understanding of the scientific basis for decoupling are key for achieving lasting success. It also refers to similar technical concepts and methodologies, including resource flow analysis and life cycle assessments.

Therefore, taking advantage of the synergies and complementarities between these two initiatives opens up promising avenues for the promotion of SCP policies. With distinctive approaches, assets and networks, these initiatives have important potential for achieving synergies and for strengthening each other's added value. The Resource Panel can in particular be expected to provide the following inputs and insights:

- Providing a solid and scientific basis to the elaboration of the 10YFP, through scientific and authoritative assessments on the literature related to resource depletion and associated environmental impacts, global indicators for resource efficiency, projections for the coming decades and alternative resource consumption scenarios;
- Providing authoritative understanding of concepts, definitions, methodologies, potential and priority sectors in the field of decoupling from a global perspective;
- Contributing to the work of the Marrakech Task Forces with scientific assessments if requested. Identifying needs for new task forces and priority areas, and disseminating cutting edge knowledge on crosscutting issues;
- Facilitating increased involvement by scientist networks around the world in the 10YFP, while increasing the understanding of policy makers on sustainable consumption and production, resource management, material flow analysis and related concepts;

In return, a reinforced cooperation with the Marrakech Process will:

- Strengthen the linkages between the Panel and the decision makers represented in the Commission for Sustainable Development, and indirectly the Economic and Social Council of the United Nations.
- Foster the relationships between the Panel and the various stakeholders of the Marrakech Process, including the major groups representing NGOs and the Business and Industry communities.
- Enrich the work of Panel on prioritization and other sectoral activities, by linking it with the regional evaluation made through the Marrakech Process. The regional consultation process and the various national and sub-regional SCP roundtables have allowed to facilitate information exchange on SCP, compile and disseminate case studies in the application of SCP policies and strategies. This consultation process has resulted in technical and policy inputs to regional initiatives, sub-regional and regional projects on SCP, training workshops and seminars on selected topics. It contributed to improved definition and identification of regional needs and priorities related to SCP. These activities will provide very valuable materials and knowledge to the Panel, helping it for instance to integrate the cultural differences in its prioritization review.
- Enlarge the perspective of the Panel, introducing new questions related to practical cases and policy issues.

III. World Resource Forum

The organisers of the first World Resources Forum (WRF) have invited the Resource Panel to explore synergies in organising the event (side-events, keynote speakers, working groups) and in advising on the Declaration that they intend to launch at that occasion. The WRF aims to transcend the current political focus on greenhouse gas emissions and to bring the broader issues of global resource consumption and resource productivity onto the agenda. The work and conclusions of the WRF will be brought to the attention of governments, industry, academia, NGOs and civil society as a whole.

The event will be held in Davos, Switzerland, 16 September 2009, and will bring natural scientists, engineers, economists and political decision makers together to identify policy options for sustainable growth. The Forum is an initiative of the Factor Ten Institute and EMPA (the Swiss Federal Laboratories for Materials Testing and Research, St. Gallen). More information to be found on <http://www.worldresourcesforum.org>.

Various Panel Members (including Ernst Ulrich von Weizsäcker, Yuichi Moriguchi, Stefan Brinzeu, Ashok Khosla, Jacqueline McGlade, Marina Fischer-Kowalski) and the UNEP Secretariat (Bas de Leeuw) are represented in the WRF Advisory Board, which had a first meeting in St. Gallen, 19 September 2008.

The event is scheduled back to back with the R'09 World Congress (R for Recycling), to be held simultaneously in Japan (Nagoya University) and Switzerland (Davos). The R'World Congress series promotes innovative technologies and frameworks for resource management to improve material and energy efficiencies in the production, use, and recycling of materials. The R'09 Twin World Congress is the 9th event in the bi-annual R'World Congress series, which started in 1993. It aims at improving material and energy efficiencies in industry, including energy supply, cement and building materials, metallurgical, chemical, glass, pulp and paper, machinery, automobile and electronic industries as well as activities of collection, sorting, further treatment and final disposal of post-consumer material. Information and Communication Technologies (ICTs) are of increasing importance in resource management and will find special consideration at R'09.

IV. G8

In their meeting of July 2-4, 2008, held in Kobe, Japan, the G8 environment ministers issued the "Kobe 3R Action Plan", in a bid to promote the efficient use of resources and a greater harmony between environment and economy.

This Action plan (action 1.2) welcomes the adoption of the OECD Council recommendation on Resource Productivity and also calls upon supporting "international collaborative work that analyses material flows and associated environmental/economic impacts towards sustainable resource management through agencies and initiatives such as OECD and UNEP (UNEP is host for the International Panel for Sustainable Resource Management which was established in 2007 with the overall objective to provide independent scientific assessment of the environmental impacts due to the use of resources over the full life cycle, and advise governments and organisations on ways to reduce these impacts). The panel members participate in their capacity of internationally recognized experts."

