

# INNOVATING ADAPTATION THROUGH AGROECOLOGY

## Andhra Pradesh Community-Managed Natural Farming India

Since 2015, the state government of Andhra Pradesh, India, has taken up “Zero-budget Natural Farming” (ZBNF), a climate-resilient approach to agricultural production. The core objective of ZBNF is to promote farming that is in harmony with nature, based on our belief that nature-based solutions offer the best pathway for tackling human-induced problems in the food, and agriculture sector. The programme is currently working with 650,000 farmers, covering an area of approximately 280,000 hectares.



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### AGROECOLOGICAL PRACTICES

- 🌿 Promoting zero-chemical usage.
- 🌿 Adhering to the four, non-negotiable, “wheels” of ZBNF, namely: microbial seed coating; enhancement of soil biomes through inoculants; continuous coverage of the ground; and soil aeration, and humus preservation.
- 🌿 Using biological pest control management techniques based on botanical extracts that are prepared locally with local resources, such as neem leaves.
- 🌿 Preserving indigenous seeds.
- 🌿 Practicing minimal tillage to restore, and preserve soil structure and health.
- 🌿 Establishing women’s self-help groups to increase women’s involvement in farming decisions.
- 🌿 Conducting participatory, and gender-inclusive, programme planning, implementation and monitoring.
- 🌿 Facilitating farmer-to-farmer knowledge dissemination.

### IMPACTS

- 🌿 **Studies** show that there is no statistically significant difference in the yields of crops grown under ZBNF and non-ZBNF systems.
- 🌿 For all crops, **studies** show that, for all crops, there is a substantial reduction in production costs per hectare under ZBNF, compared to non-ZBNF systems. This means that ZBNF systems earn a higher net income per hectare for farmers.
- 🌿 The focus on crop diversification under ZBNF not only contributes to improved food security, but also makes farmers less vulnerable to price drops and market instabilities.

### PERSPECTIVES

The long-term goal of the programme is to “convert every farmer in Andhra Pradesh” — approximately six million farmers— to ZBNF. It also aims to disseminate the programme’s knowledge, models and resources to other states and countries.

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## Chololo Ecovillage Tanzania

The Eco-village Adaptation to Climate Change in Central Tanzania (Eco-ACT) project has been implemented since 2015 in four semi-arid villages in central Tanzania. The project aims to support to rural communities to adapt to the adverse effects of climate change, while also contributing to poverty reduction among local households, who primarily depend on rain-fed subsistence agriculture, and communal grazing. The project works toward scaling up good agronomic practices and innovations that link the agriculture, livestock, energy, and water sectors.



© Chololo Ecovillage

### AGROECOLOGICAL PRACTICES

- ❧ Promoting climate-resilient seeds, such as drought tolerant crops.
- ❧ Introducing alternative energy sources, such as solar energy systems, and fuel-efficient stoves.
- ❧ Enhancing economic diversification through beekeeping, eco-leather products, and other value-addition activities.
- ❧ Implementing sustainable land management practices, such as using farmyard manure, building soil terraces and tied ridges, intercropping, and agroforestry.
- ❧ Rehabilitating communal water schemes, and promoting other improved water management practices such as rainwater harvesting, and solar water pumps.

### IMPACTS

- ❧ 898 people were formed to the impacts of climate change.
- ❧ 144 126 trees have been planted and 445 farmers are practicing regeneration farming.
- ❧ 2605 stoves were constructed to improve the efficiency of energy use.
- ❧ Increased adoption of good agronomic practices, resulting in increased productivity. For instance, sorghum and sunflower productivity has increased from 300kgs to 900kgs/acre and from 450kgs to 730kgs per acre.
- ❧ Increased access to clean water. • Improved governance through the mainstreaming of climate change issues into district development plans.
- ❧ Creation of alternative source of income for youth through the eco-leather factory.

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## Biovallée

France

The Biovallée area is one of the leading organic farming regions in France, with nearly 30% of agricultural land used for sustainable agriculture. Created in 2012, the Biovallée Association is a “laboratory” for sustainable approaches. The Association gathers actors from various sectors (including agriculture, recycling, and construction) to pursue a common project: promoting the economic development of the region, whilst strengthening ecological awareness, preserving natural ecosystems, and enhancing sustainable livelihoods. The Biovallée association has a number of long-term objectives, including: reaching 50% of farmers and surface area in organic farming by 2020; offering 80% organic or local food in collective catering by 2025; and generating 2,500 new green jobs in the region by 2025.



