

Zero Budget Natural Farming as a nature-based solution for climate action

1. Context and rationale

Agricultural activities are one of the main contributors to human emissions of greenhouse gases accounting for 25% of total emissions due to intensive fertilizer usage and deforestation (IPBES, 2019) and negatively impact well-being of at least 3.2 billion people.

Reversing land degradation and improving soil's carbon absorption could provide more than a third of the most cost-effective greenhouse gases mitigation activities needed by 2030 to keep global warming under 2°C (IPBES, 2018) while also enhancing food and water security, reviving biodiversity in agricultural landscapes and supporting achievement of the sustainable development goals.

2. An overview of the contribution

Zero Budget Natural Farming (ZBNF) is a scalable model of low-input/high output agriculture that eliminates the use of synthetic external inputs by utilizing local farm-based inputs and regenerates soil health. ZBNF is being implemented by the state government of Andhra Pradesh, which is transitioning 6 million farmers and 8 million hectares to 100% chemical free agricultural practices by 2024, making Andhra Pradesh the first natural farming province in India.

3. How the contribution leverages living natural systems as a solution to avert climate change?

Improvements in soil fertility through bio - inoculants, continuous vegetation cover on the farms and reduced tillage result in decreased carbon loss and increased sequestration of carbon in ZBNF soils.

4. Key outcomes:

Reduction in carbon emissions and carbon capture

ZBNF is reducing CO₂ emitted yearly from the agriculture sector with more than 202,500 hectares and 500,000 farmers converted to natural farming.

Increased climate resilience

ZBNF practices improve microbial content and water retention capacity in soils which enables drought prone areas to provide consistent yields. Reduction in chemical fertilizers reduces runoff into rivers and wetlands ensuring water quality and availability during extreme weather events.

Social impact

Reduced cost of cultivation due to low cost inputs and stable yields enables farmers to have consistent quantities of crops to sell making their livelihoods more secure. Preservation of ecosystems on the farms lessens drudgery of women who have easier access to clean water and feed for livestock as well as reducing illnesses caused by chemicals in food, especially among children.

Net economic impact

Every 1 USD invested on a farmer to adopt ZBNF results in direct benefits equaling 13 USD. The direct benefits include – reduction in costs of cultivation, higher yields, lower costs of borrowing, income from inter crops, and a slight premium on selling price. In addition, the social and environmental benefits include: food, nutrition and health security, employment, soil health and water security, coastal ecosystem regeneration, climate resilience, biodiversity protection and well-being of people.

Impact on realization of the 2030 Agenda for Sustainable Development

ZBNF could help make significant progress towards achieving almost a [quarter of the 169 SDG](#) targets. ZBNF reduces poverty by recognizing vulnerable farmers and improving their incomes (SDG 1 & 10), diversifying crops for better nutrition (SDG 2), reducing health risks from chemicals (SDG 3), training women as farming guides (SDG 5), decreasing runoff into water bodies (SDG 6), creating green value chains (SDG 9), conserving nature (SDG 11), generating awareness about conscious consumption (SDG 12) and promoting collaborative efforts across stakeholders (SDG 17).

Food security

Across ZBNF crops, yields are more consistent regardless of seasonal changes and extreme weather events - prolonged dry spells or sudden heavy rains. Poly-cropping practices provide diverse nutrition sources for households which are affordable.

Minimising species extinction and ecological losses and fostering an increase of biodiversity

There are observable increases in the numbers and types of wild species (insects, snakes, mongoose, etc) that have returned to ZBNF farms. An increase in birds is evident in addition to the fact that they are nesting amongst the crops. Bees are also visible through a rise in bee hives in ZBNF cotton fields.

5. Which countries and organisations are involved in the contribution?

ZBNF is being implemented in Andhra Pradesh, the Southern state of India, by [Rythu Sadhikara Samstha](#) (RySS), which is a 'not for profit' company set up by the Government of Andhra Pradesh.

