

IMPACT SHEET: Bioenergy - up-scaling the production and consumption of bio-energy to reduce carbon emissions and enhance local employment in Nepal

Reducing carbon emissions and elevating local green employment opportunities in Nepal



This project created over 15,000 jobs in the charcoal value chain while reducing 74,000 tonnes of CO₂ emissions and supporting Nepal's transformation towards sustainable consumption and production



CHALLENGE

Nepal's overall energy requirement for both domestic and industrial purposes increased substantially following rapid urbanisation and expansion of businesses, such as brick industries, hotels and restaurants. Unfortunately, these industries have relied heavily on imported fossil fuels (e.g. coal, LPG, kerosene, etc.), in spite of substantial increases in their prices. Fossil fuels cover more than 80% of Nepal's imports, with approximately 10 billion tons of coal imported from India every year. Use of these fossil fuels also increases the emissions of greenhouse gases such as CO₂. In addition, Nepal has witnessed an increasing number of forest fires due to the lack of responsible forest management. This has exacerbated existing environmental issues.

PROJECT BACKGROUND

To respond to these challenges and to facilitate the transition towards more sustainable consumption and production (SCP) patterns in Nepal, the European Union (EU) funded the collaborative project, under the SWITCH-Asia Grants Programme, titled, Up-scaling the production and consumption of bio-energy to reduce carbon emissions and enhance local Employment in Nepal (Bioenergy Project).

The Bioenergy project, which operated for three years (2014-2017), contributed to Nepal's inclusive economic growth, poverty reduction and environmental sustainability (tackling climate change) through the promotion of bioenergy based enterprises in parts of eleven districts around Kathmandu Valley and mid and far western regions of Nepal. Implementation was led by HELVETAS Swiss Inter-cooperation Nepal with a consortium of partners, including the International Union for Conservation of Nature (IUCN); ANSAB; the Sustainable Technology Adaptive Research and Implementation Centre, Nepal (STARIC/N); and Winrock International.

PROJECT OBJECTIVES

The project contributed to Nepal's national poverty reduction and reduction of carbon emissions via up-scaling the production and industrial consumption of bioenergy. Specific objectives included:

- Increasing production and industrial consumption of bio-energy to meet the rising energy demand replacing environmentally hazardous fossil fuels.
- Increasing opportunities to create additional local employment through charcoal value chain.
- Reducing carbon emissions by reducing the import of kerosene and LPG.
- Improving sustainable forest management to help reduce fire hazards.

TARGET GROUPS

- **Business Development Service Providers (BDSPs)**
- **Civil society and community groups**, including the Association of Charcoal Producers, brick kiln owners, Community Forest User Groups (CFUGs) and their federations
- **Institutions involved in financing**, including cooperatives, banks and insurance companies
- **Local government units**, especially those responsible for promotion of cottage industries
- **Small-sized charcoal producing enterprises** (pits and retorts) and their employees (mainly from socially and economically disadvantaged groups)
- **Private sector companies** such as restaurants and hotels who will benefit from switching to bioenergy
- **Marketing companies** needed to support charcoal suppliers and retailers

PROJECT ACTIVITIES

Baseline study

A baseline study of charcoal enterprises was conducted in all Project districts with the objectives to identify and record information on charcoal enterprises, exploring and capturing current industrial consumption volume of charcoal, specifically in brick kilns and gastronomy industries. The baseline study was carried out with the support from Ugratara Consulting Services.

Provide support to biomass producers and contractors to ensure sustainable supply of biomass

In 2014, 31 site level stakeholder consultations were conducted to identify biomass producers in Village Development Committees (VDCs) and Municipalities (these were prioritised by the district level Inception Workshops).

Strengthen capacities of charcoal producers to ensure sustainable supply of charcoal products

To identify and assess potential charcoal producing enterprises, the Area Potential Survey (APS) was conducted in Kanchanpur, Kailali, Bardiya, Banke, Kathmandu, Bhaktapur, Lalitpur, Kailali, Kavreplanchowk, Nuwakot and Dhadhing districts by concerned Business Development Service Providers in 2014. The methodology used in APS encompassed group discussions, questionnaire surveys, field observations and review of secondary data from the concerned government offices.