© Biovallée

## AGROECOLOGICAL PRACTICES

- 🌱 Implementing an integrated system combining hydrographic management and agroforestry.
- 🌱 Combining traditional and modern agroforestry practices, such as hedgerow planting, and agroforestry grazing, to preserve the region's biodiversity.
- 🌱 Improving soil health by nurturing living soil, and other conservation agriculture practices.
- 🌱 Co-creating knowledge through a support network bringing together all associations in the region.
- 🌱 Selecting crop varieties based on sustainability criteria, such as drought resistance, and epigenetics.
- 🌱 Creating a platform to connect producers and consumers of organic products.

## IMPACTS

- 🌱 Concerted ecosystem management of the Drôme river catchment area has preserved this heritage.
- 🌱 The democratic management of the Association allows greater inclusion of local stakeholders in the development of local policies.
- 🌱 Thanks to a dense network and producers and consumers, the region has proved to be more resilient than others to the Covid-19 crisis.

# INNOVATING ADAPTATION THROUGH AGROECOLOGY

ActionAid International Kenya  
Kenya

ActionAid International Kenya (AAIK) works to strengthen the livelihoods, and resilience of smallholder farmers, by promoting Farmer Field Schools, well as training on agroecological practices. AAIK's work is based on human rights approaches, with a focus on local communities, and women living in poverty. AAIK also advocates for increased public investment in the agricultural sector, and particularly towards women, and smallholder farmers.



© AAIK

## AGROECOLOGICAL PRACTICES

In order to increase communities' resilience to climate change, AAIK applies the following approaches:

- 🌱 Advocating for the recognition of the land rights of vulnerable communities, and women.
- 🌱 Reducing farmers' dependency on external inputs such as fertilisers.
- 🌱 Strengthening food sovereignty, and seed security of smallholders through the preservation, use, and control of traditional varieties of crops, as well as promoting traditional knowledge.
- 🌱 Providing support, and collaborating with, women farmers' organisations.

## IMPACTS

- 🌱 Improved household nutrition through greater access to fresh organic vegetables grown on kitchen gardens.
- 🌱 Increased capacity by 1,000 smallholder farmers to mitigate, and cope with, food- and climate-related challenges.
- 🌱 Adoption of agroforestry practices by 10 Farmer Field Schools, and the establishment of five community-managed tree nurseries.
- 🌱 Increased savings and financial participation of women smallholder farmers.
- 🌱 Strengthened participative governance, with greater involvement of women in planning committees at ward, and county levels.
- 🌱 Women have improved knowledge, and more options to employ efficient and effective technologies on their farms, which is contributing to improved production, and diversified household incomes.

# INNOVATING ADAPTATION THROUGH AGROECOLOGY

HiPP

Germany

HiPP is a German baby food company, which transitioned to all-organic farming more than 50 years ago. HiPP started its smallholder banana project in Costa Rica almost 20 years ago, to ensure the sustainable, and fair sourcing of organic bananas. The project involves 1,200 smallholder farmers, with HiPP providing support in certification, collection, and transport of bananas. This enables the farmers to sell their products at a premium price in international markets.



© HiPP

## AGROECOLOGICAL PRACTICES

-  Supporting producers to maintain diversified production of bananas, cocoa, and complementary food products.
-  Using simple, non-chemical inputs, agricultural methods.
-  Applying multi-storey farming, and ecological inter-cropping.

## IMPACTS

-  Less migration of producers due to reduced poverty.
-  Access to a stable source of income for remote and less-organised farmers, who would normally be excluded from premium banana supply chains.
-  Diversified farming systems are contributing to resilience to both market, and weather instabilities.

## PERSPECTIVES

HiPP aims to increase the number of farmers involved in the project, and encourage the further diversification of partners' activities by building up a non-baby food market for additional products produced by member farmers (such as cocoa). HiPP is currently setting up a demonstration farm to support these activities.

# INNOVATING ADAPTATION THROUGH AGROECOLOGY

## Vinculación y Desarrollo Agroecológico en Café (Vida A.C.)

### México

Founded in 2000, Vida A.C., emerged from social movements involved in fighting poverty, and promoting equitable access to resources. A basic principle is solidarity with, and among, rural actors facing resource scarcity. The initiative establishes links and alliances, and networks families, organised communities, and institutions. VIDA A.C. believes in maintaining a critical vision, defending natural resources, and constructing collective and democratic processes, as the basis for justice, social change, and sustainable living. Another aspect of VIDA A.C's work is to preserve the collective identity of communities, through linking it to landscape-related values.



