



Eco-Village Development Practices in South Asia

Stories and Case Studies

Prepared by
Climate Action
Network South Asia

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Scaling up of Eco Village Development Solutions

Impacts of climate change is a great leveller as even advanced countries such as United States, Europe, Japan and emerging economies like India are reeling under rising coastal flooding, large precipitation events and heat wave that resulted in loss of lives and livelihoods. However it is Small island developing countries that face existential threats due to climate impacts.

The Conference of Parties 24 in Katowice, Poland is set to lay out rules of climate action under Paris Agreement for all the Parties by adhering to the principles of equity and common but differentiated responsibility. The rules should drive developed countries to vacate the carbon space more quickly for developing countries to meet their development goals without losing sight of sustainability.

While rapid development to eradicate poverty, energy deprivation and ecosystem restoration is on the cards, developing economies need to rely and deploy local solution rather than conventional ones that created climate change in the first place. It is applicable to all emerging economies but more relevant to countries in South Asia considering their climate vulnerability and low adaptive capacity towards climate change. Thus governments in South Asia must consider Eco Village

Development (EVD) as a model to shape their agricultural and renewable energy sector.

The effectiveness of the EVD as an alternate pathway towards sustainable development of village as a unit, has been established through the demonstration villages set up in diverse socioeconomic, geographic and climatic conditions across Bangladesh, Nepal, Sri Lanka and India. The international climate policy space need to take cognizance of the fact that local solutions accompanied with community mobilisation, involvement of women and children and appropriate training and capacity building brings lasting changes. EVD solutions provide alternative income source and strengthens agriculture based livelihoods.

EVD promotes climate action by reducing GHG emission and building adaptive capacity of vulnerable communities. Sub national governments which have the mandate to implement climate policies need to integrate EVD principles and solutions into state action plan on climate change. Apart from allocation of state budget for replicating EVD, international climate finance needs to be tapped. Active involvement of private sector is essential in order to replicate EVD. ■

From Paris to Tehri

The Paris Climate Agreement took place at the end of 2015. How will that affect the people living in the poor mountainous Tehri Garwhal District in Uttarakhand, some 200 km from the Nepalese border, and how will, that affect the millions of other people in South Asia around the world living in similar conditions?

In 2015 in Paris, the countries of the world agreed to stand together to stop man-made climate change and limit global warming to 1.5°C or at least to well below 2°C. The Paris Agreement set out ambitious goals and plans of global co-operation to stop climate change and to adapt to the climate changes that cannot be stopped. It, however, leaves a lot of important details that are key for how it will help the people in Tehri and other places, where the inhabitants have not benefitted much from the strong economic development enjoyed by some people in South Asia, and by many people in the global north.

