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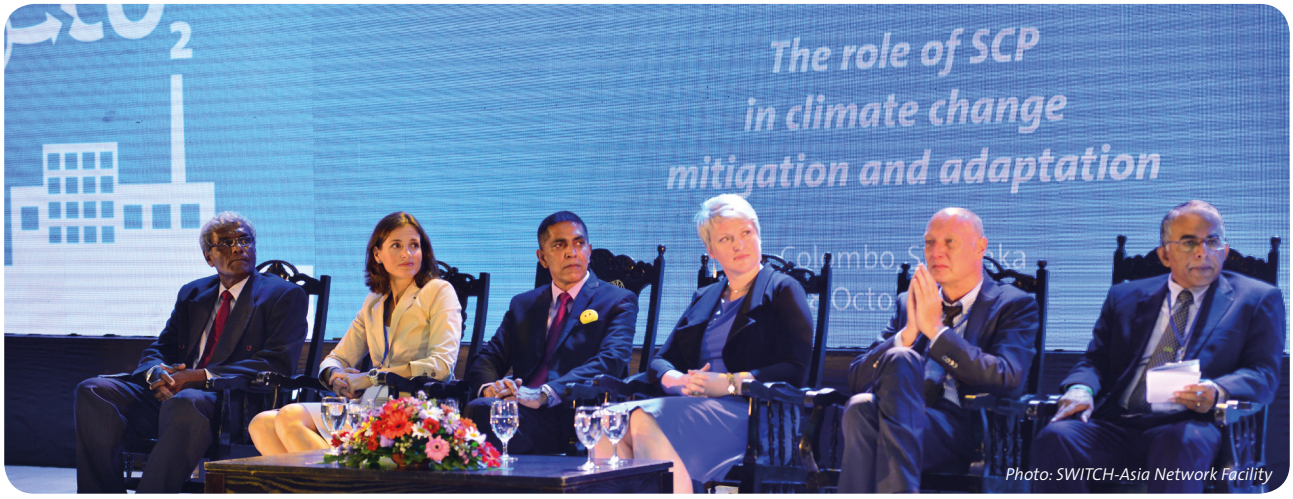

Photo: SWITCH-Asia Network Facility

The role of SCP in climate change mitigation and adaptation

... addressing climate change requires a paradigm shift towards building a low-carbon society that offers substantial opportunities and ensures [...] sustainable development, based on innovative technologies and more sustainable production and consumption and lifestyles, while ensuring a just transition of the workforce that creates decent work and quality jobs.[1]

On 18 October 2016, the SWITCH-Asia Network Facility joined hands with the SWITCH-Asia Policy Support Component for Sri Lanka to organise a one-day conference on 'The role of sustainable consumption and production in climate change mitigation and adaptation.' The parallel event took place within the framework of 'Sri Lanka Next – A Blue Green Era,' a major three-day forum and exhibition organised by Sri Lanka's Ministry of Mahaweli Development and Environment on local, regional and global efforts addressing climate change. During the two thematic sessions on sustainable production and consumption (SCP) in relation to climate change, several SWITCH-Asia projects presented their approaches, experiences and recommendations. Leading experts in climate change and sustainable development then highlighted the opportunities and challenges for exploiting synergies between the two fields. An in-depth discussion followed on the way forward for the SWITCH-Asia Programme in support of actions addressing climate change and the long-term prospects of projects that focus their efforts at the local level. This briefing focuses on three main issues addressed during the conference which pertain to SCP and climate change, namely the need to adopt a holistic approach, the obligation to act at the local level, and finally, the need to devise conducive policy and institutional frameworks.

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1) UNFCCC, 2011, Decision 1/CP.16

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CLIMATE CHANGE AND SCP

Over the last decades, climate change has emerged as a significant threat, with impacts on human health, ecosystems, biodiversity, food and energy security. Climate change has been fuelled, among others, by unsustainable consumption and production patterns. As societies evolve at a fast pace, demand for products and services reaches unprecedented heights, putting great pressure on natural resources and on the environment as a whole. SCP policies have contributed greatly in minimising those negative effects by following the 'doing more and better with less' approach and by adopting a life-cycle perspective which helps to identify those areas where impact on climate is the most significant and where action needs to be taken. Nonetheless, further efforts are required if we are to combat climate change effectively.

