



*Sustainable and cleaner
production in the manufacturing
Industries of Pakistan*

Best Practise Collection on SCP Networks



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2 Using this booklet

What can this booklet offer?

This booklet provides insights about sustainable consumption and production (SCP) multistakeholder networks. It demonstrates advantages of and supports you in identifying the fitting

- type of network for the goals it shall deliver
- initiating actor for the network
- financing structure
- stakeholder involvement.

Who should read this booklet?

This booklet provides relevant information for:

- Representatives of SMEs in the areas of management, research, efficiency, sale, procurement, human resource management, environment and corporate social responsibility.
- Policy makers on the topics of environment, economy, trade, energy, education, competitiveness, resources and waste and finance.
- Representatives of financial institutions especially in the area of SMEs financing.
- Representatives of universities in the areas of cooperation with the economy, research, development and presentation, student placement.
- Representatives of business and industry associations in the area of partnerships and cooperation, competitiveness and capacity building.
- Representatives of development cooperation agencies with interest in public-private partnerships, SMEs and sustainability.

How to read this booklet?

There are several ways to read this booklet:

- If you are generally interested in the different types of SCP networks and their strengths and weaknesses go directly to section 6
- If you want to learn more about the rationale for SCP networks and the role of SMEs, read section 3.
- If you want to get inspired by the selected case studies, read all or some of them described in section 5.
- If you want to understand how the selected cases supported the recommendations given in the end, read the entire booklet.

How is this booklet structured?

1. First, the booklet provides information on the advantages, that SCP networks have for their members.
2. Secondly, the booklet presents nine international case studies on existing SCP networks which provides insights on how they are set up and how they operate.
3. Thirdly, an analysis of the case studies shows which set up and stakeholders are suited for different network goals.

Recommendations for Pakistan

Based on the analysis of best cases presented on the following pages, there is a second part to this booklet which gives concrete recommendations for establishing an SCP network in Pakistan.

3 Background information

3.1 Why are small and medium sized enterprises (SMEs) so important?

SMEs: SMEs create jobs, entrepreneurial spirit, innovation and competition. Their actions strongly affect production and consumption practices in the entire supply chain. Upstream the chain, SMEs can influence the environmental and social performance of their suppliers.

SMEs in the textile sector: SMEs in the textile sector can directly and indirectly work towards more sustainable production patterns in the raw fibre production, ginning, spinning, weaving, processing and stitching phase.

SMEs in the tannery sector: SMEs in the tannery sector can improve the production of leather products in the phases of slaughtering, collection, storage and transportation of hides, tanning and stitching.

Downstream the supply chain, SMEs interact with retailers and consumers.

The type and design of products and services that SMEs provide has a direct effect on the use-phase performance of these goods, and can therefore enable and encourage sustainable consumption. For the textile and tannery sector, this includes the transportation, storage and presentation of goods as well as the using, washing, ironing and disposing of the textile and leather products.

Collective impacts of SMEs actions: Although an SME may see itself as having an insignificant impact on sustainable consumption and production goals, the collective impacts of SMEs within economy, environment and society is significant.

Defining SMEs

Criteria to define small and medium enterprises vary between developed and developing countries. Within Europe the term SMEs is commonly used to describe companies between 10 to 250 employees, whereby enterprises with fewer than 10 employees are characterized as micro sized (European Commission recommendation 2003/361/EC). But this definition is not uniform for enterprises worldwide, thus a small enterprises within Europe might be medium or even large sized in Pakistan. In the developing countries context, a qualitative definition, comprising small scale organisation and limited market power of the company, personal nature and independency concerning management and ownership, can be applied (Tessema (2008)).

Increasing E&RE at different stages

- A company can decrease energy and resource needs directly by reducing gas or oil consumption for machines and automobiles, heating and air-conditioning, and resources for manufacturing their products.
- SMEs can also decrease their energy and resource consumption indirectly by reducing the amount of products and services they use, like travel.
- Enterprises can foster efficient behaviour of their employees by increasing know how on E&RE, rewarding efficient and penalising inefficient behaviour.
- Companies can also switch to renewable sources of energy and resources which grow back.

(Adopted from CSCP (2010): Allianzen für mehr Nachhaltigkeit)

Challenges faced by SMEs: SMEs' environmental unawareness has several reasons: They lack time and money to investigate their environmental performance or access to consultancy, and don't have sufficient know-how of environmental regulations and technological developments. In some cases the management of the company might not even be aware of potential cost savings arising from E&RE. In order to empower SMEs to increase E&RE among the lifecycle of their products, three main challenges need to be addressed:

Capacities: Many SMEs fall short of important information to increase E&RE. They lack the capacities to develop complex and long-term visions, strategies and monitoring systems. Concepts which are used by bigger companies can often not easily be translated to the needs of SMEs. SMEs need specific capacities to develop, adopt and use new technologies and to gain access to finance. However most of these capacities lie outside the everyday needs of enterprises and are conceived as being too costly to develop.

Capacity Building to increase E&RE within SMEs

The ability of a company to develop and apply sustainable production procedures is determined to a large extent by the capacity of its people. Capacity-building encompasses not only human, but also scientific, technological, organizational, institutional and resource capabilities. The World Bank defines capacity building as "A coordinated process of deliberate interventions to (i) upgrade skills (ii) improve procedures, and (iii) strengthen organizations." Tools for capacity building on a company level include awareness raising, training, technical assistance, advice on financing, and information dissemination.

Technology: Technologies are essential for improving the E&RE of production processes. However, many SMEs have difficulties in developing or incorporating new technologies. Enterprises often lack the potency and the funds for Research and Development (R&D) to technological improvements and innovations. At the same time, they have limited access to new technologies developed elsewhere and find it hard to absorb such technological innovation.

Technology innovation and transfer to increase E&RE within SMEs

The development and use of environmental sound technologies is essential for increasing E&RE in SMEs. New technology leads to cost savings and environmental benefits enabling greater output per machine hour while reducing labour and material inputs. However, environmental sound technologies do not only comprise "individual technologies, but total systems which include know-how, procedures, goods and services and equipment as well as organizational and managerial procedures"(Agenda 21, article 34.3.). SMEs can access new technologies in different ways: They can develop their own technologies by carrying out Research and Development (R&D)(technology innovation) or transfer technology which is already developed (technology transfer) by interacting with advanced firms, hiring experienced workers or consultants and purchasing new technologies. When transferring technologies developed and generated in one country to apply them in another one, an adaptation might be necessary in order to suit to local needs.

Access to Finance: SMEs find it difficult to access capital, which is necessary for developing and buying new technologies and adapting new production processes. First of all, many SMEs have difficulties in finding appropriate information on potential sources of financing. If possible sources are detected, access to financial

services is often denied because SMEs are unable to develop structured business plans and give the guarantees traditional lenders require. The provision of business plans and guarantees would help to create the necessary trust between financial institutions and SMEs resulting in the approval of financial support. The situation for SMEs in emerging economies is even more difficult than in industrialized ones. Barriers to appropriate access to finance also include geographical constraints; a lack of proper documentation requested by financial institutions and minimum account balance requirements that are out of the reach of SMEs resources.

Access to Finance to increase E&RE within SMEs

SMEs need to be able to access financial resource under appropriate conditions in order to finance capacity building and technology innovation and transfer. Access to finance stands for an absence of price and non-price barriers in the use of financial services and products. Non-price barriers include rigid criteria for conceding loans, exclusion of certain groups, etc. (World Bank, 2008). The most common financial products to promote E&RE in SMEs are: short- and long-term loans, factoring, leasing, private equity and tailored public funds. Regarding to services, financial institutions can help SMEs by conducting portfolio screening (e.g. best cases existing in the market) or engaging SMEs to reformulate their business strategies.

3.2 How can SCP networks support SMEs?

SCP networks: SCP networks are “inter-organisational collaborations between more than two actors that follow a certain sustainable objective” (Kirschten, 2002). They offer the opportunity to SMEs to cooperate not only with other SMEs, but also with policy makers, research institutions, environmental associations and the civil society, which makes it possible to address SMEs main challenges by benefiting from different perspectives, authorization, experience and expertise. Therefore, SCP networks act as effective catalysts to increase E&RE in SMEs by facilitating capacity building, technology innovation and access to finance.

Types of networks

Networks differ substantially in their design and scope and can therefore be clustered in several ways. With regard to the case studies shown below the following criteria can be observed:

Public or private incentives can take the lead in setting up an SCP network whereby the network organisation and management can be financed through government subsidies or member fees. Cooperation takes place on the local, national or on the international level. Some networks have open access whereas others operate in a closed manner. They can be set up for a limited time (e.g. with a certain timeframe for governmental funding) or operate without any time limitation. In terms of the hierarchical structure of networks, focal designs with one main actor organising and steering the cooperation can be found, while others work in a polycentric way. Also the position of enterprises along the value chain can differ from being located horizontal, vertical or diagonal. The intensity of cooperation within the network can reach from the pure exchange of information to strong collaboration and or even a joint business.

Multistakeholder networks differ through the involvement of different actors coming from business, NGOs, labour associations, chambers of commerce, research institutions and universities, consultancies, the media, public authorities and the civil society.

Supporting capacity building: Networks support **capacity building** for E&RE. They provide information, training materials and contacts to institutions which support SMEs in building capacities. Networks help to find and understand solutions by engaging different members in discussions and encouraging the exchange of

experiences, both successful and unsuccessful. The cooperation between network members is essential for sustainable learning. Training courses and workshops offered by networks contribute greatly to the creation of capacity of E&RE within SMEs. External coaches and experts which would be too costly to hire for a single company can be brought to the whole network. Capacity building addresses processes within the production phase, but also activities to improve the use of products.

Supporting technology innovation: To address the issue of **technology innovation**, networks support SMEs to see and understand which technologies are needed, available or beneficial to develop. By bringing experts and different stakeholders from inside and outside the network together, technology innovation is fostered. With high levels of cooperation, networks themselves can develop important technologies for E&RE. By establishing a coordinated division of labour, partners can focus on their core activities and increase overall efficiency. Products can be optimised by jointly developing new designs and new value adding models.

