ACTIVATING POLICY INSTRUMENTS FOR RESOURCE EFFICIENCY IN THE ASIA-PACIFIC REGION

ENCOURAGING SUSTAINABLE CONSUMPTION AND PRODUCTION AND PROMOTING 'GREEN GROWTH'

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Abstract

This article aims to cover activities that promote policy instruments for resource efficiency in the Asia-Pacific region. Resource efficiency is presented as a concept to encourage sustainable consumption and production and promote 'green growth'. The special relevance of resource efficiency in the Asia-Pacific region will be laid out, also referencing its potential contribution to resolve traditional environmental challenges in the region. The article then describes two best practice exchange initiatives that support frameworks for resource efficiency and the integration of related considerations into governmental decision making: First, a compendium labelled 'Policy Instruments for Resource Efficiency – Towards Sustainable Consumption and Production' and, second, a training programme conducted in Guiyang (China). An outlook on future activities needed to enable policy-makers in the Asia-Pacific region to promote resource efficiency closes the article.

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The rationale for resource efficiency

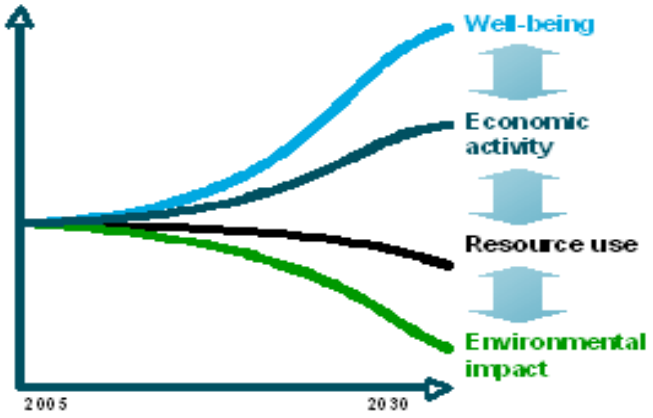

Figure 1: Decoupling economic growth from resource consumption (Source: CSCP, WI & GTZ 2007)

Policy-makers around the world have started activities to reduce resource use, while at the same time, increasing economic and social well-being, a vision that relates to the notion of 'resource efficiency' or 'sustainable consumption and production' (SCP). The commitment of governments under the Marrakech Process for 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", in line with the Johannesburg Plan of Implementation[2], presents a global effort to reorient the global development on a sustainable path (UNEP & CSCP 2006).

Raising resource efficiency plays an important role in these agendas, and national and international initiatives on resource efficiency are currently being established or already operate. The 'International Panel on the Sustainable Use of Natural Resources'[3], backed by the United Nations Environment Programme (UNEP), and the 'Thematic Strategy on the Sustainable Use of Natural Resources'[4] by the European Union present key international initiatives on resource efficiency. A range of national level initiatives and

2Plan of Implementation of the World Summit on Sustainable Development (Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002 (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap I, resolution 2, annex).

http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIToc.htm

[3] http://www.uneptie.org/pc/sustain/initiatives/resourcepanel/

[4] http://ec.europa.eu/environment/natres/

projects complements these (for a realised proposal in Germany see Baron, Jochem, Kristof & Liedtke 2005).

Raising research efficiency entails reducing the amount of physical resources used to produce a specific product or service. It does widen the scope of 'energy efficiency', including a broad range of biotic and abiotic material inputs along the global value chain of a product. The concept can be used on the macro-perspective, referring to the 'Total Material Requirement' (TMR) or the 'Domestic Material Consumption' (DMC) per unit of domestic output of an economy (as displayed below in Figure 2). From the micro-perspective, it measures the 'Material Input per Service unit' (MIPS), relating e.g. to resources consumed / passenger-kilometres travelled or similar measures (Ritthoff, Rohn & Liedtke 2002). Resource efficiency starts from the broad material flows that are the basis of our society, instead of focusing the various specific environment impacts like air and water pollutants (Weizsäcker, Lovins & Lovins 1995). Still, considering the close linkage between resource consumption and environmental impacts (e.g. van der Voet et al. 2005), it aims to contribute to resolving these problems in a holistic manner.

