Agricon

COMMONLAND
4 Returns for Healthy Landscapes

AAVARTAN

Recycling Values, Restoring Balance

AAVARTAN

CONTENTS

ABBREVIATIONS

AWD: Alternate Wetting and Drying

CAS: Chhattisgarh Agricon Samiti

CHiRP: Central Highlands Restoration Program

FPO: Farmer Producer Organization

IGKV: Indira Gandhi Krishi Vishwavidyalaya (Indira Gandhi Agriculture University)

IISR: Indian Institute of Sugarcane Research

IRRI: International Rice Research Institute

MGNERGA: Mahatma Gandhi National Rural Employment Guarantee Scheme

NABARD: National Bank for Agriculture and Rural Development

NCCI: Network for Conserving Central India

NIPHM: National Institute of Plant Health Management

PRA: Participatory Rural Appraisal

PRI: Panchayati Raj Institutes

NRLM: National Rural Livelihood Mission

About CAS

Chhattisgarh Agricon Samiti (CAS) is an NGO working since 2007 across Chhattisgarh. CAS has a vision to scale up the quality of life of people living in different communities. To achieve this, CAS has been working in a holistic manner targeting different domains of development such as Sustainable agriculture, Community Mental Health., Health & Nutrition, Education and Youth empowerment etc.

However, amongst all other domains of work, CAS has rich experience in transforming landscapes through Watershed and WADI projects funded by NABARD and other partners in Bastar, Mahasamund, Bilaspur etc.

The landscape restoration project of CHiRP at Kabirdham, is a project that seamlessly aligns with the CAS's vision, strategic goals and holistic approach to development, making use of all the acquired experience and expertise of CAS.

INTRODUCTION

What is Landscape Restoration?

Landscape restoration is the process of reviving degraded or damaged ecosystems to restore their ecological health and functionality. This involves practices like reforestation, soil restoration, water management, and the reintroduction of native species. The goal is to rebuild natural processes and biodiversity, improving ecosystem services such as clean water, fertile soil, and climate regulation. By restoring landscapes, communities can enhance more varied, sustainable agricultural production, adapt to climate change, and support sustainable livelihoods. It's a holistic approach that balances environmental, economic, and social needs, fostering resilience in both natural and human systems.

4 Returns Framework

The 4 Returns framework provides the foundation for successful landscape restoration in the long term by enabling stakeholders to engage with each other, form partnerships and create a shared vision.

It is a practical, systems change framework that can be used by landscape stakeholders to undertake holistic landscape restoration. The framework seeks to balance competing stakeholder demands in a mosaic of different management approaches and business cases, creating inspirational, natural, social, and economic returns.

Return of Inspiration

Giving people hope and a sense of purpose

Social Return

Bringing back jobs, education and social connections

Natural Return

Restoring biodiversity and soils for healthy and resilient landscapes

Financial Return

Realising long-term sustainable income for communities


NATURAL
ECOSYSTEM ANALYSIS
PRACTICES OF ECOSYSTEM MANAGEMENT
FOOD PRODUCTION. DIVERSIFICATION
FOOD SECURITY, RESILIENCE, ECOSYSTEM SERVICES
FINANCIAL
FINANCIAL SKILLS
INCOME. COSTS. PROFITS, MARKETING
SAVINGS, LOANS, ASSETS
FINANCIAL SECURITY, POVERTY REDUCTION, OPPORTUNITIES
4
Returns Framework
INSPIRATIONAL
QUALITY OF LIFE, PERSONAL EMPOWERMENT
CONFIDENCE, MINDSET, GOOD HEALTH
EXPERIMENTATION, EXPLORATION, INNOVATION, NEGOTIATION
CRITICAL THINKING
SOCIAL
EMANCIPATION, GROUP EMPOWERMENT, ACCESS TO SERVICES/MARKETS
COLLECTIVE ACTION, NETWORKS ADVOCACY
TRUST, BONDING, LINKAGES
SOCIAL SKILLS

CHiRP

Central Highlands Restoration Program (CHiRP) is a multi-stakeholder initiative which aims to transform landscapes through a holistic approach combining nature conservation and sustainable socio and economic development for the well-being of all.

CHiRP focuses on restoring the landscape in the central highlands of India focusing on the landscape of the Kabirdham district of Chhattisgarh.

Spearheaded by Commonland Foundation, an organization from the Netherlands, which aims to restore landscapes across the world for a brighter future, CHiRP has different strategic and implementation partners such as Chhattisgarh Agricon Samiti, Foundation for Ecological Society, NCCI (Network for Conserving Central India), PRADAN, and Samerth Charitable Trust in this landscape.

Many critical global issues, including biodiversity loss, climate change, food insecurity, and mass migration, are closely linked to the degradation of landscapes. Thus, Commonland has identified & classified these issues into the four main losses associated with land degradation – loss of hope, social networks, biodiversity and economic value. Based on addressing these losses, Commonland has developed a holistic 4 returns framework for landscape restoration.

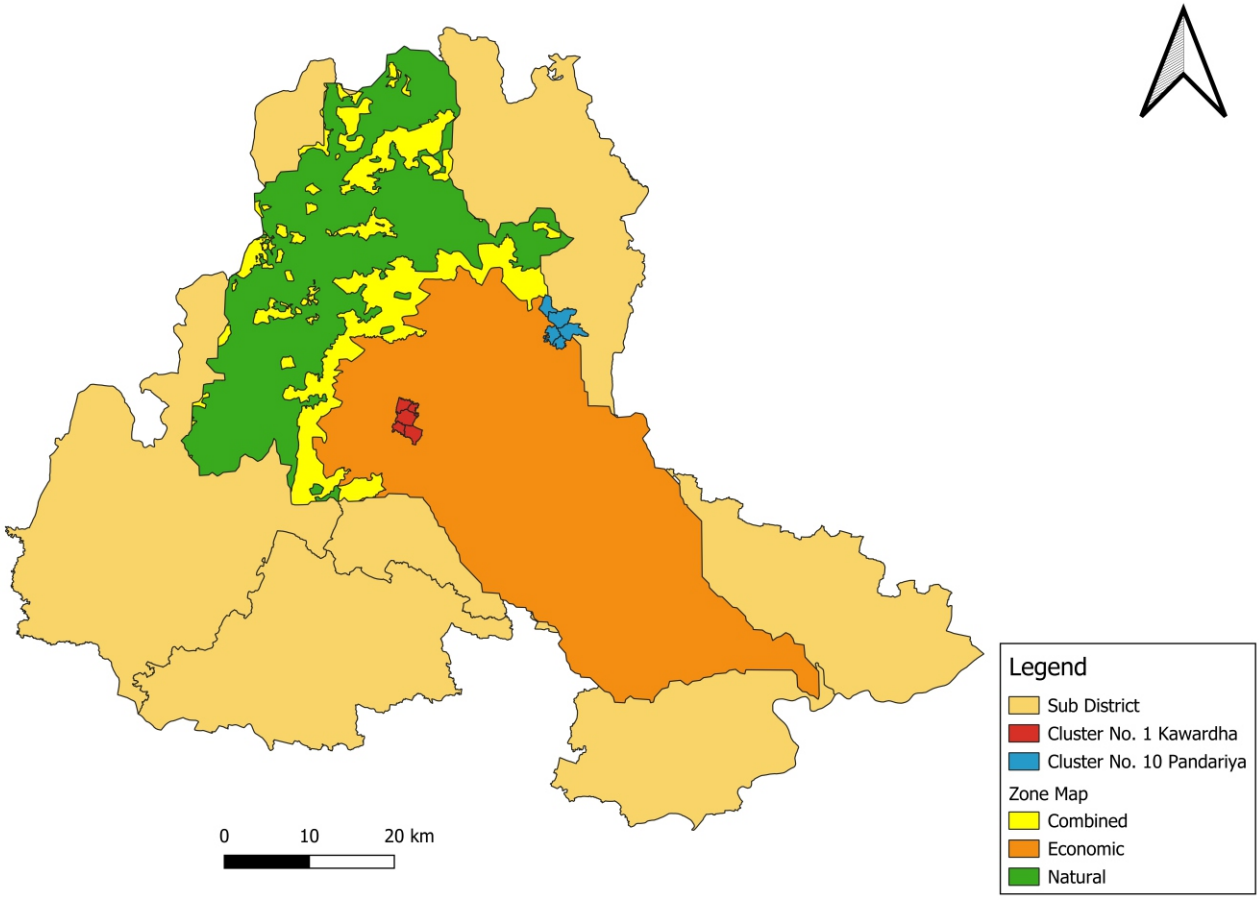
This 4 returns framework which aims to recover for these 4 losses to the landscape through

- *Loss of Purpose or Hope to* **Return of Inspiration**
- *Loss of Jobs & Prosperity to* **Social Returns**
- *Loss of Biodiversity, Soil & Water to* **Natural Returns**
- *Loss of Long-term Income to* **Financial Returns**

CHiRP landscape

Kabirdham is one of the 33 administrative districts of Chhattisgarh state in central India. It is situated in the region around the Maikal Ranges and lies to the South-east of the Kanha National Park and South of River Sakri. There are four blocks in Kabirdham- Kawardha, Bodla, Pandariya, and Sahaspur-Lohara.