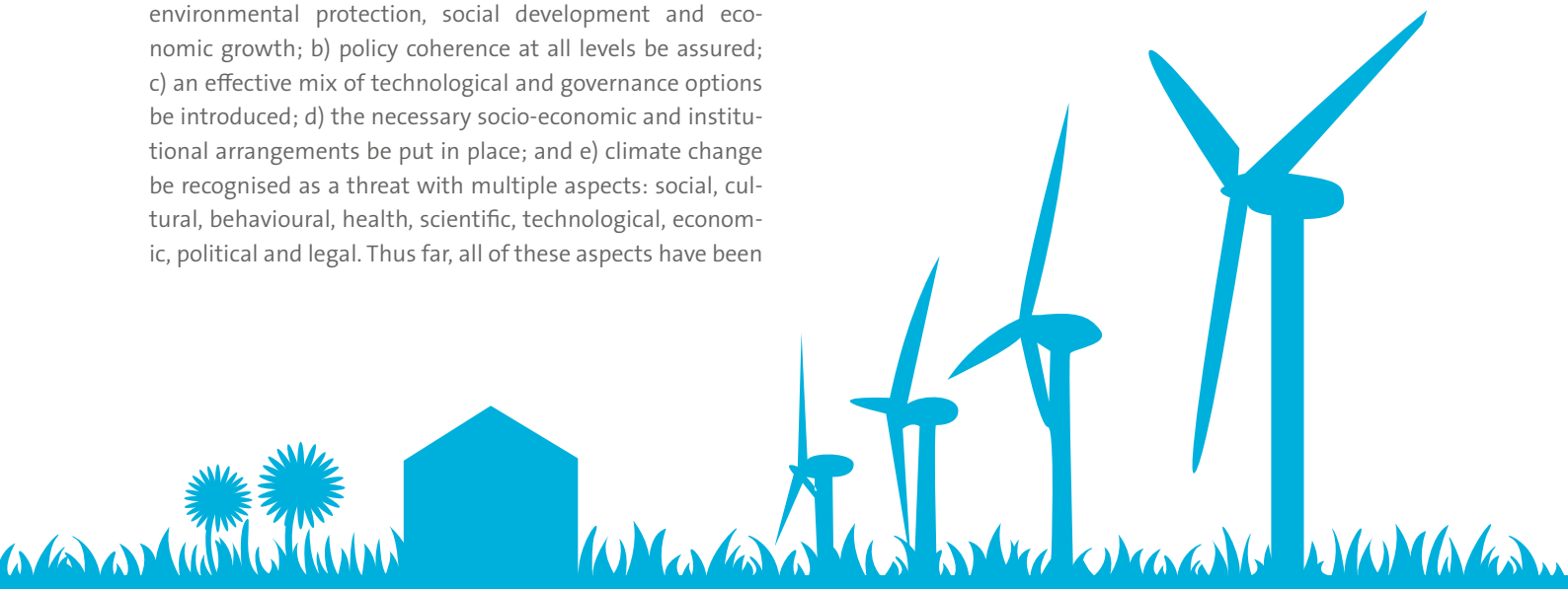
Climate change policies can also help advance action on SCP which has become a standalone Sustainable Development Goal/SDG 12 when the 2030 Agenda for Sustainable Development was adopted in 2015. While climate change is not only about the environment, economics or technologies, SCP provides an opportunity to view issues surrounding climate change from a wider perspective. Not only through the life-cycle approach, SCP also offers integration of both sides of business: the supply side focusing on economic, social and environmental impacts of production processes, and the demand side, focusing on consumer behaviour and choices in the use of goods and services.

For SCP practices that lead to the desired greenhouse gas (GHG) emission reductions to be introduced successfully, the links between climate change and SCP need to be fully exploited and any potential trade-offs and negative interactions minimised. This requires that: a) climate policies be aligned with the main pillars of sustainable development: environmental protection, social development and economic growth; b) policy coherence at all levels be assured; c) an effective mix of technological and governance options be introduced; d) the necessary socio-economic and institutional arrangements be put in place; and e) climate change be recognised as a threat with multiple aspects: social, cultural, behavioural, health, scientific, technological, economic, political and legal. Thus far, all of these aspects have been recognised under the climate change convention. However, insufficient attention has been devoted to them during implementation efforts.

