

## CASE STUDIES

# CLIMATE ADAPTIVE PRACTICES GRASSROOTS INITIATIVES



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Climate Adaptive Practices: Grassroots Initiatives  
Edition 1, 2014

Supported by



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Documentation, Compilation and Edited by



Development Alternatives

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Cover photo credits:

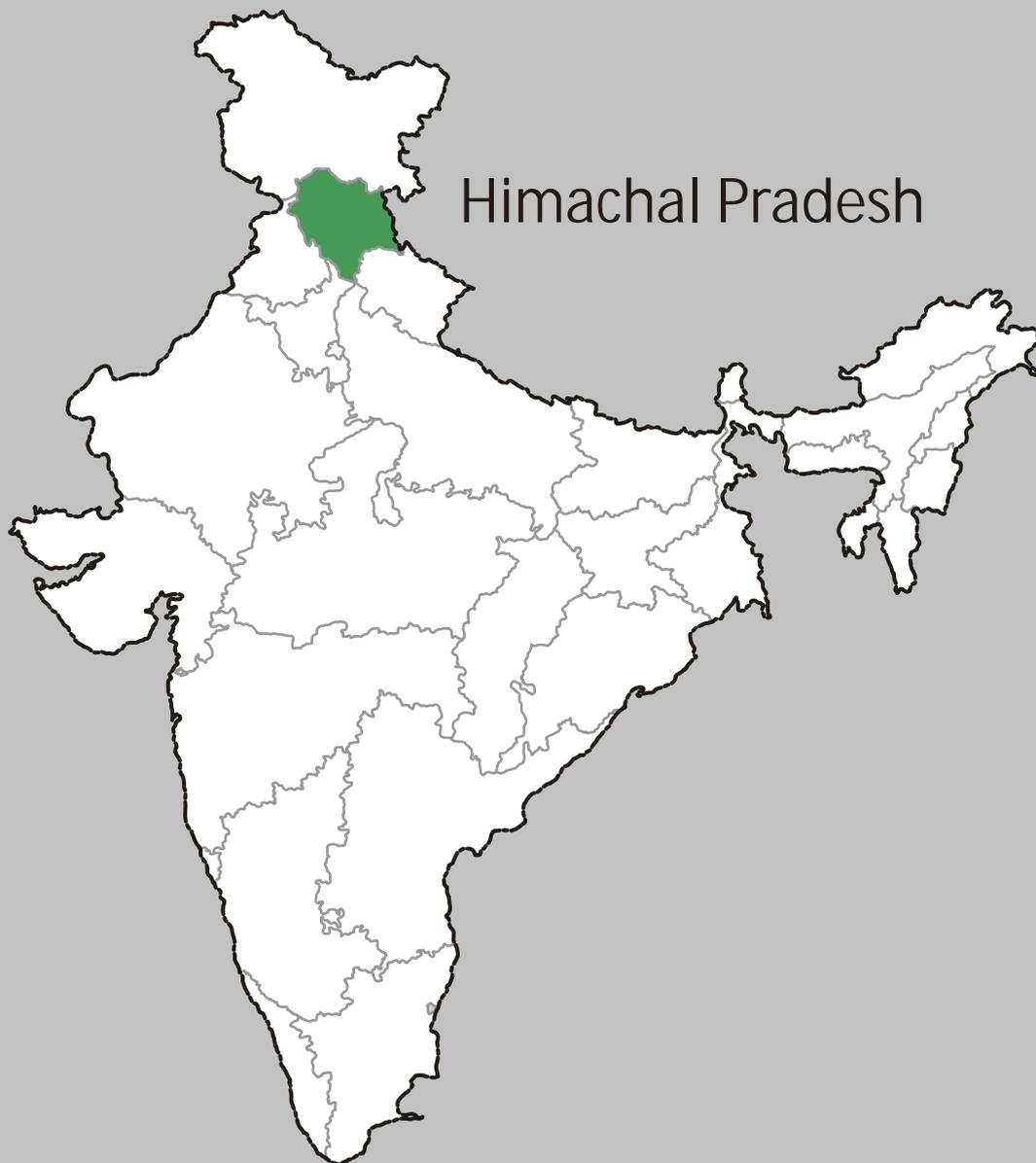
Development Alternatives, Aranyak, Sambhavna Institute