Supporting access to finance: Networks can also support SMEs in gaining **access to finance**. By providing information on financial services which are available for SMEs, they help overcome one main barrier. Additionally, networks can provide help and advice in meeting criteria of financial institutions which would otherwise be too challenging for SMEs. Finally, networks can establish a direct link between financial institutions and SMEs and create trust and cooperation.

Reasons for SMEs to join networks

- to cooperate with other SMEs and stakeholders from the government, research institutions and the civil society.
- to benefit from collaborating strategies by sharing expertise, competencies and experiences on certain topics.
- to benefit from economies of scale and scope reducing costs and administrative time by sharing human resources, services or equipment within the network.
- to benefit from common organisational and management structures allowing SMEs to focus on their core competencies.
- to benefit from joint work on projects acting together which enable bigger contracts that could not be feasible alone and lead to increased revenues.
- to reduce uncertainty and risk as efforts and expenses of time, costs, and functions can be shared and allocated among members.
- to benefit from an enhanced diversity arising from different views, backgrounds and interests of members that allow to generate more creative, innovative ideas and high efficient problem solving.
- to benefit from cooperate access to finance as requirements of financial institutions as securities and collaterals can be shared.
- to foster innovation and benefit from R&D facilities by cooperating with academia and researchers.
- to benefit from a network structure which is adaptable to changing circumstances and allow quick and flexible reactions to cope with challenges like upcoming ecological problems.
- to improve the services for customers by expanding the sales area and/or bringing together different industrial sectors.
- to develop local services within the neighbourhood (e.g. offering common training and leisure offerings, co-ordinated transportation and shared collective services such as caretakers or security guards)
- to improve the own performance due to benchmarking with other network members
- to increase visibility and influence on political decisions.

4 Framework of analysis of existing SCP networks

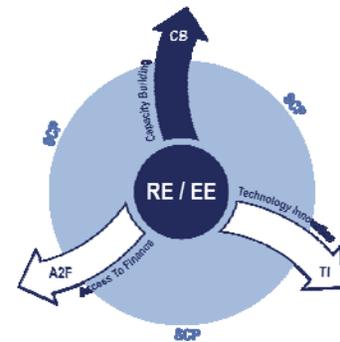
4.1 Aim of analysis

Aim of analysis: To show how a respective SCP network could be build up in the context of Pakistan by demonstrating

1. Which goals do the different network types demonstrated in the case studies deliver?
2. Who drove the initiative to build a network and how is the network financed initially and over time?
3. Which stakeholder groups were engaged in the different networks?

4.2 Presentation of case studies

Thematic focus areas of the SCP networks: To allow for an easy access and a good overview, the case studies are clustered according to the thematic focus of the network for empowering SMEs to increase E&RE: Capacity Building, Technology Innovation and Access to Finance. Not all networks address all three areas: a pictograph allows for an easy overview on their focus. The dark arrows indicate that the network is active in the respective area.



Description of network: To provide a first overview, the basic facts of each network are presented in a box. The stated objective of the network allows the reader to understand the thematic focus and goals promoted. The structure and mode of operation of the network is then explained in a short text, to demonstrate how the network operates in concrete and which aspects could be copied when establishing a new network.

Tools used by the networks: For each network, a list of the most important tools which is used for fostering capacity building, technology innovation and access to finance is presented and described. This demonstration allows practitioners to easily access successful examples for actions which they could use in a future network to promote E&RE. Not each tool is used by each network, but all tools are applied by a large number of the cases presented. The detailed description shows how the tools practically help to support capacity building, technology innovation and access to finance among SMEs. The list of tools – which are then described in concrete in the network analysis – comprises the following ones:

Provision of information to SMEs to assist them in understanding and tackling the full potentials of E&RE.

Consultation on site by an expert to access the resource and energy saving potentials and make recommendations specific to the needs of SME.

Training provided by the network for employees of SMEs to increase their capacities.

Meetings on specific topics on a regular basis for exchanging ideas and experiences and learning.

Website to provide members and non-members of the network a source of information and platform for communication.

Collaborating online platform to enable members to get in touch with each other and collaborate.

Newsletter to inform about events and recent developments.

Marketing/PR to make the goals of the network better known in the wider public.

Network facilitation to support members to connect with each other and to build up cooperation projects.

Provision of best practices to show members how other companies have successfully dealt with challenges.

Lobbying to influence the policy framework in a way which supports SMEs.

Research, Development and Presentation to facilitate innovation and dissemination of new products and processes.

Competition on best performance to encourage innovation and better performance.

Monitoring of SME performance to secure the continuing improvement of the network members' activities.

Monitoring of whole network process to secure the network is undertaking the necessary steps to reach its defined goals and the members benefit from being part in the network.

Criteria for selecting the presented case studies

- Credibility and recognition: The networks that were chosen are well established and have been reviewed in the literature.
- Positive impact of network activities: Self assessment of networks and external assessments have shown that networks make a positive impact towards their respective goals.
- Different scope: They demonstrate scopes ranging from national (in few cases with an outreach to the international level) to local incentives.
- Diversity of actors: Different actors – ranging from private to the public sector – were involved into the setting up and leading of the networks.
- Different focus areas: They show how networks can cover the three issues capacity building, technology innovation and access to finance, or focus only on one or two aspects.
- Different stages of development: Networks which have been operating for several years and others which have been operating for a shorter time are analysed.

5 Case studies of SCP Networks

5.1 CoSmile India

The goal of CoSmile is to improve economic, environmental, and social conditions of entrepreneurs and workers of SMEs.

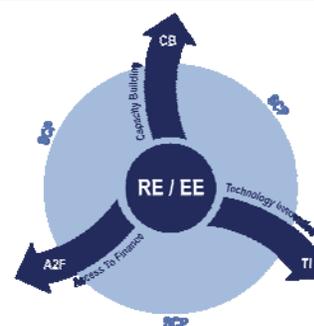
It focuses on the development and dissemination of innovative resource-efficient technologies and support SMEs to adopt them to increase their competitiveness by saving energy and reducing CO2 emissions.

CoSmile is a collaboration between the Swiss Agency for Development and Cooperation (SDC) and the Energy and Resources Institute, New Delhi (TERI). Both actors aim to enhance energy efficiency, productivity and environmental performance in SMEs under one common umbrella by forming a dynamic, informal, knowledge-sharing multistakeholder network.

Name	CoSmile – Competence Network for Small and Micro Learning enterprises (SMEs)
Location	India
Foundation	Founded in 2005 by TERI and the SDC
Time	Time-unlimited CoSmile network has been established. Support by founding partners time-limited (1994 – 2011).
Scope	Different regions in India
Size	500 villages and cities across India (2008).
Contact	http://www.cosmile.org

Setup and organisation of network

CoSmile is a network targeting forward looking enterprises and experts. It is open to new members. **Multidisciplinary competencies of stakeholders are pooled** to achieve high improvements in development and dissemination of environmentally sound technologies for SMEs. The common factor of network members is their learning orientation. Following a bottom-up participatory approach it encourages the participation of the industry in the decision making process and integrates local industry concerns in the overall project design.



The networks unite **three groups of actors**. **The first group** are SMEs in sectors of high energy-intensity and CO2 emissions. To reach them and meet their specific needs, capacity building and technology dissemination is carried out on a project level for certain regions and industrial sectors. Examples for these activities include the foundry industry a national level, the brick industry in Eastern Uttar Pradesh and South India, the glass industry in Firozabad, the puffed rice industry in Karnataka and thermal gasifiers dissemination in Rajasthan and Karnataka.

The second group of network actors are implementation partners for the technology dissemination, which include industry associations, NGOs, academic institutions, sectoral experts, local and international consultants.

The third group include dialogue partners on the policy level to create politic frameworks which support the process. These actors include ministries at the national level, the central pollution control board, multilateral and bilateral development agencies like UNDP and UNIDO, the state bank and the development bank of India as well as NGOs and academic and research institutions.

The CoSmile network is currently supported by development funds of the SDC(January 2009 till December 2011 with 2.6 million Swiss Francs). Financial support has also been received among others by the India Indo-Swiss Project Sikkim, the Ministry of New and Renewable Energy (MNRE) from India, the Wuppertal Institute for Climate, Environment and Energy from Germany and the Himachal Pradesh Forest Sector Reform Project from Shimla, India.

Tools used for supporting the network's success

Information is provided on the website within a database indicating related links, sector specific information and various presentations, papers and case studies.

Individual Consultation is provided through direct technical support. It is offered for the design, construction, fabrication and operation of technologies.

The Bureau of Energy Efficiency (BEE) which collaborates with CoSmile currently implements a program, which comprises the facilitation of innovative financing schemes for energy efficient technologies and a capacity building program of bankers to smooth the financing process. The World bank and UNIDO support this initiative.

Training of network members is carried out by demonstration and replications units, which are established locally to mainstream cleaner and resource efficient technologies. They aim to raise awareness within companies and to build the capacity of small-scale factory owners to enable them to change their traditional production patterns. Different workshops and seminars help network members to recognize the technological and economic feasibility of respective technologies (e.g. the application of biomass gasification). Trainings include presentations, practical demonstrations, exercises, assignments and quizzes. Promotional materials such as brochures and visuals support the activities.

General Meetings such as multi-stakeholder dialoguing platforms ensure the exchange of knowledge and experience on the national and regional level about issues such as technology, policies, and social sensitivity.

A experience exchange workshop on "Building the CoSmile Network" in December 2007 included representatives from UNDP and Ecoprofit India to share experience and from the MNRE to demonstrate available subsidies for SMEs. Recent conferences took part in November 2009 in New Delhi about "Energy efficiency improvements in Indian brick industry" and about "Financing energy efficiency in SMEs".

The Website highlights programme achievements, best cases and informs about news and events.

The Newsletter "CoSmile Update" is published four times per year. It embraces information of all activities regarding cleaner production in India (e.g. also about cluster programmes carried out by other organizations) and includes always a calendar indicating all conferences and training programmes for the next months.

Networking facilitation is carried out through the establishment of local alliances and "self help groups". They ensure the successful implementation of the programme bringing together local communities, entrepreneurs, workers, service providers and institutions onto a common discussion platform.

Best practises are presented on the Website as well as in the Newsletter.

Lobbying takes place on the policy level to create supportive policy frameworks.

