Promoting the Adaptation of Renewable Energy
Installation of Biogas Units in Tribal and Other Deprived Villages of Gudalur Block of Nilgiris Distt.
Background
India is one of the 17 mega biodiversity countries of the world and it together supports 7% of the species on earth. India is exceptionally rich in crop origin and species endemism. India has a total of 78 million ha of forest and tree cover which is 23.85% of India’s total geographical area. Some 275 million rural people depend on forests for their livelihoods in India, including 89 million tribal members across 700 tribal groups. Rural people directly depend upon climate-sensitive sectors (agriculture, forests and fisheries) and natural resources (such as water, biodiversity, mangroves, coastal zones, grasslands) for their subsistence and livelihoods.

The indigenous/tribal communities are not only the guardians of the biodiversity and related traditional knowledge, but simultaneously are under tremendous pressure due to poverty and over-use of the natural resources by indulging into unsustainable environmental practices. Nilgiris is one of the largest tribal areas in the state of Tamil Nadu, India. The most common tribes are Paniya, Kurumbas & Kattunayaka. The quality of life for these tribal communities continues to remain a challenge, as they have a “limited access” into the local programs and the credit facilities benefiting them. To balance between environmental benefits, the well being, livelihoods capabilities, equity and sustainable actions in the villages with locals, Centre for Tribal Rural Development (CTRD), the local NGO has been working with range of stakeholders for addressing the grass root actions through employee volunteers. The activities in the projects are ensuring to deliver quick results, involving communities to take responsibilities, decisions and share costs in cash and in kind.
The NGO approached in 2010 the Global Environment Facility (GEF), United Nations Development Programme (UNDP)- Small Grant Programme (SGP). Several discussions, informal meetings led to develop a common understanding that we need to institutionalize women into Self Help Groups (SHGs) and link them to use alternative energy sources to check drudgery, ill health due to massive indoor wood burning. Organic links need to be established between labour intensive works and conservation and just use of local resources in case we have to ameliorate poverty. Centre for Environment Education (CEE) encouraged the skills building approach as a growth strategy. During the process, the AIRBUS Corporate Foundation (ACF); Raleigh India; through employee volunteering program and Forest Department (FD) also joined hands in the partnership.

Taking a more practical approach between all partners, a project was developed as “Promoting renewable energy by installation of Bio-Gas units in tribal and other deprived villages of Gudalur Block of Nilgiri District”. All partners, Ministry of Environment & Forests, (MoEF), Government of India (GoI), CEF, UNDP, CTRD, ACF, FD, SGP, CEE and tribal communities joined hands in the project sharing and synergizing roles and responsibilities and sharing costs and decisions.

**Project Objectives**

The project objectives were to introduce sustainable alternative energy sources to conserve local woodlots; and to demonstrate Biogas as a low cost potential technology solution.

**Key Activities**

In last three years, 10 visits consisting of 159 officials from ACF and Raleigh’s India (under the employee volunteering program) have already spent time in partnering the local communities in the construction of 41 Biogas units and 41 cow sheds in 09 tribal villages with 41 poor tribal and scheduled caste households (HHs). This has generated nearly 2190 days of work by the employees of ACF & RI and leading to an in kind contribution of 25,000 USD at the minimum, along with nearly 1400 person days of work by the local communities.

41 pairs of buffaloes and cows have been provided to 41 poor families, with community sharing costs.

16 informal and formal trainings have been provided for building the local capacities of tribals in the livestock, including maintenance and management of Biogas Units, milk production and collection, links to the local dairy. Continuous exposure and trainings is also happening in the introduction of nutritional fodder plots and promoting the fodder availability through the year. More than 16 women SHGs have been promoted with 210 members bank accounts for tribal groups and individuals opened first time; regular monthly saving (Rs124,000 (US$ 2066)), in meetings and SHGs linked to a total bank credit of (Rs 650,000 (US$ 10,833)). The program scaled naturally to 06 more villages.
More than 510 informal and formal small village meetings spanning 1 to 3 hours each have happened with nearly 400 plus HHs by CTRD, the local NGO, to involve the communities, and other stakeholders in agreeing the norms for the biogas installation & management, cook stoves installation, sharing costs, fodder management, local vegetation conservation, SHG formation, milk collection and supply, livestock management and other enterprise management.

**Environmental Impact**

In all 41 biogas plants, each household saves about 8-9 kgs of firewood per day for nearly 280 days in a year and avoids deforestation in the local areas. In the last three years modestly the greenhouse gases emissions have been checked by nearly 2600 MTs of CO₂. Additionally the cook stoves introduction have further resulted in saving nearly 3 kgs of wood per HH per day with a total 690 MTs of CO₂ emissions checked and saving a regeneration of woodlots.