Resource efficiency can also be used as a tool for greening businesses and promoting "Green Growth", a concept pioneered by UN ESCAP (e.g. UN ESCAP 2006) and embraced by a broad range of policy-makers in the Asia-Pacific region. It can increase competitiveness directly by enabling businesses to cut energy and material expenditures (see Figure 2), but it also has indirect effects: "There is plenty of evidence that good environmental management and regulation do not impede overall competitiveness and economic development – on the contrary, good environmental policies may also strengthen competitiveness because they often call for innovation" (CSCP, WI & GTZ 2007). To promote resource efficiency within enterprises, existing management tools have been adapted to integrate for integrating resource efficiency into business decision making (Busch und Liedtke 2006). On the macro level, studies have identified positive employment effects of pursuing ambitious policies for resource efficiency (e.g. Aachener Stiftung Kathy Beys 2005). Resource

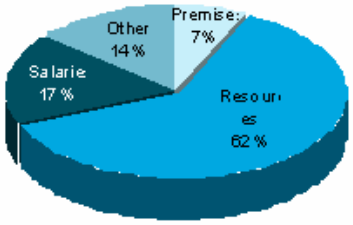

Figure 2: Expenditure patterns of micro-enterprises (here Mexico) (*Source*: Herrndorf 2006)

efficiency has also been included in policy strategies on growth and employment, e.g., the "Integrated Guidelines for Growth and Jobs (2005-2008)" by the European Commission[5].

Resource efficiency in the Asia-Pacific region

Despite low per-capita resource consumption in many countries in the Asia-Pacific region, the relevance of resource efficiency arises from the following facts:

- Rapid economic growth rates that have led to a fast growth in resource consumption in various countries are offsetting any increases in resource efficiency. All of the Asian countries depicted in Figure 1 have achieved higher economic growth than the growth in their "ecological footprint", but none has been able to actually reduce the latter.

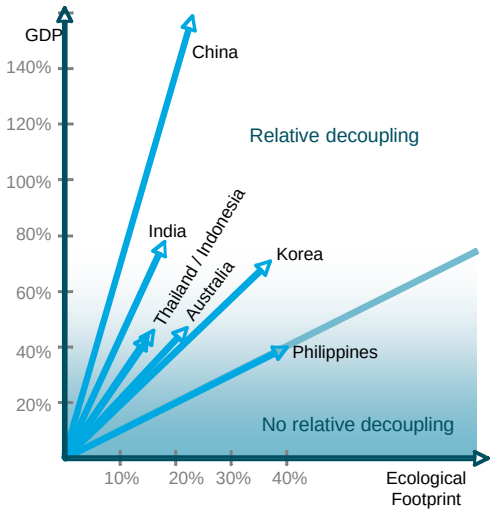

Figure 1: Growth rates of GDP and Ecological Footprint in various Asian countries, from 1991 to 2001 (own graph, data from WWF 2005)

- The overall size of populations and economies in the Asia-Pacific region, especially in China and India, are resulting in high overall resource consumption compared with other regions of the world (WWF 2005);
- Large differences in resource efficiency, both when benchmarked against (relatively resource-efficient) Japan and Europe, as well as when compared to the resource efficiency of other developing countries (see Figure 2). These differentials point to significant and persistent growth opportunities through promoting the more effective utilisation of resources.