Monitoring of SME performance ensures the success of the technology adaptation by SMEs. Design parameters are regularly optimized in consultation with the entrepreneurs to assure the suitability of technology solutions to specific needs of the local industry. Replications are monitored closely during the implementation and operation phase. Afterwards regularly one-to-one interaction follows to ensure the long-term performance.

Monitoring of the network process is conducted by Teri and SCD. The developed efficient biomass based energy technologies have been replicated around 500 times in 17 states so far. By modernizing the production technology, enterprises can save 20%-50% of energy. In 2009 these technologies resulted in the reduction of 340.000 tonnes of CO₂. Until the end of 2011 the project aims at reducing an overall of 550.000 tonnes of CO₂.

5.2 Ecoprofit Austria

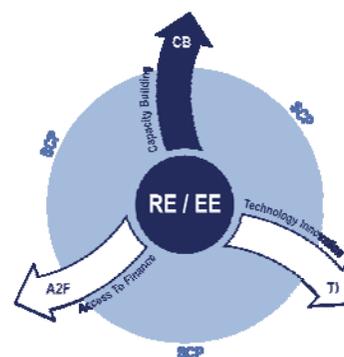
Ecoprofit Austria aims to strengthen companies' eco-efficiency and to reduce operating costs through decreased consumption of raw materials and energy. Waste and emissions in the whole production process shall be reduced/avoided to minimize negative impacts on the environment.

SMEs involved expect to amplify their knowledge within the field of sustainable production. Companies' aims are to reduce costs by learning how to make their production processes more efficient and at the same time environmental friendly.

Name	ECOPROFIT "ECOLOGICAL PROJECT FOR INTEGRATED ENVIRONMENTAL TECHNOLOGY"
Location	Graz, Austria (approach has been adopted by many other regions and countries)
Foundation	In 1991 by the Environmental department of the City of Graz in cooperation with the Technical University of Graz.
Time	"Ecoprofit Basic Programme" for new participants: Time-limited (9-12 month) "Ecoprofit Club" for successful SMEs: Non time-limited.
Scope	Region of Graz
Size	More than 100 companies in Graz (1000 around the world).
Contact	http://www.oekoprofit-graz.at ; http://www.oekoprofit.com

Setup and organisation of network

The Ecoprofit initiative was **founded in 1991** as a reaction to poor local air quality. The environmental department of Graz in cooperation with the Technical University carried out research on waste and emission prevention and developed the programme. In Graz 50% of the **project is funded** by the city itself and the region "Land Steiermark", the other part has to be financed by the participating companies.



The **project management** is located at the in the municipality. In Graz the environmental department leads the project. Its tasks are the organization of meetings, events and workshops. It acts as central information point; information flows among companies also exist. Consultants conduct the **operational project management**, accomplish the workshops, and the individual consultancy for each SME. In Graz the STENUM consultancy undertakes this job.

The **programme structure** includes different steps. Newcomers first participate in the one-year "**Basic programme**", which consists of workshops, embracing the main topics of cleaner production and individual consultancy to ensure the successful implementation of the knowledge gained in the workshops. After successful graduation of the programme a company receives the "**The Ecoprofit award**" as a sign for environmentally friendly production. **The Ecoprofit Commission** evaluates the successful implementation of measures in participating SMEs. In Graz the commission is set up by experts from the Chamber of Economics, the Chamber of Commerce, the University of Graz, the Chamber of Labour, consultants of STENUM and the Cleaner Production Centre Austria. "**The Ecoprofit Club**" was established to ensure the long-term effectiveness of activities after the completion of the basic programme. It aims to enhance the acquired knowledge in the "Basic Programme" through workgroups between companies, consultants and authorities to ensure a continuous development. The Ecoprofit Club has a stringer network character as all actors contribute to the success of the project with ideas regarding the design of workshops and events.

The Project on the whole is **controlled by the Cleaner Production Centre Austria**, which support the project management, assure the quality and success, evaluates the project itself and lead the **Ecoprofit Academy** – a "train the trainer programme" for the international dissemination of the programme.

Tools used for supporting the network's success

Provided information includes materials and best cases examples, which have been proven and continuously improved during almost 20 years of experience. Materials for the workshop are always related to practical

problems and needs.

Individual consultation ensures the successful implementation of the knowledge gained in the workshops.

Consultancies visit the companies and give guidance and advice according to companies specific needs and problems. They usually schedule 2-5 days for individually consulting per SME.

Trainings during the Basic Programme build the capacity of SMEs and their employees. The provided workshops embrace the following topics: introduction to cleaner production, waste management, energy- and material-flow analysis, environmental controlling and marketing, effective team work, creativity and legal compliance. The workshops always include feedback discussions, where the progress of implementation methods can be discussed among the participating companies and a homework task to implement newly learned topics until the next meeting.

Meetings are regularly organized during the basic programme to ensure strong collaboration. The Ecoprofit Club programme maintains connection and interaction of SMEs without any product leader, thus meetings are organized according to members requirements.

The Collaborating Online platform "www.ecoprofit.com" enables international collaboration among more than 1000 enterprises worldwide. It offers local Ecoprofit initiatives and their participators the possibility to exchange experiences and promote transfer of best practices and concrete business cases.

News are communicated through the "Ecoprofit-Journal", which is published twice a year and reports about advance and achievements of Ecoprofit enterprises, project partners and communities within Austria. Furthermore the Ecoprofit "Award-Booklet" presents all companies with their environmental improvements that graduated the programme successfully.

Marketing and PR is done through STENUM and the Department of Environment, which canvass new participants in Graz. The label "Ecoprofit Company" has developed into a certain standard and can be used as a sign for environmentally friendly production. Successfully graduated enterprises use the label to communicate their environmental commitment.

Networking facilitation is provided through the Ecoprofit Academy in Graz, which gives other regions the chance to transfer the programme to their communities. The offered "train the trainer programme" addresses consultants and local authority representatives worldwide and build capacity of their representatives to set-up an own Ecoprofit programme.

Competition of best performance is carried out within the Ecoprofit Club. Examples of indicators in order to compare environmental performance include: Water and electricity consumption per employee, costs per electricity consumption, electricity costs per turnover, non-hazardous waste per employee, non-hazardous waste costs per turnover, heat consumption per area.

Best practises are presented on a database in the international Ecoprofit Internet platform. Local examples are published within the Ecoprofit-Journal and Award Booklet.

Monitoring of SME performance is carried out during the basic programme, as participants have to meet certain criteria which lead to the Ecoprofit award. This method helps to enhance the commitment from the top management, bears companies' performance and attendance, keeps a certain momentum in the project and achieves a higher acceptance among employees. The Ecoprofit award has to be renewed annually. Evaluation is carried out by the Ecoprofit commission. Afterwards enterprises can continue with the preparation for International Environmental Management Systems like EMAS or ISO 14001.

Monitoring of the whole network process is carried out by the Cleaner Production Centre Austria. Informal evaluation is carried out through feedbacks from participating companies, consultants and project leaders and the cleaner production centre.

5.3 EFA Germany

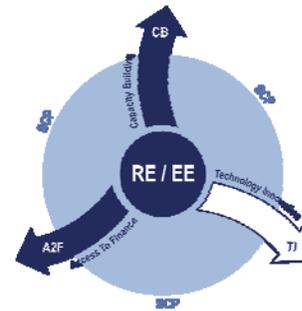
EFA's main approach is to involve as many SMEs as possible into the concept of resource efficient management by offering competent and independent support towards cleaner production.

Their objective is to help SMEs improve their competitiveness by cost-reduction, through reduced consumption of resources and minimization of waste and emissions. EFA'S aim is to show the economic benefits for SMEs of increasing efficiency.

Name	EFA Effizienz-Agentur NRW
Location	Federal state of North Rhine-Westphalia, Germany.
Foundation	In 1998 by the Ministry for the Environment of NRW
Time	Non-time limited
Scope	Federal state of North Rhine-Westphalia.
Size	Since 2000 over 1000 projects within SMEs.
Contact	http://www.efanrw.de/

Setup and organisation of network

EFA operates on behalf of the **Ministry for the Environment** of the federal department of North-Rhine Westphalia (NRW). Together with partners from industry, science and politics, EFA developed various tools to enhance SMEs' resource efficiency. The tools cover all important areas of companies' value chain, so companies can choose between a variety of services addressing the product design, the production process, the cost-accounting or the acquisition of funding.



A central task of EFA is the direct assistance and support for SMEs that include technical issues (presentation of innovative technologies and processes) and organisational issues (highlighting methods and strategies for their implementation). From the formulation of measures addressed to individual needs of the company till the implementation, a consulting project usually takes 6-9 month. A project is usually a triangle cooperation between an SME as client, the EFA as coach and an independent consultant as contractor. The company can apply for proportional funding in order to finance the consulting project.

EFA's activities include the **organization of the PIUS Cleaner Production Web-portal**, a platform offering information of operational experience with procedures, technology and practical measures. It went online in 2001 and is one of the most used websites regarding resource efficiency in Germany with 25,000 individual accesses per year. The Web portal is **collectively organized and funded** by the Effizienz-Agentur NRW together with the HA Hessen Agentur GmbH, the Sonderabfall-Management-Gesellschaft Rheinland-Pfalz mbH and the VDI Zentrum Ressourceneffizienz GmbH that work in a similar manner to EFA. The Web Portal hosts two collaborating networks, the PIUS Personnel Network and the PIUS Network Germany.

Tools used for supporting the network's success

Information is provided within the PIUS web portal. The information pool offers topic-based information within the field of resource efficiency. Conference papers and literature lists for research purposes are available on the web portal. Furthermore it embraces best practises of enterprises regarding production processes, technologies, methods and experience and concrete catalogues of measures directly addressing SMEs' needs. The material database offers material related data and application areas from various industrial sectors (e.g. metal industry, printing industry, textile industry, paper industry). With the help of the searching engine for targeting research member can find particular information of specific industrial sectors, materials or initiatives within one federal state.