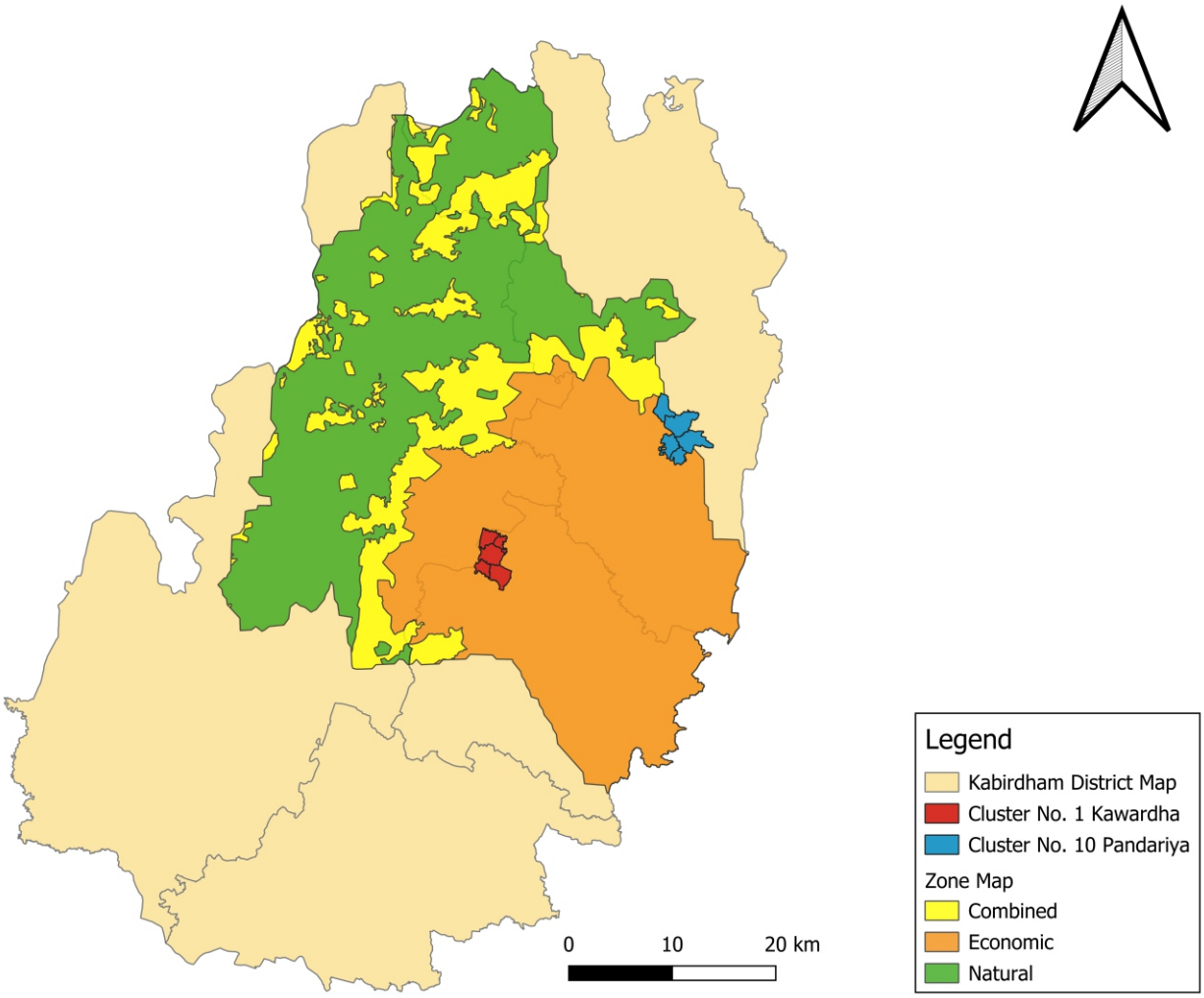
Using the Four Returns framework, this landscape has been divided into – the three zones. The natural zone, the combined zone and the economic zone. The natural zone (the forested area of the Maikal hills), the combined zone (in the hills and at the foot of the hills where mostly tribal communities live) and the economic zone (the plains where farming communities live).



Economic Zone Landscape

Kawardha and Pandariya are the two out of the four blocks where the 10 villages of our pilot project are located of Kabirdham district.

In terms of total geographical area: Kawardha and Pandariya together make up ~49.83% of Kabirdham district Pandariya is ~68% larger in comparison to Kawardha. The economy of Kabirdham is predominantly agrarian. As per the statistics book of Kabirdham district updated in 2019, 62.16 % of the total farmers of Kabirdham are marginal farmers. 21.85% of farmers are small farmers and only 0.48% of farmers fall in the category of large farmers. There has been an increase in production of sugarcane throughout the years. The climate in Kawardha is tropical. When compared with winter, the summer has much more rainfall. The average annual temperature is 78.8°F. About 1090 mm of precipitation falls annually. Weather forecasting of rain, sun, wind, humidity, and temperature Kawardha is 347m above sea level. In Kawardha, the wet season is oppressive and overcast, the dry season is mostly clear, and it is hot year-round. Over the course of the year, the temperature typically varies from 57°F to 106°F and is rarely below 51°F or above 112°F.



Our CHiRP team

	NAME	POSITION	EDUCATION & FOCUS
	**Manisha Motwani**	Program Coordinator	B. Tech in Agriculture Engineering; leads CHiRP program focused on improving ecosystem services and sustainability.
	**Deepak Bagri**	District Coordinator	M.A. in Mass Communication; manages district-level operations and community coordination.
	**Chitra Sahu**	Women Development Officer	M.S.W. in Rural Development; empowers women and advocates for their participation in development initiatives.
	**Dr. Taruna Borule**	Plant Pathologist	PhD in Biotechnology; ensures crop health and productivity through research and innovation.
	**Nitesh Chandel**	Field Officer	M.Sc. in Botany; provides technical support in mobilization and community engagement.
	**Kavita Lanjhi**	Field Officer	M.Sc. in Agrometeorology; helps farmers adapt to climate change and promotes sustainable agriculture practices.
	**Surendra Sonkar**	Field Officer	B.Sc. in Agriculture; assists farmers with best practices in farming.
	**Omprakash Bhaskar**	Field Officer	M.Sc. in Agronomy; supports sustainable agriculture and farm productivity.
	**Aastha Kesharawani**	Learning & Knowledge Center Coordinator	B.Sc. in Science; facilitates knowledge sharing, soil testing, and managing lab activities.

Problems Identified in Economic Zone

NATURAL RETURN

Our assessment identified critical issues impacting natural capital across four major areas: soil, water, climate, and biodiversity. Notably, the overuse of pesticides has detrimentally affected soil microorganisms crucial for nitrogen fixation and soil fertility. Fertilizer application has led to heightened soil salinity due to increased nitrification rates. Moreover, the major crops in the two selected clusters, sugarcane and paddy, demand substantial water, exacerbating groundwater depletion. Erratic rainfall patterns contribute to excessive surface runoff, leading to nutrient loss and accelerated soil erosion. Additionally, the absence of water harvesting infrastructure, diminishing livestock management knowledge, and reduced biodiversity in crops, trees, birds, and animals presented significant overlooked challenges.

