CASE STUDIES

# CLIMATE ADAPTIVE PRACTICES GRASSROOTS INITIATIVES

Development Alternatives

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| | |
|---|---|
| Population | As per 2011 census, total population of Assam was 31,169,272. It Ranks 15th in terms of population in India.[1] |
| Climate | With the "Tropical Monsoon Rainforest Climate", Assam's temperate (summer max. at 95–100 °F or 35–38 °C and winter min. at 43–46 °F or 6–8 °C) and experiences heavy rainfall and high humidity.[2,3] The climate is characterised by heavy monsoon downpours reducing summer temperatures and affecting foggy nights and mornings in winters, frequent during the afternoons. |
| Climate Vulnerabilities | Changing weather pattern, rising temperature, cloud bursts, flash floods, floods. |
| Average Annual Rainfall | 2203 millimetre[4] |
| Economy | Assam's economy is based on agriculture and oil. Assam produces a significant part of the total tea production of the world. Assam produces more than half of India's petroleum. |

[1] *2011 Census of India.*

[2] *Singh, R. L. (1993), India, A Regional Geography, Varanasi, India: National Geographical Society of India.*

[3] *Guwahati's landscape to change with satellite towns, BRT systems". The Assam Tribune. Retrieved 4 August2013.*

[4] *District-wise monthly rainfall data from 2004-2010 for the whole of India by Indian Meteorological department from www.indiaportal.org*


*Assam is a state of India in the north-eastern region. Located south of the eastern Himalayas, Assam comprises the Brahmaputra Valley and the Barak river valleys along with the Karbi Anglong and the North Cachar Hills. Like the rest of the northeast region of India, Assam is extremely vulnerable to climate change. The 20th century has observed a warming trend of 0.51°C in India with accelerated warming observed from 1970 onwards. The region has experienced increase in the annual mean maximum temperatures, with increase at the rate of +0.11°C per decade and annual mean temperatures at a rate of 0.04°C per decade in the region. Assam has a high reliance on agriculture that is likely to only increase given its growing population. Changing weather patterns and rising temperatures leave farmers vulnerable to crop losses. Additional precipitation increases the risk of crop flooding. Climate change will also negatively impact the water resources sector by increasing freshwater scarcity, which is already a problem for Assam in the summer[1].*

[1] *http://www.nicra-icar.in/nicrarevised/images/State%20Action%20Plan/Assam-SAPCC.pdf*

# Diversification for Conservation

Key Messages:

- Mal-adaptation to climate change is a common occurrence in forest dependent communities and leads to environmental issues like deforestation and soil erosion.
- Community based conservation can help reduce dependency on forest ecosystems for sourcing resources, while promotion of market participation can provide incentives to economic diversification, skill intensification and human capital augmentation.

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## 1. Context

### 1.1 Need:

Manas National Park is a unique and fascinating landscape in the world. Despite the ecological importance of the forests of Manas National Park, the ecosystems here have been subjected to great stress and continue to face multiple threats from human induced causes – directly through deforestation and indirectly through human induced climate change.

The southern boundary of Manas has thickly populated villages and these populations are heavily dependent on the natural resources for their livelihood. These communities in the fringe areas of the protected area are least developed and highly dependent on the forest resources for their livelihood. The adverse effects of climate change ie. cloudbursts, flash floods, crop degradation etc. affect these communities severely and limit their means of living, especially communities that are agrarian, where they either own small land holding or work in others' lands as farmers.

As a result of insufficient income from farming alone, the communities rely heavily on forest resources for sustaining themselves eg. collecting firewood for fuel sales in nearby villages. This of course, leads to environmental issues like deforestation followed by soil erosion. Soil erosion and deforestation have reduced water retention, increased flooding after rains and reduced

[1] *Choudhury, A.U.(2010)The vanishing herds : the wild water buffalo. Gibbon Books, Rhino Foundation, CEPF & COA, Taiwan, Guwahati, India*

[2] *Wikramanayake, Eric; Eric Dinerstein; Colby J. Loucks; et al. (2002). Terrestrial Ecoregions of the Indo-Pacific: a Conservation Assessment. Island Press; Washington, DC. pp. 300-301*

water flow between the rains. These environmental changes complicate living with increased climate variability in the future because a reduced natural resource base may not be able to provide the same safety net functions to these communities, as it does currently during periods of stress.