The UN Secretary-General Ban Ki-moon said, "... We need a practical 21st Century development model that connects the dots between the key issues of our time: poverty reduction; job generation; inequality; climate change; environmental stress; water, energy and food security."[2] For this to be achieved and for triple-win scenarios for mitigation, adaptation and sustainable development to be enabled, further efforts are required to understand the costs, benefits and opportunities linked to climate and SCP policies and their implications on equitable development.

Triple-win scenarios: Water stewardship for climate change adaptation

The SWITCH-Asia Programme enables triple-win scenarios – with environmental, social and economic benefits – by adopting holistic approaches. One representative example is the city-wide partnership for sustainable water use and water stewardship in Pakistan. Not only did it result in GHG emission savings through reduced energy use for water pumping, the project also brought significant financial benefits to the participating SMEs, as well as social benefits to the local communities by eventually reducing poverty and health effects associated with the lack of access to potable water.



 2) http://oneworld.net/sites/default/files/resources/2016-06/Triple-Wins-for-Sustainable-Development-web.pdf

SWITCH-ASIA PROJECT CASE STUDY FROM PAKISTAN

Photo: Water Stewardship Pakistan project

City-wide partnership for sustainable water use and water stewardship in SMEs in Lahore, Pakistan

The SWITCH-Asia project on sustainable water use and water stewardship in SMEs was led by the WWF Pakistan from January 2013 until December 2015. In Pakistan, water is a scarce commodity. Water scarcity is exacerbated through poor water management practices, unsustainable water use and lack of appropriate governance structures. The project aimed at achieving benefits along the three main pillars of sustainable development – economic, social and environmental – while introducing technological improvements and better governance practices. The project focused on 400 cross-sectoral SMEs and managed to bring significant financial gains to 35 SMEs (a total annual saving of some EUR 1.5 million) by reducing their water use per production unit and the resulting energy use due to reduced water pumping. On a technical level, the project helped the SMEs to increase their capacity to adopt best water management practices (BWMPs). The project also enhanced the understanding and knowledge of the impacts of unsustainable water use and wider community level benefits of enhanced water stewardship. A multi-stakeholder city-wide partnership was established, comprising SMEs, public authorities and supporting institutions, which is now supporting water sustainable production and consumption and facilitating better water governance. The project was also able to propose a working business model whose replication is currently supported by provincial and national governments. On the social front, the project largely contributed to improving the wellbeing of people within the project area, reducing the incidence and severity of poverty associated with inadequate access to drinking water, and municipal and household livelihood activities. The project relied on a number of tools to achieve the desired results, among them a thorough assessment of current practices in the area of water management, a cost-benefit analysis to highlight the significant monetary benefits of sustainable water practices, as well as a series of extensive workshops and training sessions.

SOCIAL DIMENSIONS OF CLIMATE CHANGE

A report from the World Health Organisation (WHO) on the 'Social dimensions of climate change' divides social considerations in three groups: one group addressing basic needs such as water, food and energy, another group addressing social needs such as human rights, governance and education, and a third addressing individual needs such as health, work and social protection. Taking into consideration these social dimensions can lead to significant GHG emission reduction and, vice versa, SCP and climate resilience can be linked to social cohesion, job creation, energy security and important health benefits, among others.

Health aspects of climate change and SCP: the cook stoves example

Climate change is detrimental to the health of humans across the globe. Health has always been at the core of the United Nations Framework Convention on Climate Change (UNFCCC), and governments have traditionally played a central role in ensuring health resilience to climate change, however these efforts are not yet sufficient. Development programmes, such as SWITCH-Asia, have a great opportunity to advance these efforts by helping local communities to further integrate climate change considerations into their core consumption and production activities. Effective climate and SCP policies not only can increase climate change resilience but also lead to sustainable energy supply and cleaner industrial production, resulting in health improvements.

A particular example of an issue where climate change, sustainable consumption and health considerations are heavily intertwined is that of cook stove use in developing countries. WHO estimates that nearly 2.8 billion people worldwide cook and heat their homes primarily with solid fuels, such as wood and dung. Open burning solid biomass is inefficient at converting energy to heat for cooking, and releases a toxic mix of health-damaging pollutants, such as black carbon or methane, which lead to about 4.3 million

