PROJECT FACTSHEET

IMPLEMENTATING CLIMATE CHANGE ADAPTATION FOR AGRICULTURAL PRODUCTIVITY

BILASPUR, HIMACHAL PRADESH
DEPARTMENT OF ENVIRONMENT, SCIENCE AND TECHNOLOGY (DEST)

Department of Environment, Science & Technology
Government of Himachal Pradesh

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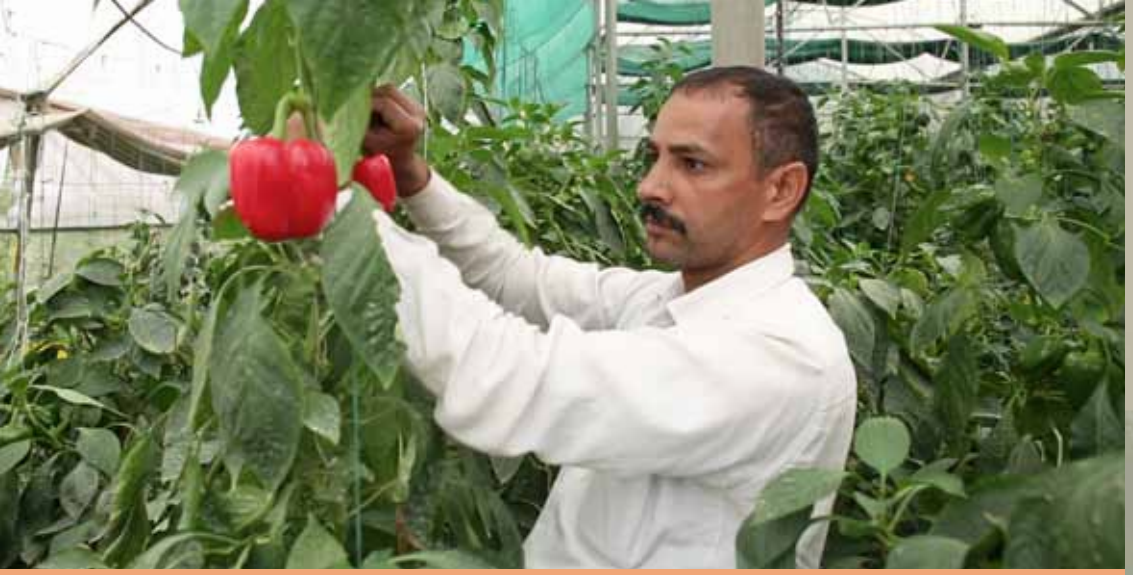
THERE WAS A TIME WHEN CLIMATE CHANGE WAS A SERIOUS THREAT IN THE FUTURE. THAT FUTURE HAS ARRIVED. NOW IT IS TIME FOR ADAPTATION.

THE PROJECT AT A GLANCE

State	Himachal Pradesh
Location	**4 villages of Kandraur Gram Panchayat, District Bilaspur, Himachal Pradesh**
Duration	13.12.2017 – 15.04.2019
Reporting period	18 months
Implementating organisation	CTRAN Consulting Ltd.
Geographic features	River bank of Sutlej and the ridge area.
Climatic stresses	Drought, increase in temperature, decreased quantity of produce, irregular and late rainfall.
Non-climatic stresses	Inadequate irrigation infrastructure, no all-weather roads, damaged natural water storage facilities (Baolis).
Predominant livelihood sources	Agriculture (Wheat and Maize production)
Target group/s	2803 Villagers of 7 wards in 4 villages of Kandraur Gram Panchayat



CLIMATE TRENDS IN HIMACHAL PRADESH

An analysis of 63 years (1951-2013) of data from the Indian Meteorology Department shows that the annual maximum and minimum temperatures have been increasing in Himachal Pradesh. The increase in temperature will result in more evaporation and require more irrigation for crops. The analysis also predicts a definite decrease in annual rainfall for the state. More importantly, there is a strong trend towards a decrease in the number of rainy days, resulting in the annual rainfall for the state falling on fewer days. This implies more intense rainfall, increasing the possibility of flash floods, soil erosion, and landslides. This forebodes increased vulnerability to natural disasters for the state.