Loss of Natural Capital

SOIL

- Acidity/Salinity
- Excessive use of fertilizer and pesticide

WATER

- Too much water requirement by crops like sugarcane, paddy
- Decline in groundwater
- Excessive surface runoff
- Over Extraction of Water
- Lack of Water Harvesting Structures

CLIMATE

- Green House Gas Emission
- Erratic Rainfall
- No agroforestry
- Lack of adaptability and resilience
- Absence of weather and agro advisory

BIODIVERSITY

- Decreased Crop biodiversity and soil biodiversity
- Lack of micro organisms
- Decreased Nutritional diversity in the food plate
- Absence of forest cover

FINANCIAL RETURN

In the financial domain, agriculture remains a predominant livelihood yet suffers from limited diversity in production patterns. The underutilization of horticulture, dairy, and poultry compromises potential income sources. The persistent depletion of natural capital is diminishing the production capacity of key cash crops like sugarcane. A critical lack of credit access and effective market linkages further impedes optimal financial capital utilization.

Loss of Financial Capital

FOOD AND PRODUCTION

- Monocropping (Sugarcane, Paddy)
- No use of Traditional Agricultural Practices
- Lack of Homestead Vegetation
- Lack of Diversity in Production
- Lack in production of honey/fruits/herbs
- Less production of milk, meat, poultry, egg
- Lack of credit linkages and financial support like subsidies
- Lack of post-harvest machinery and tools
- Low or no production of biofertilizers and pesticides

ENERGY

- Electricity or overuse of energy for irrigation
- Lack of biofuels, plantations
- Absence of Biogas

SOCIAL RETURN

The community, integral to our social return focus, faces numerous functional challenges. The almost non-existent social capital impact highlights the absence of effective associations such as Farmer Producer Organizations (FPOs), which are crucial for scaling economies and enhancing bargaining power. Additionally, the lack of community strengthening initiatives, peer-to-peer support networks, and knowledge-sharing mechanisms hampers the development of a cohesive and empowered community. The absence of integration with capacity-building entities like IGAU/IGKV and Krishi Vigyan Kendra, along with the minimal presence and functionality of cooperative groups, further limits community empowerment. Moreover, insufficient engagement with NRLM initiatives restricts the community's ability to leverage livelihood-based activities through self-help groups, preventing them from realizing their full potential.

Loss of Social Capital

COMMUNITY

- Too much dependence on one source of livelihood
- Dependence increased for diversified nutrition on the market
- Unavailability of backyard spaces
- Absence of agroforestry related produce in livelihood and income opportunities
- Failure of crops like soyabean due to climate change
- Very low income from livestock and animal produces
- Lack of veterinary services
- Excess Responsibility on women
- No say of women in decision making or ownership on land and participation in other institutions
- less Market linkages
- Less diversification in livelihood basket
- Less participation of farmers and other vulnerable groups in local institutions and absence of long- term vision
- Lack of structure and gap in local institution

INSPIRATIONAL RETURN

Cultural aspects, linked to inspirational returns, are notably problematic. The region suffers from a significant deficit in inspiration, crucial for improving quality of life. Current challenges include the unavailability of advanced technologies, inadequate training on new methodologies, and a failure to preserve indigenous knowledge. A sense of disconnection and lack of ownership regarding the landscape prevails, alongside a minimal presence of influential local leaders, which undermines the potential for realizing long-term benefits from sustainable biodiversity usage.

Loss of Inspiration

CULTURE

- Unsatisfactory Practices related to sugarcane, paddy
- No practice of leaving fallow land
- Loss of indigenous Knowledge on soil quality management
- Less use of organic manures and organic fertilizer
- Lack of soil testing facilities
- Prefer to buy from market
- Lack of awareness and understanding on value of agroforestry
- Lack of Understanding on Multi- layer Agroforestry
- No use of community land for agroforestry, pasture fodder
- Less observant on weather and climate
- No training on new methodologies on livestock management
- Knowledge on water conservation is less
- Lack of knowledge on micro irrigation
- Lack of Gender Sensitivity
- Social norms
- Lack of digital skills within women
- Lack of post-harvest technology
- Less effectiveness of local Institutes
- Lack of Co-operative culture

Approach and Strategies

Our Approach for Pilot

CAS strategically prioritized building social capital and conducting inspiration evoking awareness and outreach programs through volunteers in the beginning.

The initial intervention objective of the pilot in the economic zone aimed to enhance the adaptive capacity of the community toward landscape restoration by influencing behaviors, cultural practices, and fostering a socially equitable community that was ready to co-create and co-produce.

The vision was to establish a thriving and sustainable landscape, where diverse ecosystems were restored, native species flourished, and community members actively participated in sustainable practices. This initiative sought to preserve the natural resources and ecological balance of the surroundings for future generations, while promoting economic and social well-being through responsible land use and conservation efforts.

Implementation began in 10 villages, with the belief that the success of any landscape restoration project depended largely on the involvement and commitment of the local community. To achieve the objective of enhancing the adaptive capacity of the community, the focus was initially placed on building inspiration and strengthening social capital, alongside addressing Crops & Cropping Patterns as key thematic areas.

In terms of natural return, the major focus areas were conserving water, improving soil quality, and changing crop management practices. These efforts were critical in restoring the health of the landscape, ensuring long-term ecological resilience and productivity.

Financial capital building was approached by fostering a sense of collectivism among farmers. The emphasis was on encouraging co-creation and co-working as habitual practices, aiming to empower farmers to work together toward shared goals and achieve greater economic benefits through cooperation. This collective approach was expected to not only increase productivity but also build a strong community network that facilitated the sharing of resources and knowledge.

Inspiration played a critical role in creating a positive mindset and fostering a sense of ownership and responsibility toward the environment. By inspiring community members, a sense of pride in their natural surroundings was cultivated, motivating them to take positive actions toward landscape restoration. This was accomplished by organizing community-based events, such as Nukkad Nataks, nature walks, storytelling sessions, and interactive workshops and training that showcased the beauty and importance of the local ecosystem.

Social capital, referring to the relationships, networks, and norms within a community, was leveraged to achieve common goals. In the context of landscape restoration, social capital facilitated cooperation, resource sharing, and collective action toward achieving a sustainable landscape. Strengthening social capital was therefore crucial in creating a socially equitable community that was prepared to co-create and co-produce. This was achieved through various activities, including the establishment of learning centers, involvement of villagers in community meetings, trainings, exposure visits, skill-building workshops, and collaborative planning sessions, all of which promoted trust, communication, and collaboration among community members.

In summary, building inspiration and strengthening social capital, while focusing on water conservation, soil quality improvement, crop management practices and collectivism, were essential components of the pilot project in the economic zone of Kabirdham. These efforts fostered a positive mindset, a sense of ownership and responsibility toward the environment, and facilitated cooperation, resource sharing, and collective action towards creating a sustainable landscape and resilient community.

A Journey Through Our Interventions 2023-24

KAVIR Kisan
Strengthening Communities Through Shared Wisdom

Formation of the Kavir Kisan group was a community-driven effort bringing together farmers from the diverse landscapes of Kabirdham District. The group was established with the aim of transforming agricultural practices and enhancing livelihoods through collective action, shared knowledge, and innovative approaches. Starting with a few motivated farmers, the group has grown to 210 members from 10 villages, driven by a shared vision of sustainable land restoration and community empowerment.

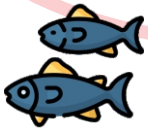
Kavir Kisan Thiha
The Hub of Learning and Collaboration

CROPS AND CROPPING SYSTEMS

- Field crops (rice, wheat, maize, tubers, plantains etc.), horticultural crops (vegetables, fruit crops), commercial crops (cotton, coffee, tea etc.), agroforestry
- Mixed cropping systems, integrated systems
- Technical entry points: IPM, IPPM, conservation agriculture, soil health management, seed production, variety improvement, agrobiodiversity, agroforestry, agroecology, organic agriculture

SOCIAL ISSUES

- Farming as a business: marketing and value chains
- Nutrition and nutrition-sensitive agriculture
- Sanitation and vector-management, pesticide health risks, HIV-AIDS
- Gender and women empowerment
- Youth and employment
- Post-conflict, post-emergency, disaster-risk reduction

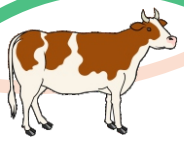


AQUACULTURE

- Fish, rice-fish, seaweed, shrimps etc.
- Integrated systems, ponds etc.