1.2. Responce:

These communities living in the Bhuyanpara, Panbari and Bansbari Range depend on the forest for a variety of forest products for food, fodder, agriculture, housing and an array of marketable minor forests produces, which can potentially degrade the forest, if harvested unsustainably. Efforts to reduce vulnerability to increased climate variability in this region would need to safeguard the natural resource base, promote market access and augment human capital. The promotion of market participation can provide incentives to economic diversification, skill intensification and help reduce dependence on forest ecosystems. Thus, the need for implementing a strategy that protected ecosystem services, as well as provided some alternative livelihood intervention was seen.

"Efforts to reduce vulnerability to increased climate variability require safeguarding the natural resource base, promoting market access and augmenting human capital"

## 2. Objectives

The community based conservation programme was conceptualised by Aaranyak for the fringe tribal communities of national parks. In Manas National Park (MNP), the project received funding from the Bodoland Territorial Council and the US Fish Wildlife Services.

The project targeted local stakeholders, mainly women and farmers to provide diversified and environmentally sustainable means of livelihood in the fringe areas of Manas National Park. It aimed to minimise the dependency on the park for livelihoods, to promote market participation and enhance existing skills.


*Map of Manas National Park indicating forest cover and location of human habitation*

Key objectives of the initiative were:

- Create baseline analysis of local skills and market linkages.
- Diversification of livelihoods of forest-dependent vulnerable communities living on the fringe areas of Manas National Park.
- Revive and strengthen the existing SHGs in villages and leverage that network for awareness building on impacts of natural resource degradation.
- Pilot alternative livelihoods in SHGs.
- Provide value addition to existing activities through market linkages, mechanisation of processes, efficient techniques and infrastructural changes.
- Educate and empower women.

## 3. Approach

The methodological approach for the project was based on piloting a community built sustained livelihood tool, which contained a repertoire of alternate livelihoods, leading to micro-enterprises to enhance their self-generating economy. While performing preliminary research on the sites, it was found that several women's self-help groups (SHGs) were in existence, but only for a rudimentary money lending service. The project saw an opportunity to leverage the existing SHGs to form a base upon which training and capacity building could then further transpire from.

Through consultation workshops and intense community PRAs, the requirement and type of intervention was determined. These led to alternate livelihoods being identified. Nine such livelihoods were identified following which skill development trainings and capacity building began. Till date, 116 SHGs have been selected, consulted, trained and supported through the project's activities.

Consultation workshops: Consultation workshops and one-to-one group discussions were conducted with members of all 116 SHGs under the three ranges of MNP. These were conducted at the beginning of the project in order to give the beneficiaries a clear understanding of project goals and the aim for selecting them.

Through the consultations, the group coordination and mode of operation was also determined and suggestions for alternate livelihoods were gathered .

Capacity Building: Building of capacities then leads to a livelihood strategy, which is community based and has a direct impact on existing structures and processes.

## 4. Key Stakeholders

In this pilot project, 116 self-help groups were involved in from 53 fringe villages around the southern boundary of Manas National Park from Panbari, Bansbari and Bhuyanpara Ranges.

In addition, the target audience also involved the farmers from these villages, who were facilitated with livelihood options that were easy and profitable.

The trainings and capacity building workshops were conducted in collaboration with several NGOs, experts and governmental agencies like:

- Assam Khadi and Village Industries Board.
- Kamdhenu Dugdha Utpdak Samabay Samity.

- Manas Agrang Society, a local NGO.
- Local fishery entrepreneur with ties to the Agricultural University.
- Local entrepreneur with food processing unit.
- Krishi Vigyan Kendra, Howli.
- Bodoland Territorial Council resource persons.
- Local forest department officials.

Other stakeholders in the project include the following, who have helped create market linkages and provide platforms for showcasing these organic products.

- Assam State Trade Fair.
- International Agri Fair.
- Manas National Park eco-shops and tourist lodges.

## 5. Key Components

A baseline study was conducted first to determine the skill level of the communities and their capabilities to diversify into different sectors. The baseline found that the environment and surrounding grasslands were available for grazing, indicating that livestock rearing could be an option. In addition, existing practices like pickle making, pig-rearing and fisheries were occurring on small scale. Training on optimisation and larger scale production were identified as intervention areas.