SWITCH-ASIA PROJECT CASE STUDY FROM LAO DPR

Photo: Improved Cook Stoves in Lao PDR project

Improved cook stoves in Lao PDR

The SWITCH-Asia project on *Improved Cook Stoves in Lao PDR*, led by OXFAM Novib from February 2013 to January 2017, focuses on improving the cooking and emission performance of cook stoves commonly used in Lao households. Cooking fuel, mainly wood or charcoal, in Laos accounts for 70% of its overall energy use. Not only is biomass use detrimental for the local environment and biodiversity by damaging forests and undergrowth, it is also linked to high levels of air pollution and GHG emissions. The project's goal is twofold: on one hand, it ensures the sustainable production of cleaner and fuel-efficient cook stoves, and, on the other hand, it increases awareness among consumers as well as access to these new and more efficient cook stoves. On the production side, the project works with 15 producers to increase their capacity to produce improved cook stoves. Design enhancement, optimisation of the production processes, and quality assurance and quality control procedures with regards to the final product are parts of the overall strategy. The project also focuses on ensuring quality certification for the ICS as well as adequate labelling for the stoves before they reach the end consumers, along with extensive capacity building for some 150 retailers with regards to the benefits of the new cook stoves. Through consumer promotion campaign at festivals and markets, the project ensures that consumers are made aware of the environmental and social aspects of their choices. All of this underlines how essential it is to address the issue in a holistic manner, in this case the whole supply chain of the improved cook stoves as to ensure its uptake by producers and consumers alike.

premature deaths annually and which also largely contribute to climate change – despite the utilisation of an 'in principle' renewable resource. These negative impacts could be averted simply by switching to alternate fuel sources and/or introducing new technologies, such as higher efficiency, low-emission cook stoves.[3] The challenge is twofold, to make these fuel sources and technologies available in sufficient quantities as well as being affordable so that families can switch easily. The SWITCH-Asia project on improved cook stoves (ICS) in Laos has greatly helped in this respect.

Employment, climate change and SCP

Climate change also presents a threat and an opportunity for employment and the labour market. The adverse effects of climate change can greatly affect sectors, such as tourism or agriculture, where the lion's share of Asia's human capital is employed. On the other hand, there is significant opportunity to create viable new jobs through investment in policies designed to reduce emissions and through the adoption of SCP practices, where job creation in sustainable tourism is one of the targets addressed under SDG 12 on SCP. One such area of success is that of renewable energy, which employs more than 8.1 million people around the globe, marking a 5% increase compared to 2015, in contrast to declining employment trends in other energy sectors.[4] Research by the Organisation for Economic Co-operation and Development (OECD) confirms that as we move towards a more sustainable development, new technologies, jobs and businesses are bound to appear. Nonetheless, businesses will need to be prepared for the transition to these new development pathways and for the transformation of their business models. The International Labour Organisation (ILO) Green Jobs Initiative stipulates that workers and employers must change the way they use and conserve natural resources and they must seek to create new patterns of production, consumption and employment.

Changing consumer behaviour through promotion of energy efficiency standards

In introducing climate change and SCP policies, human behaviours as well as the overall social context need to be taken into consideration. Addressing climate change and promoting sustainable consumption is not just the responsibility of governments or businesses, but also of individuals and consumers. Consumers, through their choices and use of products, can contribute to changing the existing unsustainable consumption and production patterns and eventually to combating climate change. However, changing peoples' behaviour is not a straightforward exercise and cannot be done by focusing on individuals. Policies targeting individuals are seldom successful if the wider societal context is lacking. Interaction with peers, societal structures, existing norms, values and ethical considerations often has impacts on individuals' ability to change. Factors that can enable behavioural changes range from the availability, accessibility and affordability of sustainable products and services, the provision of adequate incentives or rewards and of tools that

3) http://www.who.int/life-course/news/commentaries/local-action-on-climate-change/en/
4) http://www.se4all.org/content/irena-renewable-energy-and-jobs-annual-review-2016

