

A KEY SOLUTION TO CLIMATE CHANGE: SUSTAINABLE CONSUMPTION AND PRODUCTION *MAKING THE LINK*



A SOLUTION:

**Addressing Climate Change differently:
The sustainable consumption
and production approach**

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ABOUT THIS BOOKLET

This booklet has been published by the EU funding programme SWITCH-Asia: Promoting Sustainable Consumption and Production. It is aimed at European and Asian businesses, organisations involved in developing sustainability solutions, policy-makers, and project developers wanting to help reduce the climate change impact of business in as broad a way as possible. It should be particularly useful to those interested in obtaining grant funds from the SWITCH-Asia programme, and in sharing the benefits of the network of SWITCH-Asia projects.

The booklet has two sides – side one deals with the ‘challenges’ in understanding the causal relationship between economic activities and climate change, and the flip side highlights some practical ‘solutions’ that can be funded, at least in part, by the programme.

Its objectives are:

- to present a picture of how business and consumers are contributing to climate change, with particular reference to the situation in Asia;
- to outline the concepts of the Sustainable Consumption and Production approach;
- to present sustainable consumption and production technologies and approaches that can be used for climate change mitigation and adaptation;
- to provide ideas for policy-makers and project developers seeking funding under the SWITCH-Asia programme;
- to show how SCP can support the EU climate change position and goals (for example at the Copenhagen COP15 in December 2009).

A KEY SOLUTION TO CLIMATE CHANGE: SUSTAINABLE CONSUMPTION AND PRODUCTION – MAKING THE LINK

THE CHALLENGE: CLIMATE CHANGE

- I Understanding climate change differently
- II Consumption and climate change
- III Global value chains



A SOLUTION: THE SCP APPROACH

- I Addressing climate change differently
- II SCP for climate change mitigation and adaptation
- III SCP Practices in action
- IV Innovative policymaking



- Wrapping Up
- Recommended further reading and bibliography

For more information on how to apply to the SWITCH-Asia programme or learn more about the SWITCH Network Facility please consult the following websites:

- ▶ Website of the SWITCH-Asia programme
http://ec.europa.eu/europeaid/where/asia/regional-cooperation/environment/switch_en.htm
- ▶ Website of the SWITCH-Asia Network Facility
<http://www.switch-asia.net>

UNDERSTANDING CLIMATE CHANGE DIFFERENTLY

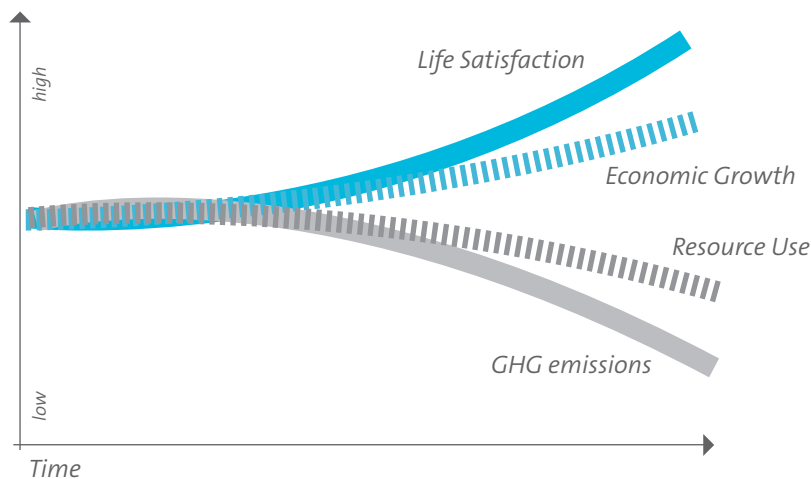


A VISION OF SUSTAINABLE CONSUMPTION AND PRODUCTION

Imagine a vision in the not-too-distant future: A good quality of life (at least better than we have now); supported by sufficient economic growth; fewer and fewer resources being used to create our goods and services; and falling or very low green-house gas emissions. As life satisfaction is gradually rising, resource use and gas emissions are gradually falling.

Achieving this demands massive improvements in resource and energy efficiency, and carbon productivity. **We need to create more by using (and polluting) less!** The global economy must be 'de-carbonised' and 'dematerialised' simultaneously, so that economic growth and happiness do not depend on material consumption of resources, products or levels of greenhouse gas emissions.

Figure 1: Sustainable consumption and production seeks to decouple life satisfaction and economic growth from resource use and greenhouse gas emissions



In the context of SCP, **'dematerialisation'** means reducing the material flows in the economy. It includes reducing the consumption of land, energy and materials in order to lighten the overall pressure on the environment. As a concept it has much in common with life-cycle thinking. **'Decarbonisation'** refers to the need to create a low-carbon economy. Dematerialisation supports decarbonisation: as the input requirements fall during production and consumption so do the outputs of greenhouse gases. Furthermore, materials used should be based on carbon-neutral renewable resources which at their end-of-life stage be used as renewable energy sources.

ADDRESSING CLIMATE CHANGE ALONG THE VALUE CHAIN

In business, SCP addresses the contribution to climate change made by processes relating to both production and consumption. And it fully acknowledges the complex interactions between different stages of the value chain – resource extraction, production activities of suppliers in different countries, component assembly, distribution and transport, product retail, use-phase and end-of-life stages of the products. Every product has a value chain, which can be examined to identify ‘hot spots’ – the areas responsible for the highest output of greenhouse gases. Improving the systems and practices in these hot spot areas will naturally have the most effect in reducing gas emissions.

