Eco Village Development Feasibility Study Report

Marin Rural Municipality of Sindhuli district, Nepal

Center for Rural Technology, Nepal

EXECUTIVE SUMMARY Final DRAFT

JULY 2020

The Feasibility Study was made in framework of an NGO cooperation Project titled “Strengthening the Eco-Village Development (EVD) concept: Affordable local climate actions for sustainable development in South Asia” in September 2019 to July 2020.

The Project partners: INFORSE-South Asia coordinators: INSEDA in India, CRT-N in Nepal; IDEA in Sri Lanka; Grameen Shakti in Bangladesh; and CANSA, coordinated by INFORSE and DIB in Denmark.

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The feasibility study is based on the Eco-Village Development Concept described in
Eco-Village Development as Climate Solution, Proposals from South Asia, 4th Edition, 2017.

EVD Project’s web sites:
www.inforse.org/asia/EVD.htm
www.ecovillagedevelopment.net

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http://crtnepal.org/

Executive Summary

This feasibility study report makes an effort to evaluate prospect of introducing Eco-Village Development (EVD) concept in new climatic and geographical region in Nepal. The feasibility study was performed in Marin Rural Municipality of Sindhuli district, Bagmati Province in Nepal. The work has supported in identification of village in new climatic and geographical region, which is completely different to the area or region where previous EVD project was implemented from 2015-2018. The previous projects were focused in mid-hilly region characterized by temperate climatic condition whereas this time the feasibility study has been conducted in the Terai region (flat land or plain area) of Nepal characterized by hot, humid and tropical climatic condition.

The study has primarily contributed in identification of potential locality or village where next phase of EVD projects can be implemented with a vision to develop pragmatic business model to disseminate appropriate EVD solutions (renewables and climate friendly technologies and practice) and thereby upscale EVD concept across the country starting from the adjoining villages and districts.

The feasibility study is based on the data collected at different level within the Marin Rural Municipality (MRM). The data were collected from the rural municipality office, ward office and village cluster and individual households. Various methods and approaches were embraced to collect both qualitative and quantitative data. Key Informant Interview (KII), Focus Group Discussion (FGD), structured survey questionnaire, and Geographical Information System (GIS) data were used to collect data at different level. Additionally relevant data from secondary sources were also referred.

43 representative samples were collected based on random stratified sampling method for household survey. The household interviews were paper based but the collected information was fed into a digital data collection platform in “Kobo Toolbox” using android application “Kobo Collect”. Altogether six FGDs in different village clusters were conducted to narrow down the scope process of identification of appropriate village cluster where household survey could be performed. The FGDs gave the overview of the localities based on existing issues under various thematic areas such as energy, environment, climate, demography, socio-economic status, culture, networking with line agencies and support from local community. The results of FGDs were analyzed by developing a village selection criteria matrix. There were criteria such as household number, settlement pattern, access to road, local commitment and contribution, nature and severity of EVD themed problems, existence of municipality program and availability and rapport with potential local partner organization.

Similarly, interaction at municipal level was more aimed at building rapport with local government and henceforth scrutinizes the wards where the concept of EVD would be most effective to demonstrate climate friendly development modality for the concerned development sector stakeholders from the region and national level as well. The existing plans, policies and programs of the rural municipality were also collected from the rural municipality. The relevant local and national level information on policies and programs pertinent to EVD concept were mainly collected by referring relevant literatures and other secondary information sources.

Based on the interaction and data obtained from the municipal level, ward level and village cluster level, Bhalumara village cluster in Ward No. 3 of the MRM was deemed to be appropriate to conduct household level survey. Household survey results complemented the findings from the data obtained from previous two stages. The data from the survey was analysed using ME Excel. The findings showed

that the area was suffering from acute water scarcity problem. Water scarcity had contributed in multiplication of other problems mainly in agro-sector for the local residents who represented poor communities. Agriculture practice is largely traditional and subsistence in nature. Commercial farming, as for now is something that the inhabitants can only imagine. In fact, in absence of ample water, agro-sector is bound to be rudimentary at its best. Overall, the major problem of the inhabitants revolved around water scarcity and primitive farming. This situation is quite alarming especially when the major occupation of the village dwellers is agriculture and remittance. Its circumstances like this that will encourage youth to venture in foreign job and cities in search of better livelihood for their family.

The situation with the energy sector is comparatively satisfactory when compared to water access and agro sector. Cooking is done mostly using firewood in traditional cook stoves. About 91 percent surveyed households are using such stoves while LPG is second most preferred choice of cook stove for 35 percent. Biogas was also found in about 35 percent households but 81 percent of those households has biogas system, which was not functional. However, presence of nationally known suppliers/companies of renewable energy technologies enhanced the potential of identifying, developing and testing the business model for EVD solutions like improved cook stoves and solar PV.

The village has good access to electricity but almost all sampled household had 5 A connections, limiting the use of multiple electrical appliances, which would have contributed in reducing drudgery of the family members. Almost every household has solar PV for lighting, which was still in use. The area receives ample solar irradiation, around the range of 3.9-4.5 kWh/sq.m, which is enough to support any solar-based EVD solutions.

Finally, the feasibility regarding the EVD solutions were primarily focused on those solutions that had potential to address aforementioned problem of the village dwellers. The feasibility were analysed based on technical, economic, cultural and political aspect. Unsurprisingly technologies that could address water scarcity and primitive farming were found to be most feasible. EVD solutions like solar water lifting, rain water harvesting, improved cook stoves, plastic tunnel integrated with micro-irrigation, organic farming were feasible solution while solutions like solar PV for street light, solar dryer with potential to improve agriculture value chain, plastic ponds, biochar, and cowshed management were categorized as moderately feasible. EVD solutions, which did not demonstrate feasibility in any one of the aforementioned feasibility aspect, were put under this category. Some EVD solutions, which did not meet the aspiration and needs of communities, were deemed not feasible for the village.

The underlying objective of feasibility study in Nepalese context was to identify village cluster with data that would depict the potential to be project area for the EVD project in the next phase. Unlike previous EVD project, this time while developing project proposal for EVD phase 4, the finding and learning from the feasibility study was incorporated. The EVD solutions to solve the local problem of the identified village was recognized following interaction, analysis of primary data from household survey and participatory discussion with the local stakeholders representing the government, community, NGOs/CBOs financing institution and private sector working in energy, WASH, agriculture and climate. Similarly, feasibility study gave opportunity to build rapport with aforementioned stakeholders, which contributed to foresee advocacy events and activities that can propel development of business model for appropriate EVD solution for the identified area. Moreover, this study has provided impetus to understand challenges and opportunities to promote and upscale the EVD concept as climate smart development practice to reduce the poverty across the country starting from the village cluster deemed feasible for upcoming EVD phase 4 projects.