SWITCH-ASIA PROJECT CASE STUDY FROM CAMBODIA, INDONESIA, LAOS, MALAYSIA, MYANMAR, THE PHILIPPINES, THAILAND AND VIETNAM

Photo: Tindu Bao, flickr.com

ASEAN SHINE

The SWITCH-Asia project *ASEAN SHINE* has been managed and coordinated between 2013 and 2016 by the International Copper Association (ICA) and is a public-private partnership including the UN Environment Programme (UNEP) and in-country partners from the governments of Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Thailand and Vietnam. The main goals of the project have been to reduce electricity consumption by the residential sector by promoting higher efficiency ACs, to reduce GHG emissions and to enhance regional market integration by removing non-tariff barriers to trade within member countries of the Association of Southeast Asian Nations (ASEAN). The project addressed the technological aspects of ACs by harmonising the ASEAN standards for testing methods which, in turn, led to a reduction of compliance costs for AC manufacturers and paved the way for future harmonisation of minimum energy performance standards (MEPS) in ASEAN countries. The project further led to the adoption of a regional policy roadmap by ASEAN Ministries of Energy by which they commit to increase MEPS over time and adopt a regional market verification and enforcement (MV&E) system. Capacity building and training activities have been a major component of this project which targeted all actors involved, from AC manufacturers, who have learned how to design higher efficient ACs, to testing laboratories, to salespersons in the retail sector. Consumer awareness campaigns are a final significant step of the project through various measures such as consumer associations, retailers (face-to-face promotion by their salespersons), and digital media, as well as other promotional material. The EU grant ended on 26 December 2016, however ICA and UN Environment (UNEP) have decided to maintain *ASEAN SHINE* by their own resources to continue the promotion of higher efficiency for other equipment (refrigerators, electric motors, distribution transformers, etc.).

support informed choices, to enabling legislation and existing community and social structures.

Reaching consumers and changing their behaviours is one component of the SWITCH-Asia project *ASEAN SHINE – Efficient Air Conditioners*. The *ASEAN SHINE* project aims at increasing the share of higher efficiency air conditioners (ACs) in southeast Asia through the harmonisation of national test methods and energy efficiency standards, the adoption of common performance standards enforced at the national level, and the creation of an enabling environment for market compliance. As the project came to an end in 2016, reaching consumers and promoting behavioural change through the help of digital media and other promotional material has also been recognised as vital.

LOCAL EFFORTS IN SUPPORT OF GLOBAL SUCCESS

If we are to address climate change, promote SCP practices and live within ecological limits, fundamental changes will need to happen at all levels of society from consumers and businesses to national and local governments. Acting at the local level is of particular importance because:

- it is at the local level that the interlinkages between social, environmental and economic dimensions are most obvious;
- national policies are usually implemented by local actors; thus, it is at the local level that the level of implementation and success of a particular policy are largely determined;
- acting locally provides a completely new understanding of the costs and benefits associated with climate change, which could be very different from those at the national level;
- it is at the local level that climate change (CC) resilience can best be introduced through, for example, the enhancement of infrastructure systems;
- interlinkage between climate and SCP policies may be easier to handle at the local level opening up the road for a range of new actions;
- local communities offer fertile ground for experimentation on various policy fronts where constraints and interests are relatively more manageable than those at the national level;
- at the local level, it is much easier to test and experiment with various practices, technological advances and social structures. The lessons learned and experiences can then be passed on and implemented at the national level;
- with regards to CC adaptation, the role of local policymaking is even more straightforward in that the effects of climate change are felt at the local level (its vulnerabili-

ties are very difficult to capture at the national level);
- CC adaptation can best be implemented, monitored and evaluated at the local level.

However, it is noteworthy that the power, authority and responsibilities that local governments have are different from those of national governments. Their financial resources, human capital and technical know-how are far more limited. In general, the three main motivations for local communities to implement climate policies are cost savings, improvement of air quality and reduction of vulnerabilities to natural disasters. Overall, projects related to CC adaptation are given priority as the impacts of climate change are felt directly while CC mitigation policies are viewed with a degree of scepticism, in particular, when they are associated with long-term benefits and high upfront costs. Thus, for effective action to be taken and investments to be made at the local level, links to the national level need to be as straightforward as possible. This means the relevant policy frameworks, institutional structures, and procedures need to be coherent, direct and as efficient as possible. Similarly, political and administrative leadership is important, as well as long-term financing from both the public and private sectors.