[5] http://ec.europa.eu/growthandjobs/pdf/integrated_guidelines_en.pdf

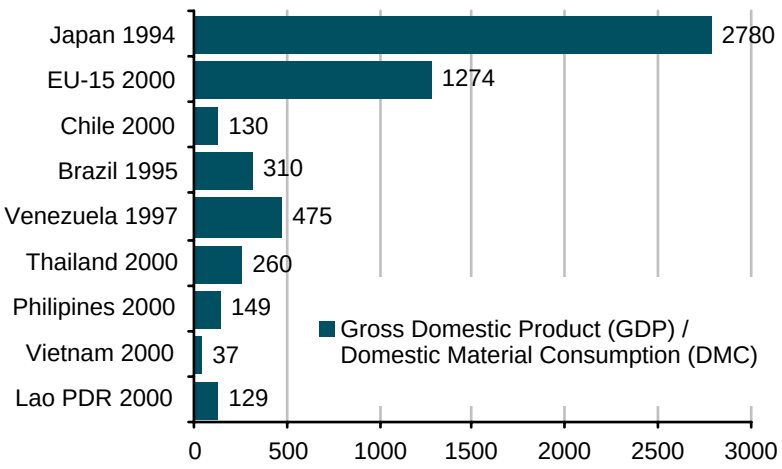

Figure 2: Resource intensity of GDP in different countries. High values show high value creation per unit of resource used domestically (Source: Eisenmenger & Schandel 2003).

Furthermore, resource efficiency might support Asian countries seeking to address their multiple environmental problems. Prominent issues include lacking access to water and sanitation for the poor, persistence of polluting industries, rapidly growing car ownership, and corresponding urban pollution (corresponding to the 'brown', 'grey' and 'green' urban environmental agendas, see Marcotullio & McGranahan 2007). While resource efficiency has emerged as a topic in developed countries *after* these problems have been resolved through 'conventional' environmental policy, it can be of considerable relevance for developing Asian countries to implement resource efficiency policies at their present state of development. The problems described appear both faster and more simultaneously in Asian cities (Marcotullio 2007). Pursuing resource efficiency provides a consistent approach to addressing these now overlapping challenges. As one example, resource-efficient infrastructure can help to provide basic environmental services to low-income households in a cost-efficient way. Resource efficiency can also address the root causes of pollution, i.e., inefficient material and energy usage, the lack of closed-loop systems and unsustainable infrastructure and consumption patterns.

Experiences in promoting resource efficiency

To promote resource efficiency, appropriate frameworks are needed to promote broad-based action (Bringezu 2006). These conditions play an important role to "encourage and stimulate the actors of the system to move their behaviour and actions towards

sustainable patterns through incentives, and not only with the traditional approach of command and control" (CSCP, WI & GTZ 2007).

Different best practice exchange initiatives are implemented to support frameworks for resource efficiency and the integration of related considerations into governmental decision making. This section will showcase two of these efforts in which the CSCP is involved: First, a compendium labelled 'Policy Instruments for Resource Efficiency – Towards Sustainable Consumption and Production' and, second, a training program conducted in Guiyang (China) in the course of the PRODEV project in order to foster implementation of the Chinese Circular Economy concept.

The Compendium: Policy instruments for resource efficiency

'Policy Instruments for Resource Efficiency' is a compendium that supports governments who aim to implement policy instruments to promote resource efficiency[6] by providing a pragmatic overview of selected policy instruments and accompanying case studies from various countries, with such different setups as Bangladesh, Chile, Germany or Sweden (CSCP, WI & GTZ 2007). It builds on the recent discussions and practical experience with these instruments, both from developed and developing countries, and directly targets politicians, NGOs and SCP practitioners in intermediary organizations.

As it is shown in the policy compendium, the strategies that governments can choose to promote resource efficiency with policy instruments can vary from orientation to 'reward/penalise' businesses, or those that 'support' them to take action (see Source: (CSCP, WI & GTZ 2007).). Between these extremes there is a range of possibilities which combine both trends, corresponding to the field of 'motivating' businesses. The compendium also distinguishes between policy instruments that address soft (intangible) or hard (tangible) factors. The first ones deal with aspects such as consumption behaviour, human resources and organisational structures; while the second ones concern financial issues, regulation and compliance, state of technology, etc.

[6] http://scp-centre.org/RESOURCE_EFFICIENCY_INSTRUMENTS.1049.0.html

Table 1: Governmental strategies to promote resource efficiency

Reward/Penalise	**Motivate**	**Support**
Governments can reward resource efficient behaviour of businesses and consumers, or penalise inefficient producers, thus providing external incentives to direct attention to resource efficiency.	Governments can engage with producers and consumers on resource efficiency, by activities that provide both resource efficiency incentives while at the same time supporting producers.	Governments can support producers and consumers to take advantage of existing resource efficiency opportunities by multiple measures.

