

IMPACT SHEET • SWITCH-ASIA PROJECT
**SUSTAINABLE & EFFICIENT INDUSTRIAL DEVELOPMENT
(SEID) – BHUTAN AND NEPAL**

**Resource and energy savings in MSMEs
contribute to poverty alleviation and an
improved living environment in Bhutan
and Nepal**



**200 MSMEs were supported by the SEID project to increase
their resource and energy efficiency by 15%**



The Challenge

Landlocked countries, Nepal and Bhutan, are among the least developed countries (LDCs), with 77% of the population in Nepal and 49% in Bhutan living under poverty line (2010 data). Urban and rural dwellers in Nepal suffer from an acute energy crisis. Nepal also faces challenges to revive its tourism industry, which is affected by the recent earthquake. Bhutan's economy depends heavily on imported goods and services, and local enterprises have difficulties in creating their own competence, which is pivotal for the future sustainability of the country's economy and society. In both countries, there is great potential in development of the agro-based and tourism sectors, considering the climate and topographical conditions, as well as their rich cultural and historical heritages.

Objective

The project aims to contribute to sustainable development of Nepal and Bhutan through the reduction of environmental impact of industry, employment generation, and poverty alleviation, particularly in the tourism and agro-based industrial sectors.

The specific objectives are:

- To reduce costs by saving resources with more efficient production and operation processes;
- To lower pollution by encouraging companies to implement appropriate treatment measures;
- To improve health and safety standards for workers;
- To enhance capacity of national consultants through training and field work;
- To provide access to existing knowledge and practice for sustainable consumption and production (SCP) from inter/national initiatives, as well as green financing schemes.



TARGET GROUPS

- Micro, small and medium-sized enterprises (MSMEs) in the tourism and agro-based industries
- Environmental, energy, and managerial consultants and service providers
- Business associations, industry associations and academia
- Public institutions, government authorities, industrial park management authorities and policy makers
- Company workers (especially women)

Activities / Strategy



Capacity Building

Forty young engineers and technicians have had their capacity built regarding resource efficiency, cleaner production, renewable energy, and energy performance of buildings, as well soft skills, such as technical reporting and communication skills to equip them for environmental consulting.



MSME Support and Materials

Through CEO Forums and stakeholder conferences in different regions, enterprises and business associations are encouraged to participate in the SEID company support programme. The knowledge and advice for SCP is collated in training manuals, guidelines, worksheets and checklists. These practical materials assist national consultants and participating companies in understanding and implementing SCP practice. Appropriate technology solutions are also developed and demonstrated, according to the needs of the participating MSMEs and the available resources in the region.



Alliance Building and Empowerment of Academia

The SEID project creates synergy among industry associations, NGOs, academia, and inter/national projects for SCP. Global best practice emanating from this exchange of expertise is introduced to local companies and institutions. Green Clubs are being formed in schools and colleges to introduce pupils and teachers to SCP practice. The clubs undertake various activities, such as demonstration seminars about vermi-composting, competitions for the upcycling of waste into useful products, and awareness campaigns using games to create an atmosphere, which further nurture their creative minds in promoting sustainability concepts and practice.



Policy Improvement

With assessment studies on policy and institutional frameworks, as well as the lessons learnt from the field, the project provides practical suggestions for the implementation or revision of existing institutional instruments and measures.



Improving an insulation for more efficiency

Scaling-up Strategy



Continuous Capacity Building of Local Consultants for 200+ MSMEs

Through the capacity building programmes, the local consultants (LCs) have been trained to deal with a wide range of industrial sectors, such as dairy, confectionery, bakery, carpet manufacture, tea production, beaten rice mills, hotels, and restaurants. Equipped with knowledge and skills, the trained LCs have visited more than 200 MSMEs in different regions, and provide environmental consulting.



Showcasing through Success Stories

The MSMEs, which have adopted the proposed SCP measures and appropriate technology solutions, serve as effective showcases to other MSMEs with similar business settings. They demonstrate not only the technical feasibility, but also the economic and environmental benefits. Entrepreneurs share efficiency-related issues and technical expertise during the LC consulting, CEO Forums, and dissemination forums.



Building Partnership and Green Clubs

SEID facilitates dialogue and networking amongst key stakeholders, i.e. government departments, financial institutions, industry associations and academia. The alliance building programme includes partnerships with inter/national projects and institutions. Green Club activities contribute to spreading environmentally friendly ways of living at the household level.