ADAPTATION NEED IN BILASPUR

Climatic data for the district of Bilaspur of the past 25 years shows erratic variations in temperature and rainfall. The district has dealt with several calamities like flash floods, landslides, forest fires and droughts. A majority of villagers recalled experiencing impacts of climate change. Especially increases in temperature during summers, and lesser rain in past few years. They also observed decrease in surface and ground water. This is evident from the river Sutlej flowing through the panchayat. Low water availability from tube wells has also been experienced in some wards. This is the reason why the vulnerable Gram Panchayat needed adaptation investments in climate resilient activities. This increased the climate change adaptation for the water sector.

ADAPTATION HYPOTHESIS

Investment in climate resilient activities can increase climate change adaptation in water sector in rural areas of Himachal Pradesh.

ADAPTATION INTERVENTIONS

- Plantation of trees, helpful in the reduction of soil and land erosion near the Satluj River. Maintenance of ecological balance while plantation of medicinal plants like Amla, curtailing the problem of food security in rural households. They will get fodder for their cattle and valuable wood.
- Solar fencing to promote plantation of vegetable crops like cabbage, cauliflower, tomatoes etc.
- Renovation of existing Fisheries for generation of income, eventually used for developmental work in the wards.
- Maintenance of water storage structures like Baolis/Tanks increased drinking water availability and helped local villagers to better adapt during the summer season. This also had added benefits for cattle and stray animals.
- Lift irrigation (from Ali Khadd) and water storage tanks provided additional infrastructure for the irrigation purposes.
- Construction of Sunken Ponds as Entry Recharge Points for all proposed Bore wells and Wells helped recharge the ground water table at all points where bore wells were constructed.
- Training and capacity building programmes by experts about climate change adaptation, water conservation, micro irrigation techniques, participatory management and importance of forming WUG and soil health management. Exposure visits for Farmers. In-House training on efficient use of water resources and efficient irrigation technologies.
- Construction of Community Irrigation Tanks (55000 litre capacity).
- Gully Plugging with Gabion structure (wire mesh and loose boulders).
- Formation of 4 Water User Groups (WUGs) in Kandraur panchayat with 46 members.

BENEFITS AND ADDED VALUE FOR ADAPTATION

Increased livelihood opportunities by plantation of trees in the proposed Plantation sites. Reduction in soil and land erosion near the Satluj river, maintenance of ecological balance while plantation of medicinal plants like Amla, curtailing the problem of food security in rural households.

- Increased agricultural produce, retention in agricultural land where solar fencing was implemented.
- Maintenance of the baoli created an additional water source espcially during dry spells
- Cultivation and harvest of fish for sale. The income generated from fisheries is being used for developmental works in Ward.
- Farmers are motivated for adoption of water conservation irrigation methods.
- Construction of Wire Crates continues to protect the soil from erosion and more water is availabile for land irrigation.
- Construction of wells and bore wells providing water for irrigation, drinking and other household activities.
- Committee (with members: Premlal, Jeeva Lal, Garja Ram, Devraj, Dharam Pal) is responsible for setting schedules of release of water from tank to households. Households can channel the water to their fields for irrigation.
- Loose Boulders and wire mesh (Gabion structures) decrease velocity of water. This leads to percolation of water and prevents soil erosion, thereby increasing soil moisture.
- Saving water for lean season, sharing of water by all stakeholders, orientation of farmers with better practices and innovative techniques. WUGs took active part in the water budgeting, increasing the adaptation resilience towards both the climatic as well as non-climatic stresses in the Gram Panchayat
- Awareness creation and knowledge management about natural and organic farming.
- 23 projects and activities were incorporated in Zila Parishad planning. 18 projects have been incorporated in Gram Sabha planning. 4 projects and activities under the Eco-Village Scheme and MGNREGA were sanctioned and implemented. Below are the details of the schemes and funds that have been leveraged for the Climate Change Adaptation in Kandraur Gram Panchayat.

Activity	Scheme	Finance leveraged
Solar Fencing in Ward 1	Eco Village	1000000
Repair of 2 Baolis in Ward 1 and 2	MGNREGA	150000
Plantation in Ward 1	MGNREGA/ Eco Village	658050
20 Vermicompost Sheds	MGNREGA/ Eco Village	800000

SUCCESS FACTORS

- A **vulnerability assessment** helped in designing interventions that are environmentally friendly, based on local needs and require low investment.
- **Community participation** throughout the project ensured local ownership and an increased sustainability of interventions.
- **Involving local and state government institutions** in the project, improved local governance and cooperation; the Department of Environment Science and Technology (DEST), Government of HP, for example, provided support to get permission.