By promoting sustainable consumption and production, the 3Rs (Reduce, Reuse and Recycle) activities can indeed increase resource productivity and contribute to decoupling resource consumption and related environmental degradation. The plan highlights the importance of collaborating with developing countries to improve their capacity, in particular helping them develop databases, information sharing and monitoring mechanisms, institutional design and policy planning.

The full text of the plan is to be found on: <http://www.env.go.jp/en/focus/attach/080610-a5.pdf>

The Group of Eight is composed of the United States, Japan, Germany, France, Britain, Italy, Canada, and Russia. Officials from the European Commission, emerging economies, including China, India and Brazil, and international organizations were also invited to be present at the meeting in Kobe. Their next meeting will be in March, 2009, in La Maddalena, Italy.

V. World Watch Institute

The World Watch Institute has started drafting a synthesis of existing studies that underpin the need for sustainable resource management. The overview should be easily accessible and readable for general public and policy makers. It should also form a general underpinning for defining a strategy to manage natural resources sustainably. Based on the facts gathered, the report will give an initial prioritization of natural resources.

It will also analyze current initiatives on resource management and key concepts such as 3R, circular economy and material flow analysis. Out of this analysis of existing initiatives key common corner stones/stepping stones for a shared vision could be derived. This will contribute to the vision document that was requested by the OECD/UNEP Conference on Resource Efficiency, held in Paris, April 2008.

Based on existing studies the following questions will be answered:

- What are the facts and figures about resource use? (Current use of resources in metric tons and hectares of land, loss in resources, costs due to unsustainable resource management, causes of the deterioration/depletion of the resource base...)
- What are the trends for the next 10-50 years? (Increasing demands, including growth of new economies, anticipated role of technology that can alleviate environmental impacts of resource use, competing claims between resource users, drivers for resource use)
- What is the outlook for resource management? (implications of resource management on the different pillars of sustainability, challenges ahead, strategic visions on the overall issue of sustainable resource management...)

The result of this assignment, which will be a report of maximum 20 - 25 pages, should pave the way for a deep and close collaboration between the Resource Panel and the World Watch Institute.

Annex 1: Cooperation with the Resource Panel, from the Secretariat of the World Resources Forum



Materials Science & Technology

World Resources Forum 2009

Secretariat of the
UNEP Resource Panel
(via E-Mail)

Reference mbi-lh
Phone direct +41 71 274 74 84
Place, Date CH-9014 St. Gallen, 10/30/2008

World Resources Forum

Dear Bas,

thank you for active participation in our preparatory meeting for the World Resources Forum (WRF) in St. Gallen in Sept. 2008.

Attached you find the current flyer of the WRF as well as the new version of the WRF declaration, integrating the outcome of the preparatory meeting of the World Resources Forum.

It would be great if you could send this to the Panel Member so that they can provide comments.

The general idea for the further development of the declaration is as follows:

- The WRF declaration is supposed to be an easy to understand document addressed to political leaders and the broader society.
- We want to complement the WRF declaration with a "technical report" in the near future. This report will supplement the more basic information in the declaration with sound academic research results.
- Third we want to publish a separate "Call for Action", so that the message is heard more clearly.

Maybe the members of the Resource panel could assist us also with input for the technical report.

Another topic is that both the Resource Panel and the WRF are aiming at the same subject - approaching policy makers in order to reduce the resource intensity of the economy. It would be great if we could join forces so that concrete action is taken in the near future. The details of a possible cooperation would of course need to be discussed in more detail.

Best regards,

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The World Resources Forum (WRF) is an independent, international platform for debate on global resource consumption issues, advocating innovation for resource productivity. The WRF is building a bridge from the natural sciences and engineering to economics; it aims to equip political decision makers to identify realistic policy options for sustainable growth.

The Issue

The global consumption of limited natural resources is rising at a fast pace. In spite of the remarkable success attained in solving some environmental problems, today's economic and environmental policies have not been able to solve other problems which pose serious threats to the life-supporting services of nature.

The Goal

The WRF aims to transcend the current political focus on *climate change* and to bring the broader issues of *global resource consumption* and *resource productivity* back onto the agenda. It is assembling an interdisciplinary network of scientists, engineers and economists who recognize the necessity of establishing economic principles that respect the physical properties of resources and the laws of nature. The forum aims at a consensus on the next practical steps to be taken towards a sustainable economy.

The Approach

The specific approach of the WRF is to facilitate two separate, but interlinked discourses on global resource consumption issues, one among natural scientists and engineers and the other among economists. The interaction between the disciplines is organized as an iterative process from which clearly defined results will emerge, including recommendations to political decision-makers concerning necessary changes to the economic system. The WRF event taking place in **Davos/Switzerland** on **September 16, 2009**, will bring the results of this process to the attention of governments, industry, academia, NGOs and society as a whole, starting a second phase of the debate.