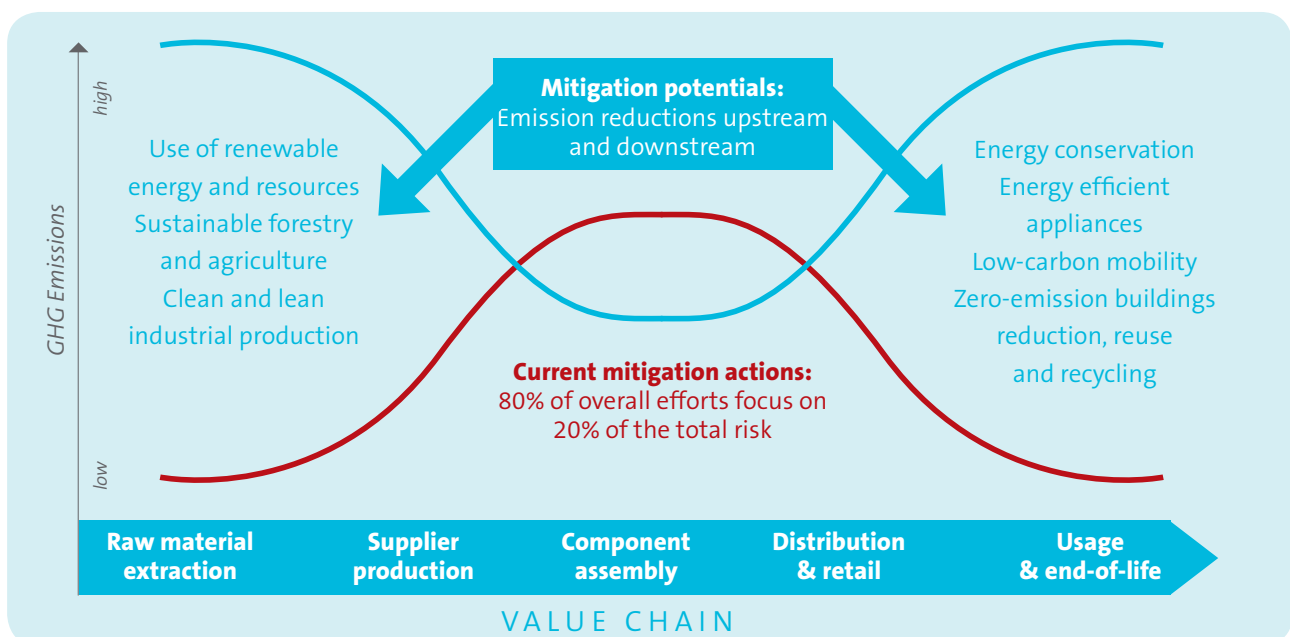
By not focusing on the hot spot areas, as is the situation in most industries now, we are limiting the extent to which we could mitigate climate change. Different products exhibit hot spots in different places along the value chain. In steel, aluminium or cement, for example, the ‘upstream’ or production phases of the value chain use most energy and emit most gases. For energy consuming products, the ‘downstream’ phase in the value chain is more

important and is nearer to the consumer rather than the producer. Currently about 90% of materials used in production do not find their way into the final product but are discharged as waste products along the value chain! (EEF, 2009) Reducing the material input in the early stages of a value chain (upstream) will automatically reduce energy use and emissions in the following stages, an important first step to start decoupling economic growth from environmental impacts.

Greenhouse gas emissions are expected to decrease significantly as a result of such dematerialisation. Upstream, businesses can reduce emissions by using resources more efficiently and adopting less polluting (cleaner) technologies, by using more sustainable practices for agriculture and forestry, and by using more renewable materials and energy. Downstream, SCP proposes better energy conservation in commercial and residential buildings, more energy efficient appliances, zero- or low-emission buildings, and low-carbon transport alternatives (see Figure 2). As end-of-life solution recycling of inorganic materials like plastic and steel can reduce GHG emissions by 80-95% compared to using the virgin material (Sang-Arun and Bengtsson, 2009).

“Currently about 90% of materials used in production do not find their way into the final product but are discharged as waste products along the value chain”

Figure 2: Opportunities for emission reductions along the value chain





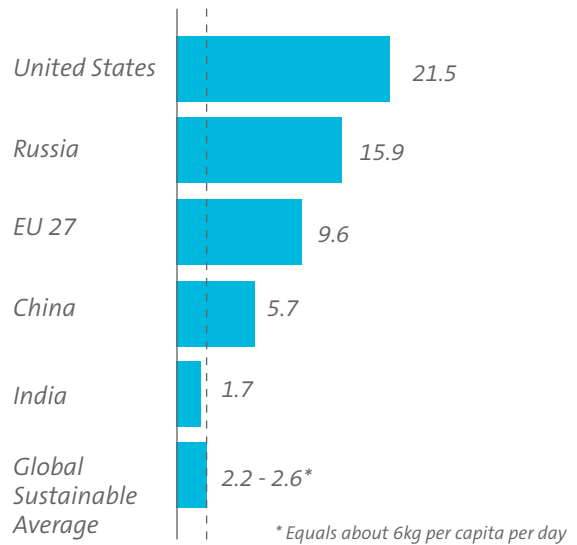
LIVING IN A CARBON-CONSTRAINED WORLD

Sustainable consumption and production offers the potential and necessary tools to create a sustainable low-carbon economy that cannot only mitigate climate change, but is also economically viable, socially just, and based on principles of global equity. It has been estimated that for the planet to warm less than 2 degrees (not exceeding the accepted ‘safe’ limit), global annual greenhouse gas emissions need to be reduced to around 20 gigatonnes by 2050 (about 50% below 1990 levels) (EG Science, 2008; EC, 2009). Since the expected world population in the year 2050 is nine billion, the world sustainable average emissions budget per person will have to be about 2.2–2.6 tonnes/year (UK Committee of Climate Change, 2008). This is equivalent to about 6 kg of CO₂ emissions/person/day. To put this into perspective, current daily CO₂ emissions in the UK are about 27 kg/person, in China 15 kg and in India 4.5 kg. Based on currently installed technologies 6 kg/person/day would not allow consumers much choice (see figure 2). Yet 6 kg/person/day is still higher than what most of the world’s poor currently emit. Based on today’s carbon productivity for the majority of people belonging the Global Consumer Class with (close to) western lifestyles this budget would entail an unacceptable reduction in quality of life. Therefore, business-as-usual is no option and we must start to produce and consume differently and more efficiently.

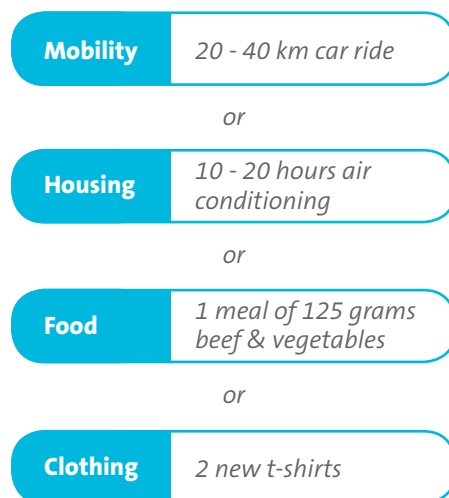
Figure 3: Annual emissions per person and consumption options under a 6 kg/person/day budget

(Source: McKinsey Global Institute, 2008b)

Per capita annual emissions in 2005 (tCO₂ equivalent)



“6 kg daily carbon budget” – Options



SCP FOR CLIMATE CHANGE MITIGATION AND ADAPTATION

Certain sectors are already attempting to mitigate climate change and decouple economic growth from greenhouse gas emissions i.e. to promote economic growth but without generating higher levels of greenhouse gases. In industry, improvements are being sought through the use of innovation and new technologies, for example, replacing conventional generators with new ones based on renewable fuel or changes in factory management to improve efficient use of energy. Complementing this, the SCP approach adds the 'human' factor, important for dealing with so called 'rebound effects', which often arise from technological efficiency improvements, and can cause an unwanted increase in consumption.