Individual Consultation is the main purpose of EFA's activities. The EFA toolbox combines the networks different offers of direct, tailor made support to enhance resource efficiency of SMEs. The

PIUS Check is a process-oriented material flow analysis for the formulation and implementation of resource efficiency measures. The **Eco-efficiency Check for handcrafts** is a special instrument to optimize the use of operational resources in trade. The **JUMP Tool** is an instrument to optimise the product development process in terms of eco-design. The **maintenance check** helps to increase resource efficiency by an improved maintenance management. The **cost accounting tool** is a management instrument for identifying resource-related cost reduction potentials. The **PIUS financing tool** shows the way to attractive financing possibilities for the realisation of measures designed to enhance resource efficiency (It is described in more detail in the Extra-Box at the end of document).

Meetings on specific topics are used by EFA to present its experiences and approaches of resource efficiency on international events. The aim is to maintain and enlarge international contacts and to benefit from expertise and experiences of foreign experts, associations and projects. The objective is always to identify innovative technologies, popularize them and make them accessible for SMEs.

Website: EFA runs a website to present the network and its activities. Furthermore it co-organizes the PIUS Web portal, a collaborating online platform, in which two online networks are integrated.

The **PIUS Personnel Network**, founded in 2004, (180 members, status: 2009) enables users like SMEs to get in touch with experts. It provides opportunities for the exchange among experts of particular regions, sectors and topics. Members can allocate themselves to specific groups regarding their particular area of interest. These expert forums on particular subjects help to form the basis for future project related co-operations.

The **PIUS Network Germany**, founded in 2006, (270 members, status: 2009) is a socializing platform. It supports the exchange of members by linking the numerous projects, initiatives and experts from industry, science, politics and the public within Germany. The idea is to benefit from synergies of different approaches within Germany to develop cooperative projects or concrete collaborating networks.

Networking facilitation is also a part of EFA's scope of activities. Besides the direct assistance to SMEs EFA helps businesses to build up own networks and design own cleaner production projects. Furthermore EFA supports the collaboration of developers, providers, promoters and users of resource efficient strategies and technologies on local, national and international basis. They help with the transfer of their own approaches and support cooperation and participation with initiatives from agencies and associations within Germany and worldwide.

Competition of best performance is set in cooperation with the Fraunhofer Institute. The institute and EFA developed a benchmarking database to enable SMEs comparing their economic and ecologic performance within their industrial sector. (<http://www.oekobench.de/>)

Best practises are presented on EFA's website. It offers a best practise database, where successfully closed consulting projects are listed. They are classified into industrial sector, applied EFA tool, methods and resulted affects.

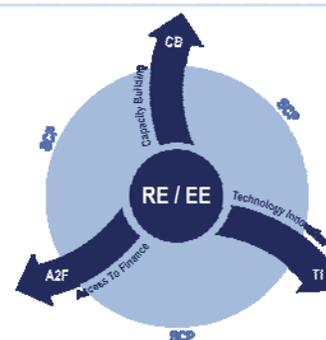
5.4 ESKTN United Kingdom

The Environmental Sustainability Knowledge Transfer Network aims to facilitate the transfer of knowledge and the exchange of experiences among SMEs and other stakeholders. Its goal is to foster innovation and collaboration and to provide a forum for a coherent business voice to express business' needs to the government.

Name	(ESKTN) Environmental Sustainability Knowledge Transfer Network
Location	United Kingdom
Foundation	Merged in 2009 from previous Environmental and Resource Efficiency Knowledge Transfer Networks.
Time	Non-time limited
Scope	National scope.
Size	6000 members (2010)
Contact	https://ktn.innovateuk.org/web/sustainabilityktn

Setup and organisation of network

The Environmental Sustainability Knowledge Transfer Network is **part of a group of knowledge transfer networks** which were initiated by the UK's Technology Strategy Board (The Technology Strategy Board is a business-led executive non-departmental public body, established by the government). The ESKTN is hosted by the Oxford University and delivered in partnership with C-Tech innovation Limited. The network is open for every kind of stakeholder.



Within the specific networks, **different interest groups** on specific aspects of environmental sustainability (for instance sustainable water management or Resource Efficiency and Waste Management) exist. These groups are partly initiated and run by the official network team itself, but can also be created by members.

Cooperation with other Knowledge Transfer Networks with related and complementary sectoral coverage and interests, such as Energy Generation and Supply, Low Carbon, Materials, Biosciences, Chemistry, and the Creative Industries takes place.

The network links SMEs of different sectors with professional bodies and trade associations, universities and research institutes, investment firms and funding agencies, respectively. The degree of **cooperation** varies. Collaboration between network members for projects is facilitated by the network.

Tools used for supporting the network's success

Information is provided within the collaborating online platform. It includes information about policy and legislation, reports on general sector aspects or on specific application measures. Furthermore it provides a collection of funding opportunities for SMEs. Some of this funding is directly provided by the initiators of the network, and focuses on collaborative research and development (R&D) and Knowledge Transfer Partnerships, but external sources of funding are also presented and updated.

Consultation on site by an expert is provided to access resource and energy saving potentials and show potentials for funding. The network also includes technical advisory groups for project generation.

Trainings, such as web-based seminars, e-training and e-conferencing are provided for free within the online platform. Furthermore the network provides irregular workshops e.g. addressing the specific needs of SMEs for example on raising finance or "Eco-Innovations".

Meetings on specific topics are indicated in a large database on the online platform. External and internal organised events enable and encourage members to take part in conferences for instance. to gain information

on new technologies.

The Collaborating online platform is the central point of the network and the basis for internal and external communication. After logging in to the site, members find information on specific topics and events, specific groups and have the opportunity to get in touch with other members using a personal online profile.

Newsletters are published monthly. They include updates about R&D calls and signposting. Published business cases and market analyses keep members informed.

Lobbying on the policy level for the interests of SMEs is carried out by the network to create a supportive policy framework.

Networking facilitation is provided with the help of the online portal. The network gives members the opportunity to create a personal profile, which is visible for other members. The platform also includes a business and R&D partner search. Several online services (Blog, Twitter, LinkedIn) facilitate communication and networking among members.

Best practise examples are provided in the newsletter and presented in workshops.

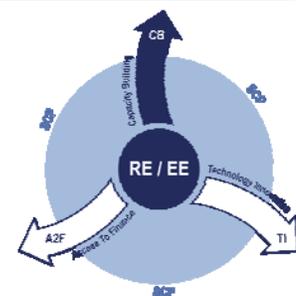
Research & Development & Presentation The network provides an opportunity for members to present their products and technologies at exhibitions and fairs. National and international cooperation for R&D is supported by facilitating networking and information on funding for these projects.

5.5 Hackefors Model Sweden

The Hackefors Model aims to improve the environmental performance of SMEs by facilitating the implementation and maintenance of an Environmental Management System (EMS), so that SMEs can achieve a joint ISO 14001 certification. Participating enterprises benefit from economies of scale and scope as through a joint certification process costs, time and human resources can be shared.

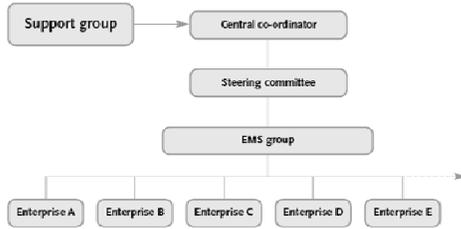
Benefits for SMEs to join the network are of the expected positive impacts on their business (e.g. image improvement through an ISO 14001 certification) as well as improved environmental performance (e.g. reduction of emissions, increased energy efficiency and substitution for more environmentally sound goods).

Name	Hackefors Model
Location	Hackefors district (Linköping), Sweden
Foundation	In 1996 by a group of small and micro sized enterprises in the Hackefors district.
Time	The project orientated initiation phase is usually limited to one year. Many networks collaborate and maintain relations afterwards.
Scope	Networks either they belong to the same geographic area, to the same industrial sector or to the same company group.
Size	The prototype network Hackefors consists of 30 SMEs. Until 2004 approximately 600 enterprises in about 40 different networks took part.
Contact	http://www.altea.se/



Setup and organisation of network

Hackefors Model Networks operate on a horizontal level within a local district. The participating small and micro sized enterprises have between 1 and 50 employees and usually a common affiliation. The individual networks which drive the group certification process consist of a consultancy, the participating SMEs and an accredited certification company.



The model is setup and organized as follows: All participating SMEs appoint an environmental agent who will represent the enterprise within the network. They form the EMS group. From the EMS group a steering committee is selected which in turn appoints a central co-ordinator. The co-ordinator can be selected from inside (e.g. a representative of participating enterprises) or from outside (e.g. an employee of

a consultancy).

The **co-ordinator** acts as a shared environmental manager for the whole network, is responsible for networks progress and represents the network on the whole. Experience showed that the group co-ordinator works almost full-time with day-to-day environmental queries for the certification process. His/her tasks are to prepare documents, to identify and communicate common legal requirements, to raise the interest of employees, to call meetings and to plan training programmes.

Functions of the **steering committee** are to examine the specific needs of SMEs within the network to determine training contents and adjust the EMS. The committee also plans the environmental auditing.

The **EMS group** meets regularly to make decisions, to train and educate coordinators and to exchange information about procedures.

Each **enterprise** develops its own EMS that fulfils the requirement of ISO 14001 and holds its own certificate, however a large part of processes and efforts can be shared and centralised within the network.

In the start-up phase 50% of the Hackefors the model was funded by the government. With the commercial reproduction of the Model by the consultancy Altea AB networks are now funded by participation fees of enterprises, which depend on the number of enterprises involved in the network and vary according to enterprises size. Fees are mainly used to finance the central co-ordinator and the support group (E.g. the service provided by Altea.) Experience showed that the process is working well without subsidies however the amount of training had to be reduced in order to keep the costs low enough to be affordable for SMEs.

Tools used for supporting the network's success

Provision of information is done by the consultancy Altea AB. They provide a database of environmental legislation to obtain the ISO 14001 certification. The Altea AB adjusts the database to specific operations and needs of participating enterprises. The body includes accounting rules for the financial department, taxation and social security contributions for the payroll department, employment law for safety officers and environmental law for environmental managers. The database is updated regularly to the latest version of environmental law.

Individual Consultation is provided to adjust to specific needs of each enterprise in order to analyze their environmental performance. The co-ordinator and the steering committee prepare a guideline that facilitates the specific identification of environmental improvements according to ISO 14001 within each SME. Each enterprise carries out its own assessment according to the guideline while the co-ordinator and the support

group (Altea AB) assist and supervise them within their progress. Dedicated enterprise visits are intended to discuss own reviews and set individual objectives and targets.