The Initiative: From Research to Politics

The WRF is a joint initiative of EMPA (Swiss Federal Laboratories for Materials Testing and Research - a research institution in the ETH domain), SATW (Swiss Academy for Engineering Sciences), and the Factor 10 Institute, in cooperation with the UNEP Resource Panel and the Swiss Federal Office for the Environment. Please see www.worldresourcesforum.org for additional information.

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WRF Declaration (DRAFT)

Resource Governance – our Challenge, our Opportunity

Comments on this draft are welcome, please send them to: wrf@empa.ch

Preamble

The financial crisis has shown how fast an economy built around expectations of future growth can lose contact with reality. We, the supporters of this declaration, strongly believe that economic growth in a finite world is only possible to the extent that resource productivity is increased by innovation. Real wealth is restrained by a sustainable flow of natural resources, both at the source end (resource depletion) and at the sink end (absorptive capacity of the ecosystem), multiplied by resource productivity.

We call for a political strategy of resource governance which combines efficiency targets in the use of natural resources (increase in resource productivity) with sufficiency targets of per-capita consumption of natural resources. This combination avoids that efficiency gains are wasted for accelerating the traditional type of growth (rebound effect) and assure that efficiency is used for qualitative development.

To restructure the global economy so it becomes ecologically, economically and socially sustainable is the greatest investment opportunity in human history.

Alarming Signs

Rising global consumption of natural resources (metal ores, fossil energy carriers, biomass and non-metallic minerals) is beginning to affect the life-sustaining services of the earth, which are not replaceable by technical means.

Climate change, widespread water shortages, desertification, massive erosions and increasing natural disasters show that the environmental safety threshold has already been surpassed. And yet, only some 20 percent of humankind enjoy the full benefits of the mainstream economic model, while all people — in particular the poor — have begun to suffer the consequences of its flaws.

There is observational evidence from all continents and most oceans that natural systems are being affected by regional climate changes (IPCC 2007). Climate change



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is only one example of demonstrating how inordinate resource flow (in this case of fossil fuels transformed to CO₂) can affect quality of life on earth.

Other alarming signs are the loss of the global forest area, which shrank at an annual rate of 0.2 percent between 1990 and 2005 (UNEP 2007) and species extinction rates increasing 50-500 times the natural rate (World Watch Institute 2008).

Different world regions face different problems resulting from global over-consumption of natural resources (UNEP 2007): In Africa, land degradation is the main issue of concern; in Asia and the Pacific, urban air quality, freshwater stresses, degraded ecosystems, agricultural land use and increased waste are priority issues; in Europe, still increasing emission of greenhouse gases, biodiversity loss, land-use change and freshwater stresses are issues of concern; in Latin America and the Caribbean, growing cities create threats to biodiversity and ecosystems, degraded coasts and polluted seas are threatening, as well as regional vulnerability to climate change; North America, consuming over 24 % of global primary energy with 5.1 % of world population, faces urban sprawl and freshwater stresses; in West Asia, land degradation, freshwater stresses, degradation of coastal and marine ecosystems, urban management, and peace and security are priority issues.

Global resource extraction grew from 40 billion tons in 1980 to 58 billion tons in 2005. Taking into account all the materials that are extracted but not used to create value, this number more than doubles. The average resource extraction per capita remained almost stable, amounting for nearly 9 tons (OECD 2008).

Today, the fundamental flaw in human activities is the enormous consumption of material resources per unit output of value or service.

Respecting Physical Limits

Satisfying the needs of an ever-growing world population within physical limits is a challenge to economic and environmental policy-makers. Globalizing the traditional model of economic growth is leading to rapidly increasing consumption of limited natural resources, followed by ecological disruption. Current economic and environmental policies have not stopped these trends. As a consequence, we are losing the freedom to shape the future of humanity.

Moreover, key technologies we will need for the transition to a sustainable economy depend on chemical elements that are currently being dissipated regardless of their geo-chemical scarcity. These include antimony, copper, gallium, germanium, indium, niobium, platinum, ruthenium, selenium and tellurium, which are particularly important



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for emerging energy supply technologies as well as for information and communication technologies. Even without assuming absolute scarcity of critical metals, we must expect that the economic, ecological or social consequences of maintaining the supply of these elements may become unacceptable.

We cannot change the way in which nature provides us with life-sustaining services. However, we can improve the productivity with which natural resources are used: getting ore out of the resources we have – creating quality of life for more people with less resource consumption.

Accepting this challenge means that the productivity with which natural resources are used in industrialized countries will have to be increased by at least a factor of 10 during the next 40 to 50 years. However, increasing resource productivity (quality of life per natural resources consumed) is only a means to an end, which is to restrict global resource consumption. Therefore, international agreements on world-wide natural resource consumption targets (sufficiency levels) should be sought as a part of a resource governance strategy.