Source: (CSCP, WI & GTZ 2007).

Box 1: The Effizienz-Agentur NRW (EFA) provides companies in North Rhine-Westphalia with a set of tools to achieve "improvements concerning the sustainable economy – through new strategies, innovative technology and ecologically-oriented measures" (http://www.cleanerproduction.info/). The strategy aims to supply information to individual companies on how their management could assess and improve resource efficiency. Some of these tools are:

- "PIUS-Check" (a German acronym for "Produktionsintegrierter Umweltschutz", analogue to Cleaner Production), to assess the relevant material flows and the current level of production technology.
- "Resource Cost Accounting, RCA (in German: Ressourcenkostenrechnung – RKR), which is a software where technical and business information can be linked and the incurred cost factors identified, thus existing as an environmentally-oriented extension of business' cost accounting.

These initiatives have induced practical achievements. For instance, since the year 2000, 142 companies have implemented measures and introduced new and renewed production structures after PIUS-Checks. The total investment has been around €19 million, generating operational savings of €4.7 million per year, these economic aspects in terms of resources have represented savings of waste water emissions of 759,000 cubic metres per year and savings of water (as resource) of around 1.7 million cubic metres per year.

The 'resource efficiency policy matrix' combines the two aspects that structure the compendium, and can be used to display the range of policy instruments described in the policy compendium in a consistent way as displayed in Figure 3. It contains policy instruments from different fields such as regulation, economic incentives, education and research, information provision and cooperation instruments.

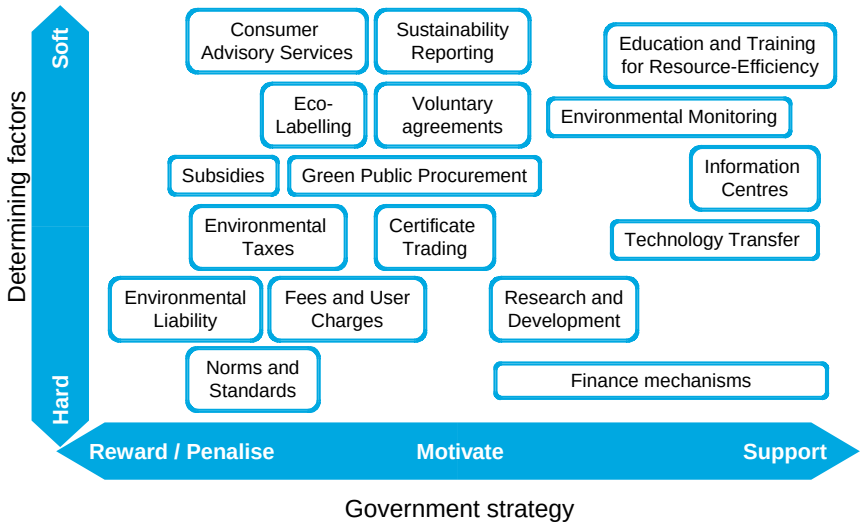

Figure 3: The resource efficiency policy matrix that structures the policy compendium (Source: CSCP, WI & GTZ 2007). The matrix has also been specified for policy instruments that promote resource efficiency in housing, food or mobility. *Source:* (CSCP, EEA & RS upcoming)

Normally, different policy measures need to be combined and tailored to provide a balanced and sound policy mix that meets the objectives of promoting resource efficiency in consumption and production patterns within the unique context of each jurisdiction. Additionally, a given policy mix to tackle a specific problem is most likely not going to have the same performance in different regions or countries. The optimal choice of policy instruments depends on local and national conditions, and most problems cannot be approached with a "one-fits-all" solution. The policy compendium thus offers information on the strength and weaknesses of the respective instruments, as well as an overview over the specific success factors.