Publicity, Knowledge Management and Dissemination

Many MSMEs and other organisations benefit from publicity, knowledge management, and dissemination of the SEID results. Outstandingly companies are honoured by awards, awareness materials are widely distributed among key stakeholders, and success stories published in print/online media.



Electric water heater



Tourism and agro-based industries are the backbone of Nepal's and Bhutan's economy, contributing to a major share of GDP and employment generation. The SEID project is highly relevant as it responds directly to the economic and environmental challenges faced by these industries, by transferring knowledge and skills for SCP practice, showcasing appropriate technology solutions, and enabling key stakeholders.

*Dr. Myung Joo Kang
Lead Project Manager, GrAT*



Local consultant presenting project activities



Solar water heaters implemented by SEID

Results



Enhanced the Capacity of Local Consultants and MSMEs

More than 40 local consultants and representatives from industries and academia have received intensive training on resource and energy efficiency, waste management, renewable energy and building energy performance. Additionally, through the implementation of SCP practice in specific industries, entrepreneurs and business associations have been informed of green technology solutions and know-how in environmental management. Ten Green Clubs (with 745 members in Bhutan and Nepal) have been established to promote the concept of environmental conservation. A set of instructional manuals in English and Nepalese, training handbooks, and awareness materials with practical examples have been published and disseminated.



Improved Resource Efficiency and Working Environments

Currently more than 200 MSMEs are receiving SEID's consultation services and most are benefitting from reduced operational costs and optimised resource efficiency, as well as improved working environments. The amounts of hazardous material used for production and waste destined for landfill or combustion have been lowered. Use of renewable energy, particularly solar, and renewable materials has increased. Campaign materials for resource and energy savings are installed in every member company.



Developed Appropriate Technology Solutions

Solar water heaters for hotels, dust collection systems for beaten rice mills, and improved cook stoves for restaurants have been developed, with related instruction manuals. Food processing companies have been identified for customised development and technical demonstration.



Training workshop



Established Strategic Networks

Strategic partnerships with ongoing/upcoming inter/national projects have been established to exchange existing knowledge, information, and materials to address the needs of MSMEs in the target sectors. Formal agreements have been signed with a number of selected academic, governmental and business institutions.



Mainstreamed RE and RP in Policies/Strategies

Governmental bodies and business associations have been provided with practical suggestions on how to implement and/or revise the existing policy documents, such as hotel rating standards and a cleaner production policy paper in Nepal; and green building guidelines and a subsidy programme for renewable energy (RE) technology in Bhutan. High-level officials and decision makers from relevant government agencies and partner agencies have been further supported through workshops on the implementation of the strategies and instruments.











The project helped us to minimise our energy and resource consumption with several energy/resource efficiency techniques and good housekeeping practices, which resulted not only in cost savings, but also more competitiveness in the market.