Ms. Prema Devi, Kandraur village, Bilaspur

I am a farmer in Kandraur village. The base of my farmland is near the river Satluj, and is barren. During monsoons, the water level in the river rises and erodes the base of the farmland. Every year, I and other farmers lose some part of our land to erosion. Under the CCA RAI project, I raised the issue during village meetings and in the panchayat. Funds were released by the district administration and we began a plantation drive starting in June 2019. I am among the beneficiaries who get fodder for their cattle from the proposed plantation site. With the plantation, many other dairy farmers benefitted from the improved availability of the cattle feed as well as less soil erosion

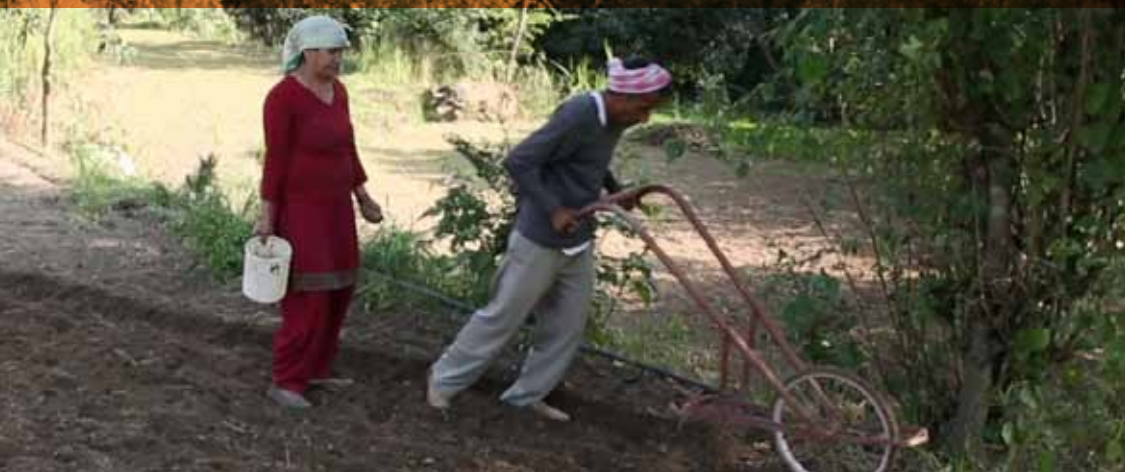
REPLICATION IN THE INDIAN CONTEXT

A closer look at agriculture in India reveals that an estimated area of 147 million hectares is affected by land degradation and soil erosion caused by climatic conditions, inadequate land use, deforestation and other causes. Soil conservation thus also holds a high replication potential. However, efforts in this field have to be designed and implemented to suit local needs and have to be adapted to the specific hydrological and climatic conditions of a specific area. After assessing the local conditions, sustainable agricultural practices can be designed for small-scale farmers to build their resilience against climate variability and change.

This demonstration project was realised under the Indo-German development project 'Climate Change Adaptation in Rural Areas of India' (CCA RAI) which is jointly implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, the Ministry of Environment, Forests and Climate Change (MoEF&CC), Government of India and state nodal agencies on climate change in four states: Himachal Pradesh, Punjab, Tamil Nadu and Telangana. CCA RAI is financed by the German Federal Ministry for Economic Cooperation and Development (BMZ).

Project name	Climate Change Adaptation in Rural Areas of India (CCA RAI)
Commissioned by	Federal Ministry of Economic Cooperation and Development (Germany)
Lead executing agency	Ministry of Environment, Forests and Climate Change (MoEFCC), Government of India
Partner organisation	Department of Environment Science and Technology (DEST), Government of Himachal Pradesh
Duration	January 2017 – June 2019
Budget	Total project cost is €1,76,068 • GIZ: €73,743 • Co-financing (Himachal Pradesh State Govt. €102324
Webpage	www.giz.de

BUILD RESILIENCE



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