*The **rebound effect** is a complex phenomenon which is induced through technical efficiency improvements in products, but overall can cause an increase in energy consumption. An example is fuel efficiency improvements in cars. Studies have shown that consumers decide to drive further and more often. An indirect effect can also be that the money saved on petrol is then used on other energy consuming services, i.e. a weekend flight to Rome.*

Once new technologies have been installed in companies the human factor, behaviour of both management and workers, becomes equally important. According to the UN Industrial Development Organisation when encouraging energy efficiency in companies and factories management and operational practices are often more important than improvements in technical equipment, and can even be a pre-condition for initiating the phase-out of old technologies (UNIDO, 2008).

*The Synthesis Report which is part of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) clearly stated: „There is also high agreement and medium evidence **that changes in lifestyle and behaviour patterns can contribute to climate change mitigation** across all sectors. Management practices can also have a positive role.“*

For the three consumption areas with the highest climate change impacts – housing, mobility, and food – technological and non-technological aspects are equally important. If SCP thinking is applied to these areas, dramatic reductions could be realised in greenhouse gas emissions, as well as improvements in the local social and environmental surroundings. Moreover, SCP approaches can address climate change mitigation and adaptation simultaneously. Examples are improvements in energy and resource efficiency which will make consumers and businesses less vulnerable to future shortages and price increases, or innovative goods and services that can help communities, particularly in developing countries, to adapt to climate change in a sustainable way (Bleischwitz et al, 2009).

COOL LIVING

The hot-spot for a building is its 'use' phase, i.e. when people are living in it. About 80% of the total energy needed throughout the life-cycle of a building is consumed at this time. Concepts and technologies are available today, which allow a reduction of the energy consumption during the use phase by a factor 10. This includes intelligent design and energy efficient building technology, etc. (see box for sustainable housing). One important action for housing is technological – changing the energy supply to rely on renewable energy. This is particularly interesting for many Asian countries where electricity is largely generated by coal-fired power stations. The technologies to enable such changes are already widely available. For example, wind power is a mature and cost competitive technology. It grew by 29% worldwide in 2008 to a total power capacity of 121 GW, though it still accounts for less than 1% of global generating capacity (REN21, 2009). Solar photovoltaic cells, connected to the electricity grid, are another fast developing technology offering consumers the possibility of reducing their CO2 emissions and becoming self-sufficient producers of electricity feeding excess into the grid.

The integrated SCP approach recommends that technological changes are accompanied by related initiatives, in the case of housing such as:

- good architectural design and the educated choice of new building materials to reduce the need for heating and cooling – and thus energy consumption;
- awareness-raising and education of householders to enable them to conserve energy in their homes in a natural and easy way;
- service-oriented innovations for improving energy efficiency in buildings, such as the adoption of efficiency standards and labelling for electronic appliances, or insulation requirements for building codes.



SUSTAINABLE HOUSING – NEW TRENDS IN ASIA

Buildings requiring little energy and generating no greenhouse gases ('zero-emissions') do not necessarily require innovative high-tech ideas and such houses are already being built in many Asian countries. For example, in China Dongtan Eco-city is being developed in the Yangtze River near Shanghai with low-energy housing for half a million people. In Thailand, architects are designing a model home re-using four shipping containers and prefabricated modules from natural materials. The prototype attempts to build a comfortable and sustainably-built home while meeting the practical needs of a Thai family, including a plot of land for kitchen gardening.

In Germany and Scandinavia the PassivHaus runs on about one-twentieth of the energy of used by a conventional house and only costs 5% more to build. Its design has dealt with energy efficiency holistically rather than just focusing on 'low carbon' ideas. The design has potential in Asia as it has little need for heating; it also has little need for cooling in warmer climates.

FOR MORE INFORMATION SEE:

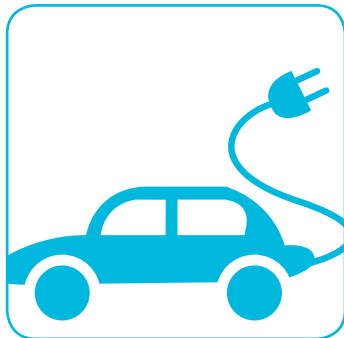
PassivHaus Institute at: <http://www.passiv.de/>

Inhabitat at: <http://www.inhabitat.com/2009/03/06/prefab-friday-site-specific-thai-family/>

LOW-CARBON MOBILITY

Like buildings, about 80% of the total energy consumption of a vehicle is during its 'use' phase in the life-cycle. Improving fuel efficiency and reducing emissions in vehicles is one approach to low-carbon mobility. Getting efficient vehicles on to the market can be encouraged by the setting of efficiency standards, better labelling for buyers, and the market-pull from greater green public procurement. Developers are already working on the next generation of vehicle technologies, including battery-electric, plug-in hybrid electric, and hydrogen fuel cell electric vehicles, powered by renewable energy. They may be niche markets at the moment but many companies, including manufacturers in China and India, are working to mainstream them. However, a purely technological

transformation of the transport sector will only reduce emissions to a certain degree. According to a scenario by the World Business Council for Sustainable Development called 'Mobility 2030', the best case scenario for reducing emissions by 2050 with improved technologies would only bring them back to the levels of 2000 (WBCSD, 2004). So more awareness-raising is needed, to encourage consumers to make greater use of public transport, to cycle and walk more, and to avoid excessive air travel. The right policies are also important, to improve sustainable urban planning and expand public transport systems using existing infrastructure (e.g. motorway lines exclusively used for coaches). Such options offer good potential for saving energy and reducing emissions (WWF-UK, 2008).