These per-capita natural resource consumption targets are below the current levels of industrialized countries and below the levels of developing countries. Therefore, they would give the societies of the less industrialized world a valuable breathing space to continue increasing material flows and energy consumption in order to meet their needs. As world population continues to rise, the global targets must be reduced accordingly.

In order to translate the findings just outlined into a general guideline for policy development, the European Commission has concluded in its Competitiveness and Innovation Framework Programme of research (2007 to 2013):

"Eco-innovation is the creation of novel and competitively priced goods, processes, systems, services, and procedures designed to satisfy human needs and provide a better quality of life for everyone with a life-cycle minimal use of natural resources (materials including energy, and surface area) per unit output, and a minimal release of toxic substances." ¹

This statement suggests that continued reliance on traditional "environmental technologies", which only incrementally improve resource productivity, would not be enough. Decoupling production and consumption from nature may require radically

¹ Europa INNOVA Thematic Workshop, Lead Markets and Innovation, 29-30th June 2006, Munich, Germany



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new systems, goods, services, processes, and business models for meeting human needs.²

Truly eco-innovative technologies reflect the fact that well-being is more than material consumption. Well-being includes factors such as education, health, safety (freedom from violence), environmental quality, social security, leisure and equity. Many factors that constitute welfare have not increased in industrialized countries since the mid 1970s – or are even declining – despite technological progress, which has often just served to accelerate material flows.

The Political Challenge

Traditional environmental policies focus on specific problems. In certain respects, this approach has been quite successful. For instance, this strategy has cleaned up water pollution, taken dangerous goods off the market, recycled certain products, and slowed the acceleration of climate change.

However, these policies are toothless against the problem of increasing global resource consumption described above. What we urgently need are *economic* policies that make the global economic system take into account the inherent limitations and the value of the free life-sustaining services of nature. The politically defined economic framework conditions have to be adjusted to protect the global ecosystems and to preserve resources for future generations.

These conditions must include incentives to make planned transitions now, rather than being forced later to change suddenly.

Major increases in resource productivity would occur if all relevant markets operated perfectly (instead of being blind to the environmental costs of growth) and if there were no barriers to entrepreneurial innovation. However the markets are not operating perfectly (market prices are wrong due to discounted externalities and relevant information is not available to the actors) and innovation barriers exist.

No incentives or policies currently exist for a sufficiently resource-efficient economy. Adjusting the fiscal framework is therefore the most fundamental and urgent prerequisite for approaching a sustainable future. Subsidies that increase the consumption of natural resources must be eliminated and economic instruments

² The technical report accompanying this declaration will provide more detail on these issues. The technical report will be available in February 2009. Input is welcome.



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should be deployed such as a shift away from overheads on labour and toward taxing raw materials (with the welcome side-effect of creating new jobs), and market-creation policies, including tradable permits. Instead of value-added taxation on final goods it may be much more effective to tax natural resources at the point at which they are removed from the biosphere.

However because of market failures, economic instruments may not work in all cases. Therefore other instruments and measures should be considered too, such as information and coordination instruments and command-and-control mechanisms, for instance, adjusting norms and standards. The choice of policy options should depend on their efficiency in dematerializing goods and services while maximizing *per-capita* welfare.

Call for Action

For the reasons stated above, we suggest political leaders to adopt a strategy of resource governance, consisting of the following four elements:

1. Focus research and technological development to the goal of increasing resource productivity by a factor of ten. The resulting innovation will create space for economic growth and social development. As a side-effect, national economies will become less depending of resource imports.

The technical report accompanying this declaration will provide more detail on R&D for resource productivity and eco-innovation. The technical report will be available in February 2009. Input is welcome.

2. Seek international agreements on world-wide per-capita targets for natural resource consumption to be effective in 2050 and the methodology needed to define and monitor them. This includes targets for the emission of greenhouse gases, the consumption of non-renewable materials, and land use (including direct and indirect land use).

The technical report accompanying this declaration will provide more detail on the methodology needed, including the definition of indicators. The technical report will be available in February 2009. Input is welcome.

3. Seek a societal consensus on indicators reflecting dimensions of welfare or quality of life beyond GDP. These indicators should also become part of education.

The technical report accompanying this declaration will provide more detail on welfare indicators beyond GDP. The technical report will be available in February 2009. Input is welcome.



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4. Reshape the framework conditions for the economy to account for the scarcity of natural resources, including a shift of taxation from labour and value-added to natural resources.

A report on economic policy provided by the "Lindau Group" will provide more detail on this issue.

A final and more detailed call for action will be formulated as a result of the WRF event on September 16, 2009 in Davos.

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More information:

<http://www.worldresourcesforum.org>