LAND, WATER, AND NATURAL RESOURCES

- Landscape and watershed management
- Groundwater and surface water
- Integrated land management, sustainable land management
- Climate change adaptation
- Forest management



LIVESTOCK

- Cows, pigs, poultry, rabbits, bees etc.
- Integrated systems; agropastoral/pastoral systems
- Technical entry points: disease management, dairy production, antimicrobial resistance, pasture management

The group operates from the Kavir Kisan Thiha, a dedicated space that serves as a hub for learning, discussion, and planning. This center fosters a sense of community, where members gather to exchange experiences, discuss ongoing agricultural activities, and plan future initiatives. It is the heart of Kavir Kisan's operations, where ideas take shape and successes are celebrated, reinforcing the group's mission to inspire and restore through sustainable farming practices.

NON-FORMAL EDUCATION PROCESS characterized by hands-on group learning

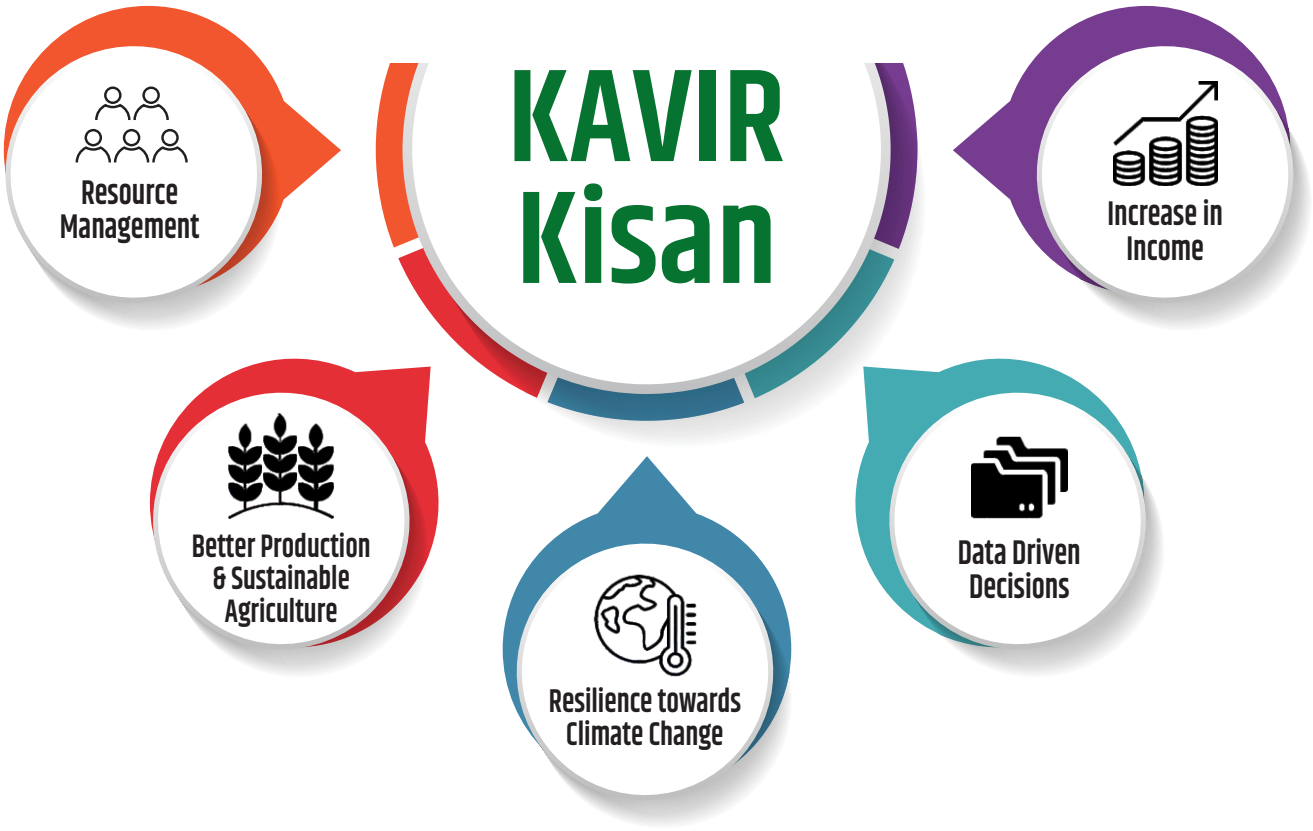
FARMER-CENTRED APPROACH adapted by local people

SEASONAL TRAINING PROGRAMME LASTING AT LEAST ONE PRODUCTION CYCLE from seed to seed

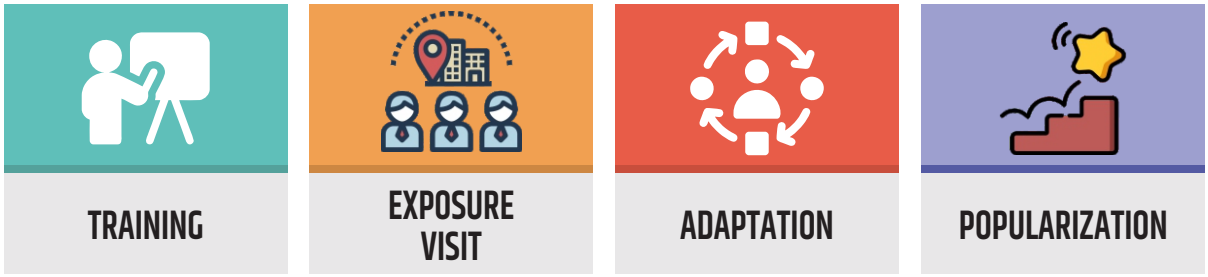
Kavir Kisan group, supported by CAS, received training on technologies like Direct Sowing, Alternate Wetting and Drying (AWD), and improved soil health management to enhance productivity and reduce chemical use. Training on Innovative pest and water management practices have further boosted their knowledge on sustainable farming.

We also facilitated exposure visits for these farmers across India to broaden their experience & skills. Key learnings included advanced sugarcane management at IISR Lucknow, promoting sustainability & biodiversity at Abhyuday Sansthan, agroforestry in Bastar, and plant health management at NIPHM Hyderabad, equipping farmers with new techniques to enhance their practices.

THEMATICS



APPROACH



Testimonials from the Field

Before Kavir Kisaan, I felt isolated in my struggles. Now, I share challenges and solutions with my peers.

Dhaniram Yadav
Farmer: Khairipar Kawardha

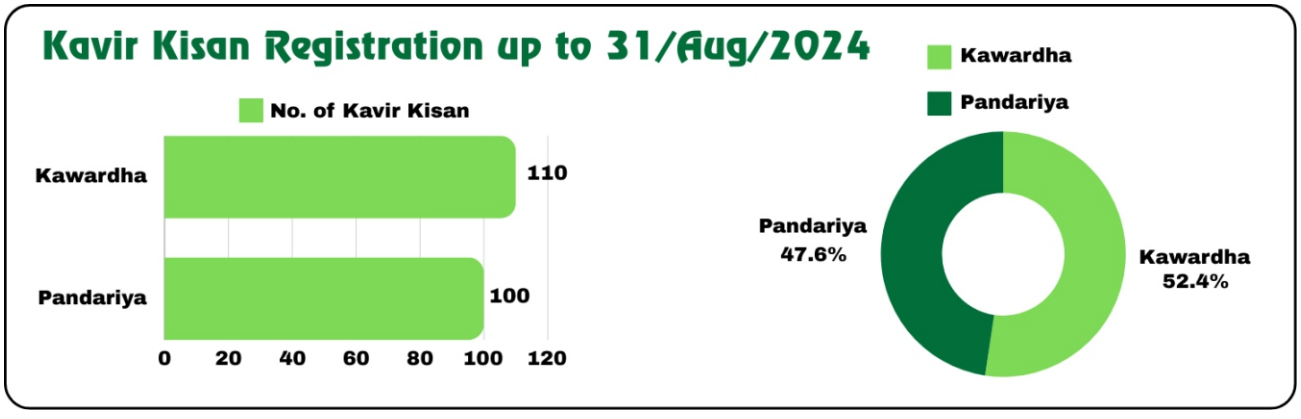
The visit to Lucknow exposed me to the advancements happening in nearby states. It gave me valuable insights into new techniques that may be adopted to improve sugarcane production from my field

Bhagvat Verma
Farmer: Naudih, Kawardha

As Kavir Kisaan, we are more than just farmers; we are innovators, educators, risk takers and the guardians of our land. Each meeting at Kavir Kisan Thiha brings new ideas and strengthens our bond.