SCP FOR JAKARTA'S TRANSPORT SYSTEM

Jakarta has one of the highest vehicle ownership rates of East Asia's megacities, at around 10 million. About 1,000 motorbikes and 700 private cars come onto the roads everyday – equivalent to a required road length of more than 3 km/day. In response, the city is developing a comprehensive strategy which includes mass transit, improved pedestrian facilities, and traffic restraining measures. An integrated network for pedestrians and non-motorised vehicles is being established, together with electronic road pricing systems, parking restraints, and car-free days. Traffic zones have been established which only let in vehicles with three or more passengers. The municipal administration wants all vehicles travelling on city roads to drive on natural gas by 2010. A Bus Rapid Transit system is most promising in the short term, with 10 lanes already open and an additional five planned. About 15% of bus passengers are previous car users and the system is already thought to be responsible for cutting 155 tonnes of nitrogen oxide emissions, 23 tonnes of particulate emissions, and 20,000 tonnes of CO2 per year. A light monorail system is due to be built over the next few years which will give further emission reductions (Ministry of Transport and Environment Indonesia, 2008).

CLIMATE FRIENDLY DIETS

In contrast to housing and mobility, the carbon footprint of food is mainly generated 'upstream' in the production and processing phases. To reduce the impact of food, companies and retailers can use sustainable supply chain management practices to reduce greenhouse gases along the value chain. Cleaner production practices can not only be used in industrial production but also in food production and processing. Consumers have power to influence how food is produced by exercising choice when making purchases and this can be strengthened by eco-labelling for food products to provide the sort of information they need. 'Carbon footprint' information is useful but issues such as water use, eutrophication or land-use change should also be considered. Again, awareness-raising

activities targeting consumers can help them avoid diets which are having a big impact on the environment. Interestingly, 'high-impact diets' are also usually bad for human health. Being able to make choices based on organic, seasonal, and local food, and to cut down on meat and dairy products, offers good potential for both improving health and reducing the impact of food production on the climate – potentially by a factor of three (WWF and SEI, 2005). Proper end-of-life treatment of food wastes also plays an important role: composting can reduce methane emissions by 0.09-1.13 kgCO₂eq/kg of food waste and anaerobic digestion can reduce emissions by 0.28-1.15 kgCO₂eq/kg of food waste (Sang-Arun and Bengtsson, 2009).



ORGANIC FOOD AS ADAPTATION AND MITIGATION STRATEGY IN SOUTHERN INDIA

Rising temperatures and droughts pose a threat to agriculture and food security in many of the world's regions, including Asian countries. Particularly small-scale farmers in the tropics and sub-tropics will be strongly affected. Organic agriculture can both reduce greenhouse gas emissions with fewer energy inputs and withstand climate change impacts like drought with greater efficacy. In India agriculture accounts for 28 percent of the country's greenhouse gas emissions, mainly methane emission from paddy fields and cattle and nitrous oxides from fertilisers.

In Andhra Pradesh, an arid interior part of southern India, a collective of 5,000 women spread across 75 villages is now offering a chemical-free, non-irrigated, organic agriculture as one method of combating and adapting to global warming. The women successfully grow as many as 19 types of indigenous crops to an acre, on arid, previously degraded lands, certified by the Participatory Guarantee Scheme (PGS)'s Organic India Council. They also run a uniquely evolved system of ,crop financing' and food-distribution that they have designed themselves.

FOR MORE INFORMATION SEE:

Organic Consumers Association at: http://www.organicconsumers.org/articles/article_17286.cfm

SCP PRACTICES IN ACTION

“Three types of technological innovation can positively address climate change: process, product and systems innovation”

In the context of the SWITCH-Asia programme, the SCP approach includes a toolbox with a range of practices that can be used to address many issues relating to sustainability, including climate change mitigation and adaptation in Asia. Some of these ‘solutions’ are technical, seeking to improve product properties and manufacturing processes. Others are used to better communicate information to stakeholders and consumers. The practices are often closely related and can be combined as a package for a more comprehensive strategy to deal with climate change.

Product design for sustainability relates to the whole life-cycle of a product. It includes the use of renewable resources and assesses the ‘use’ phase for reparability and re-useability. By fundamentally improving the products and services from the design stage of a product, companies can achieve several benefits: higher profit margins, better quality products, more

market opportunities, better environmental performance, and greater social benefits. Sustainable product design is particularly effective when trying to ‘mitigate’ climate change, and it is particularly relevant for energy-using products such as computers, lighting equipment and electric appliances. Interestingly, it can also lead to the development of products necessary for ‘adapting’ to climate change, especially in developing countries. Sustainable design is closely related to the practice of **technological innovation for sustainable development**. Three types of technological innovation can positively address climate change: process, product and systems innovation. Process and product innovation refers to improved production processes or novel products with reduced environmental impact, and systems innovation refers to radical and disruptive technologies that alter market conditions such as electric fuel cell vehicles, improved solar photovoltaic technologies or materials from renewable primary resources (i.e. bamboo) for wind energy technologies.

WIND TURBINE BLADES FROM BAMBOO – A TECHNOLOGICAL INNOVATION AND SUSTAINABLE DESIGN

Renewable energy technologies, particularly wind power, are fundamental for addressing climate change and energy issues. Wind technologies do not tend to generate much in the way of emissions as they produce electricity, but they do have an environmental footprint during the ‘manufacturing’ and ‘end-of-life’ stages of turbines and blades. These are conventionally made from energy-intensive glass and carbon fibres in polymer matrices, which tends to offset some of the benefits of using wind as a clean energy source in the first place. Technical innovation is now focusing on finding alternative materials: researchers in India, China and Europe cooperate to study the feasibility of using bamboo as a blade material. Bamboo is fast-growing and renewable, and its use could cut the costs and energy consumption of manufacturing. Bamboo blades are easier to process than polymers and experiments with turbines of up to 1 megawatt have shown good results. Using bamboo could make wind energy an even more attractive proposition for generating electricity and thus mitigating climate change.

FOR MORE INFORMATION SEE:

Department of Engineering at University of Cambridge at:
http://www.eng.cam.ac.uk/news/stories/2007/bamboo_wind_turbines/

At a company level **cleaner production** makes production processes more efficient by analysing the flow of materials and energy and locating areas where they can be reduced. It then provides source reduction strategies i.e. to minimise the waste and emissions. At a product level improving environmental performance relies on changes made by the whole network of interconnected businesses involved in the provision of product and service packages required by end-customers.