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ISBN:

81-87395-09-5



Population	As per 2011 census, Himachal Pradesh has a total population of 6,856,509. <sup>1</sup> It ranks 21 <sup>st</sup> in terms of population in India.
Climate	The state experiences three seasons: Summer, Winter and rainy season. <sup>2</sup>
Climate Vulnerabilities	Changing weather pattern, rising temperature, recession of glaciers, extreme rain events, landslides, cloudbursts, flash floods
Average Annual Rainfall	1142.1 millimetre <sup>3</sup>
Economy	Agriculture is the main source of income and employment in Himachal. Over 93% of the population in Himachal depends directly upon agriculture which provides direct employment to 71% of its people.

<sup>1</sup> 2011 Census of India.

<sup>2</sup> "Climate of Himachal Pradesh". [himachalpradesh.us](http://himachalpradesh.us).

<sup>3</sup> District-wise monthly rainfall data from 2004-2010 for the whole of India by Indian Meteorological department from [www.indiaportal.org](http://www.indiaportal.org)



*Himachal Pradesh, situated in the western Himalayas, is a state in Northern India. Himachal Pradesh is famous for its abundant natural beauty; a land of hill stations, dense forest ranges, deep valleys, snow-capped mountain ranges, serene and cool environment. Agriculture contributes nearly 45% to the net state domestic product. It is the main source of income as well as employment in Himachal. About 93% of the state population depends directly upon agriculture. The Himalayan ecosystem is fragile and diverse. It includes over 51 million people who practice hill agriculture and remains vulnerable. The Himalayan ecosystem is vulnerable and susceptible to the impacts and consequences of a) changes on account of natural causes, b) climate change and c) developmental paradigms of the modern society<sup>1</sup>.*

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<sup>1</sup> [http://dst.gov.in/scientific-programme/NMSHE\\_June\\_2010.pdf](http://dst.gov.in/scientific-programme/NMSHE_June_2010.pdf)

# Grow Organic: Go Resilient

## Key Messages

- Organic ways of agriculture are beneficial for farmer's personal well-being, as well as for planetary well-being and are more climate resilient.
- To make farmers self-reliant; it is important to strengthen community institutions for enhancing their decision making ability and introducing new techniques of production systems.



## 1. Context

### 1.1. Need:

The Kangra district of Himachal Pradesh lies on the southern spur of Dauladhar Range of the Himalayas. This region, like many other regions of the world has witnessed significant changes in the incidence of variations in seasons and temperature. In the last one decade, Himachal Pradesh has been a witness to the most drastic impacts of global warming. The changing climate has affected people's lives and livelihood in various aspects. Agriculture has also suffered great amounts because of the same cause. Cropping pattern and choices have altered over the time. Cash crops like apple, potatoes that were grown extensively in this region earlier, had shown continuous fluctuation in the production in Himachal Pradesh. The production of fruits in Himachal Pradesh has witnessed a decline of 96.3 % from 1027820

tonnes in 2010-11 to 37820 tonnes in 2011-12 (Economic Survey of Himachal Pradesh, 2013-14). This increased the vulnerability of the population largely dependent on agriculture. These factors forced farmers to use chemical fertilisers for higher and constant production.

The small and marginal holding farmers in the Kangra district have shifted from small scale commercial agriculture to subsistence agriculture, over the past decade and a half. This shift has been on account of lower yield of regular crops in the region. This region, like many other regions in the country started using chemical pesticides and fertilisers during the mid-19th century. These were used with a goal of increasing the production and income from crop production. The high yielding varieties and new seed varieties in the market, were also tested by farmers; over the same period of time. They had potentially

decent results in the production of the region initially. However, the inputs kept increasing and so did the costs of fertilisers and pesticides, thereby reducing substantial profits from the final produce.