The role of SMEs in SCP and climate change mitigation and adaptation

When discussing action to be taken at the local level to mitigate and adapt to climate change as well as to promote SCP, SMEs should be at the core of such action since:

- **SMEs (and the private sector in general) are at the heart of economies worldwide.** SMEs hold a key position with regards to innovation, sustainable growth and job creation, comprising 99% of enterprises and providing about 60% of employment worldwide[5];
- **SMEs constitute a significant source of air pollution, GHG emissions and other environmental and social impacts.** According to International Energy Agency (IEA) estimates[5], SMEs consume more than 13% of total global energy demand;
- **SMEs have great untapped potential to contribute to sustainable growth and promote SCP.** Many policies and schemes are voluntary and based on principles of corporate social and environmental responsibility. There are a number of tools available to businesses that support life-cycle thinking and assessments, along with a number of international standards and guidelines geared towards increasing the sustainability of business practices. Many SMEs have implemented resource efficiency, sustainable production and environmental management systems;
- **the impacts of climate change can be particularly detrimental to SMEs and the private sector.** Impacts can be both direct, for instance through infrastructure damages, or indirect due to the scarcity of commodities and raw materials. Research shows that many SMEs are severely under-prepared to deal with the effects of climate change: only 26% say that they have a strategy or plan in place to deal with potential climate-related risk.[6] As a result, SMEs around the world feel vulnerable, with 65% being worried about the impacts of climate change on their business, with this figure rising to 75% among SMEs from emerging economies, where communities have been and will in all likelihood continue to be most affected.[7]

Despite the fact that many SMEs recognise how vulnerable they are to climate change and that sustainable production practices related to CC mitigation and adaptation can be beneficial, their efforts are still mostly driven by regulatory compliance, market opportunities and reputational value, with markets probably having a stronger influence than regulation. The issue is that as long as SMEs remain inactive and vulnerable, any adverse effects of climate change can severely affect a country's economic growth and lead to significant job losses. For SMEs to enhance their contribution to tackling climate change and invest in sustainable production practices, and for new business opportunities to be created, it is essential to highlight the benefits linked to climate resilience and sustainable business models. Actions need to be taken to integrate business compliance, market opportunities and reputational value into regulatory compliance frameworks.
For SMEs to shift to SCP practices which also tackle climate change, access to green finance is a key. SMEs in Asia generally have limited capital to invest on SCP measures (e.g. cleaner production and resource efficiency) which also contribute to climate change mitigation and adaptation. Compounded by their limited management capacity and knowledge on SCP or climate change, as well as weak policies on green financing, SMEs often do not have access to green finance to make the necessary investments. A lack of awareness of existing financing schemes, limited business experience or inadequate business plans can account for the low uptake and banks' reluctance to provide loans. Finally, financial products can be poorly suited to SME investments or SMEs lack sufficient collateral.

Overcoming finance barriers: high-pressure cogeneration in Pakistan's sugar industry

The SWITCH-Asia project on high-pressure cogeneration for the sugar sector in Pakistan is an indicative example, where SMEs face barriers in accessing finance, for example, high project sponsor risk, significant circular debt of the power sector, lack of effectiveness of the state bank and lack of credit enhancement facility. Therefore, the project takes concrete steps, meeting with the banks and financial institutions to ascertain their existing lending practices and to document their concerns.

5) https://www.iea.org/publications/freepublications/publication/SME_2015.pdf
6, 7) http://www.unepfi.org/psi/wp-content/uploads/2015/10/business_unusual.pdf

SWITCH-ASIA PROJECT CASE STUDY FROM PAKISTAN

Photo: High Pressure Cogenaration for the Sugar Sector in Pakistan project

High pressure cogeneration for the sugar sector in Pakistan

The SWITCH-Asia project *High Pressure Cogeneration for the Sugar Sector in Pakistan (HP Cogen-Pak)* is being implemented by Iqbal Hamid Trust (IHT) Pakistan, The Energy and Resource Institute (TERI) India, Sequa Germany and the Pakistan Sugar Mills Association (PSMA) between March 2014 and March 2018. This project focuses primarily on energy use during the process of sugar production in Pakistan. The goal of the project is to assist sugar mills to overcome the barriers in using more efficient cogeneration systems for sugar production. Conventional low-pressure cogeneration technology currently used in Pakistan is inefficient, cannot ensure reliable electricity production and thus is not qualified to feed-in power to the electric power grid. An efficient alternative is high pressure cogeneration (HPC) technology which can substantially increase the level of feed-in electricity, thus providing an opportunity to generate significant revenue through the sale of electricity and carbon credits. Additionally, high pressure cogeneration of heat and power allows sugar producers to meet their internal energy needs and drastically reduce their operational costs. A main achievement of the project was helping sugar mills overcome barriers to the adoption of HPC, such as high upfront costs, technology risks, low capacity of technology providers, a non-responsive financial sector and a non-conducive regulatory regime. The project works closely with financial institutions to review and revise existing financial instruments for promotion of financing to renewable energy projects, to mobilise relevant public sector authorities for the formulation of a conducive regulatory regime for bagasse-based power projects and to work towards more effective tariff determination. The project also promotes technology standardisation to enable sustainable consumption of bagasse by sugar mills and, finally, provides extensive training and capacity building to the sugar sector and technology service providers.