The [United Nations Environment Programme](#), [BNP Paribas](#) and the [World Agroforestry Center](#) (ICRAF) have come together through the [Sustainable India Finance Facility](#) (SIFF) to work with the government of Andhra Pradesh to support the scale-out to 6 million farmers. Key scientific partners contributing to the assessment of environmental and social impacts include [Azim Premji Philanthropic Initiatives \(APPI\)](#), [TEEB-Agriculture Food](#) study, [FAO](#) and [Council on Energy, Environment and Water](#).

6. How have stakeholders been consulted in developing the contribution?

A participatory process has been in place from the beginning to incorporate views of stakeholders. Regular meetings and brainstorming workshops are held to receive comments. Gatherings are held in every village implementing ZBNF once a month to discuss inputs by farmers on ZBNF practices.

7. Where the contribution can be put into action?

500,000 farmers and 202,500 hectares have been transitioned to ZBNF practices across all 13 districts of Andhra Pradesh, India. In 2019, a total of 1 million farmers will be converted. ZBNF is a globally replicable model for smallholder friendly agriculture that improves adaptation capacity of farmers, enhances food security and conserves biodiversity, especially in regions that are vulnerable to climate change impacts.

8. How the contribution will be delivered? How will different stakeholders be engaged in its implementation? What are the potential transformational impacts?

The contribution is being delivered by the Government of Andhra Pradesh which has adopted ZBNF as a state-wide policy for transition to climate resilient and smallholder friendly agriculture. Visibility, knowledge transfer opportunities and capturing of best-practices for climate action in other regions facing desertification and climate vulnerability will also be supported through dialogues and initiatives under the UN Decade on Ecosystem Restoration (2021-2030).

9. Is this initiative contributing to other Climate Action Summit workstreams?

Yes: industry transition; climate finance and carbon pricing; cities and local action; resilience and adaptation; youth and citizen mobilization; social and political drivers; mitigation strategy.

10. How does this contribution build upon this experience? How does the contribution link with different ongoing initiatives?

This action is accelerating progress towards existing global restoration goals, e.g. the [Bonn Challenge](#). It is doing this by providing a 'blueprint' for scaling climate resilient management of agricultural landscapes and supporting India in meeting its Nationally Determined Contributions (NDCs).

ZBNF provides a model for the widespread scale-up of restoring degraded ecosystems, which is targeted under the UN Decade of Ecosystem Restoration 2021 – 2030. Access to affordable and safe food through ZBNF can support the achievement of [Global Nutrition Targets 2025](#). Overall, by preserving genetic diversity in agriculture, preventing degradation of ecosystem services, providing habitats for biodiversity on farms, creating decent livelihoods for small farmers and promoting gender sensitive development, ZBNF contributes to meeting the [2030 Agenda](#) goals in countries.

11. Funding mechanisms

ZBNF has received funding from the Central Assistance to State Plan Schemes of the Ministry of Agriculture, Government of India, for specific activities to empower farmers. Grants have been provided by APPI to implement training workshops for farmers. However, reaching 6 million farmers and 8 million hectares will require investments equaling USD 2.3 billion over the next 5-7 years. Potential funding mechanisms include:

- Redirecting existing government incentives and subsidies (e.g. for fertilizers) towards natural farming
- Leveraging private sector investments through blended finance models
- Creating higher-value supply chains for ZBNF commodities
- Climate and agriculture bonds
- Fair-trade and biodiversity friendly certifications for ZBNF products to access new markets

12. Means of stewardship, metrics for monitoring

The government of Andhra Pradesh conducts extensive field data collection to assess ZBNF impacts through crop cutting experiments. Comprehensive studies on health, biodiversity, carbon sequestration and food security are ongoing by ICRAF, TEEB-Agriculture Food study and FAO. A detailed monitoring and evaluation strategy is being developed taking into account environmental, social and governance standards of UN Environment and IFC Performance Standards.

13. Communication strategy

The government of Andhra Pradesh is developing a formal communication strategy for ZBNF. There is regular dissemination of ZBNF results through visual multimedia such as [ZBNF videos](#) capturing farmers' experiences and [photographs from the field](#) shared on [social media](#).

14. Contact details of proponents

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