*Ms. Saguni Singh Shakya, Manager
Kathmandu Guest House, Nepal*



Impact in Numbers

<p>Economic Impact</p> 	<ul style="list-style-type: none"> Achieved cost savings through resource and energy saving measures: <ul style="list-style-type: none"> Nepal: NPR 5 323 400 (approx. EUR 44 600) annually, based on estimations from 57 MSMEs; Bhutan: BTN 11 654 000 (approx. EUR 133 000) annually, based on estimations from 38 MSMEs. Additional business opportunities through SCP implementation: <ul style="list-style-type: none"> Service quality (hot water, lighting) improved, which could result in increased room rates at hotel; Increased business volume for green technology suppliers. Improved the supply chain by linking suppliers (service providers) with buyers, promoting green technology / products / service providers, etc. 	<p>Green Finance</p> 	<ul style="list-style-type: none"> Introduced two banks and one association of bankers to the concept of green finance for MSMEs. Supported a national subsidy programme in Nepal for a biogas digester and improved cook stoves with the involvement of local consultants and MSMEs through dissemination forums. Provided information on feasibility to apply for a national subsidy (public-private partnership) programme in Bhutan, for a solar water heater. This demonstration showed fiscal feasibility for investment by the beneficiaries, technology providers and the government at the ratio of 30%, 30% and 40% respectively, with a payback period of 6 to 8 years.
<p>Environmental Impact</p> 	<ul style="list-style-type: none"> In Nepal, based on the analysis of 57 MSMEs, 113 613 kg of CO₂ and 1 166 306 litres of water will be saved every year. In Bhutan, based on the analysis of 38 companies, 924 865 kWh electricity, and 5 809 000 litres of water will be saved every year. Reduced solid waste by approx. 25% in two example hotels. Implemented SCP measures, such as the adoption of renewable-based technologies (heat pumps), insulation of hot water pipes from the solar water heater to reduce the electric load for geysers, and PV panels to reduce diesel consumption. Reduced water scarcity (via installation of aerator taps and reduction of cistern volume) and reduced air pollution (reduction of diesel combustion and firewood). 	<p>Target Group Engagement</p> 	<ul style="list-style-type: none"> Reached more than 350 MSMEs via the CEO Forum in seven regions, benefitting some 200 MSMEs with environmental consulting. Involved 10 stakeholder groups through more than 25 outreach activities, such as CEO Forums, (field) training sessions, stakeholder conferences, best practice forums, business association programmes, meetings with other ongoing SWITCH-Asia projects, etc. Engaged various stakeholders, such as hotel associations, industry associations and the Ministries of Industry, Environment and Tourism in Nepal; Department of Renewable Energy in Bhutan, Ministry of Works and Human Settlement in Bhutan, industrial park management authorities, etc.
<p>Social Impact</p> 	<ul style="list-style-type: none"> Improved working conditions by reducing indoor air pollution up to 80% in the example beaten rice company; reducing the emissions of carbon monoxide and smoke by increasing the efficiency of cook stoves; creating a workers' welfare fund in three hotels/restaurants; and introducing health and safety risk reduction measures. Improved the livelihood of local communities, e.g. reducing dust pollution around beaten rice industries in Nepal and reducing noise pollution. 	<p>Policy Development</p> 	<ul style="list-style-type: none"> Engaged policy makers through meetings, training workshops, large scale seminars (40+ participants), exhibition of local building materials, and a technology showcase trip to Austria. Three new policies were defined, based on the project's recommendations. Submitted a revision for hotel rating standards in Nepal; supported the release of green building guidelines in Bhutan; submitted a proposal for a public-private partnership programme for renewable energy use.
<p>Climate Benefits</p> 	<ul style="list-style-type: none"> Reduced fuel consumption (firewood, diesel, LPG, kerosene) and reduced GHG emissions. Promoted the use of renewable energy, e.g. solar water heater, natural solar lighting in 34 MSMEs. Promoted various GHG mitigation measures that were implemented by SMEs, e.g. more efficient combustion for roasting beaten rice, improved cook stoves, reduced diesel consumption, shift to solar technologies, switch from LPG stoves to electric stoves (applicable only in Bhutan, where hydropower is abundant and affordable). Enhanced business awareness of climate change risks, e.g. metering and logging of consumption data for resource, fuel and waste; guest behaviour change campaign; placement of posters at MSMEs, for example to lower the temperature at geysers. 	<p>Europe-Asia Cooperation</p> 	<ul style="list-style-type: none"> Organised two EU-Asia study tours to Austria. Promoted knowledge transfer by bringing 35 local consultants and technical experts from Europe to visit India for SCP technology showcases. Conducted 30+ company site visits in Nepal, Bhutan and India by European SCP experts. Initiated EU-Asia partnerships through new consortia with Alternative Energy Promotion Centre, Nepal Trust, Hotel Association Nepal (HAN), Organic Agro Production Center (OAPC), Alternative Energy Promotion Centre (AEP), and Annapurna Conservation Area Project (ACAP) in Nepal. Types of SCP knowledge / experience shared: resource efficiency, cleaner production, green building technologies, building energy performance, waste management, occupational health and safety (OHS).



Legend

- Eligible countries for the SWITCH-Asia Programme
- Non-eligible Asian countries for the SWITCH-Asia Programme

Project implementation area

- City
- Region
- Country

The boundaries shown on this map do not imply on the part of the European Union any judgment on the legal status of any territory or the endorsement or acceptance of such boundaries.

OBJECTIVES

The project aims to contribute to sustainable development of Nepal and Bhutan through the reduction of the environmental impact of industry, employment generation and poverty alleviation, particularly in the tourism and agro-based industrial sectors.

DURATION



PROJECT TOTAL BUDGET

EUR 2 160 000 (EU contribution: 90%)

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