Sustainable supply chain management spans the movement and storage of raw materials, work-in-process inventories, and finished goods, from point-of-origin to point-of-consumption, and is underpinned by codes of conduct for suppliers. Is the supply chain important when it comes to coping with climate change? 40 to 60 percent of a manufacture's carbon footprint is 'upstream' in its supply chain; and retailers can cut their carbon footprint by up to 80% when working from this perspective.

PALM OIL PRODUCTION GOING SUSTAINABLE WITH SUPPLY CHAIN MANAGEMENT

Supply chains of most products involve smallholder suppliers and SMEs in Asia and those of palm oil, used widely in food products, are no exception. Palm oil is a basic source of income for many of the rural poor in South East Asia: about 1.5 million small farmers grow it in Indonesia, and about 500,000 people earn their living from it in Malaysia. Working directly with these smallholders can be a guarantee that palm oil is produced in a sustainable way. It also avoids the need for large plantations, which frequently cause the release of large amounts of carbon as they replace rainforest or wet peat lands. Many of the major companies producing or trading vegetable oil from South East Asia now participate in the Roundtable on Sustainable Palm Oil which has started many joint initiatives to improve traceability of palm oil and to manage the supply chain. Individual companies are also taking action. For example, in 2008 Unilever committed itself to using only palm oil which is certified as sustainable. The company sources about 1 million tones a year (about 8% of global production), mainly from Indonesia and Malaysia, and now requires suppliers to convert to fully sustainable and traceable production by 2015.

FOR MORE INFORMATION SEE:

Roundtable for Sustainable Palm Oil at: http://www.rspo.org/Supply_Chain_Project.aspx
Unilever at: http://www.unilever.com/Images/Palm%20Oil%20-%20A%20Sustainable%20Future%202002_tcm181-5315.pdf

Corporate social responsibility (CSR) is a form of corporate self-regulation, often based on the triple bottom line principles of *people, planet, and profit*. It is integrated into a business model where the company takes responsibility for the impact of its actions and makes an effort to improve performance. Such efforts usually extend beyond the statutory obligation to comply with legislation. CSR can address climate change by considering what companies can do to support 'mitigation' and 'adaption' in societies and communities, e.g. through new products and services, or community programmes.

A closely related SCP practice is **corporate sustainability reporting** which involves companies voluntarily disclosing information on their operational, social and environmental activities and showing their ability to deal with related risks. Reporting on energy consumption and carbon emissions, particularly relevant for climate change, has become increasingly important in recent years. The reporting format of the Global Reporting Initiative (GRI) has become a global de facto standard and is increasingly adopted by Asian companies.

CORPORATE SOCIAL RESPONSIBILITY AND SUSTAINABILITY REPORTING IN THAILAND

The Siam Cement Group is a leading company in South East Asia operating in several sectors including chemicals, paper, building materials, and cement. The company has been recognised internationally for its efforts on sustainability reporting and corporate social responsibility. In 2008, it scored 76.8% from the Dow Jones Sustainability Indexes and was ranked among the top three world class sustainability company members. It has adopted the GRI sustainability reporting framework. The Siam Cement Group is also the first company in Thailand to implement a green procurement policy to help reduce energy use and greenhouse gas emissions by and from its operations.

FOR MORE INFORMATION SEE:

SCG Sustainability Report 2008:

http://www.siamcement.com/en/05sustainability_development/03_sustainability_report.html

In addition to corporate sustainability reporting, companies are beginning to implement **product information disclosure** which entails providing detailed product life-cycle information regarding the environmental performance of their products, including information about the carbon embodied in products and the climate change impacts occurring during the consumption phase. Another related practice is **eco-labelling** which

is voluntary and mostly awarded by a certification body. For climate change 'mitigation', labels about a product's energy use are important for consumers. The "Flower" is the European Eco-label and currently contains 23 different product groups; the label of the Forest Stewardship Council is particularly relevant for climate change, as it helps to preserve the world's forests as carbon sinks.

ECO-LABELLING – GLOBALGAP CERTIFICATION IN CHINA

GLOBALGAP is a private sector body that sets voluntary standards for the certification of agricultural products around the globe. The aim is to establish a common standard for Good Agricultural Practice (G.A.P.) for different product types fitting to the whole of global agriculture. The GLOBALGAP certificate covers the development of a product on the farm, assessing the inputs used, such as feed or seedlings, through all the associated farming activities, until the product leaves the farm. GLOBALGAP is a business-to-business label and is therefore not directly visible to consumers. It has established itself as a key reference for Good Agricultural Practice in the global marketplace, by translating consumer requirements into agricultural production in a rapidly growing list of countries – currently more than 80 – including many in Asia. In March 2009, GLOBALGAP finished benchmarking ChinaGAP, a two-level system developed for China encouraging good agricultural practice and certification on-farm, and an award for producers bringing international recognition to China's farm products.

**FOR MORE INFORMATION SEE:**

GLOBALGAP at: http://www.globalgap.org/cms/front_content.php?idcat=44&idart=783



Providing information is central for the SCP practice of **consumer awareness raising**. To shift individual and institutional consumption patterns towards sustainability, sustainable lifestyles among different stakeholders must be visualised. Providing information, raising awareness, and educating consumers and the public sector through campaigns on SCP issues are all important. One of the key issues for climate change mitigation is to get people and businesses to recognise what they can do to reduce their impact on the climate, i.e. by considering their energy use but also the impact generated by the production and consumption of everyday products and services. The public sector is the largest group of consumers in an economy spending about 45-65% of their budgets on public procurement. When national and local governments make an effort to implement **sustainable public procurement** by purchasing climate friendly products and services, their substantial buying power can stimulate markets for sustainable low-carbon products and services.

“One of the key issues for climate change mitigation is to get people and businesses to recognise what they can do to reduce their impact on the climate”

JAPAN'S GREEN PUBLIC PROCUREMENT POLICIES AND LEGISLATION

Japan's policy on green public procurement and “The Law Concerning the Promotion of Eco-Friendly Goods and Services by the State and Other Entities” is increasingly regarded as an example worth studying by other Asian and even European governments. The country's sustainable public procurement policy as it relates to climate change includes not only requirements for electricity and energy-using office products, but also innovative practices such as greening rooftops. As a result, 90,000 tonnes of CO₂ emissions are saved every year compared with the period before the legislation was introduced.