Narayan Chandravanshi
Farmer: Daujri, Kawardha

Data & Graphs



KAVIR

Crafting a Better Future Through Volunteerism

KAVIR—Kabirdham Volunteers for Inclusion and Resilience—is a vibrant community of 661 youth volunteers initiated since March 2023. Driven by the vision of addressing pressing societal challenges, KAVIR has channelled its energy into supporting health, livelihood, environmental sustainability, and women's empowerment at the landscape level.

Through our initiatives, we engaged volunteers in hands-on implementation of various interventions, such as installing pipes in fields, distributing plants, and providing bio-fertilizers, generating 1,554 person-days of employment. This approach not only empowered our volunteers but also ensured the successful execution of CHiRP project, strengthening our community ties and boosting local livelihoods.

From environmental campaigns on World Water Day to mental health and education programs like "Hum Honge Kamyab," our volunteers have made significant contributions. Initiatives like "School Chale Hum" and menstrual hygiene awareness campaigns empowered our community, while wall writings by volunteers served as constant reminders of our commitment to restoration and sustainability.

Our volunteers are regularly trained in areas such as mental health support and the values of volunteerism, ensuring they are well-equipped to make a lasting impact. Programs like "Aao Baat Kare" and "Swayamseva se Swayam Sidha" have been instrumental in building the capacity of our volunteers.

KAVIR continues to be a testament to the power of collective action, where volunteerism is not just an act of service but a pathway to a more inclusive and resilient future.

THEMATICS

Testimonials from the Field

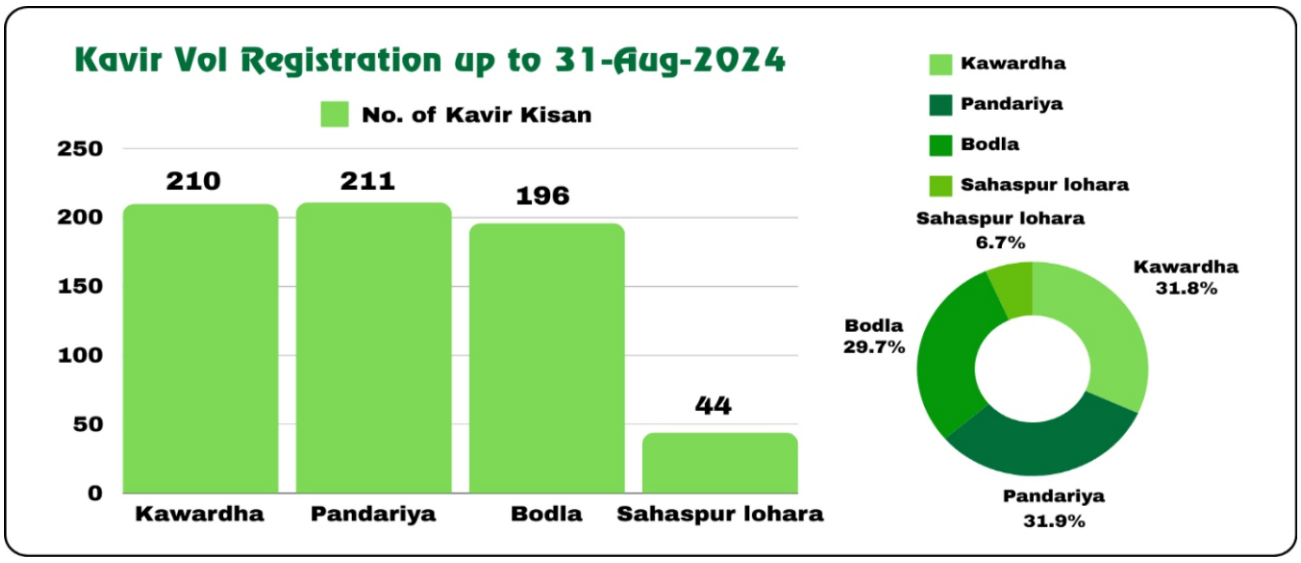
Participating in the World Environment Day activities was an eye-opener for me. Planting trees and educating our community about sustainable practices has been incredibly fulfilling.

Supriya Sahu, *Volunteer, Mahli*

The training I received on mental health advocacy has not only helped me support others but has also been a profound personal journey. Sharing what I've learned with school children and seeing their perspectives change is rewarding.

Yogeshwari Sahu, *Volunteer, Pauni*

Data & Graphs


Kavir Vol Registration up to 31-Aug-2024
No. of Kavir Kisan
250
200
150
100
50
0
210
211
196
44
Kawardha
Pandariya
Bodla
Sahaspur lohara
Kawardha
Pandariya
Bodla
Sahaspur lohara
Sahaspur lohara
6.7%
Kawardha
31.8%
Bodla
29.7%
Pandariya
31.9%


पंजीयन काउंटर
कवीर किसान
KAVIR
प्रदर्शनी
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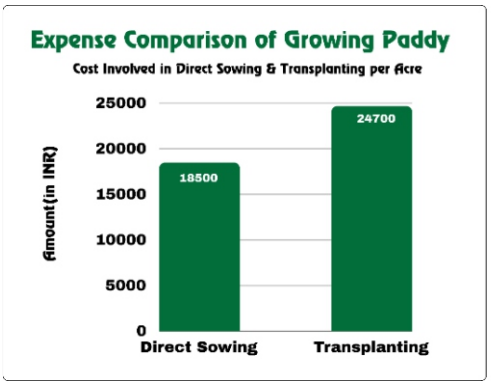
Promotion & Adaptation of sustainable agriculture practices

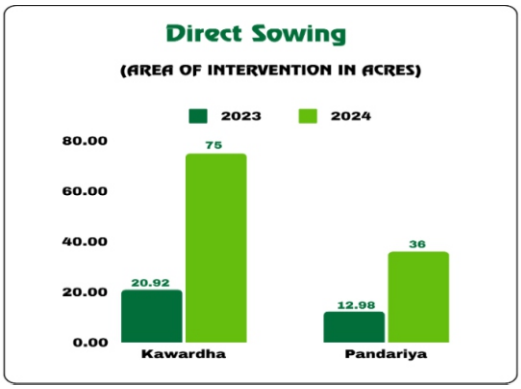
Transforming Paddy Cultivation with Direct Sowing and AWD

Through our initiatives, we have introduced innovative methods like direct sowing and Alternate Wetting and Drying (AWD) to the farmers of Kabirdham. These interventions aim to reduce labor, conserve water, and minimize methane emissions while maintaining or enhancing crop yields.



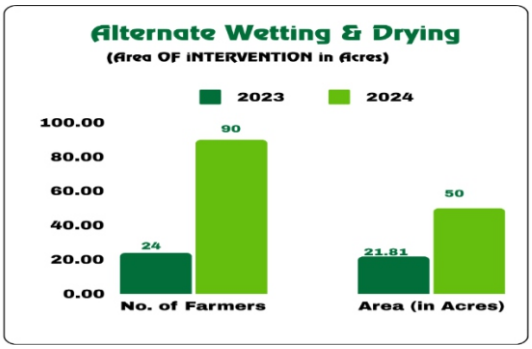
Introducing Direct Sowing in Paddy Cultivation

Direct sowing, a technique where seeds are planted directly into the field, eliminates the need for transplanting, reducing labor and water usage. We organized training sessions led by experts like Dr. Sonboir from IGKV, guiding farmers through seed selection, field preparation, and sowing timings. Initially adopted by 31 farmers across 31.15 acres, direct sowing has since expanded to 111 acres by 2024, reflecting the community's growing confidence in this sustainable practice.