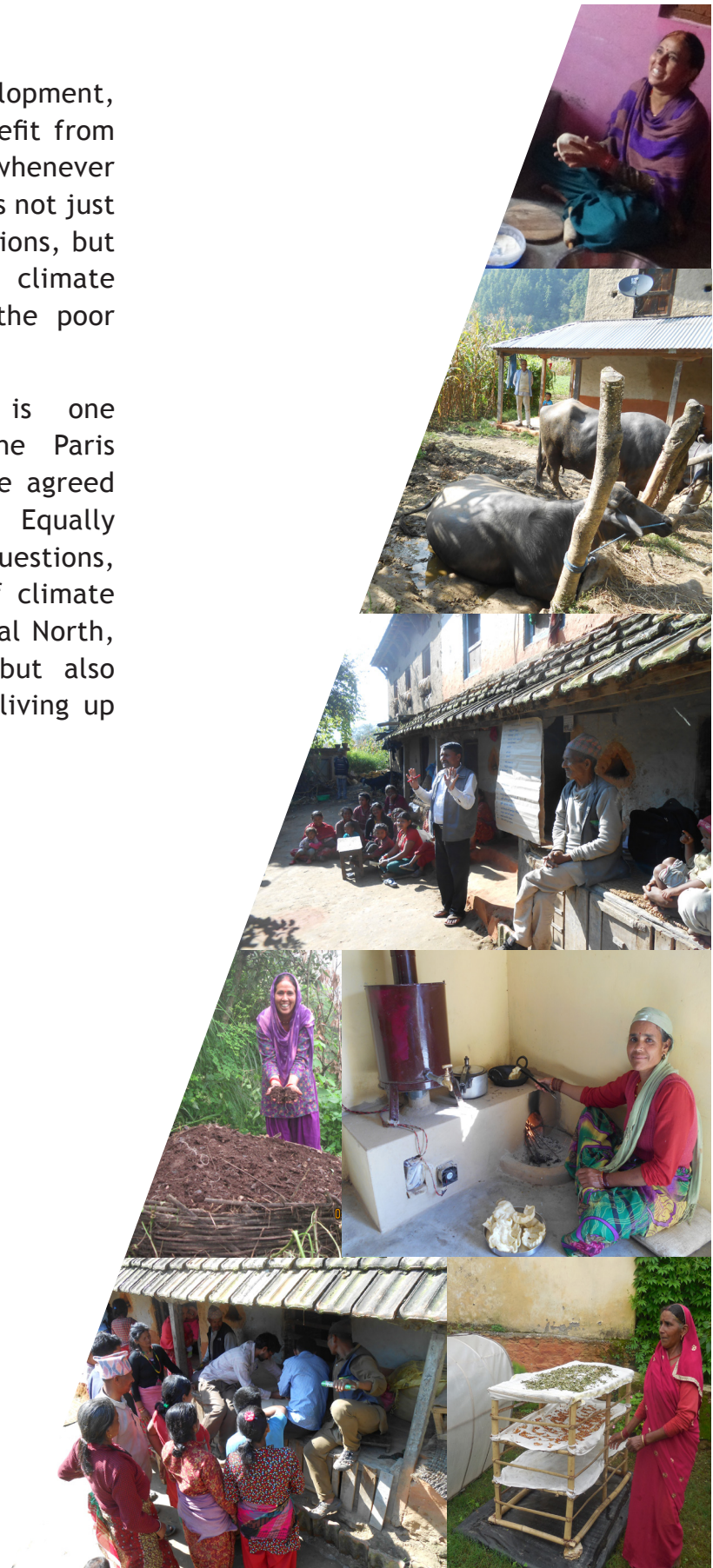
The first step from Paris to Tehri is the government implementation of their part of the Paris Agreement. This is captured in their climate strategies, which included in their Nationally Determined Contributions (NDCs) to the Paris Agreement. At this moment, the countries are negotiating the

international guidelines for the NDCs. They negotiate this as part of the Paris Agreement Work Programme to make the Agreement operational.

In the reduction of greenhouse emissions, everybody should take part, also the people in Tehri, but with their low income, they should receive sufficient support to be able reduce their present emissions in ways that support their development, so they in the end they are better off. To help that to happen, the NDC guidelines should recognise small contributions from the people in Tehri, as well as all other small and large contributions to reduce climate emissions. The small contributions of the eco-village development concept that also people in Tehri start to use (improved cookstoves, household biogas, solar home systems etc) adds up, when millions of people using them. The guidelines should include objectives of poverty reduction and of sustainable, low-emission developments. This will help the climate actions to be directed to places like Tehri, where climate action can go hand in hand with needed poverty reduction and development. Even though the poor people do not have the largest emissions, and it cannot be left to them to reduce emissions, they are the ones that will benefit most

from a sustainable development, and they should also benefit from the climate actions, whenever possible. And for them it is not just about reductions of emissions, but also about adaptation to climate change, that threatens the poor the most.

The NDC guidelines is one important aspect of the Paris Agreement that should be agreed as soon as possible. Equally important are other questions, including the question of climate financing, where the global North, in particular the USA, but also many countries, are not living up to their promises. ■



Eco Village Development - INFORSE

Eco-Village Development Concept Acknowledged by Local Government in Nepal

Centre for Rural Technology- Nepal (CRT/N) has implemented the Eco-Village Development (EVD) Project since 2015 at three different villages of Kavrepalanchowk district (See map) to promote several environmental-friendly activities including renewable energy technologies, improved agricultural practices, forest conservation, water and waste management by using local level resources.

For the maximum utilisation of local resources, labour and by deploying local knowledge and capacity and identifying effective environment-friendly alternative for livelihood enhancement and implementation of such concept in actual life, the EVD' Concept has been developed. It provides a basket of solutions, which are decentralised, affordable, robust, low carbon and emphasise on the productive utilisation of local resources

to fulfil needs of vulnerable communities in a sustainable manner. This concept brings the deprived community especially women, poor and marginalised groups to the mainstream and enhance their capacity socially, environmentally and economically for the empowerment and also commit priority to equal gender participation.

108 households, including women and disadvantaged groups are directly benefitted by project activities. The project has played a vital role on enhancing the livelihood of beneficiaries through the use of various eco-friendly solutions such as renewable energy technologies, improved agricultural practices, forest conservation, water and waste management by using local resources. After developing successful demo villages, CRT/N has been advocating in the national and international arena for the



BETHANCHOWK RURAL MUNICIPALITY
Chalal Ganesthan (Sikrigyang-9)
Dhunkharka (Ladkhu-Chanaute-2 and 9)
Chyamrangbesi (Chyamrangbesi-2)

inclusion of such concept in the national climate-related policies of Nepal.