More recently, green product purchasing is now also covering green contracts for electric power supply, automobiles, energy service company (ESCO) projects and building design. There is a lot of potential in these areas to reduce energy consumption and related greenhouse gas emissions. For example, the eco-friendly requirements building design contracts have the potential to reduce emissions by up to 30% over the lifetime of a building, which can be up to 50 years.

FOR MORE INFORMATION SEE:

Ministry of the Environment Japan at: www.env.go.jp/en/policy/economy/dpefp.html

“What is often missing from many poverty alleviation strategies is the idea that the poor can become producers as well as consumers”

Sustainable consumption and production also addresses the issue of poverty by creating business and products for the poor. Poverty remains one of the most pressing global problems, and calls for innovative solutions. What is often missing from many poverty alleviation strategies is the idea that the poor can become producers as well as consumers. Businesses have the opportunity and responsibility to help improve their quality of life by providing them with productivity tools and services, and by creating jobs. They should enable them to adapt to climate change as well as providing opportunities to mitigate climate change, such as through solar PV in rural areas of developing countries. These technologies can in turn generate new economic activities.



BUSINESS AND PRODUCTS FOR THE POOR – RURAL SOLAR ENERGY IN LAOS

Sustainable energy services can help to mitigate as well as adapt to climate change, especially for rural communities in developing countries. Such energy services include solar home products, LED lanterns, or highly efficient cooking stoves which reduce the need for firewood collection and are important for forest protection and improved health. At the same time, off-grid electricity is essential for communication with the outside world in cases of extreme weather events and natural disasters. Sunlabob is an alternative energy company operating in Laos using mostly solar and small-scale hydro power technologies, offering a clean, safe, and sustainable alternative to the consumption of kerosene or wood fuel in remote rural households. The company manages and installs energy systems and energy programmes, and works with hardware manufacturers, non-governmental organisations, and the government such as engineering company Comin Khmere, the Laos Ministry of Energy and Mines, Electricité du Laos, and Engineers Without Borders. In recent years, the company has won a range of international awards, including the 2008 UNEP Sasakawa Prize, the European Parliament’s 2007 National Energy Globe Award, and the 2007 Ashden Award for their work with solar powered lighting.

FOR MORE INFORMATION SEE:

Sunlabob at: <http://www.sunlabob.com/>

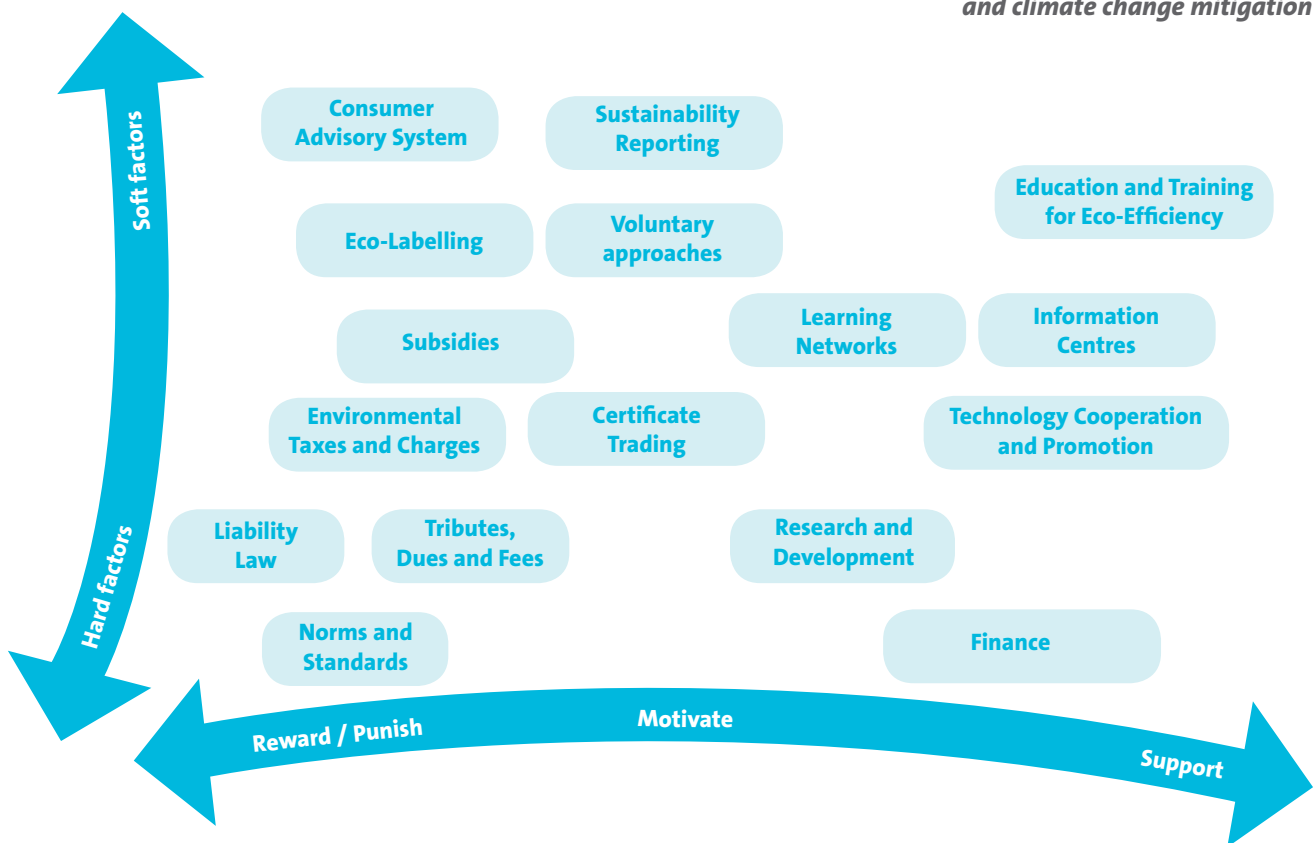
IV

INNOVATIVE POLICYMAKING



Scaling up SCP practices with climate mitigation benefits requires effective policy support. Although SCP practices are carried out by businesses or civil society, it is policy which enables a certain SCP practice to become a mainstream way of doing things. Policy support is fundamental to achieving the necessary emission reductions in the Asia-Pacific region. A number of region-specific policy instruments for climate change mitigation through SCP exist, including economic, regulatory, informational, co-operational, and educational instruments. The following figure presents an overview of the instruments, which have already been successful in promoting SCP in a number of Asian countries.

