BAMBOO BASED APPROPRIATE TECHNOLOGIES FOR LOW CARBON DEVELOPMENT

by

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INSEDA (Integrated Sustainable Energy and Ecological Development Association) had been working as the socio-technical development organisation (STDO) with its members and partner grassroots NGOs in the transfer, demonstration and promotion of appropriate rural technology for the past over 17 years. INSEDA being a socio-technical development NGO, gives emphasis on socially relevant technologies which can fit in to the local social and cultural environment, rather than following a purely technical approach. Thus its draws heavily on the long and practical field experiences of its grassroots partner NGOs in understanding the local people and local situations in developing and transfer of a technology.

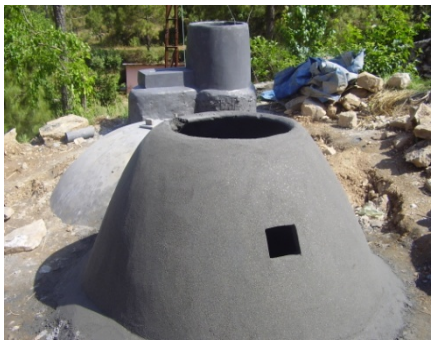
Recognizing bamboo as one of the most eco-friendly and environmentally benign building material, for the last 15 years, INSEDA has been working with it in the design, development, testing, promotion of different rural technologies in partnership and close collaboration with WAFD (Women's Action for Development) in the villages of Alwar and Bharatpur district in the state of Rajasthan and some villages surrounding Rani Chauri in Chamba block of New Tehri Garhwal district in the state of Uttarakhand.

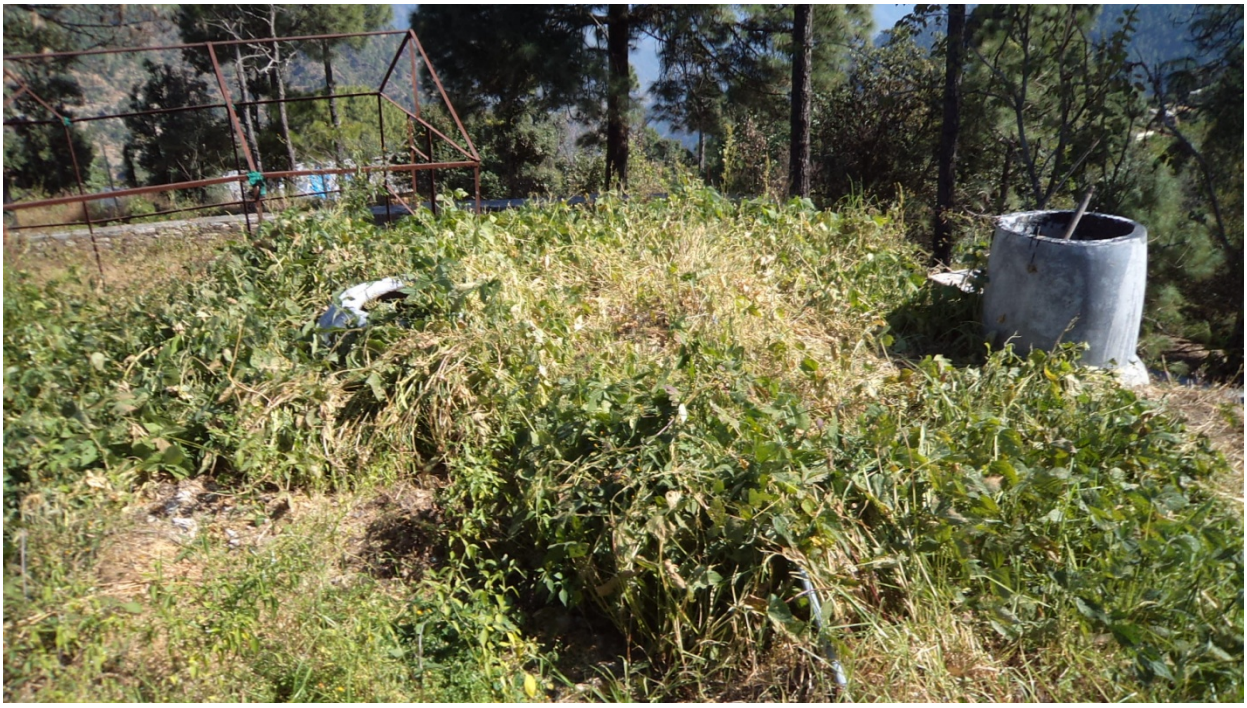
The main objective of working with bamboo as the building material in these two project areas with quite varied agro-climatic conditions was to design and develop eco friendly green technologies to remove the drudgery of women, by providing cooking energy, rain water harvesting and storage, compost units for organic agriculture, solar drying and water heating, and solar poly house (SPH) for vegetable cultivation and so on. INSEDA, as an STDO, also recognizes that such bamboo based technologies developed have to be comparatively stronger and affordable, user friendly and provide employment to local artisan and rural women in the project area, during their construction/building, after providing them appropriate training. At the same time the local people/target group/families should be able to utilize these technologies to enhance their exiting income, remove their drudgery and improve their nutritional level as well as enhance their standard of living and quality of life.