Policy dialogue with government units at the local and monitoring of value chain dynamics

In 2014, the Project initiated dialogue with relevant ministries and departments by organising the Project Launching Ceremony.

Facilitate agreements between biomass producers, contractors and charcoal producing enterprises

In 2014, the Project facilitated agreements between 11 community forest user groups and biomass buyers in Banke, Kailali, Dhadhing, Bhatapur, Nuwakot and Sindhupalchowk districts.

Promote improved charcoal making technology to increase charcoal yield per unit biomass

With the support from STARIC/N, one of the Project partners conducted a preliminary survey in 11 working districts to identify potential kiln manufacturers and/or fabricators. The methodology for selecting manufacturers/ fabricators encompassed selection of 70% of VDCs in priority area - P1 and 30% of the VDCs in priority area - P2. A public call for the Expression of Interest (EOI) from related manufacturers/ fabricators was also published in a national daily newspaper.



PROJECT ACHIEVEMENTS

- NRs. 500 million worth of transactions took place in the charcoal value chain.
- 589 enterprises were established and succeeded in producing 10,470 MT bio-charcoal by using 52,350 MT biomass from 111 community forests. The baseline study on biomass showed that the estimated mean shrub biomass in Cluster-1 (hill districts) was 6.37 MT/hectare, which was 12.87 MT/hectare in Cluster-2 (terai districts).
- NRs. 2,308,440 was provided as support (grant) by organisations as a result of the Bioenergy Project efforts. In addition, NRs. 10,634,080 worth of loans were facilitated by BDSPs, and NRs. 757,480 were provided by different cooperatives for buying charring kilns to start charcoal enterprises.
- The Bio-energy Entrepreneurs Association Nepal (BEAN) has been registered at the national level for conducting policy dialogues and creating an enabling environment to promote charcoal enterprises.
- 37 manufacturers/fabricators (two in Sindhupalchowk, one in Kavreplanchowk, three in Nuwakot, three in Dhadhing, five in Kailali, two in Bardiya, three in Banke, six in Kathmandu, six in Bhaktapur and six in Lalitpur districts) have been identified.
- The annual rate of charcoal production increased by 213% by 2017.
- The total charcoal production in 2014 was 111.26 MT; in 2015 it was 245 MT; in 2016 it was 2,449 MT; and 7,665 MT in 2017, supported by the Bioenergy Project.





The Bio-energy Project deserves a great applause as it does not only contribute to responsible forest management, but also to reducing carbon emissions and creating new enterprises and job opportunities, particularly for marginalised and disadvantaged groups, including single women, Dalit, janjati, among others.

Mr. Kripa Ram Rana
Constituent Assembly Member

Long-term project sustainability

HELVETAS Swiss Intercooperation Nepal, the organisation which led the Bioenergy Project, incorporated the 'Charcoal Enterprise' component in its 'Economic Growth and Decent Employment Programme.' The activities related to the follow-up of the Bio-energy Project were already incorporated into the Yearly Plan of Operation (YPO) 2018 of the programme. The lead firms (private companies) involved in the charcoal value chain as service providers and as processors/manufacturers already invested NRs. 111 million in this sector to ensure the sustainability of charcoal enterprises, even after the Project completion. The business plans of these lead firms also envisaged that the annual production of the charcoal would reach 14,000 MT (by 2027) as the Project was able to make 7,665 MT of charcoal for the year of the project closing.

In addition, the Bio-energy Project succeeded in registering the 'Bio-energy Entrepreneurs Association Nepal' (BEAN). The association, which is an umbrella organisation of the bio-charcoal entrepreneurs, will foster public private dialogue for market system development of bio-charcoal. This association also started advocating and lobbying for an enabling environment for the promotion of charcoal enterprises. Thus, the Project developed a market system that will continue to thrive beyond the Project's implementation period.

