



## REGENERATIVE RIPPLES IN INDIA

# AP = AGRICULTURAL PIONEER

**To feed a ballooning population, Andhra Pradesh became one of India's first states to embrace the Green Revolution in the 1960s. Now a 'regenerative revolution' will demonstrate how smallholder farmers can scale climate-resilient farming practices to feed their pockets, as well as their mouths.**

Efforts are in flight in Andhra Pradesh (AP) to transition six million farmers to Climate Resilient Zero Budget Natural Farming (CRZBNF) by 2024. Predicated on the elimination of agrochemicals and the promotion of agroecological practices, CRZBNF is true to its name – no external inputs, whatsoever. Instead, locally available applications – principally jeevamrutha (microbial cultures made from cow dung and urine), bijamrita (seed treatment) whaphasa (soil aeration), acchadana (mulching) and intercropping – help farmers boost incomes and increase yields. The programme and its principles help farmers to rejuvenate soils ravaged by years of chemical-intensive farming, while augmenting the food security and livelihoods of smallholder farmers. It already appears to be saving farmers money, and improving the soil they depend upon.

In rural AP, debt is king and gender inequality is queen. Tackling poverty and empowering women are therefore front and centre of CRZBNF. Indebtedness has hovered

around 90% in AP for decades, where the average smallholder farmer owes about ₹1 lakh (or US\$1,500). CRZBNF presents a path out of this vicious cycle of debt. It introduces eligible farmers (i.e. those with less than 2.5 acres of dry-land, 1.25 acres of wet-land or single women farmers) to specific crop and livestock models to enhance incomes and food security and, crucially, provides them with financial support: up to 50% of the cost of transition to CRZBNF. Meanwhile, countless numbers of NGOs are tasked with engaging the around 86,000 women's self-help groups (WSHGs) in AP to plan, manage and monitor the programme. CRZBNF aims to employ an equal number of males and females at leadership levels and even provides entrepreneurial incentives to women to equip them with the resources to set up, for example, village-level shops to sell natural fertiliser mixtures to farmers.

Given the scale and investment behind the CRZBNF roll out, it is tempting to endorse its scientific credentials. But that would be jumping the gun. The World Agroforestry (ICRAF) is leading efforts to get a more comprehensive empirical grip on CRZBNF – it has recently commissioned studies looking into soil-health, GHG emissions and farmer adoption rates. Preliminary cross cutting experiments have already returned "extremely encouraging" results: in 2017, the CRZBNF pilot team found that 88% of the farmers who transitioned to CRZBNF experienced increases in incomes and yields, while another 10% reported dips in yields but an increase in income (on account of reduced input costs). CRZBNF groundnut farmers and paddy farmers, for example, gained on average 23% and 6% higher yields than their non-ZBNF counterparts, respectively.

An international programme with a similar timetable by the



World Bank will help AP farmers transition. The \$245 million Integrated Irrigation and Agriculture Transformation Project (APIIATP) will support 200,000 marginalised AP farmers adopt climate-resilient practices, such as employing the use of seed varieties that are drought resistant and mature quickly to help reduce risks of climate-related crop failure.

AP's CRZBNF push is already having ripple effects. For example, in 2018 the Indian states of Himachal Pradesh and Karnataka announced the start of their own state-wide programmes. It's only a matter of time, it seems, that CRZBNF will be announced elsewhere besides India.

## NATURE'S CLIMATE STATISTICS

According to Project Drawdown, regenerative agriculture could provide a \$1.9 trillion financial return by 2050 on an investment of \$57 billion. While CRZBNF is uniquely distinct from archetypal regenerative agriculture, it does share similarities such as mulching and intercropping. It also shares regenerative agriculture's overarching approach: shun the long held conventional wisdom that the world cannot be fed without chemicals and synthetic fertilizers, and put soil health first.

Both regenerative agriculture and CRZBNF address four of the major problems conventional agriculture has wrought globally. Of the nine planetary boundaries identified as "safe operating spaces for humanity", two have been completely transgressed – biodiversity and biogeochemical flows (i.e. synthetic fertiliser use). Climate change and land-system change are 'in the zone of uncertainty'. Conventional agriculture has been the principal driver of all four.

A report by the Sustainable India Finance Facility and Council on Energy, Environment and Water suggests that CRZBNF can contribute to every one of the 17 SDGs. The same report made it clear that CRZBNF will increase Indian farmers ability to deal with economic shocks and extreme climate events.

But for AP's CRZBNF to become a NCS success story by 2024, challenges will still need to be overcome. For example, a survey by Delhi-based Centre for Science and Environment shows that if a phasing out of chemicals is not complemented by a simultaneous increase in availability of, and access to, organic manure, the transition can take its toll on yields. The environmental benefits can take 2-3 years to reveal themselves, but preliminary results indicates that once soil regains its fertility after chemical-based inputs stop, soil organic matter is restored, less water is required and climate-resiliency is enhanced.

## KEY FIGURES

AP farmers already using ZBNF:

**523,000**

Converting

**8 MILLION  
HECTARES**

to ZBNF by 2024

The Sustainable India Finance Facility  
will invest

**\$2.3 BILLION  
OVER 6 YEARS**

ZBNF is reported to already be followed by

**~8% OF  
FARMERS**

in Andhra Pradesh, India

**MORE THAN  
HALF**

of India's population directly or indirectly  
depend on agriculture.

**2018 - 2024**

## **PROJECT BACKGROUND**

AP launched the CRZBNF programme in June 2018, following a successful three-year pilot project spread across 700 villages.

## **EXECUTING ENTITY**

CRZBNF is being implemented through 'Rythu Sadhikara Samstha' (Farmer's Empowerment Organisation), a not-for-profit company established by the AP government in 2014.

## **FUNDING**

UNEP has promoted the Sustainable India Finance Facility (\$2.3 billion) as a collaborative investment venture with BNP Paribas bank of France and the Nairobi-based World Agroforestry Centre. Also, Azim Premji Philanthropic Initiative (\$15 million), FAO (\$150,000). But – scaling up the programme to cover all of Andhra's 6 million farmers will require about \$2.3 billion.

## **SDGs**



## **LOCATION**



## **VIDEOS & STORIES**

<https://youtu.be/DALihluF4FM>  
<https://youtu.be/MH-x8zFmyXQ>  
<https://youtu.be/D43unDVvZsE>  
<https://apzbnf.in/>

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