Training is conducted by Altea AB in form of regular courses and seminars at different levels. Topics are among others: Environmental Basics - the environmental impact, environmental management, quality management, chemical education, internal audit training, hazardous waste & recycling and risk analysis. Environmental trainings are not only made for the selected environmental agents of each enterprise. The training of all employees is essential to motivate them to participate effectively and make them understand how to cope with environmentally related tasks.

General Meetings are held monthly during the EMS implementation phase to exchange general advances. Enterprises agree on certain homework tasks that have to be fulfilled within the next month. General meetings provide an opportunity to share experiences and discuss systems with other enterprises of the group. Group meetings are not only organized for the implementation of EMS but also to maintain relations within the network afterwards.

Meetings on specific topics were set up in Hackefors by enterprises themselves, as they became aware of the benefits within a network approach. Thus the model encouraged relationships also outside the EMS process. Enterprises in Hackefors increased the categories of waste collected separately, so some categories could be re-used by other enterprises within the network. Further collaboration was the establishment of co-ordinated transportation, joint purchase of energy, a creation of a district heating system, shared of collective services (pool for workers, caretakers, security guard) and shared office equipment.

Website The Hackefors Model does not have an own **website**. Altea AB as consultancy provides the basic information about the programme, however it is only available in Swedish.

Marketing/PR Altea AB and the Hackefors Model do not use any active communication or marketing strategy. However the model raised awareness in many regions across Sweden through word of mouth recommendation. Districts and enterprises contact Altea AB directly when hearing about existing networks and their success. On the international level the model has been mentioned and discussed as a prototype in academic research and several publications.

Best practise The Hackefors Model as a network approach and the environmental achievements of the participating SMEs serve as best case examples for further enterprises that adopted the concept.

Monitoring of SME performance is done through internal and external audits. Each enterprise set individual objectives and targets according to the collective objectives the network. Together they serve as a guideline for the networks' process. **Internal audits** are set by enterprises own environmental agents, which receive auditing trainings. Since auditors should judge objectively environmental agents do not audit their own enterprises to ensure independence and neutrality. In case of non-conformance with environmental laws, results are compiled and discussed within the network meeting. **External assessors** audit the enterprise in order to obtain the ISO 14001 certification. Afterwards regularly audits follow to maintain the certification.

Monitoring of the whole network process results from the certification of the whole group at the same time. SMEs act together like a large company purchaser and benefit from bargaining advantages. Costs for the external audit process are cut down.

5.6 National Cleaner Production Centre Sri Lanka

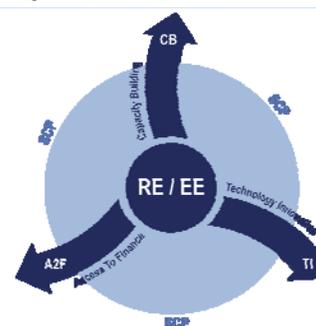
The goal of the NCPC Sri Lanka is to create awareness and disseminate the concept of cleaner production within local enterprises. The goal is to increase their competitiveness by assisting them with the implementation of Cleaner Production methods, practices, policies and technologies. The centre also gives advice to governments and other stakeholders advocating for a supportive policy framework.

Name	National Cleaner Production Centre Sri Lanka
Location	Colombo, Sri Lanka
Foundation	Founded in 2001 by UNIDO/UNEP
Time	non-time limited
Scope	National with links to international NCPC network
Size	-
Contact	http://www.ncpcsrilanka.org/

The aim of NCPC is not to deliver ready-made solutions but following a train the trainer approach to support the finding of best solutions for specific local problems.

Setup and organisation of network

The NCPC in Sri Lanka is part of the **UNIDO/UNEP National Cleaner Production Centre (NCPC) programme**, which was established in 1994 to build local capacity towards cleaner production strategies in developing countries and economies in transition. Until now NCPC were set up 47 countries worldwide, whereby the NCPC in Sri Lanka is the 23rd member of the NCPC Network.



The Centres are usually hosted by national institutions. In Sri-Lanka the Small & Medium Enterprise Developers (SMED), an institution established by Federation of Chambers of Commerce and Industry of Sri Lanka and Friedrich Naumann Foundation is responsible for the centres' organization. The Ministry of Enterprise Development, Industrial Policy and Investment Promotion supports the project.

The NCPC programme is jointly management by UNIDO and UNEP. UNIDO is the executing agency for the programme, with the tasks of establishing the centres, managing donor funding and providing technical assistance. UNEP develops and tests new management tools, policy instruments and applications, mobilises key policy makers and hosts international and regional conferences.

Within the **global network of NCPCs**, the centres collaborate within multi-country projects on an international and regional basis. The Asian NCPC network facilitates the Asia Pacific Roundtable for Sustainable Consumption and Production (APRSCP) which will be held in Sri-Lanka in 2010. A further joint project on the application of CP methods for saving energy and GHG emissions lead to the establishment of a interactive online guide targeting to mainstream energy efficiency potentials in Asian enterprises.

NCPC are funded through commitments of development partners through UN agencies. In Sri-Lanka the **initial funding** was provided by the Royal Norwegian Government. NCPCs are supported within a time limitation of three to eight years, the goal is that over time the NCPCs become financially and administrative independent running on self-financing basis by charging for their services, to ensure their long term existence. In Sri-Lanka anew funding agreement was signed by the Norwegian government in the end of 2009, thus the funding of the following 3 years is secured.

Taking into account that the global context has changed since the launch of the programme in the early 1990s, UNIDO and UNEP developed the Resource Efficiency and Cleaner production programme (RECP) in 2009 building upon the CP strategy by increasing production efficiency, facilitation environmental management and support human development. The aim is to expand and strengthening the network of NCPC by the new strategy.

Tools used for supporting the network's success

Information is disseminated within the library of the Centre, offering publications and other media regarding CP. Members of the NCPC Sri Lanka can access documents on the local website.

Individual Consultation on a technical and organisational basis is provided through direct professional advisory services to industries. The centre offers in-plant assessments to identify, evaluate and implement CP options. Quick-scan as well as comprehensive assessments are offered. Audits regarding energy, water, chemical and health & safety issues are held and advisory service regarding recycling, biogas and compost plant design is given. Advice on sources of financing for cleaner technologies also provided.

To monitor and maintain the environmental performance of enterprises and other organizations the NCPC provides measuring equipment which can be hired, whereby a consultant of the centre will undertake the measuring work.

Trainings are offered for different topics and target groups to raise awareness and build capacity. Topics of workshops are for instance energy efficiency & auditing, chemical management and leasing, life cycle analysis and solid waste management. All offerings are designed not only for enterprises but also for academics & local authorities.

Besides in-house training programmes, the centre also offers tailor made programmes for interested industries and organisations.

A annual auditor programme trains a set of auditors to ensure the dissemination of CP projects.

Meetings on specific topics. The Asia Pacific Roundtable for Sustainable Consumption and Production will be held in Colombo in June 2010. Implemented by the NCPC Sri Lanka the 9th conference of the APRCP aims to encourage dialog and partnerships between industry, governments, academia and NGOs in the region to shift towards sustainable growth.

The Website of the Sri Lankan NCPC provides information about the local NCPC and its work.

The collaborating online platform (<http://www.energyefficiencyasia.org/>) is an online guide for EE and CP for the Asian industry. It offers a descriptive information database regarding the topics EE and CP including technical and organisational tools for different industry sectors. Different tools embrace specific information of energy equipments, training materials, case studies, financing options and contact data. The online tool addresses different target groups including the company management, production staff, customers, financial institutions, the government and facilitators.

Best practises within the rubber & plastic manufacturing industry can be found on the local website. Further best practises are available at the online energy efficiency guide for industry in Asia.

Lobbying takes place as the NCPC acts as a public advocacy for CP, providing policy advice to national and local governments. The centre works with government agencies and other stakeholders in the country to create a supportive policy framework for CP.

Monitoring of SMEs is done through an annual award ceremony honouring enterprises for their successful implementation of CP measures and encourages continued efforts. Participating organizations are evaluated by a panel of judges consisting of representatives from industry, public institutions and universities.

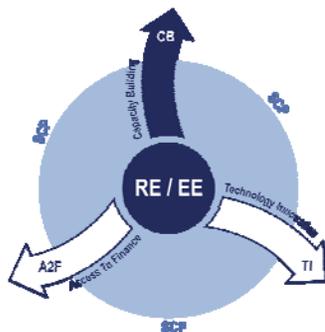
Monitoring of the network process was done in 2007, when an independent team under the guidance of the steering committee comprised of the UN agencies and key donors (Switzerland, Austria and Norway) evaluated the overall UNIDO/UNEP NCPC programme, including self assessments of all NCPCs. The evaluation pointed out that the NCPC programme has been highly successful in putting

CP on the agenda of governments leading to policy changes in several countries. Furthermore success was confirmed in awareness creation, training, capacity building and plant-level demonstration leading to the implementation of cleaner production in numerous industries.

However the evaluation further identified ways to expand the Programme in the future as tradeoffs were determined between the financial independence of NCPCs and the sustained impact of the Programme. Furthermore the strategy has not been conducive to networking between NCPCs operating in different countries and regions, as the potential for cooperation with other initiatives was not fully exploited.

5.7 Network Resource Efficiency Germany

The central objective of the network is fostering dialogues and cooperation between stakeholders to enable the target of “becoming the most resource efficient economy worldwide until 2020”.



The network aims to increase the importance of resource efficiency on production, retailing and consumption level by developing joint proposals for the design of political frameworks.

The Network pursues a bottom-up approach to create and identify new and innovative ideas of all participating actors in order to broaden the existing top-down approaches of the BMU sustainability strategy.

Name	Netzwerk Ressourceneffizienz/ Network Resource Efficiency
Location	Germany
Foundation	In 2007 by the German Ministry for Environment (BMU)
Time	Non-time limited
Scope	national
Contact	http://www.netzwerk-ressourceneffizienz.de/

Setup and organisation of network

The target of the German Ministry for Environment (BMU) to make Germany the most resource efficient economy worldwide until 2020 and to be the forerunner regarding resource protection and environmentally sound handling of commodities and raw material was the inspiration for the establishment of the Network. **The BMU funds the network** within the project “Material Efficiency and Resource Protection”- MaRess.