More than 35 MTs of organic manure has been produced through these biogas units leading to rise in the productivity of the crops and vegetation of the HHs and the neighbours. More than 50 % of the produce has been sold by the communities to other farmers in the area by the 41 HHs.

**Socio-Economic Impact**

By providing animals to the beneficiary households the communities not only have the cow-dung available for the biogas plants, but the milk is being sold on fat content basis to the local time by these tribals, for the first time, which is enhancing their incomes. The residue/washings of the cow-dung are used for improved fodder production, some tuber crops and turmeric, resulting into additional income for the local HHs.

On an average, 6 to 8 litres of milk is sold by the families on day to day basis. This is bringing additional income of Rs. 120 (USD 2.5) per day per family/household. Therefore all 41 HHs have since last two/three years had a sale revenue of nearly Rs 23,20,000/- (38,667 USD) resulting in additional income of Rs 25,000 per annum (US$ 416 USD) for 51 HHs, other 250 HHs have also gained through increased agricultural produce by the introduction of cash crops like turmeric, ginger and spices. These increased incomes
have led the locals into making consumption investments in asset building (better housing, utensils, radio, TV sets etc) and productive investments in goat and poultry programs. Nearly 150 families have saved a total of Rs. 2.5 lacs (US $ 4168) in their respective accounts. The program is instilling a new way of life for these poor communities, more so the women and those who are everyday eager to earn more.

Based on the feedback of the employees it is observed that the expeditions have had a significant and pertinent impact on the personal, professional and community lives of the volunteer employees. The expeditions can be considered as personality development of the ACF employees, having a direct impact on motivation, engagement and productivity at work. They are more optimistic about life and can see life beyond temporary setbacks and problems, have gained confidence and feel more at ease at sharing their ideas, are open minded and more tolerant towards the others and have improved their ability to cope with diversity.

They have become more active in protecting the environment and their actions have influenced others and have taken part in environmental projects outside Airbus and agree that it was a life changing experience for them.

Policy Impact

Government is extending the subsidy for biogas in beneficiary account, which is mostly in the name of women as today they have bank accounts and the funds can flow directly through banking transactions. Plantations of fodder along the margins of land holdings and around houses in homestead land is making the authorities to encourage all HHIs in the region to adopt sustainable fodder practices.

At the partner institutions, the employee volunteers from ACF and RI get a strong feeling of their contribution in mitigation of CO₂ emissions; develop team building amongst themselves and demonstrate in the field for communities to be inspired.

Youth Engagement and Participation

The project has engaged and interested the local youth for being volunteers in facilitating the program with CTRD on a range of issues. Some acted as translators, the others trained into masons, also as cattle herders, milk collection and vendors and a few as labour into the program. This new experience is very much involving them, creating interest, confidence in acquiring new skills and empathetic in interpersonal interactions.

The beneficiaries are selected through a transparent process on the criteria by locals and the Panchayat (local self-government body), basically poor tribals or scheduled caste families. The project is implemented with support from 12 to 18 volunteers in each batch. Both men and women from ACF, CTRD join hands to construct the Bio Gas units and the Cow Sheds in an 18 day on site living in tents.
The process in implementation of the program between the employee volunteers and CTRD is very participatory, in between themselves they select a leader of the day and rotate it to ensure that the process of implementation takes place on time. This rather innovative way of working with communities is really infusing a new spirit of inclusive growth, local action and empowerment while also effectively addressing to ensure environment protection.

**Gender Mainstreaming**

The women have not only been involved in planning and implementation, they also provided their manual labour along with the ACF volunteers (men and women). The local women communities first time saw women participating and taking decisions through the employees of CTRD, ACF, and RI and they have gained a new spirit and confidence in themselves of respectfulness. They were also trained along with men in maintenance of the biogas plants; feeling a sense of local ownership.

Smoke and soot are minimized at homes. This has improved the health of the local women. Kitchen and utensils are cleaner. Cooking time as well as cleaning time is saved. The women today feel a relief from drudgery and use spare time gainfully for the family and enterprise management.

**Replication and up scaling:**

It is a unique way of working with large Corporate Houses under their Corporate Social Responsibility (CSR) programs. With Indian Government making the CSR programs mandatory for large size industrial houses from the current year, there is tremendous scope of replication of such projects with the Corporate Houses.

**Lessons learned**

One of the key lessons is that in the beginning please keep it Simple. Simple and easy to understand methods to implement the project were mutually agreed between the partners. There has been a great learning for all the partners to step down, sit, listen and learn from the locals who need to be empowered and institutionalized, although being the last in the chain.

We need to facilitate in a way that there is good bonding between the insiders (communities) and the outsiders (experts). The ACF and RI volunteers not only learnt by doing the ground level activities, but also taught the local children, played games with them and ensured that quality outputs were produced while constructing the biogas plants. The sense of satisfaction that the Indian partners and the local community have seen with Airbus volunteers contributing to manual labour is over-whelming.