#### 1.2. Response:

Chinmaya Organisation for Rural Development (CORD) has been interacting with villages in the Kangra district to build a knowledge base for using organic substances as agriculture inputs. These organic practices are spread across for their benefits in production, but also because of its environment friendly and climate resilient nature, which makes agricultural practices positively related to farmer's and environmental gains.

Organic ways of agriculture are beneficial for farmer's personal well-being, as well as for planetary well-being and are more climate resilient

## 2. Objectives

- Discover and scale up the use of organic materials and suitable seed variety available within households as agricultural inputs in congruence to the region.
- Motivate farmers to turn towards organic materials, using local farmers as agents of change.
- Enable scale and scope of green learnings from other regions to be adapted for use in Kangra District.

## 3. Approach

CORD uses volunteer base as an approach for engagement with community members. They also form community based institutions viz. farmers groups, women groups, youth groups etc. These community institutions are where engagement and discussion are carried out on issues of sustainable management of natural resources for increased livelihoods. CORD's approach to agriculture is to create an integrated, humane, environmentally and economically sustainable agricultural production system, which meet on regular basis to discuss concerned agriculture issues.

## 4. Key Stakeholders

- Local farmers: The people who practice organic agriculture, gain personally in terms of their personal health and quality production of the crops.
- Local customers: The consumers receive a better quality of product, healthier and more nutritious as organic.
- CORD: CORD facilitates the process and ensures that they are fruitful for people and in harmony with nature.

## 5. Key Components

Volunteers regularly visit and interact with the villagers, they build village groups, which meet monthly for discussing their concerned issues of agriculture. The volunteers share their experiences, try to mobilise few volunteers in the village; to start seed selection and organic practices of manure,

pest control. All the villagers, who volunteer for starting organic practices, are then assisted with popular successful organic practices by the CORD volunteers. A village resource person is also appointed in all the village groups, who can facilitate and mobilise the group towards transitioning to organic practices. Thus, a chain of farmers is made within the village; which keeps growing as more villagers get influenced and join the circle of organic practices. Various farmer groups; women groups, youth mandals, children groups are also formed for effective engagement.

There are various natural pest-control and manure generating techniques initiated by CORD across the region.

CORD has introduced Azolla as a bio-fertiliser and cattle feed. It is a water fern and increases milk and calcium content in milk. This provides farmers with better quality milk and supports good health of the cattle.

Another introduction is "Panchagavya", a bio-pest control measure produced by mixing

cow-dung, cow urine (*Gomutra*), milk, ghee and curd along with banana, vinegar and coconut in a fixed proportion.

Another practice that CORD volunteers have successfully initiated and spread across scale is seed testing practice. Taking a part of field on volunteer basis from a farmer, all kind of varieties of grains that are available in the market are sowed in small number. Regular meeting on the field are organised for farmer to check the status of the crop. In this way, farmers are able to decide the best variety of seeds for their soil, based on climatic conditions that they should sow in their own villages. This practice is done with an aim to bring the element of self-reliance, where farmers can evaluate on their own, which seed variety is best suitable in the present conditions.

The overall approach that CORD follows, is of innovating new ways of enhancing agricultural productivity and building resilience of communities.



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*Azolla: a bio-fertiliser and cattle feed*



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*Panchgavya for pest control in the field*



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*Six varieties of seeds of the same grain in a farm plot to assess the best variety*

## 6. Outcomes and Impacts

CORD has been working on climate resilient agricultural practices; with around 200 families in 48 villages for past 3 years. They have significantly impacted farming practices and resulted in :

- Increased use of organic pest control techniques, organic based agricultural practice.
- Farmers have been trained to use the best suitable seed in the market.
- Reduced impact of rains on the crops by increasing their resilience; by feeding organic manure to crops, instead of pesticides.
- Reduced health issues in this region, related to skin and lungs, which fertilisers

and pesticides had potential to aggravate.

## 7. Lessons Learnt

- Farmers , if guided and showcased by example of innovative profitable organic practices prefer organic over inorganic; keeping in mind social, economic and environmental benefits of organic farming.
- Backward and forward linkage in building organic practices is crucial.
- Moreover, the choice of agriculture practices should be made by farmers through informed decision making process.