© Vida A.C.

## AGROECOLOGICAL PRACTICES

- Creating seed banks.
- Promoting diversified production systems, which result in more biodiversity, more sources of income, and more varied diets.
- Developing kitchen gardens for household consumption that combine vegetables, and medicinal plants.
- Supporting collective financial initiatives (savings groups).
- Promoting eco-techniques at the household, and community levels.
- Emphasising self-care, health, and food culture.
- Building on individual health and self-esteem as basic conditions for community work.
- Enhancing community organisation, and participation, as crucial components in resource governance.
- Facilitating knowledge exchange, and intergenerational transmission, through learning communities.

## IMPACTS

- Smallholders are at the centre of local agri-food systems.
- Enhanced resource autonomy through seed banks, communal nurseries, and use of eco-techniques.
- Growing food sovereignty, including through enhanced links to solidarity markets.
- Greater self-esteem, social entrepreneurship, and political participation among female members.
- Improved mobilisation, and communal participation, due to the establishment of local alliances between different actors.
- Strengthened intergenerational links through initiatives with youth.

## PERSPECTIVES

VIDA A.C plans to scale up and expand the experience through knowledge sharing and networking. Additionally, the initiative increasingly focuses on participatory governance and peasant self-governance to put the needs of smallholder farmers on the national and international agenda.

# INNOVATING ADAPTATION THROUGH AGROECOLOGY

## Centro Sabiá

### Brasil

Founded in 1993 in the north-eastern dryland region of Brazil, Centro Sabiá is an educational centre that promotes sustainable local development through agroecological family-scale agriculture. The centre places an emphasis on agroforestry to help mitigate against the long droughts, and high poverty levels in the area. Centro Sabiá also promotes locally relevant, simple, and inexpensive social and technical innovations that enhance economic autonomy, women's empowerment, and communities' political participation.



© Centro Sabiá

## AGROECOLOGICAL PRACTICES

- Developing agroecological systems in rural communities, with a focus on women and youth.
- Using herbal veterinary medicine.
- Diversifying land parcels, and agropastoral systems.
- Restoring soil and landscapes.
- Harvesting rainwater for human consumption and food production.
- Promoting agroforestry as a source of income and food.
- Rescuing, storing and managing knowledge of native dryland seeds.
- Contributing to political change by engaging communities in advocacy networks, and other civil society organisations.

## IMPACTS

- Improved food sovereignty, food security, and equitable food access in agropastoral communities.
- Increased food production.
- Strengthened agroecological systems, contributing to climate change mitigation, and adaptation services at the local level. Socially-powered, local agroecological markets.
- Public programmes established to buy food from agroecological farmers, ensuring their income and supporting their work.
- Empowerment of women and young people, and increased awareness of their rights.

## PERSPECTIVES

Centro Sabiá aims to design more innovative, and resilient, agroecosystem to respond to accelerated climate change. Their goal is to achieve greater public investments in policies and programmes that promote family farming. Our long-term objective is therefore to overcome the dominant economic development paradigm towards a culture based on the concept of 'good living' (buen vivir).

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## MASIPAG

### Philippines

MASIPAG is a Philippines-based, farmer-led network, that brings together people's organisations, NGOs, and scientists focusing on community empowerment, sustainable land management, food security, and food sovereignty. MASIPAG advocates for greater control of genetic and biological resources by farmers, and promotes organic agriculture and associated knowledge. To date, MASIPAG has reached more than 30,000 farmers in the Philippines, and works together with 510 people's organisations, 41 NGOs, 20 church-based development organisations, and 15 partner scientists. MASIPAG also promotes agroecological systems and people-led development at the regional level, through their Asian People's Exchange programme, implemented in partnership with the Asia Pacific branch of the Pesticide Action Network.