Low-Cost, Low-Carbon Technologies

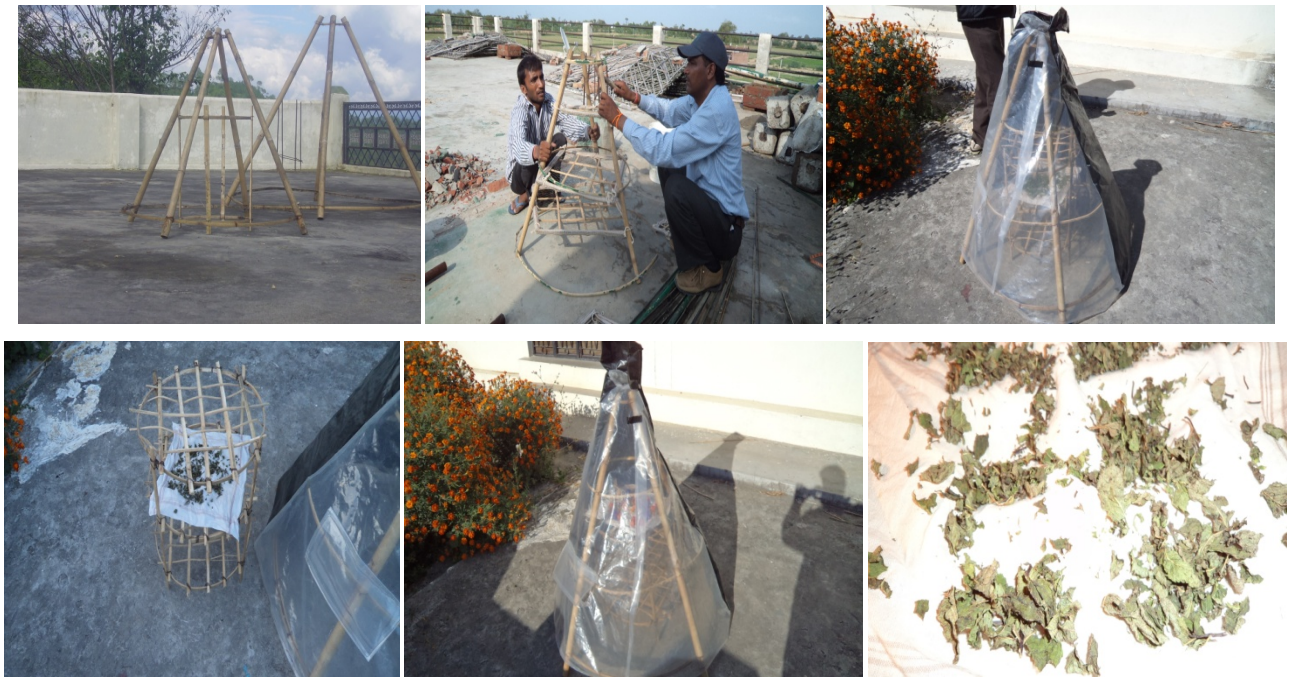
Some of the different low cost appropriate technologies being implemented by us in Rajasthan Uttarakhand in partnership with WAFD are briefly described in the subsequent paragraph.

1. Biogas plants: These are made from bamboo reinforced cement mortar (BRCM). This technology provides clean cooking energy for the house, thus, saving traditional forms of material used for cooking such as firewood, cow dung cakes, LPG gas etc. It also provides excellent organic manure as a by-product to be used in kitchen gardens/fields. A 2 cum BRCM plant costs Rs. 24,000-28,000.