ENABLING POLICY, INSTITUTIONAL AND INVESTMENT FRAMEWORKS

SMEs, in particular in developing countries, constitute the main source of employment but lack the necessary resources in order to invest in innovative technologies and to adopt an SCP approach. However, a large share of investment required to support SCP and climate change efforts in a coherent way has to come from the private sector. Still, these investments are insufficient unless matched with public funds. Thus, governments need to design policies that create a more favourable environment for businesses, which provides for targeted investments at all levels, aligns private incentives with public goals, includes policy initiatives to internalise externalities and finances efforts to address global sustainability challenges. Similarly, governments also need to provide enabling institutional, policy and regulatory frameworks which are adequately enforced, provide the right incentives, are based on the rule of law and human rights and are inclusive. Without such frameworks and without governments and businesses working hand-in-hand to devise a common vision and understanding of the way forward, any positive results will be short-lived. Solid institutional frameworks are essential in creating an enabling environment for climate action and SCP as they affect the ability to govern and manage the resources and systems that underpin climate and SCP policies. The ability of businesses to produce sustainably and of communities and societies to consume sustainably, all the while mitigating and adapting to the effects of climate change, largely depends on their existing capacities, whether human, financial or technological. Strong institutions and political structures, proper governance and **effective enforcement** are required in order for these capacities to be developed and the technological options, local know-how and financial resources brought together in the most effective manner.

Moving along a climate-resilient pathway, which supports equitable and sustainable development, promotes SCP, minimises trade-offs and ensures benefits for all requires further policy coherence. **Policy coherence** is crucial as policies that affect land, water and energy use are all interdependent. Policy coherence across local, regional and international initiatives is particularly important, as international and regional policy agreements shape national strategies, and national policies are usually part of international and regional frameworks. However, achieving policy coherence

is extremely challenging since bringing together conflicting policies and interests is not a straightforward exercise. Policy coherence requires engagement throughout government structures and levels. In turn, this necessitates solid monitoring and evaluation frameworks as well as feedback mechanisms, regular dialogue between stakeholders and solid institutional frameworks.

Having long recognised the above-mentioned challenges and opportunities, the European Union (EU) has been engaging with governments at the national and local levels with a view to assist them in creating enabling frameworks for SMEs and for **green entrepreneurial** activities in accordance with internationally-agreed standards and principles. The EU actively attempts to support private sector engagement in SCP activities in various sectors, such as agriculture, forestry, energy and infrastructure development. The EU also aims to enable businesses to commit to **sustainable investments** that lead to further job creation and social cohesion. The EU-financed SWITCH-Asia Programme plays a significant role in encouraging sustainable growth while promoting economic prosperity and alleviating poverty by actively engaging with local governments, civil society organisations, research and educational institutions, SMEs and consumers.

CONCLUSIONS & THE WAY FORWARD

SCP plays a role in preventing, minimising and tackling challenges brought about by climate change. However, it must not be taken for granted that sustainable development and climate change mitigation and adaptation always go hand in hand. Efforts are required on both sides of the equation to enhance the existing synergies, maximise policy coherence and minimise negative trade-offs. For this to be achieved, climate change needs to be seen as a multi-faceted issue with significant social dimensions and also as an issue that needs to be dealt with at the global, national, and local levels. Also, it needs to be addressed by all actors, including governments and businesses.

SMEs are the backbone of many Asian economies. Developing the capacity of local SMEs to embrace SCP is key to raising their resilience to climate change. Environment-friendly technological solutions and alternatives are often readily available, and the business case for cleaner, more efficient and often less costly production practices have been proven. What is still missing is the realisation that it is time to transition to sustainable development pathways, access to adequate (green) financing and incentive provision. Enabling policy and investment frameworks, along with solid interlinked institutional and regulatory frameworks, can be crucial in filling these gaps.

The SWITCH-Asia projects manage to enhance the role of SMEs in promoting SCP, among others, by training and building the capacity of all relevant actors from technicians and government officials to consumers. They also liaise with financial institutions to create financing solutions and with policymakers to develop policies that can instigate action from the bottom up.

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