Embracing Alternate Wetting and Drying (AWD)

AWD is a water management technique that allows fields to dry between irrigations, significantly cutting down methane emissions. Farmers learned to use a 30 cm PVC pipe to monitor water levels, irrigating only when necessary. This approach not only conserves water but also supports healthier crop growth.



Direct Sowing

Alternate Wetting & Drying

Testimonials

We learned how to manage water better and reduce costs. Seeing the success, more farmers joined in, I no longer must worry about finding enough workers during the transplanting season. It's a relief, and I feel more independent. I went for Direct Sowing in 3 Acres last year, this year I am doing it in 7 Acres.

Samaliya Sahu
Pauni Village, Pandariya

AWD was a big change, but it has proven to be effective. Our fields are healthier, and we've seen no reduction in yield while saving water and cutting down on emissions. The word is spreading, and now 90 farmers have adopted this technique.

Sanjay Yadav,
Khairipar Village, Kawardha

Integrating Tradition with Innovation: Embracing Bio-Based Solutions

In the heart of Kabirdham, we initiated an ambitious journey in 2023, engaging 155 dedicated farmers to redefine traditional agricultural practices. Our goal was clear: to revive soil health, reduce reliance on chemical inputs, and enhance sustainability. This transformative journey embraces both age-old practices and innovative solutions for long-term community benefits.

Integrated Nutrient Management: Reviving Bio-Based Practices

In 2023 Our first step involved reintroducing bio-fertilizers and bio-pesticides, including Jeev Amrit, Neemastr, and Ghan Jeeva Amrit. These natural solutions aimed to enrich the soil and create a balanced environment for crops. In 2024 We also incorporated green manuring by planting sun hemp, which, when turned back into the soil, significantly boosted nitrogen levels and improved soil structure.

> *Green manuring isn't a new technique for us, but it was something we overlooked because it seemed too challenging with the old methods. Now, with the advancements in technology and machinery, embracing green manuring has become much more feasible. Seeing the positive impact it has had this year—reducing my reliance on chemical fertilizers by ten bags—has convinced me of its benefits. How could I not continue using this approach? With the improvements in soil health and productivity, green manuring has proven to be a valuable and sustainable practice, and I'm committed to making it a core part of my farming from now on.*
>
> ***Baldev Verma***
> *Villaege Jarti*

Exploring Wood Vinegar and Biochar

In our quest for sustainability, we introduced wood vinegar and biochar. Wood vinegar acts as a soil enhancer and natural pesticide, improving fertility and nutrient availability. Biochar, produced from agricultural waste, enhances soil structure, moisture retention, and nutrient absorption, reducing irrigation frequency—a crucial benefit in our water-scarce region.

The results of these interventions were promising. By 2024, we expanded these practices to over **200 acres**, leading to healthier crops and increased yields, while significantly cutting costs on chemical inputs.

Returning to bio-fertilizers and bio-pesticides has revitalized my soil and crops. I was worried about pests when reducing chemical pesticide use, but these natural alternatives have worked wonderfully. My farm is healthier, and so is the produce I grow

Omprakash Chandrakar
Farmer: Mahli, Pandariya

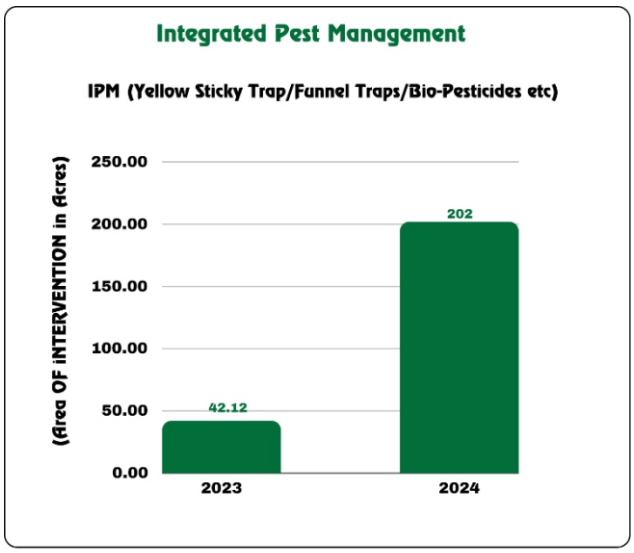
Implementing IPM with traps and natural repellents has reduced my farm's chemical footprint. I feel better knowing I'm using less harmful methods to control pests. The effectiveness of these methods in maintaining crop health has convinced me this is the right path forward.

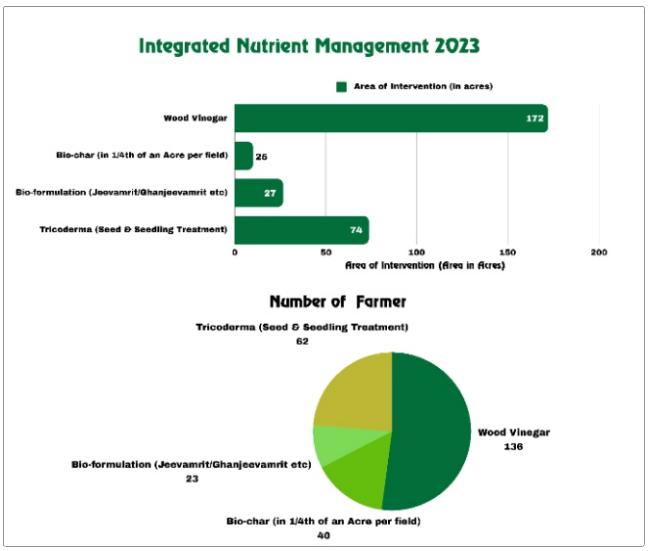
Basant Sahu
Farmer: Pauni, Pandariya

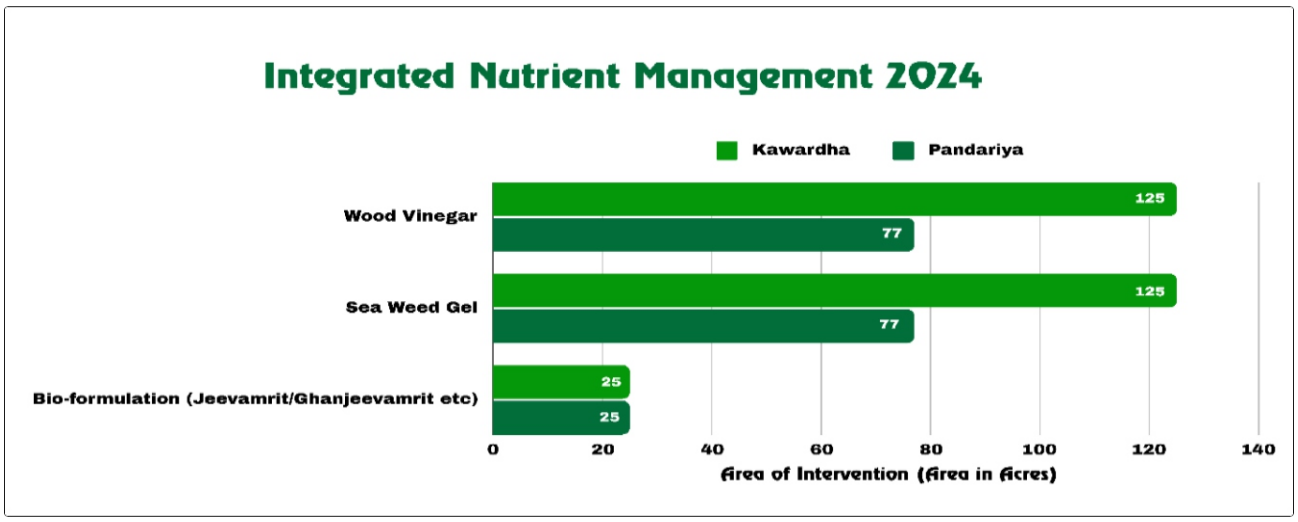
Using wood vinegar as a pest repellent and soil enhancer has been a game-changer. The decrease in pest attacks has been noticeable, and the soil retains nutrients better.