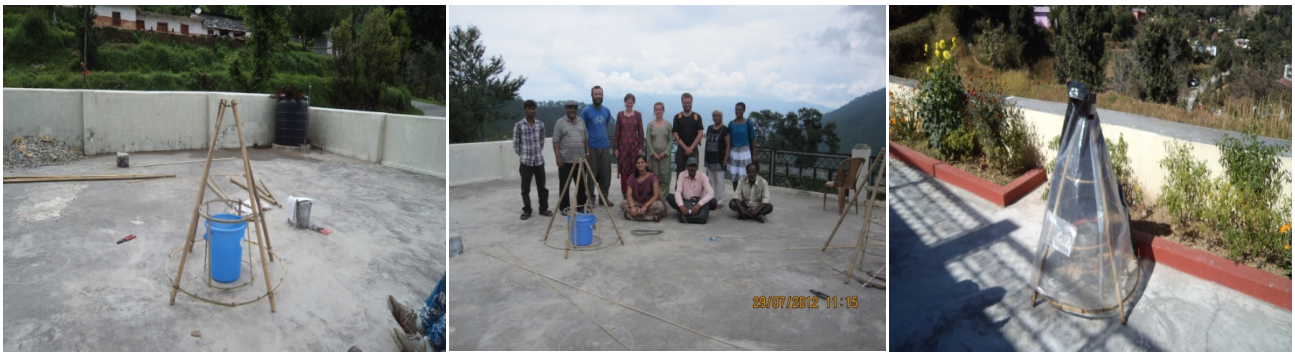



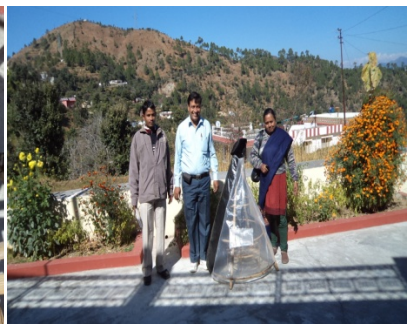



2. Solar dryer: These easily portable low cost solar dryers are made from bamboo and polyethylene for harnessing energy from sun to dry fruits, vegetables, spices & herbs in a clean hygienic way and needs no traditional source of energy. It also saves time and is easy to use. The cost of this bamboo solar dryer is Rs.1,200.

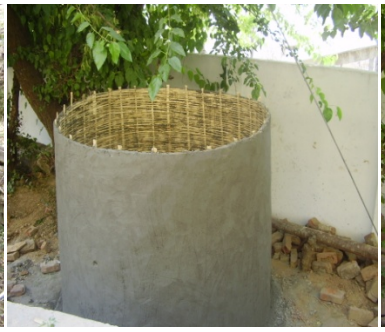
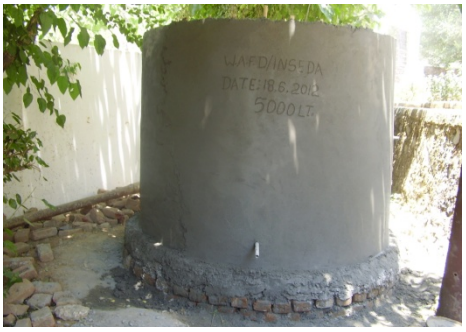


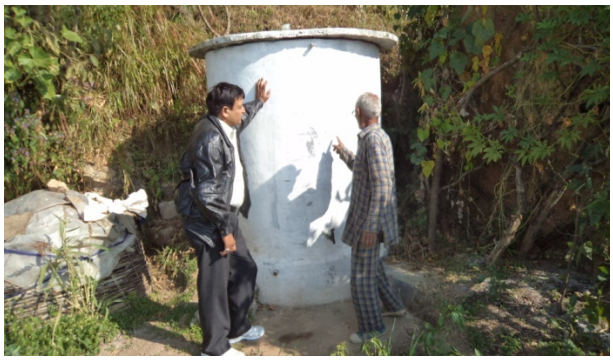
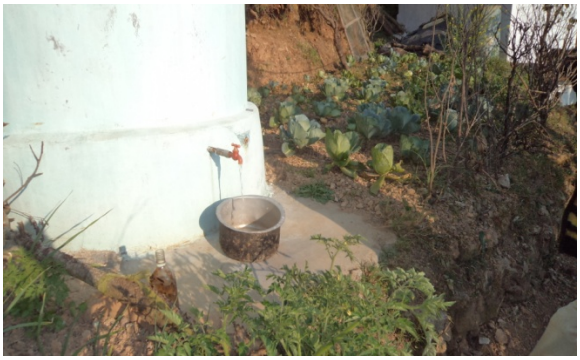
3. Solar water heater: It is a portable low cost solar water heater and dryer which is made from bamboo and polyethylene for harnessing energy from sun to heat water for a household. The cost of this bamboo solar water heater is Rs.1,000.




4. Rain water harvesting units (RWHU): These units also use eco-friendly and environmentally benign bamboo as the main building material for building Bamboo reinforced cement mortar (BRCM) storage tanks for the RWHUs for harvested (collecting) and storing rain water from the roofs during rainy seasons, thus reducing women's drudgery of carrying water for long distances. Depending on the roof area of houses, the BRCM tanks can be built of 1,000 litres capacity for Rs.7,000-8,000 and the 5,000 litres capacity for Rs.25,000-30,000, for individual rural family.

5. Composting baskets: Almost all rural areas have the problem of unsanitary conditions due to organic waste being thrown on the street corners or on open dumps. These portable compost basket units fabricated by woven bamboo strips are used for making excellent organic manure from any biodegradable waste from the kitchen gardens & agricultural fields. It cost Rs.1000.



6. Solar poly green house (SPGH)- The SPGHs are fabricated using very good quality, imported UV stabilized polyethylene. These comparatively low cost poly houses (SPGH) are used by individual families for growing vegetables year round for own consumption and better nutrition for the family, as well as for raising nursery of high value vegetables and seeds before planting in the agriculture field. SPGH of 2 mt with, 15 mt length & 2.5 mt height will cost Rs.25,000-30,000.