The **Project Management** is lies with the Wuppertal Institute in cooperation with the German Material Efficiency Agency (demea) and the Efficiency Agency of NRW. The Heterogenic, open, flexible, learning network links **actors** coming from enterprises (especially SMEs, of al size and industrial sectors) with multipliers from politics, public administration, business and environmental associations, labour unions, financial sector, NGOs, research and development, foundations, consultancies, education and media

Stakeholders interaction an Internet platform that provides information and possibilities for mutual exchange. The network design is open; everybody is welcome to contribute to its success. Members do not have special tasks and responsibilities; but all of them are encouraged to participate actively by developing ideas and initiatives to enable a continuous improvement. The initiators point out members’ collaboration as a main aspect of networks success. Information on the platform is transparent, however stakeholders keep their autonomy as collaboration is taking place exclusively on an external basis without disclosing internal information.

To address individual needs of networks’ **diverse actors**, offerings address two target groups. The first group are SMEs, regarded as direct applicators of resource efficient production. The other group are multipliers and

intermediates who encourage resource efficiency within politics, business and the public. Socializing events foster the collaboration between both groups.

The Network is an interface for exchanging experiences among networks operating on a national basis like PIUS, NeMat or Model Hohenlohe and on an international level as the Global Footprint initiative.

Tools used for supporting the network's success

Information is provided on the online platform, which offers various databases. The **data base highlighting incentives and tools for SMEs regarding RE** includes information about innovative concepts to intensify the utilization of products and services, resource efficient production processes and technologies, management approaches of successful implementation strategies, the inclusion of the entire value chain to tap resource efficient potentials and easy adoptable measures which can be applied immediately. The **data base highlighting educational offerings regarding RE** provides information about industrial trainings, study programmes, on-the-job trainings, professional trainings and educational material. The **data base of sponsorships for SMEs regarding RE** summarizes funding opportunities on the national and EU level, including sponsorships of ministries and funding opportunities of financial institutions. The **data base of awards** offered for successful SMEs presents for example the Material Efficiency Award (BMWi) and the B.A.U.M Award for outstanding engagement of co-operates environmental protection. The **database embracing the topic energy and resource efficiency as a whole** presents policy incentives for enterprises and links for further reading.

Training is not provided by the network itself, but the online platform presents training opportunities and qualification options carried out by network members.

A General Meeting is carried out semi-annually in Berlin. On this conference all members are welcome to take part, it offers opportunities for discussions, information exchange and joint development of new ideas.

Meetings on specific topics are offered irregularly on a regional and sector specific level. These events intend to raise awareness and inform about the topic, they offer support in implementing efficiency measures, inform about funding options for innovative technologies and set impulses to interlink among and within regions and sectors. If possible, events are directly hold in an enterprise to ensure practical learning approaches and to motivate other SMEs to take part.

The Website is the central information platform of the network. It offers information on resource efficiency and actual news from politics, business and science. The website is especially addressing SMEs and the public, thus the content is made up in an easily understandable way even for newcomers.

A Newsletter is released every three month. It includes actual news, information and dates of events, information about the network and good practice examples from SMEs and is available for everyone interested in the topic.

Marketing and PR is carried out through agenda setting with media, twinning or campaigning to anchorage RE within politics, business and the public.

Lobbying on the importance of resource efficiency on production, retailing and consumption takes place by developing joint proposals for the design of political frameworks.

Competition of best performance is not done by the network itself but the awards in the field of RE presented on the online platform aim to encourage SMEs to participate.

Best practises are presented at network conferences and available on the web portal or the newsletter.

Monitoring of the whole network process is done by the Wuppertal Institute. A periodic evaluation of performance secures the quality and the development of networks design. In May 2008 (one year after network's foundation) the Wuppertal Institute conducted a member survey regarding the contents and formal aspects of the network to be able to address members' expectations and needs in the further development and in the design of the network.

5.8 OEBU Switzerland

OEBU advocates environmental, social and management issues. It aims to promote ecological consciousness and action in the Swiss economy and particularly in the top-management of enterprises. It sensitizes and motivates enterprises to use environmental changes as chances to boost innovation and competitiveness.

Name	OEBU - Swiss Association and centre of competence for eco-conscious Business Management
Location	Zurich, Switzerland
Foundation	In 1989 in Switzerland in reaction to the student initiative of St. Gallen University (OIKOS).
Time	Non-time limited
Scope	Switzerland
Size	About 350 enterprises
Contact	http://www.oebu.ch/

Setup and organisation of network

OEBU's legal form is a registered non-for profit association with headquarter in Zurich. **Main actors** of the network are nationally based enterprises within Switzerland. They vary in size and sector and range from small family owned business to global players.

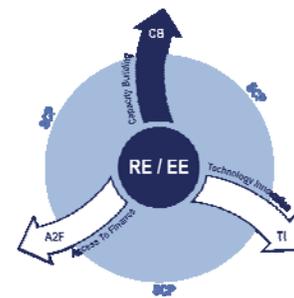
Member enterprises should be represented by the top-management as the network tries to concentrate decision-making power. The **collaboration** of networks' members takes place mainly on the level of exchanging experiences. Topics are addressed more generally as networks members vary in sector and size. Details exchanged within the network have to be kept confident and must not be used to strengthen own competitive advantages.

The association is organized and controlled through **three organs**: The general meeting, the board of direction and the board of control. The general meeting takes place once a year. Within the meeting, the board of direction and the board of control are elected and other organisational issues as for example the approval of the annual financial statement are discussed. The board of direction consists of nine representatives of larger enterprises and financial institutions, who work on a voluntary basis.

Operating and executing work of the network is done by the association's office, which consists of nine members (managing director, project manager and collaborating staff) and is appointed by the board of direction.

The network is **funded** through annual membership fees, which depend on enterprises size. Further funding is assured through donations and grants, earnings of events and capital gains of own funds. It is open for new members but the admission of new applicants is based on the board of direction's decision. Admission generally presupposes previous engagement in sustainable issues. New members are recruited mostly by recommendations or their own observation of the network followed by asking them for participation. The network places more emphasis on the support of its members with their sustainable management actions than on broadcasting the topic as a whole. Thus it aims to select adequate members rather than recruit as many enterprises as possible.

The network is collaborating with Swiss universities which support the network in various projects e.g. with the



OEBU award and the Cleaner Production Quick Scan. OEBU is linked with other national and international institutions and a member of the international Network for environmental management INEM.

Tools used for supporting the network's success

Information is provided on the website. It embraces documents regarding climate and energy, management systems, Eco-efficiency and effectiveness, communication and marketing, Corporate Social Responsibility and financial and policy issues. Every topic offers a small database where networks activities in this field as well as additional information can be downloaded. **The OEBU communication guideline** assists especially SMEs with the set-up of own CSR reports. It is enriched with best practises, background information and links on the topic. **The LCA Software guide** supports enterprises to find adequate software for environmental accounting. **The OEBU environmental law checklist** shows up instruments for the compliance with environmental law. Enterprises learn how to proof conformity with the complex requirements of ISO 14001 and EMAS by self-assessment.

Individual Consultation is provided through the **Cleaner Production Quick Scan**, which addresses producing enterprises and helps them to detect corporate potentials for environmental improvements. The analysis helps to reduce energy and resource use in order to save costs and protect the environment. Based on the Quick Scan more detailed assessments can follow.

Trainings are conducted within workshops. For instance the workshop "Introduction in management systems for sustainable business" takes place every year. The tools presented are especially addressing newcomers, who want to establish a corresponding management system.

A General Meeting takes place annually in form of the Forum OE. The conference is the central event for all members and representatives. Presentations and discussions focus on visions and strategies regarding sustainable business management. The forum is the networks' main socializing event and offers an opportunity for exchange between members. In 2010 its topic is „Ready to turnabout!“ thus the conference deals with instruments and parameters for the turn of businesses towards sustainability.

Meetings on specific topics are set up to support enterprises' interaction on specific topics with representatives from science and public institutions. The OEBU Business lunch is offered to present innovative enterprises. The target audience are decision makers from industry, politics, media as well as other interested people. OEBU's events help to realize ideas coming from its members. The OEBU structures a certain project, searches for an adequate platform, prepares a financial plan and organizes the project's realization. Non-members can take part in certain projects and workshops paying an extra charge.

The Website presents the network with its objectives and achievements.

The collaborating Online platform "Proofit" was set up to promote the idea of sustainable business addressing the specific needs of SMEs. It summarizes motivating information, good practise and suggestions for sustainable improvements within its "Infothek" and provides the "Effcheck", a self-evaluating tool that measures SME's individual environmental engagement and makes results comparable to those of other companies of the same sector. Through governmental support Proofit and a "Club of Profesors" can be offered free of charge. The latter consists of retired environmental- and energy-officers who work for the website in order to maintain quality and keep it up-to-date. They supervise Proofits work and act as ambassadors.

A Newsletter is exclusively published for members-I It informs about events and projects, about developments within the topics environment and sustainability and deals as central information medium for the whole network.

Lobbying: The OEBU encourages exchange between businesses, governmental administration, politicians, NGOs, the media and the general public in order to create a political framework that support enterprises' efforts towards sustainability.

Competition of best performance is carried out with the help of the OEBU award. Since 1999 it evaluates the quality of CSR reports of Swiss enterprises. The award appreciates enterprises efforts and fulfillments in combining their economic objectives with sustainable issues. The OEBU awards three larger enterprises every second year. A separate award is handed out to SMEs. Reports are based on an assessment instrument and supported by of the University FHNW (Fachhochschule Nordwestschweiz).

Best practises of enterprises' actions towards sustainability are collected within the Gallery OE. It embraces case studies from diverse members in all levels of companies' value chain and presents measures for economic, ecologic and social sustainability.

5.9 RAIN Anlagenbau Germany

The aim of the network is to develop new and optimize old machineries' and plants under energy and resource efficient aspects to save costs and reduce negative environmental effects.

RAIN Anlagenbau intends to develop machineries with lower energy consumption by applying intelligent control technology, machineries with economical construction by using a consistent lightweight design, machineries with a greater material flow rate through innovative process engineering and machineries with faster throughput times through optimised material flows."