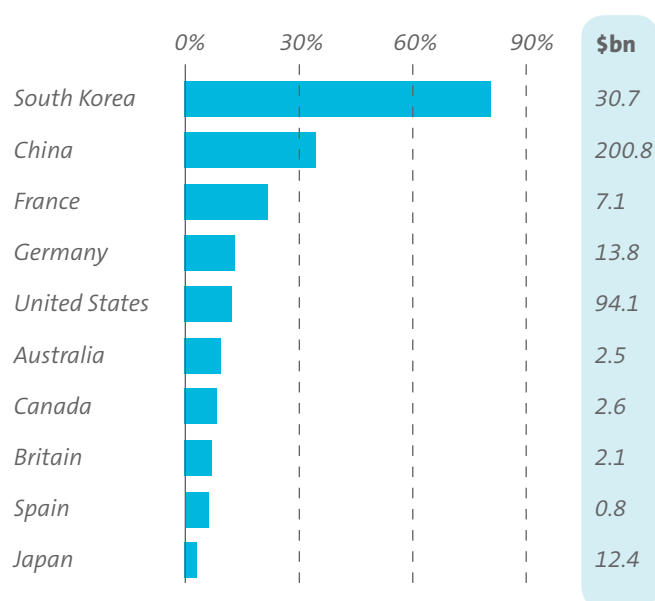
Figure 4: Policy instruments for SCP and climate change mitigation



There are currently many windows of opportunity for policymakers. As governments design financial packages to stimulate economic development, innovative policies are important to determine the direction of government spending and economic development. The danger is that fast economic growth based on business-as-usual principles will be promoted to prevent unemployment, but at the expense of environmental policies. In this case, relaxed environmental policies and unsustainable industrial development will continue to be supported.

Figure 5: Eco-friendly spending as a proportion of total fiscal stimulus

(Source: HSBC, 2009)



However, the current financial climate also has the potential to encourage policies that can influence and support the private sector in phasing out inefficient equipment and supporting environmental technology producers. This is also one of the main messages of UNEP's Green Economy concept which promotes green policies to address issues such as energy efficiency in housing, or the phasing out of old, polluting vehicles through measures that stimulate economic growth. According to a report by HSBC many governments are allocating large shares of their fiscal stimulus spending to green initiatives. South Korea tops the list in terms of percentage (more than 80%) of overall spending, whilst China leads in terms of the size of planned green spending (US\$ 200 billion) (HSBC, 2009).

Innovative policymaking is a key ingredient for facing the challenges of a changing climate. It can direct funds into environmental sectors of the economy, and into research and development for new 'greener' technologies. Some countries can leapfrog the polluting experiences and inefficient technologies of their neighbours, avoid repeating their mistakes, and bring in and adapt any appropriate practices.

Innovative policy can also mean a re-orientation along indigenous and alternative lines of development, rather than following in the footsteps of western countries and the outdated carbon-intensive economic growth model. This could be particularly true for economic development policy. After all, cultural identity, the well-being of people and personal happiness should matter at least as much as material wealth and lifestyle. The incorporation of traditional values and alternative voices into policy design could go a long way to achieving this goal.

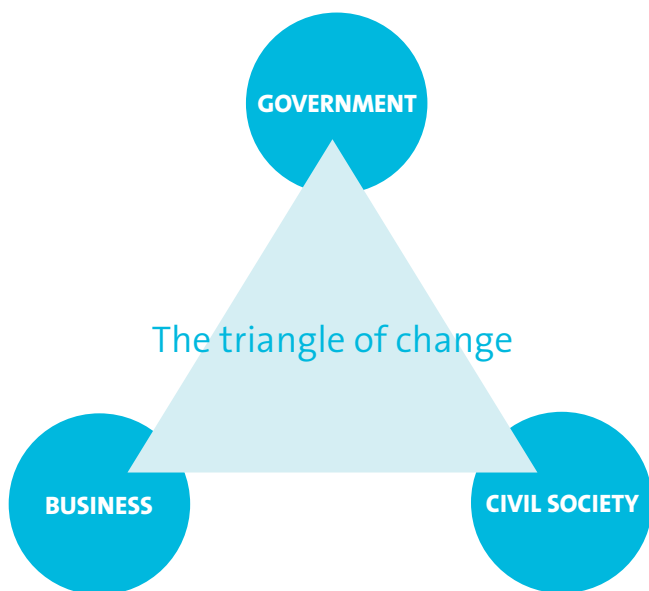
Effective policies are also built on good cooperation between civil society, business and policy makers where the different needs and demands are all taken into account. This 'triangle of change' (see figure 7) can provide a safe, firm base for multi-stakeholder dialogues to share ideas, deliberate on different perspectives, build trust, and even find win-win-win solutions.

Participatory approaches and broad consultations help policymaking be both accountable and transparent. They can also ensure that decisions are well-informed, based on scientific findings and local knowledge. Policies developed in this way can benefit the majority of stakeholders as well as the environment and guarantee decisions based on consensus and public support.

“After all, cultural identity, the well-being of people and personal happiness should matter at least as much as material wealth and lifestyle”

Figure 6: A participatory triangle of change can provide the opportunity for innovative SCP policies

(Source: UK Sustainable Consumption Roundtable, 2006)



Participatory policy development also allows policymakers to respond more effectively to changing conditions, whether anticipated or not. This could be particularly important when facing the long-term challenge of resource shortages likely to be caused by socio-economic crises and global or local changes in the environment.






Such “adaptive policymaking” is often difficult in practice and governance systems are frequently blighted by institutional structures that slow or even block changes in policy. In Asia, though, the last decades have seen economic and trade policies adjusting quickly and successfully to a globalised world. Now, the challenge is to adjust policies to other aspects of this new world situation – environmental degradation and changing climate caused largely by unsustainable consumption and production.

An important step forward could be the integration of national policy programmes for

climate change mitigation with National Action Plans (NAP) for SCP (see Table). Most countries have plans for climate change but those for SCP are often still under-developed or missing altogether. The lack of integration between policy programmes often reflects a lack of coordination between the governing institutions. To accelerate progress towards SCP in Asia, government agencies dealing with finance, trade and economic development need to cooperate on a wider range of issues with other agencies dealing with SCP, climate or the environment.