After the baseline, preliminary training sessions were conducted by Aaranyak with the relevant external resource persons for each sector:

i. Fishery

ii. Bee keeping

iii. Dairy Farming

iv. Goat farming

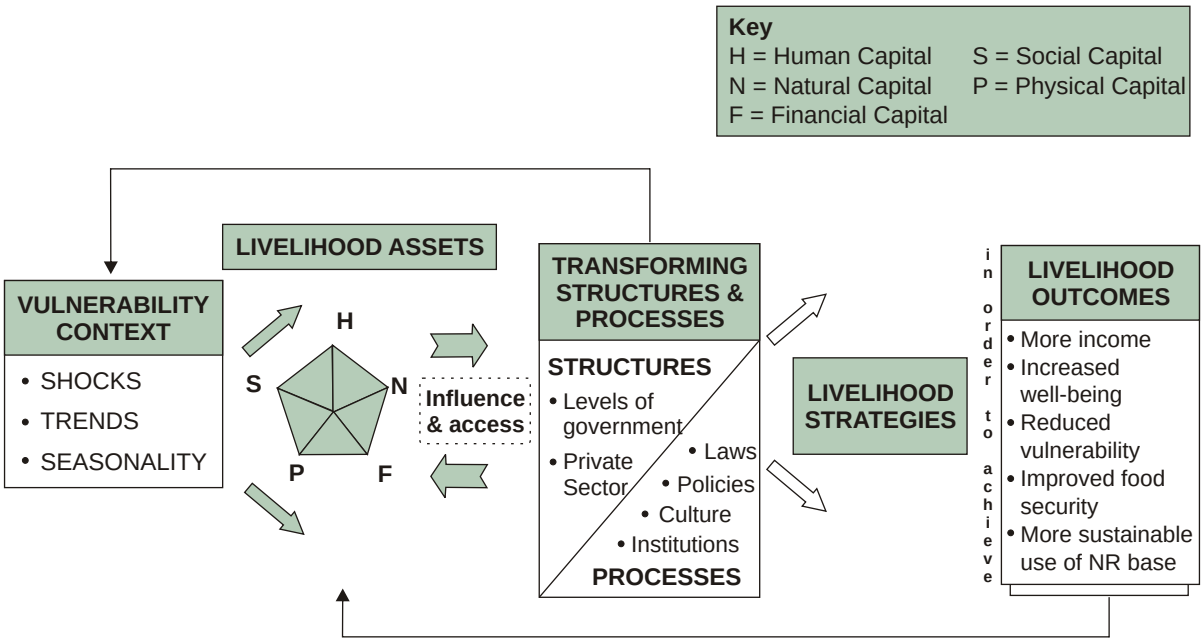
v. Vermicomposting

vi. Food processing and preservation

vii. Pig rearing

viii. Embroidery and weaving

ix. Mushroom farming




*Sustainable Livelihoods Framework*


*Fishery: Alternate livelihood option*


*Dairy farming: Alternate livelihood option*

## 6. Outcomes and Impacts

In the two years of the project running, there have been several visible linked impacts seen in the pilot areas:

i. Impacted about 5,000 people from 1,000 households living in 53 out of 62 fringe villages

ii. Increased awareness about forest degradation, direct impacts of run-off on everyday lives.

iii. Reduced dependency and pressures on the forest due to diversification of livelihoods.

a. Increased income of SHGs by targeted sales of Rs. 120/kg.

b. Increased income through sale of honey at Rs. 400/kg.

c. 50 % of distributed goats have reproduced. Shed construction was done by the SHGs themselves

d. 100kgs of vermicompost was produced, which the SHG has put back into their fields. A direct impact was that zinc deficiency was reduced in paddy fields.

e. Food products such as lemon and orange squashes, pineapple, guava jellies, pickles and sauces were produced. These have been sold at fairs, ecoshops and tourist lodges becoming one of the most visible produce outcomes of the intervention.

f. Mushroom farming brings in Rs. 400/bundle/month and is the most profitable alternative livelihood for the women.

iv. Reduced pressure on the forest for sourcing resources and increase in the number of trees surrounding intervention villages.

v. Reduced instances of communities being found inside national park boundaries by forest officials.

vi. Reduced dependency on forest for fodder for grazing animals.

vii. Greater empowerment amongst women of SHGs.

a. Exposure to financial transactions, market linkages and contribution to the family's financial security has given the women a sense of confidence and improved their status, in varying degrees within the household.

viii. Change in social fabric of communities, where menfolk are supportive of women being away from home and taking over traditionally female roles.

ix. Greater understanding about the threats of deforestation, after visits to the National Park.

## 7. Lessons Learnt

For larger scale implementation and replication in other areas with similar threats, a few learnings have been identified:

- Diversification of livelihoods results in reduced dependency and pressures on the forest.
- For some livelihoods, it was found that the communities were not following the designated best practices or techniques despite getting trained in them and knowing the benefits. To motivate them to follow the procedures, an incentive scheme was found to be a good option.
- Organising livelihood clusters for the farmers and SHGs to ensure that economies of scale make the production continuous.

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*Mushroom farming*