Name	RAIN Anlagenbau
Location	Aachen, Germany
Foundation	In 2009 by ZENIT and several SMEs.
Time	Non-time limited
Scope	The region of Aachen.
Size	6 SMEs
Contact	http://www.zim-bmwi.de/netzwerkprojekte

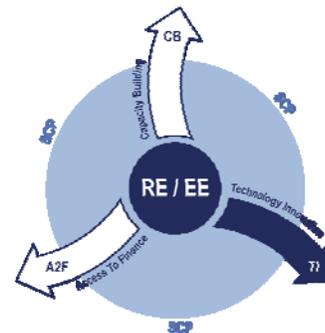
Setup and organisation of network

The RAIN network bundles the know-how of six specialised SMEs with the expertise of the University FH Aachen and the management skills of the ZENIT GmbH. The Project is sponsored by the German Ministry for Economy and Technology (BMWi) within the ZIM-NEMO programme.

The ZENIT GmbH operates in the centre of the network to **organize the whole process**. It acts as central contact point for network members and as interface to networks' partners. As project manager of RAIN Anlagenbau the Zenit GmbH is responsible for the administration, the Initiation and organisation of plant construction projects, the co-ordination of product developments and for marketing and PR issues. (The ZENIT GmbH as a public private partnership is funded by the federal state of North-Rhine Westphalia, a consortium of financial institutions and of the ZENIT e.V. Network that counts about 200 enterprises. The ZENIT GmbH supports structural change in the state by fostering innovation.)

With the cooperation of the **Fachhochschule Aachen** the network can guarantee a direct access to technological know-how and innovation. The University offers support in issues of research and development regarding technologic innovations.

The six **SMEs** are broad-based across the entire spectrum of energy and resource efficient machine and plant construction. They are specialists within the field of automatisisation, innovative technology, mechanical



processing, joining technology, 3D design and project management and management systems and operate collectively by benefiting from each other's expertise and experience. Together they can offer a full service for plant construction and acquire large-scale projects, which they could not manage on their own. They present themselves altogether on the market. As a joint supplier they design, manufacture and assemble individual plants according to costumers' requirements.

Tools used for supporting the network's success

Information embracing ideas and suggestions for energy saving through heat recovery during the production process and light weight construction to save resources can be found on the website.

Consultation in form of organisational advice is given by the ZENIT GmbH, which is responsible for the project management. The University of applied science Aachen gives practical assistance regarding R&D of technologic innovations.

General Meetings of network members are inevitable to develop and construct plants and machineries collectively.

The Website provides information and contact persons of the six member enterprises and the network management. Network members have access to an intranet which enables further collaboration.

News are frequently updated on the Website. They are well arranged in an extra box and present recent projects and events.

Marketing/PR is done collectively. The network is positioned as one independent supplier for plant and machinery construction. The members have developed a common catalogue of goods and services and a joint commercialisation strategy. The network presents itself on conferences and exhibitions, like the Hannover Fair 2010. They are canvassing customers with the following slogan: Competence - Know-how from six specialised enterprises, Experience - Successful realisation of numerous projects, Flexibility - Individual solutions from SME partners, Individuality - Customised solutions instead of an "off-the-peg" plant.

Best practises in form of references within plant construction and development are presented on the website.

Research & Development is carried out in the areas of plant and machinery construction where energy and resources can be saved. The utilization-phase of plants and machineries is ascribed mayor importance as the quotient of energy and resource consumption is considerable higher here than during the production-phase itself. Thus saving potentials during the utilization-phase are integrated in the plant design. But also within the plant construction itself, material savings can be achieved through the utilisation of optimised materials and by using eco-friendly lightweight construction, which allow savings in the plant itself with the same level of efficiency.

A Competition on best performance was won by RAiN Anlagenbau within the „ZIM-NEMO“ programme of the Ministry for Economy and Technology. „ZIM-NEMO“ sponsors management and organisational services for creating innovative networks. Subjects of sponsorship are services for the development of the network (phase I) and for the subsequent realization of the network concept. Initiatives could apply for the sponsorship whereas a jury with experts from research and development selected among others RAiN Anlangebau to be part of the programme.

Monitoring of the whole network process is done by the ZENIT GmbH. The activities of the network are based on a project management plan with milestones.

6 Lessons learnt from the best cases

6.1 Network goals

Network goals and focuses: The SCP networks shown in this booklet differ in the way they support SMEs in improving E&RE. The table demonstrates the networks main goals as well as their thematic focus.

The clustering into different network types highlights the networks' main goals and their respective fields of action. The classifications are not mutually exclusive – several goals can complement each other. The dark crosses indicate a strong orientation for the goal, the light grey crosses show that networks are active in the areas, but they do not represent the networks' main field of action.

Network goals: The different network goals represent different levels of collaboration and complexity. The least complex network type is the one providing **passive assistance** and information to its members. Many networks use the passive information provision to support their other activities. Networks providing **consultancy** go beyond this pure provision of information by offering tailored solutions to SMEs through on site consultancy of external experts. Consultancy is one essential element which can be found in almost all networks. **Knowledge exchange** between the network members requires interaction between SMEs and other stakeholders. The degree of cooperation is therefore higher. Not only interaction, but the finding of a joint position is essential for networks looking into **lobbying** for SCP. A close and direct collaboration is needed if a **joint project** is carried out within the network. However, this close cooperation is usually very limited to one topic or goal, like an ISO certification. **Strategic collaboration** is usually more long term and acknowledges the competences and capacities of the different partners for collaborative work. SCP networks following a more **holistic approach** focus not only on the SMEs as target group and their interaction with academia and researchers, financial institutions and policy makers but actively engage these stakeholders in the network to create a supporting environment for SMEs.



Main thematic focus: The crosses in the right columns also indicate the main thematic focus – capacity building, technology innovation or access to finance – of the SCP networks.

Case	Country	Name	Network goals							Thematic focus		
			Passive assistance	Consultancy	Knowledge exchange	Lobbying	Joint project	Strategic collaboration	Holistic approach	Capacity Building	Technology Innovation	Access to Finance
1	India	CoSmile	x	x	x	x			x	x	x	x
2	Austria	Ecoprofit		x	x		x			x		
3	Germany	EFA		x	x					x		x
4	UK	ESKTN	x	x	x	x				x	x	x
5	Sweden	Hackefors		x	x		x	x		x		
6	Sri-Lanka	NCPC	x	x	x	x			x	x	x	x
7	Germany	Network RE	x		x	x				x		
8	Switzerland	OEBU	x	x	x	x				x		
9	Germany	RAIN		x	x			x			x	

In the following the types of network goals are shortly presented:

Passive assistance: Passively assisting networks primarily compile relevant information on their websites to assist SMEs in understanding the relevance of SCP and showing up opportunities for implementation. Specific guidelines or self-assessment tools for networks' target audience broaden the offering and newsletters keep members updated on organisational and technical innovations, dates of events and good practises. The Network Resource Efficiency (Case 7) and ESKTN (Case 4) are examples for the network type.

Consultancy: Consultancy-orientated networks like EFA (case 3) have a less distinctive network character. Here a well-skilled organization offers support in terms of individual technical and organizational assistance to an SME. The aspect of consultancy can be found in almost all the networks presented.

Knowledge exchange: Networks primarily focussing on the exchange of expertise and experience like the ESKTN (Case 4), the PIUS network (the collaborating online platform of EFA (Case 3)) and OEBU (case 8) facilitate the exchange among experts of particular regions or sectors. The members benefit from learning, creating synergies and building joint strategies with other network members.

Lobbying: Networks like OEBU (Case 8), Network Resource Efficiency (Case 7) and ESKTN (Case 4) promote the importance of E&RE by popularising the topic within society. They lobby on the policy level in order to create a supportive policy frameworks that makes the uptake of sustainable production in companies easier.

Joint project: Networks like Ecoprofit (case 2) and the Hackefors Model (case 5) collaborate in order to reach a common objective within a limited period of time. They mainly consist of SMEs from the same area and are established to benefit from economies of scale and scope while implementing E&RE measures.

Strategic collaboration: These networks are established to support the collaboration of its members in their specific business field. The degree of collaboration can differ. Within a low collaboration level members may only

cooperate within environmental issues but still compete in their core business. A high collaboration can unite enterprises strongly so that they merge to joint ventures. RAIN (case 9) represents such a network type.

Holistic approach: Networks resulting from development cooperation's like the NCPC (case 6) and CoSmile (case 1) demonstrate the most comprehensive network approach. Both aim to raise awareness and disseminate the idea of sustainable production within enterprises by offering direct consultancy and training services. Additionally, they lobby on the policy level, initiate multistakeholder dialogue platforms to create supportive policy frameworks and access to finance and providing advice to national and local governments.