Table: National Action Plans in Asia

(Source: UNEP-DTIE website)

Country	NAP policy for SCP (year)	Description / Focus
 China	The Law on Circular Economy (2006)	Ecological efficiency in economic development; construction of eco-industrial parks; public participation; extending producer responsibility
 Indonesia	Sustainable Consumption and Production Programme (under development)	Support for Indonesia National Action Plan on climate change
 Japan	Fundamental Plan for Establishing a Sound Material-Cycle Society (2003)	Restrain the consumption of natural resources; reduction of material input and resource extraction; waste minimization (3Rs); reduced energy consumption
 Korea	SCP as “Implementation Task” in the National Strategy for Sustainable Development (2006-2010)	Eco-labeling; procurement of environmentally friendly products in public and private sectors; dissemination of cleaner production technologies; establishment of eco-Industrial Parks
 Thailand	SCP strategy is one of the four national strategies of the 10th National Economic and Social Development Plan (2007)	Provide for basic needs and quality of life; balanced state of happiness, self sufficiency, and social security; education and public awareness campaigns; reduce government subsidies for dirty production; taxes on dirty industry sectors; promote government green procurement

In conclusion, small and medium-sized businesses (SMEs) hold much of the potential for changing from out-dated, polluting practices to climate-sensitive production models, and can therefore contribute considerably to bringing down the GHG emissions in Asia. More innovative and appropriate policies are needed to

support such change. SWITCH-Asia is focussed on encouraging SMEs in their efforts to determine a way ahead; but it is also keen to bring in policymakers to learn from the projects it funds and hasten progress by developing the policies that are now required.

POLICY INSTRUMENTS – TRANSFORMATION OF THE REFRIGERATOR MARKET IN CHINA

Results from pilot projects illustrating SCP practices are often important for policy making. One example is the China Refrigerator Project financed by the Global Environment Facility. The project ran from 1999 to 2006 looking at the commercialisation of energy efficient refrigerators.

The project combined several SCP practices including sustainable product design, technological innovation, eco-labelling, and awareness raising for consumers and retailers. Through a combination of ‘technology push’ and ‘market pull’, the project strengthened the technological capacity of manufacturers so that they could produce energy efficient refrigerators, whilst simultaneously educating consumers. The national market was transformed.

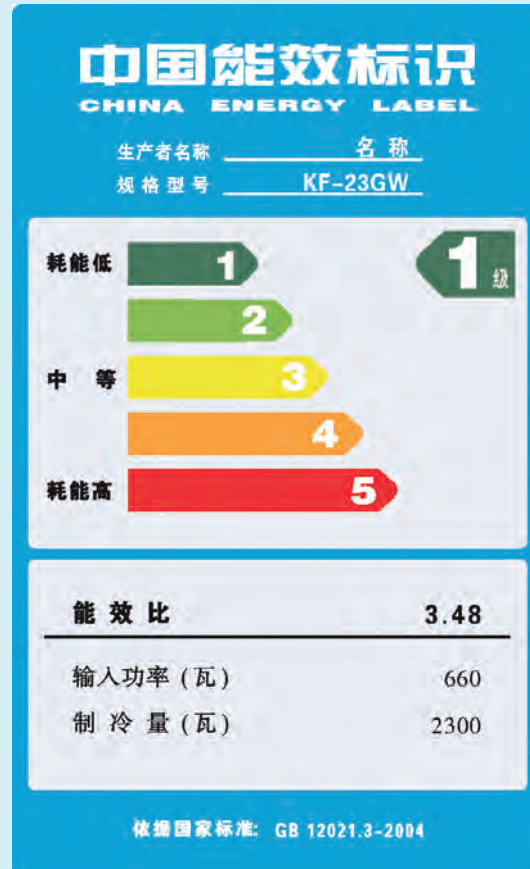
The project played a crucial role in the development of an energy efficiency label which was approved in 2004 and took effect on 1 March 2005. Refrigerators were the first product to use the label, which has now also been applied to other products such as air conditioners. The design of the information label is similar to the EU energy label but it uses a numerical rather than alphabetical scale.

Chinese policy was influenced through the involvement of national standards organisations, and staff from the project’s stakeholders, as well as through the assistance and training given in building national capacity for efficiency standards and their revision. A first revision in 2003 included an energy saving of 10-15% compared with the 1999 standard, and a further 10% saving followed in 2007.

The result was that the annual production of energy-efficient refrigerators went from about 1 million in 1999 to 10.7 million in 2004 and over 14 million in the 12 months ending in June 2005. The use of more efficient refrigerators had saved about 11 million tonnes of CO2 emissions by 2005, and it is estimated that the saving will amount to a total of 42 million tonnes of CO2 emissions by 2010.

FOR MORE INFORMATION SEE:

UNDESA at: http://www.un.org/esa/sustdev/publications/energy_casestudies/section1.pdf



WRAPPING UP


In this booklet we have shown the CHALLENGE we are facing with climate change and have offered an integrative SOLUTION in sustainable consumption and production (SCP). SCP recognises the multiple causes for climate change not only in the energy sector but also in industrial production and land-use changes causing deforestation. Life-cycle thinking shows that the 'use' phase of everyday products is responsible for a growing share of emissions.

The SCP approach of relating to climate change gives rise to a range of practical solutions, useful for businesses, organisations and individuals.

At a company level, cleaner production, technological innovation or supply chain management can improve resource and energy efficiency in manufacturing. When companies provide environmental product information through sustainability reporting and eco-labelling they support greener consumption choices. Consumers can then make personal contributions by reducing their impact through smart, green purchasing choices, thereby not only reducing greenhouse gas emissions, but most likely increase their quality of life.

Policy has an important role for setting product standards and for giving the right signals for the market through directing government spending on greening the economy, for example by implementing green procurement practices. Policymakers can use the window of opportunity opened by the financial crisis to implement new innovative policies and guide the economy towards a sustainable and low-carbon future.

While climate change mitigation is still the main focus of attention, the need for adaptation is becoming relevant already today, especially in developing countries particularly susceptible to global warming. SCP can support adaptation by creating sustainable products and new business models for both the wealthy and the poor.



SCP has helped us to see that all regions of the world are inextricably linked, not least Asia and Europe. Solutions to mitigate climate change and adapt to the changes will require a previously unseen level of cooperation between the two regions. The SWITCH Asia Programme has taken up this CHALLENGE and supports SOLUTIONS. It has the goal to deal with climate change and other environmental issues whilst promoting sustainable economic growth and prosperity in the developing countries of the Asia Pacific.

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