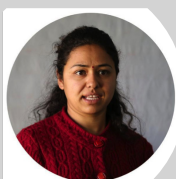
With a new federal structure, where all power is now with the local level government, CRT/N has signed a contract with the newly elected local government of the Bethanchowk Rural Municipality to implement the second phase of the project. Since then all the activities of the project are conducted with their full support. Newly elected body with new enthusiasm has seen the output of the project and has accepted this concept. During several one to one meeting and local and national events, CRT/N has been advocating to include EVD concept in their village development plan. CRT/N has also played a facilitation role to link rural municipality with the National Planning Commission (NPC) and Alternative Energy Promotion Centre (AEPCC) to

develop their village as renewable energy friendly village. In their revised planning process, they have mentioned EVD component and agreed to work on the promotion of renewable energy technologies like improved cookstoves and other to reduce the impact of climate change, to conserve, and preserve watershed area, forest, to manage solid waste, encouraging local level enterprise by using locally available resources and so on. In coming fiscal year, they assured to allocate budget for EVD and its component. ■



The EVD project has a greater impact in Bethanchowk Rural Municipality. From the inception period of the second phase, CRT/N has actively and jointly implemented various eco-village related activities and climate friendly activities with us (Municipality office) which are very productive and liked and accepted by the beneficiaries. Especially, the agro-biodiversity management and skill-based training and capacity building activities are the unique approach to engage local farmers. We are thankful to CRT/N and looking forward to support and collaborate on scaling up this concept or initiatives that the organization wants to implement in this area.

- Mr Prem Bahadur Timilsina, Chairperson, Bethanchowk Rural Municipality, Kavre



The EVD project is one of the best projects implemented in Bethanchowk Rural Municipality by CRT/N, as the project has taken care of improving the environment and biodiversity in the area and is jointly implemented with local governing bodies in a very transparent way. The project is women-friendly and also has engaged many youths who are unemployed and eager to learn something practical about agriculture, farming system, and new technologies to improve their livelihood and climate change mitigation and adaptation. We are also planning to declare one of the ward or village as a model eco-village in future.

- Ms Sarita Lamichhane, Vice Chairperson, Bethanchowk Rural Municipality, Kavre

Pico-grid an Option for Climate Smart Village: A Case Study from Jhansi

Four villages in Babina Block of Jhansi District of Uttar Pradesh made a history in the region by taking the initiative of making their own energy from solar pico-grid. Development Alternatives helped them in establishing the pico-grid, developed the capacity of the communities especially women and youth to manage the grid, helped them not only putting the LED bulbs in their houses but also helped them in establishing solar irrigation pumps and therefore, managed to develop four climate smart villages in Jhansi district. This initiative started to address the request of local youth and women to provide alternatives to kerosene oil for lighting their homes and diesel irrigation pump set for reducing the cost as well as the pollution free environment.

DA came up with the idea of establishment of pico-grid and distribution of decentralised electricity to the villages and thereby forming an eco- village or climate smart village. A pico-grid can generate 300-500 WP electricity and can be connected to maximum 30 households for providing them basic need of electricity consisting of a LED light bulb and a telephone charging facility. The biggest challenge in establishing these pico-grids in any rural areas is the continuity of the facility. Lack of ownership

becomes the biggest threat for the sustainability of this initiative. To overcome these challenges and to continue the process, several meetings were organised by DA with the community especially with the women and youth who were the prime customer of this facility, exposure visits were arranged to the places where these are run by the community successfully.

In Babina block the facility is running really well for last five years. Before the solar panels, the community have been trained in such a manner that it became their own initiative. Initially 25-30 households were formed a cluster and a three members' committee was formed from each of the cluster named as 'hamari bijli mahila samity' who took the charge of revenue collection of Rs.120 per household per month for maintenance of the system, cleaning of the panels, ensuring security of the panels, paying the AMC of the system and taking the ownership. A bank account was opened in the name of the committee and the expenditure was incurred directly from bank to maintain the transparency to the system.

Another committee named 'hamari bijli kisan samity' was formed for maintaining the irrigation system in these four villages. One samity

was consisting of 6-12 farmers. The solar panels were put up in one farmer's land but the ownership of the panels rested with all the six farmers who are under the same cluster. The youth of these villages made to take the responsibility of collecting revenue from each farmer for maintaining the system, cleaning of the panels and ensuring security of the panels and for paying AMC to the vendors. The local youth from the communities trained on operations and maintenance of the grid and resolving small technical issues and Annual Maintenance Contract (AMC) with technical vendors. The initial cost of each farmer was Rs. 500 and after that it became Rs. 200/- per month. A bank account was opened and maintained for bringing the transparency in the expenditure.