Project contributions to Climate Change Mitigation and SDGs



The Bioenergy Project contributes directly to **SDG 12: Responsible Consumption and Production**. Through designated activities, it aims to create a SCP cycle in Nepal. The project also contributes to SDGs 1, 7, 8, and 13. With respect to **SDG 1: End Poverty** and **SDG 8: Decent Work and Economic Growth**, it provided real opportunities for decent work conditions, specifically targeting groups who required poverty relief-focused actions. **SDG 7: Affordable and Clean Energy** and **SDG 13: Climate Action** were also at the centre of project's activities, linking efforts towards climate mitigation and resource efficiency.

Impacts at a Glance

Economic Impact	<ul style="list-style-type: none"> • 1,709 producers in the charcoal enterprises reached (60% were women). • 15,704 jobs were created through the entire charcoal value chain. • 10,500 new decent green jobs for at least 4 months per year were created by 2017 (baseline 2013). • 300 hotels, restaurants and party palaces are now using charcoal for preparing barbecued items. • 1,500 retailers and wholesalers have been found selling charcoal products (different types of briquette that include pillow, cylindrical, tablet shaped and beehive briquettes). • 31 potential charring kiln manufacturers/fabricators became skilled in fabricating Movable Improved Charring Kiln (MICK) and bonnet for Improved Charring Pit System (ICPS). • NRs. 500 million worth of transaction took place in the charcoal value chain.
Environmental Impact	<ul style="list-style-type: none"> • The annual reduction of CO₂ emissions reached 35,000 tons by 2017. • Over the project period a total of 74,000 tons of CO₂ emissions were reduced.
Social Impact	<ul style="list-style-type: none"> • Capacities of 2,000 women and men living near community forests were developed on technical and business aspects of charcoal enterprises through orientations, trainings and demonstration activities. • Green enterprises were created through up-scaling small and medium sized charcoal enterprises.
Climate Benefits	<ul style="list-style-type: none"> • The Project initiated arrangements whereby the private sector (BEAN) could undertake activities on reduction of CO₂ emission and voluntary carbon trading through a programme under the Gold Standard Certification of voluntary emissions reduction. • Maintain database of coal substitution and CO₂ emissions for CDM registration.
Green Finance	<ul style="list-style-type: none"> • 15 finance institutions' representatives received orientation on the Project and the possible areas where the financial institution could provide support. • NRs. 2,308,440 was provided as support (grant) by organisations as a result of the Bioenergy Project efforts, while NRs. 10,634,080 worth of loans were facilitated by BDSPs, and NRs. 757,480 by different cooperatives for buying charring kilns to start charcoal enterprises. • Charcoal enterprises at Sipapokhare of Sindhupalchowk district are being developed and financed by Linked Organic World Pvt. Ltd. with Sappros Nepal
Target Group Engagement	<ul style="list-style-type: none"> • 589 charcoal enterprises have been established. • The Project facilitated agreements between 11 CFUGs and biomass buyers in Banke, Kailali, Dhadhing, Bhatapur, Nuwakot and Sindhupalchowk districts. • 31 site level stakeholder consultations and workshops were conducted. • Outreach activities included: workshop organisation and delivery, training, study CO₂ reduction, meetings, conferences, as well as networking linkages. • The Bio-energy Entrepreneurs Association Nepal (BEAN) has been registered at the national level for conducting policy dialogues and creating an enabling environment to promote charcoal enterprises.
Policy Development	<ul style="list-style-type: none"> • At the policy level, with the formation of the 'Bio-energy Entrepreneurs Association Nepal', the charcoal entrepreneurs launched a forum to share and discuss their issues for lobbying. • A national policy for the promotion of bio-energy through the creation and development of green-enterprise was developed. • Joint collaboration occurred with AEPC, for promoting charcoal as a major fuel at policy level.



FUNDING

EUR 1,970,703
EU Contribution: 90%



DURATION

January 2014 - December 2017



PARTNERS



HELVETAS Swiss Intercooperation
(HSI)



International Union for Conservation of Nature
and Natural Resources (IUCN)



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