The training: Promoting resource efficiency in Guiyang, China

Resource efficiency in China is a tool used from 1999 to balance the rapid economic growth experienced by the country but improving environmental quality and maintaining social progress. The project Policy Reinforcement for Environmentally Sound and Socially Responsible Economic Development in China (PRODEV)[7] has been implemented in order "to improve the policy framework and promote a more integrated decision-making process in local government to foster environmentally sound and socially responsible economic development in China, referred to as the Circular Economy" (Kundt, Guomei & Wei, 2006).

To materialize the Circular Economy concept, the National Development and Reform Commission (NDRC) and the Chinese State Environmental Protection Administration (SEPA) have taken on key leadership roles.. The action focus has been on three levels: Enterprises, Regions and Provinces.

The city of Guiyang was selected in 2005 as a pilot case to develop and implement the circular economy concept. Legislative, political, technical and financial measures will be designed to implement the circular economy strategy in Guiyang. PRODEV[8] is supporting this process in order to overcome the main barriers to implement circular economy, including lack of knowledge and experience of local officials and citizens, the insufficient environmental policies, weak planning guidelines and inadequate coordination among involved parts (UNEP 2006a).

As part of PRODEV, a comprehensive training package has been developed to diffuse knowledge, experience and know-how. The focus of the training package was "to build institutional and technical capacities among policy makers to integrate sustainable development principles into the policy system, and where necessary, to develop policy interventions to forge a path to alternative urban development" (CSCP 2006).

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[7] http://www.uneptie.org/pc/sustain/initiatives/circular/index.htm

[8] Financially supported by the Commission of the European Communities within the Asia Pro Eco Programme.

The training package consists of three training modules, aiming to provide both the broad picture related to resource efficiency, provide knowledge on concrete tools and build the capacity of local policy makers to implement these policies on the ground. The different training parts and their specific objectives are:

Table 2: Components of the PRODEV training package

Day 1: Thinking Circular Economy	**Day 2: Promoting Circular Economy**	**Day 3: Implementing Circular Economy**
Concepts & Principles	**Measures & Instruments**	**Methods & Action Steps'**
Introduces the participants to key principles behind Circular Economy and resource efficiency, aiming to create awareness and understanding for these topics.	Provides an overview over key measures, instruments and strategies that policy makers can apply to build the framework for resource efficiency and the Circular Economy.	Provides key methods and guiding action steps for policy makers to get CE and SCP going by applying principles and existing measures and instruments in a coherent and sound way.

Source: (CSCP, WI & GTZ 2007).

The mechanisms used in this training package aim to transfer knowledge and experiences and stimulate the participants to reflect on their specific circumstances through targeted exercises. The training was judged positively by the workshops participants, where a large majority of whom judged the training to be a very valuable experience.

Outlook and future activities

Building on the available international experience and first implementation projects in Asia, further action is needed. The main steps can be summarized as:

- **Building the knowledge and evidence base.** Improved statistics on resource flows in the Asian region, on local, national and regional level, are the basis for creating action plans and support the work of decision makers. Information from public and private sources should be openly disclosed to build a sound data basis.

- **Diffusion of resource efficiency knowledge or good practices.** Information material and best practice databases on resource efficiency are needed to support replicating and learning processes. This concerns both exchange within Asia as well as international programmes. The 'policy compendium' and the PRODEV training described above could provide a starting point for these issues.
- **Strengthening partnerships and networks.** Existing partnerships and networks need to be strengthened, both for fostering knowledge exchange as well as for assessing planned policy packages for resource efficiency from a civil society perspective to adequately address socio-economic issues related to these.
- **Coordination of policies.** To capitalize on synergies, policy instruments for resource efficiency need to be designed and implemented in a coordinated fashion, taking into account existing and established governance structures. This concerns coordination with a) 'conventional' national environmental policies, b) national policies in other policy arenas such as business support or trade policy, and c) with policies in other countries and international initiatives.

International initiatives as the 'Marrakech Process', the 'Resource Panel' and the 'Green Growth Policy Dialogue' offer the opportunity to build support for these activities and foster best practice exchange. To actually realize resource efficiency on the global level, efforts will surely be needed to extend beyond individual actions, working towards common frameworks and a governance system for promoting the efficient, sustainable use of resources.

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