



# Tripura Bio-villages: An intersection of sustainable development, climate change mitigation and climate adaptation

**Government:** Tripura, India

**Region:** South Asia

**Sector(s):** Sustainable development | **Date of publication:** June 22nd, 2022



## Summary

Tripura is one of the north-eastern, seven sister states of India. It is geographically the third smallest state with around 75% of its population relying predominantly on agriculture and allied sectors.

With the intent to facilitate the sustainable development of agriculture and allied sectors in the state, the concept of 'Bio-Village' was first introduced by the Directorate of Biotechnology, Government of Tripura in 2018 with the primary objective of promoting organic farming. However, as the initiative evolved, components such as biogas, improved breed of livestock, solar-powered agricultural equipment, energy-saving electrical devices etc. were included to broaden the scope of the project in order to make it 'climate-smart'.

With the fundamental goal of providing sustainable livelihood and food security, the bio-village project largely aims to ensure holistic socio-economic development among the rural communities through the application of climate-friendly technologies focusing on both mitigation and adaptation. Project components like solar-powered agricultural equipment, energy-saving electrical devices gadgets, biogas and biofertilizers are supporting climate mitigation at the local level. Similarly, components like improved livestock breed, temperature tolerant mushroom cultivation are ensuring a better adaptation to the changing climate. The project also aims to demonstrate compatible sustainable technologies that can also be replicable in other villages within the state.

500+

households have benefitted

## Key objectives

- To promote green technologies like solar water pumps, biomass cookstoves, biogas plants etc. for sustainable production of agricultural and allied sector-related products,-
- To enhance the socio-economic condition of small and marginal farmers with the application of simple biotechnological interventions like biofertilizers, biopesticides, mushroom spawn cultivation,
- To enhance the livestock component by providing improved breeds of animal resources, and
- To build capacities of the local communities in the bio\_villages through skill and knowledge development.-

## Project Components

The bio-village project comprises of multiple components as indicated in the below schematic. These components are further categorized into two types, i.e. Common components and Additional components. The selection of these components for each village is primarily done in a collaborative consultation process with the panchayat. For each village, some of the below-mentioned components are clubbed together as common components, to be provided to each household, who are designated as beneficiaries. In the case of additional components, another bunch of components are selected from the remaining list, where each beneficiary is allowed to make their selection in accordance with their needs and availability of resources. Recently, a financial limit of USD 418 (INR 33,000) has been fixed for the communities, within which are expected to select their project components. Hence, in a nutshell, one of the key highlights of the project is the provision of project components selection by the communities as per their aspirations, rather than being directed by the government.

*“The success of the project is based on four pillars -The participation of the whole family in the project, skill development and building confidence, use of right technology and regular monitoring and providing technical assistant.*

Anjan Sengupta,

Senior Scientific Officer,  
Directorate of  
Biotechnology, Tripura

Biotech Kit including sprayers, bio-fertilizers, bio-pesticides, bio-fungicides, yellow sticky trap, etc

Energy-saving electrical gadgets

Animal Resource Component – improved breed of goats, pigs, ducks, and chicks

Mushroom cultivation unit

Bee keeping unit

Biogas unit

Solar water pump

Biomass cookstove

Fish fingerlings and feed material

Water purification system

## Key stakeholders

The key stakeholders involved in this project are broadly the rural communities and government departments. The departments associated with this project are the Department of Agriculture, Animal Resource Development Department, Directorate of Horticulture, Fishery Department, Energy Efficiency Services Limited (EESL), Tripura Renewable Energy Development Agency (TREDA) and College of Fisheries, Tripura. During the implementation of the project, the rural communities obtain benefits in terms of technical resources, financial support and capacity building. A few examples of technical support provided during the project are Fish fingerlings and feed materials provided by the Fishery Department and Solar-based equipment and biogas units provided by TREDA. This emphasizes an important aspect of their project where the government focuses on providing project support, while it is the communities that derive the direct benefits from their selection of components. This brings a wider citizen-focused approach to the initiative.

## Results

- A total of nine bio-villages have been planned, out of which five bio-villages have been completed and four are in the implementation stage. Besides this, two additional bio-village are currently in the pipeline,
- The project has benefitted more than 500 households,
- The project has shown significant impact in terms of improvement of soil nutrient condition and pollination status. The project has also reduced the use of synthetic fertilisers, fossil fuels and firewood.
- The project has led to an approximate increase in the monthly income of the beneficiaries by USD 70 (5500 INR) per month per household,
- The local farmers have learnt simpler new techniques like mushroom cultivation, installation and maintenance of biogas units, bio-composting etc. It also strengthened the decision-making, marketing and team-building skills of the beneficiaries.
- The adaptation aspect of the project would reduce the impact of climate change to a huge level for vulnerable communities. While the mitigation aspect of this initiative would ensure carbon neutrality in the longer run.

**\$ 70.29**

**(5500 INR)**

**(approx) economic benefit  
per month per beneficiary  
household.**

## Key lesson learned

One of the most important factors that lead to the success of an initiative like the bio-village is the wider acceptance and participation by the rural communities. This project understands the needs of the people and has provided innovative climate-friendly solutions to address those needs, besides improving the quality of life for the rural community.

## More information

Anjan Sengupta, Senior Scientific Officer, Directorate of Biotechnology, Tripura

[senbid@gmail.com](mailto:senbid@gmail.com)

Samrat Deb, State Climate Fellow, Tripura, Climate Group

[SDeb@climategroup.org](mailto:SDeb@climategroup.org)