These initiatives resulted in access to reliable, affordable source of energy for households, reduced expenditure on electricity, as compared to kerosene (from Rs. 200/ month to Rs. 120 / month), children got more time to study in the evening and it was a clean source of energy which reduced adverse impact on health, households received cheaper and better access to communication owing to mobile charging facility within their own homes, households started getting better returns from their farming operations, including better agriculture yield which in

turn empowered both the women and the youth to take decisions on behalf of the family. The pico-grid finally improved the overall environment of villages by reducing the carbon dioxide emission from kerosene and diesel.

The factors played behind the successful implementation of the initiatives were:

- Community ownership and women and youth mobilised to volunteer and take responsibility of managing the systems
- Bank accounts opened for transparency with respect to account management
- Ensuring zero political involvement / interests helped tackle caste issues
- Youth were mobilised and engaged effectively, which led to more ownership and contributed to their taking leadership roles
- Catering to demand created by neighbouring villages for grid installation led to additional pico-grids being installed and hence greater awareness towards solar based lighting

These four villages of Babina block became an exemplary model for climate smart villages in the whole Jhansi district and these needs to be replicated in other areas of rural India for overall socio-economic development and environmental improvement of the country. ■

Eco-Village Development: a Sustainable Path for Developing Climate-resilient Villages in Bangladesh

There are 60,000 villages in Bangladesh where 65% of total population (160 million) live. Out of 160 million people, 30% people do not have access to grid-electricity and around 80% people depend on biomass for daily cooking. Burning of fossil fuel inside the thousands of houses as well as inefficient burning of biomass for cooking trigger the adverse effect on the health of rural people (mostly women and children). On the other hand, farmers are highly dependent on chemical fertilizers in this agriculture based country. No doubt, villagers are being affected from these anthropogenic activities.

The model of ‘Eco-Village Development’ involves the implementation of appropriate, environmentally-friendly renewable energy technologies and capacity building activities for climate change adaptation and mitigation in villages. ‘Eco-Village Development’ is an integrated approach of creating climate resilient focused low-carbon communities of practice in villages. The unique feature of the ‘Eco-Village Development’ model focuses participatory planning that is driven by demand from villagers and networking in the villages as well.

Interestingly, Sustainable Renewable Development Authority (SREDA) and Rural Electrification Board (REB) have signed an agreement for 1,024 villages that would be electrified by renewable energy. Mr Sohel Ahmed, Managing Director, Grameen Shakti has proposed for commencing this type of sustainable intervention in those villages as a pilot project.

In a panel session titled “Context of SDG Village with 100% RE” at the national conference on “Achieving SDGs: Potentials of Renewable Energy in Bangladesh” held on 5 October 2017, speakers focused on sustainable development in the villages in the form of EVD Villages/ SDG Villages. Mr Sohel elaborately discussed the EVD model in Bangladesh as well as South Asia. Mr Siddique Zobair, Member, SREDA has mentioned that they would go pilot this EVD/SDG Model in 5-10 villages in off-grid areas.

Moreover, a GCF Project Concept Note submitted by Grameen Shakti to the Economic Relation Division of Ministry of Finance (NDA of GCF in Bangladesh) titled “Renewable Energy Based Climate-resilient Eco-Village Development in Rural Areas in Bangladesh” has been selected among 71 projects in the Country Programme (CP). Grameen Shakti has proposed for implementing this

EVD model in 100 villages in off-grid areas (among the listed 1,024 off-grid villages). No doubt, a new window is opening in Bangladesh for developing a sustainable Eco-Village Development (EVD) project at a larger scale.

Under the EVD project in Bangladesh, 4 Solar street lights (20 Wp each) have been set up in the off-grid village Khowamuri of Singair Sub-District of Manikganj. Villagers receive lighting from sunset until dawn. Villagers' gatherings are also more frequent at every street light. Moreover, women can move easily and continue domestic activities with street light as well.



Bamboo-made slurry pit

In the village Shudhkhira of Singair Sub-District, 1 Solar Water Pump (2,000 Litre reserve capacity with 1.5 KW Solar System) for clean drinking water has been constructed. The iron content is very high in the drinking water.

The EVD solution provides a model for a community-based school with clean drinking water as well as light within a sustainable framework.