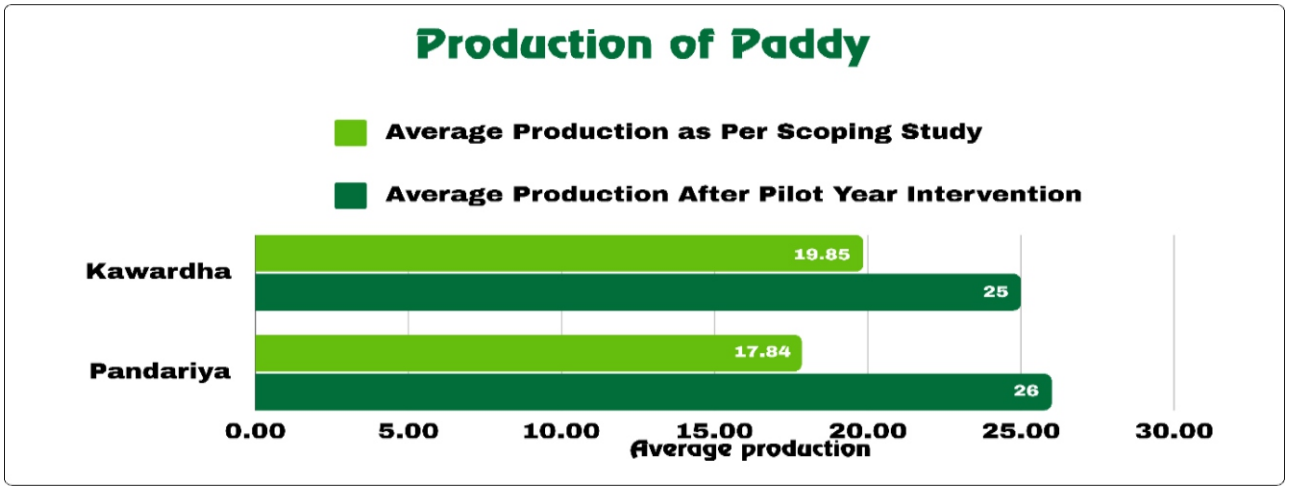
Pratima Chandravanshi
Farmer: Khairipar, Kawardha

Data & Graphs






Integrated Nutrient Management 2024
Kawardha
Pandariya
Wood Vinegar
125
77
Sea Weed Gel
125
77
Bio-formulation (Jeevamrit/Ghanjeevamrit etc)
25
25
0
20
40
60
80
100
120
140
Area of Intervention (Area in Acres)


Production of Paddy
Average Production as Per Scoping Study
Average Production After Pilot Year Intervention
Kawardha
19.85
25
Pandariya
17.84
26
0.00
5.00
10.00
15.00
20.00
25.00
30.00
Average production


Green Manure
Area in Acres
Kawardha
50
Pandariya
41
0
10
20
30
40
50
Intervention (Area in Acres)

Rice Varietal Cafeteria: Becoming Resilient

A Vision for Resilience: The Rice Varietal Cafeteria Initiative

At Chhattisgarh Agricon Samiti (CAS), we empower farmers to adapt to climate challenges through initiatives like the Rice Varietal Cafeteria. This helps in identifying resilient paddy varieties that can withstand unpredictable weather and pests.

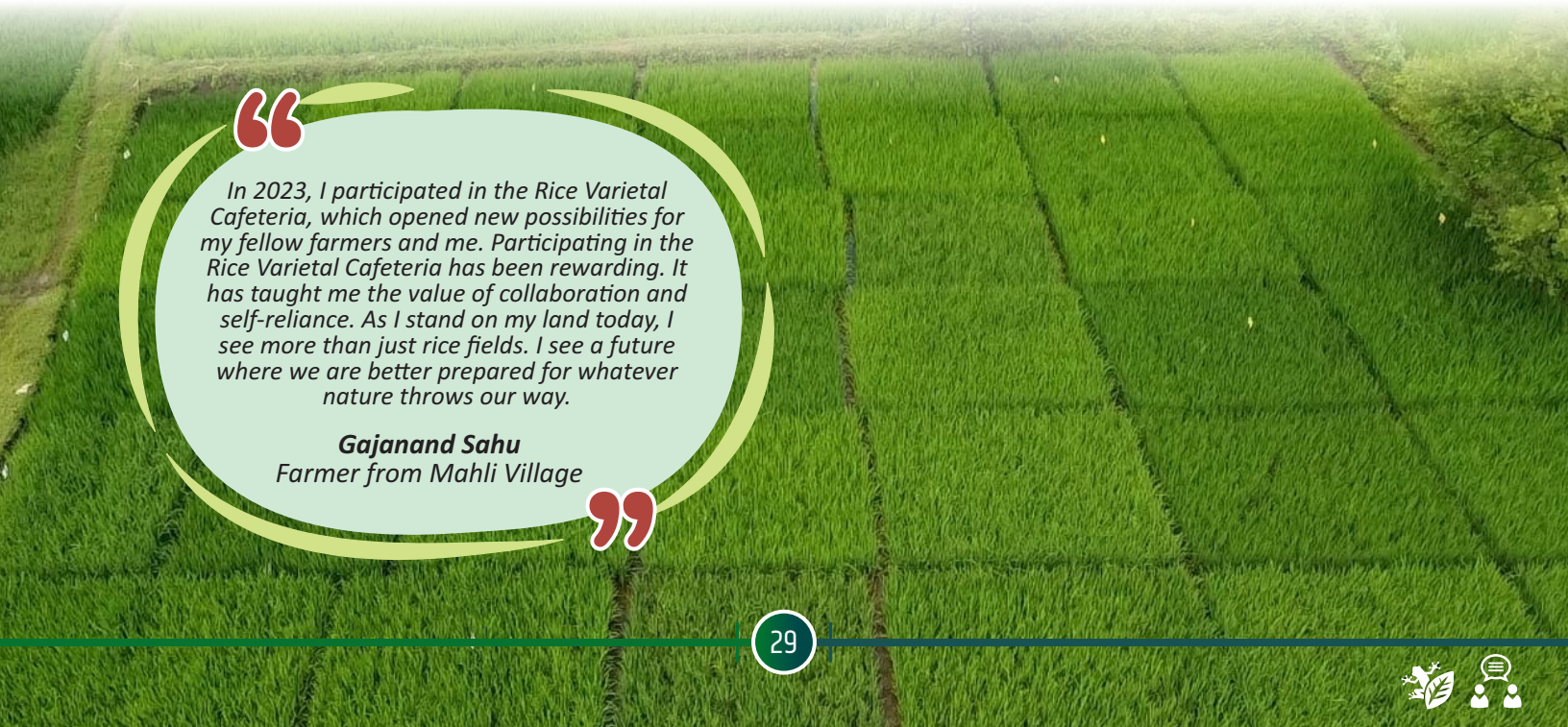
We conduct trial of paddy varieties and demonstrations in coordination with **International Rice Research Institute.** In 2023 we went with Rice Varietal cafeteria testing around 20 varieties in Kabirdham.

In 2024, we took the trials a step further. Farm trials were conducted on 7 selected varieties in larger plots of 200 square meters each. These trials weren't just about observation; they were scientific tests designed to compare these varieties under the same management conditions. The goal was to identify which varieties offered the most genetic gains—those that could give us the highest yields with the least risk.

We also established Cluster Demonstrations, bringing together groups of farmers to create larger fields showcasing the best-performing varieties. It wasn't just about individual success anymore; it was about collective progress.

One of the most exciting aspects of this project is the collective evaluation of the varieties. Government officials, seed dealers, millers, KVK scientists, and seed growers all came together to assess the results. This collaborative approach means that we aren't just consumers of seeds; we're becoming seed producers, gaining control over the quality and availability of the seeds we plant.