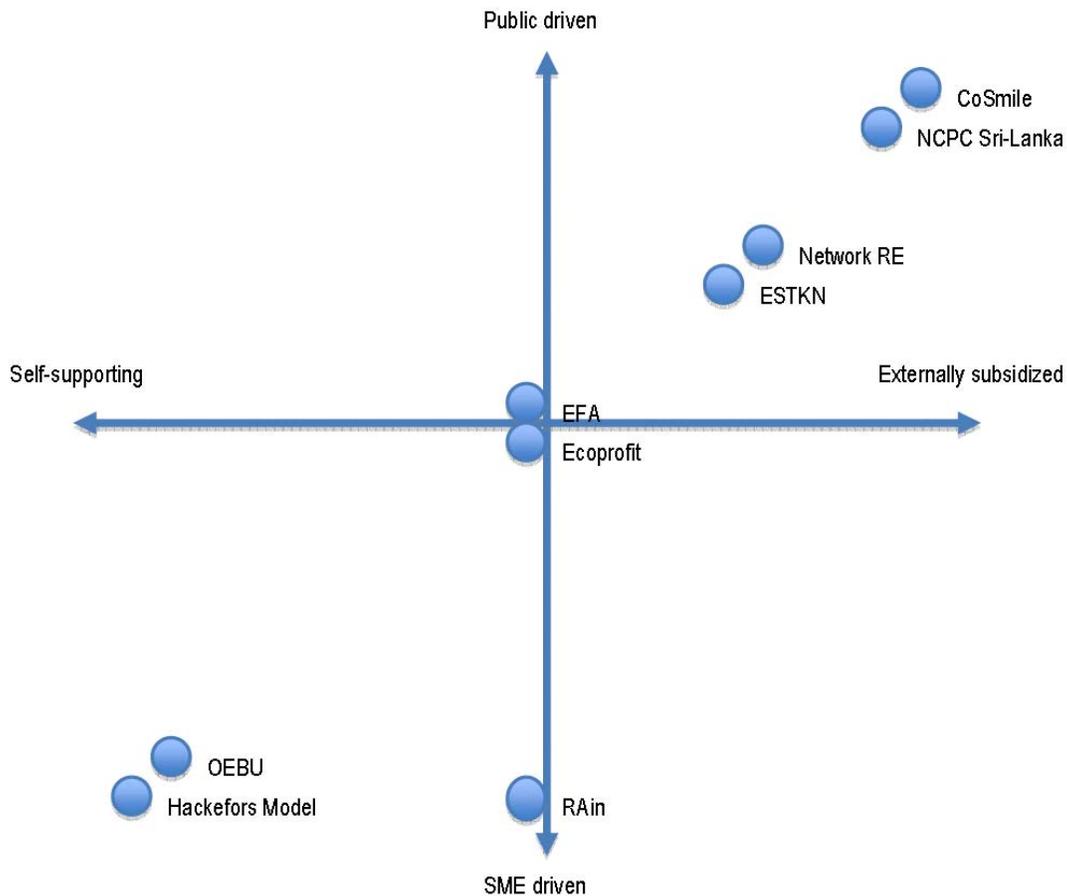
Thematic focus

Capacity building: Having a look to the thematic focus of networks, except the network RaiN, all networks include capacity building tools in their network strategies. This reflects the motivation of many the networks' members to increase their internal capacities by joining the network. The capacity building activities offered by the networks range from providing information in forms of information on the website, newsletters, best practices to guidelines and tutorials or seminars, on site trainings and consultancy of SME employees.

Technology innovation: In total, 4 of 9 networks include the dissemination of technologic innovations in their scope of activities. In the case of Network Resource Efficiency (Case 7) and ESKTN (Case 4) this is based on a business to business and business to academia cooperation to support innovation. In the case of CoSmile (Case 1), a whole group of actors is supporting technology innovation and transfer which includes industry, academia, NGOs, sectoral experts, and local and international consultants. Knowledge from other countries is used in this process.

Access to finance: Facilitating tools to promote access to finance is carried out by 4 of 9 networks. EFA (Case 3) provides a guidepost for SMEs to show up funding opportunities. They act as intermediates between SMEs and particular funding bodies, help to find adequate funding programmes and assist with the application procedure. CoSmile (Case 1) develops a financing scheme for SMEs while it builds at the same time the capacity of bankers to smooth the entire financing process for efficient technologies. ESKTN (Case 4) in contrast just offering information for SMEs about funding opportunities without facilitating this process actively.

6.2 Initiation and financing of networks



Initiation of SCP networks: The compilation of best cases demonstrates that SCP networks can be initiated by both, public and private actors. However most enterprises are characterized by tracking a reactive rather than a proactive approach and need to be encouraged by public incentives in order to implement E&RE measures. Reasons for that range from lacking knowledge on the benefits and business opportunities of increased E&RE to lacking knowledge and capacities to built up and steer a network.

Networks initiated by SMEs: Only three identified initiatives give evidence that enterprises can also follow proactive paths by setting own impulses towards E&RE enhancement. The Hackefors Model (Case 5) was initiated totally by SMEs in a rural Swedish region as entrepreneurs got the idea to benefit from economies of scale and scope when implementing an EMS. The strategic network RAIN (Case 9) was also set up privately by SMEs merging to supply efficient technologies, however a national funding programme that encourages network building is now supporting them. Networks that were initially founded by public incentives can also get independent over time. OEBU (Case 8) for example was initiated in reaction of a student initiative of St. Gallen

University (OIKOS) but is now organized only by its member enterprises. Networks initiated by SMEs are the ones with smaller specific goals, where SMEs see a direct business case.

Networks initiated by public bodies: As the graph shows, most networks analysed here were initiated by public authorities. This correlates strongly with the complexity of networks and with the capacity and interest of SMEs in supporting this complexity. Networks that go beyond a narrowly defined cooperation are usually initiated and steered by a public authority.

Funding of SCP networks: When looking at the network funding, different models have been identified. Most networks are funded partly or exclusively by public subsidies. Nevertheless there are some networks, which are able to work self-sufficiently by taking participatory fees of members or by charging for the services provided.

Funding through membership fees: The project based networks Ecoprofit (case 2) and Hackefors Model (case 5) charge participation fees from the SMEs to finance their training programmes. Whereas the Hackefors Model started with 50% government subsidies and now manages to cover 100% of their expenses on their own – Ecoprofit companies are to 50% subsidized by local municipalities or districts. OEUB (case 8) operates in a similar manner as an association and is fully funded by annual membership fees, depending on companies size, and by frequent donations and grants.

Part-funding by public bodies: EFA (case 3) operates on behalf of the ministry for environment of the German federal department North-Rhine Westphalia. They charge for the services provided but simultaneously helps SMEs to find an adequate funding programme. RAIN (case 9) is sponsored by the German ministry for Economy (BMWi) within the impulse programme ZIM-NEMO facilitating network building among SMEs. However, their subsidiaries are only used to fund the management and organization of the network – as they charge for their services provided.

Funding through development cooperation: The work of the holistic and development orientated networks NCPC (case 6) and CoSmile (case 1) depends on the commitments of development partners. The funds, in this case coming from Switzerland and Norway, have to be renewed after a certain period of time. As this might hinder their long-time success, the networks aim to become financially independent in the long run.

6.3 Stakeholder groups involved in the networks

Case	Country	Name	Stakeholder involved							
			SMEs	Companies providing technology to SMEs	Academia	National governmental agencies/ministries	Development cooperation agencies	Civil Society	External experts	Financial sector
1	India	CoSmile	x	x	x	x	x	x	x	x
2	Austria	Ecoprofit	x		x	x			x	
3	Germany	EFA	x	x	x	x			x	x
4	UK	ESKTN	x	x	x	x			x	x
5	Sweden	Hackefors	x						x	
6	Sri-Lanka	NCPC	x		x	x	x		x	x
7	Germany	Network RE	x	x	x	x		x	x	x
8	Switzerland	OEBU	x		x	x				
9	Germany	RAIN	x		x				x	

Analysis of stakeholder groups: The table shows that almost all networks rely on the cooperation and external support of experts and academia. Both stakeholder groups bring new knowledge and E&RE specific knowledge to SMEs, can give tailored advice or jointly develop new solutions for SMEs. Except for the networks aiming to work on a joint project or to collaborate strategically, public authorities play an important role in all of the networks. In the case of the two holistic networks CoSmile and NCPS, development agencies take a similar role. Two of the nine analysed networks cooperate closely with the financial sector, while three cooperate more loosely. Almost half of the networks cooperate directly with other companies which provide technical support to SMEs to improve the E&RE. The role of civil society in the networks is rather weak. This can be explained by the fact that the networks mostly focus on improving the production processes of SMEs, but it also demonstrates a lack of making the link between sustainable consumption and production aspects.

6.4 Overall conclusions

The analysis shows two broad different types of networks: The first type can be defined as “**narrow network**”. It is mainly initiated and funded by SMEs themselves and focuses on narrow and specific goals connected to SCP. These networks are built when SMEs are already aware of economic benefits arising from increased energy and resource efficiency and see a business case in collaborating in order to reach these benefits. Their main focus lies in capacity building activities and activities for technology innovation for the specific aim of the network. As a result, the stakeholder groups engaged in these types of networks are limited in number. Only the SMEs plus the stakeholders directly relevant for the specific goal of the network – e.g. experts of energy efficiency – are involved as well. This narrow focus at the same time keeps the administrative burden and the costs of the network comparatively low.

The second type can be defined as "**broad network**". It is characterised by the fact that public authorities and development agencies initiate the networks and fund most of their activities. These networks are more complex than the first type: They aim at informing and convincing SMEs that they can benefit from SCP and offer a broad range of supporting tools to them. In most cases, the networks don't only offer assistance to SMEs but facilitate the interaction between them and other actors so that tailored new solutions, methods and technologies can be developed. These networks more often include all three focus areas capacity building, technology innovation and access to finance. Often, these networks don't only support SMEs in improving their production processes, but they also engage with policy makers and financial institutions to create a supporting framework for companies that are willing to change.

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8 About the project

8.1 The Switch programme

The SWITCH-Asia Programme aims to promote economic prosperity and poverty reduction in Asian countries through sustainable growth with reduced environmental impact by industries and consumers, in line with international environmental agreements and processes. The projects under the SWITCH-Asia Programme focus on the issues of sustainable production and sustainable consumption patterns and behaviours. The programme is funded by the European Commission.

8.2 The SCI-Pak Project

The Project „Sustainable and Cleaner Production in the manufacturing industries of Pakistan –SCI-Pak“ is operating under the SWITCH-Asia network facility. Head of the project is the ttz Bremerhaven, supported by the UNEP/Wuppertal Institute Collaborating Centre on Sustainable Consumption and Production (CSCP). Implementation partners from Pakistan are the Iqbal Hamid Trust (IHT), a non-for-profit Development consulting firm and the Cleaner Production Institute (CPI).

The programme aims to develop a model of sustainable production through the implementation of Energy- and Resource efficiency (E&RE) initiatives among small and medium-sized enterprises (SMEs) in the textile and tannery sector in Pakistan. Additionally to this immediate target group, the project aims to expand the number of industry stakeholders from additional SME manufacturing sectors, such as the Pulp & Paper, Sugar, and other energy intensive industries.

One activity of the project is the creation of a Sustainable Consumption and Production Network in Pakistan. The Network shall link SMEs of the manufacturing industries with stakeholders from financial institutions, universities, the government and consumers to exchange know-how and experiences, to build capacities and provide credits, respectively. The aim is to create a collaboration facility to foster multistakeholder dialogues towards SCP in Pakistan. The best practice collection on Sustainable Consumption and Production Networks in Europe and Asia presented in this booklet will support the creation of the network in Pakistan.