Home gardening initiative

Moreover, a bamboo-made slurry pit with organic fertilizer based home-gardening system has also been implemented in the village Ashulia (Demran) of Dhamrai Sub-District of Dhaka. Now, owners of these 10 biogas plants (who have bamboo-made slurry pits) have used their backyards for crop cultivation with organic fertilizer that have been obtained from the bamboo-made slurry pits. The crop diversification has led to crops like eggplants, chili, pepper, ladies fingers (okra), cauliflower, etc this winter. ■

Eco-Village Development in Sri Lanka

Sri Lanka has shown its continuous commitment to the Paris Agreement through various national development initiatives. The development of 10,000 Bluegreen villages is one such ambitious initiative launched nationally, focusing on the INDCs at core.

The Bluegreen villages programme shows the progress in terms of conceptualization and operationalisation of the concept. In this context, scaling-up the Eco-Village Development (EVD) concept in Sri Lanka has been with efforts to collaborate and link up with the similar national programmes. In response, there have been several progressive milestones achieved by IDEA with regard to sharing

EVD experiences, information and knowledge.

The Bluegreen villages programme in Sri Lanka, is being nationally co-ordinated by the Ministry of Mahaweli Development and Environment of Sri Lanka and the initial key collaboration with EVD came under the event “National Dialogue on Sustainable Eco Village Development in Sri Lanka” which was co-organised by IDEA in July 2017. The dialogue paved the way to share experiences of the Bluegreen, EVD programme and other similar initiatives at a common platform. Since then EVD experiences, findings have been extensively shared with the ministry. The discussions from



Expert consultation on Guideline Development for Bluegreen villages



Mr Leel Randeni presenting Bluegreen village development approach at EVD regional event

this dialogue enabled to extend the collaboration to share the Bluegreen experiences at the EVD Regional Event which was held in Dhaka, Bangladesh in February 2018. Mr Leel Randeni, Assistant director (Environmental Planning & Economics) presented the Sri Lanka Bluegreen village concept at the regional event highlighting the importance of Collaborating with organizations such as IDEA with EVD, going forward. Since then, at national level IDEA Project Manager Dumindu Herath and Board Director Mr W M Leelasena were being invited by the ministry to give key inputs as sector experts to the development of Bluegreen village concept at two consultation workshops held at the ministry in March. One being with the focus to develop Bluegreen proposals and

the other to develop guidelines. Moreover, IDEA has submitted recommendations for further development of the Bluegreen concept in Sri Lanka, giving light to key learnings, approaches and solutions adopted in the EVD concept. These recommendations have being acknowledged by the ministry. In taking this collaboration forward IDEA is to organize a consultation event with the Ministry of Mahaweli Development and Environment to enhance national Bluegreen village guidelines in April 2018. In the meantime EVD capacity building activities and demonstrations are successfully carried out in the Matale District with collaborative inputs from Matale local government.■



Capacity building demonstration
on institutional stoves

Blended Financing for EVD: Domestic/International Financing to Scale up Local Solutions

For an integrated village level intervention to achieve scale, we have to move away from the “one size fits all” and typical grant based funding, to more specific blended financial models. Village based interventions have been known to be more long term, sustainable and above all economically viable compared to household level interventions. Financing has to be looked at from the integrated perspective of beneficiary payability, community in-kind contribution, bank lending, micro finance, government support and climate finance . There also needs to be a quantified payback over a period of time. In addition to this, usage for a few of the capital intensive interventions can be on a nominal charge basis which helps with the long term financial viability of the project, and keeps the community invested in the intervention.

For what we call a “climate smart village model”, the first step before any intervention is initiated, is to engage with the community on livelihood based activities for a period of time. We have seen that forming self-help groups and providing some seed fund for these groups to facilitate personal micro loans for small ticket revenue generating activities is a good start point. Economic activity in

the region is paramount for any these village models to work. Training and capacity building for the programme can begin through these groups and the installation, maintenance and user trainings can be driven through its members. Only once this buy in is achieved do you proceed. The SHGs and the community should ideally also have access to a vocational training facility and subsequent employment generation activities. South Asia being predominantly agrarian, crop storage facilities and market linkages are essential add-ons to the programme. Local governments can help immensely, not just for financing or subsidies but at administrative support too.

Finally, it has to be kept in mind that the definition of payback for such a programme, is different from a normal investment model. Here governments and international funds need to think beyond the payback period in terms of hard revenue collected, but through the offsetting of all the social costs that a government incurs on rural populations who face energy shortage, low agriculture output and sanitation related issues. So the payback quantification needs to take all of this into account, and therein lies the pitch to the international financing agencies as well. ■



Eco-Village Development Practices in South Asia