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## AGROECOLOGICAL PRACTICES

-  Selecting and breeding local rice, corn, and livestock, enabling farmers to cultivate traditional varieties that are adapted to local conditions, and more resilient to climate-induced agroclimatic conditions compared to exotic varieties.
-  Developing sustainable agroecological systems by encouraging farmers to shift from monoculture to integrated farming systems, and to free themselves from the use of chemical inputs.
-  Supporting local processing and marketing, for example by assisting farmers in the quality control of organic products.
-  Training and enabling farmers to acquire knowledge and skills to make them better equipped to face the impacts of climate change.
-  Strengthening and boosting the organisational capacities of partner organisations to enhance farmer-to-farmer exchanges, and networking.

## IMPACTS

-  Farmers have increased their income and strengthened their food security.
-  Farmers are empowered through improved control of seeds, and access to technology, and resources, but also through shared leadership with partner organisations.
-  There are improvements in natural resource management.

# INNOVATING ADAPTATION THROUGH AGROECOLOGY

## SEKEM

Egypt

SEKEM was founded in Egypt in 1977 as a comprehensive development initiative. The first entity to develop biodynamic farming in the country, SEKEM uses biodynamic approaches to revitalise desert land. It also supports the strengthening of diverse agricultural value chains by marketing organic products in Egypt and around the world. In 2018, SEKEM formulated its 40-year strategy, which is aligned to the Sustainable Development Goals (SDGs) and the ten principles of agroecology adopted by the Food and Agriculture Organization of the United Nations (FAO).



© SEKEM

## AGROECOLOGICAL PRACTICES

- 🌱 Restoring degraded land using biodynamic agricultural methods.
- 🌱 Planting trees to promote carbon capture and storage.
- 🌱 Managing water more sustainably, for example through 100% recycling of waste water, some of which is reused to irrigate tree plantations.
- 🌱 Using renewable energy, and alternative fuels.

## IMPACTS

- 🌱 SEKEM produces its own biodynamic compost, with a current capacity of approximately 11 tons per hectare.
- 🌱 In 2018, SEKEM sequestered 4,333 tons of carbon through its afforestation activities, and a further 1,153 tons in soil carbon.
- 🌱 SEKEM has helped reclaim 684 hectares of desert land – all of which is dedicated to biodynamic agriculture methods – and trained 477 small-scale farmers in biodynamic agriculture methods.
- 🌱 SEKEM became climate positive in 2018.

## PERSPECTIVES

As part of its long-term vision (2018 to 2057), SEKEM aims to plant one million trees in the SEKEM-Wahat project in Bahariya region. This is expected to sequester a further 1920 tons of carbon in the soil, as well as 33,333 tons from trees.

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## Watershed Organization Trust (WOTR)

### India

Established in 1993, the Watershed Organization Trust (WOTR), is headquartered in Pune, Maharashtra State, and currently operates in seven states of India. WOTR pioneered the concept of a “people’s movement for watershed development” by mobilising rural communities, as well as governance and development practitioners, and facilitating joint initiatives towards building a healthy life, and robust ecosystems. The organisation promotes watershed-based ecosystem management that brings together a wide variety of sustainable development approaches.



© WOTR

## AGROECOLOGICAL PRACTICES

- 🌱 Applying diversified cropping, and multi-layer farming methods, to preserve soil health.
- 🌱 Using locally prepared organic manure and bio-formulations for crop protection.
- 🌱 Increasing community participation in water stewardship initiatives.
- 🌱 Applying a participatory water budgeting tool to guide the allocation of water resources, and ensure optimum, equitable, and efficient, use of available water.
- 🌱 Co-creating knowledge and planning actions through the use of community-driven vulnerability evaluation tool, as well as conducting applied research studies.
- 🌱 Recognising women’s roles as primary land and resource managers, and involving them in decision-making processes, information sharing, and knowledge generation.
- 🌱 Using digital platforms, such as the mobile App ‘FarmPrecise’, to provide weather advisory services to farmers.

## IMPACTS

- 🌱 Reduced farm input costs due to the use of organic manure and bio-formulations that reduce dependency on agrochemicals and increase net profit margins for farmers.
- 🌱 Reduced crop losses due to improved access to real-time weather advisories for farmers.
- 🌱 Increased optimisation of water use, and reduced water scarcity and vulnerability: between 2017 and 2018, 3,3 billion litres of water was saved thanks to the expansion of drip, and sprinkle irrigation practices.
- 🌱 Improved food security and nutrition at the household level; with 49% less malnutrition for children under five years old in the areas covered.

## PERSPECTIVES

Building on its experience in watershed management, WOTR is currently expanding its activities on soil conservation, as the other key resource in agricultural systems.