The project also empowers women by involving them in seed production through training sessions, ensuring that this vital work becomes a family effort.



> *In 2023, I participated in the Rice Varietal Cafeteria, which opened new possibilities for my fellow farmers and me. Participating in the Rice Varietal Cafeteria has been rewarding. It has taught me the value of collaboration and self-reliance. As I stand on my land today, I see more than just rice fields. I see a future where we are better prepared for whatever nature throws our way.*
>
> ***Gajanand Sahu***
> *Farmer from Mahli Village*

Agroforestry in Kabirdham
Challenges, Strategies, and Successes


By **Surendra Sonkar** and **Kavita Lanjhi**

Field Officers, CAS under CHiRP Project

Working as field officers for CAS under the CHiRP project, we have witnessed firsthand the challenges and opportunities that come with promoting agroforestry in Kabirdham's densely cultivated landscape. The farmers in this region have long relied on triple cropping to maximize their yields, which has left little room for the introduction of new practices like agroforestry. However, with the growing awareness of environmental sustainability and the potential economic benefits of tree plantations, we saw a unique opportunity to introduce agroforestry to this community, even if it meant rethinking our approach.

Initial Challenges: Limited Space and Reluctance to Change

One of the primary challenges we faced was the limited space available for planting trees. In Kabirdham, every inch of land is precious, and farmers were understandably hesitant to allocate any part of their fields for tree plantations that might compete with their crops for space, sunlight, and nutrients. The idea of reducing their already limited arable land to plant trees seemed counterintuitive to many, especially when their immediate priority was maximizing crop yields.

Moreover, there was a natural reluctance to change. Farmers had been practicing triple cropping for generations, and the introduction of agroforestry required them to rethink their long-established farming practices. Convincing them to adopt this new approach, even on the boundaries of their fields, was no easy task.

Strategic Interventions: Learning from Success and Implementing Innovative Solutions

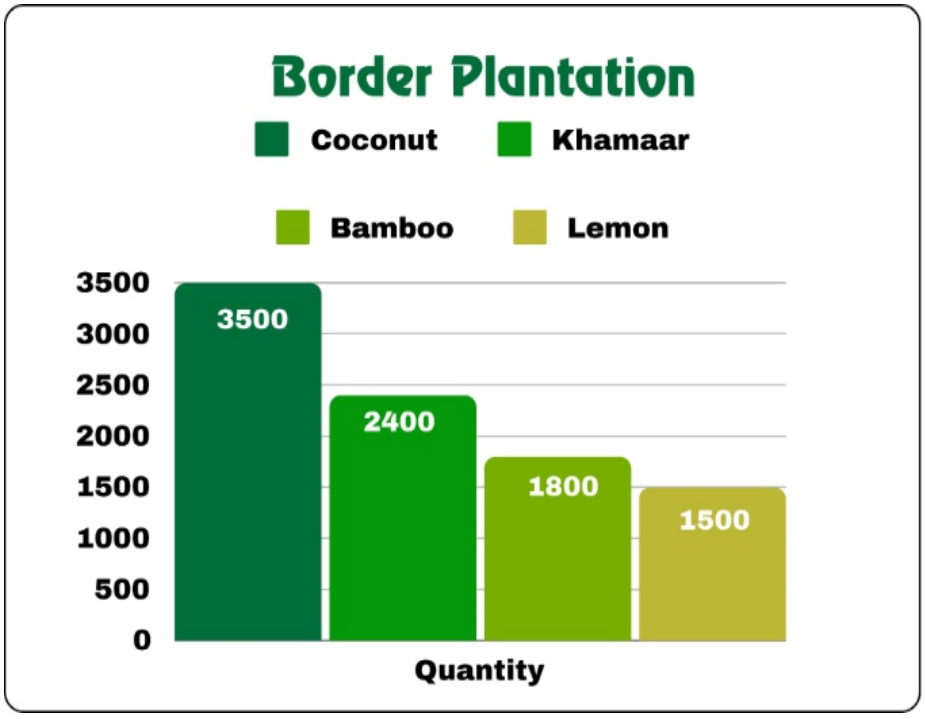
To address these challenges, we knew that education and demonstration would be key. We organized training sessions on agroforestry and arranged exposure visits to flourishing orchards in Jagdalpur. Seeing the success of agroforestry in action had a profound impact on the farmers. They observed how trees could coexist with crops, providing shade, improving soil health, and even offering additional income through the sale of fruits and timber. The idea of boundary plantations started to take root in their minds.

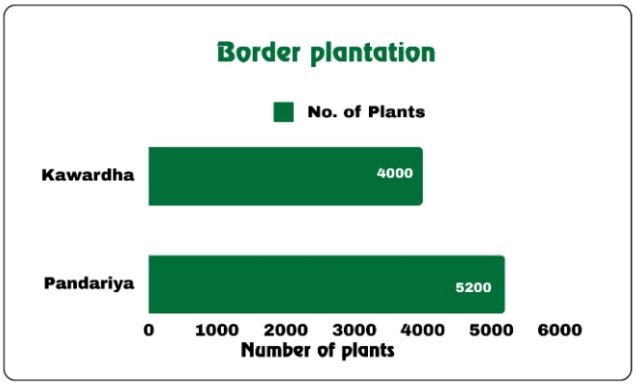
With this newfound interest, we proposed an innovative solution: boundary plantation. Instead of planting trees within the fields, which could disrupt their cropping patterns, we suggested planting along the boundaries of their fields and in community lands. This approach would allow farmers to maintain their triple cropping systems while still benefiting from the trees.

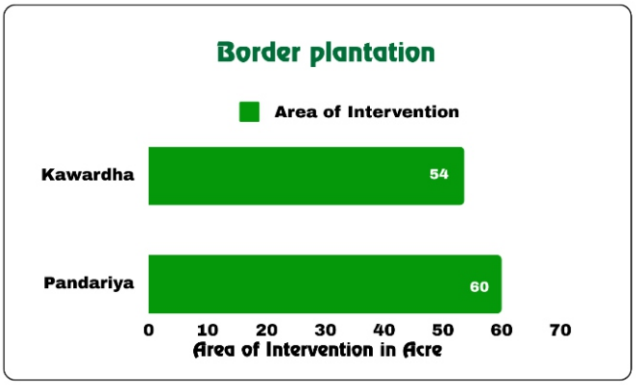
Implementing Boundary Plantations: A Collaborative Effort

In 2024, we launched a trial boundary plantation initiative across 114 acres of farmland, planting over 9,000+ trees—far more than we had initially anticipated. The farmers, motivated by the potential for additional income and environmental benefits, were eager to participate. We planted species like Khamhar, Coconut, Lemon, and Bamboo along the boundaries of their fields. These trees were carefully selected for their economic value and compatibility with the local environment.

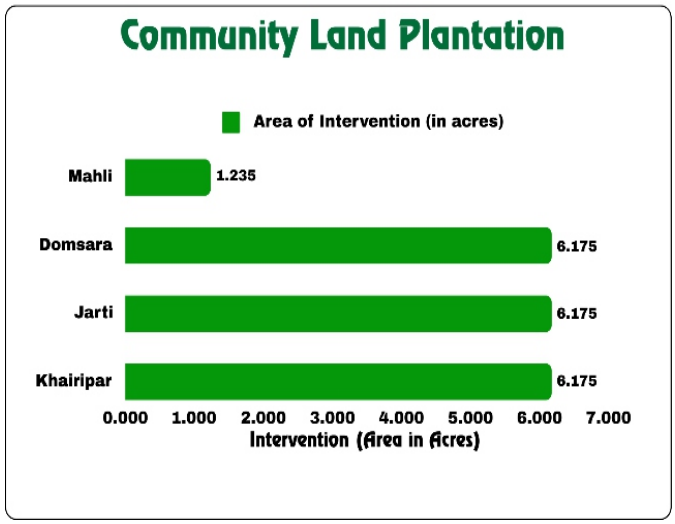
The response from the farmers was overwhelmingly positive. They began to see the potential of agroforestry not just to enhance their fields but also as a means to secure additional income. The idea that these boundary plantations could eventually lead to commercial-scale plantations in the future was particularly appealing.





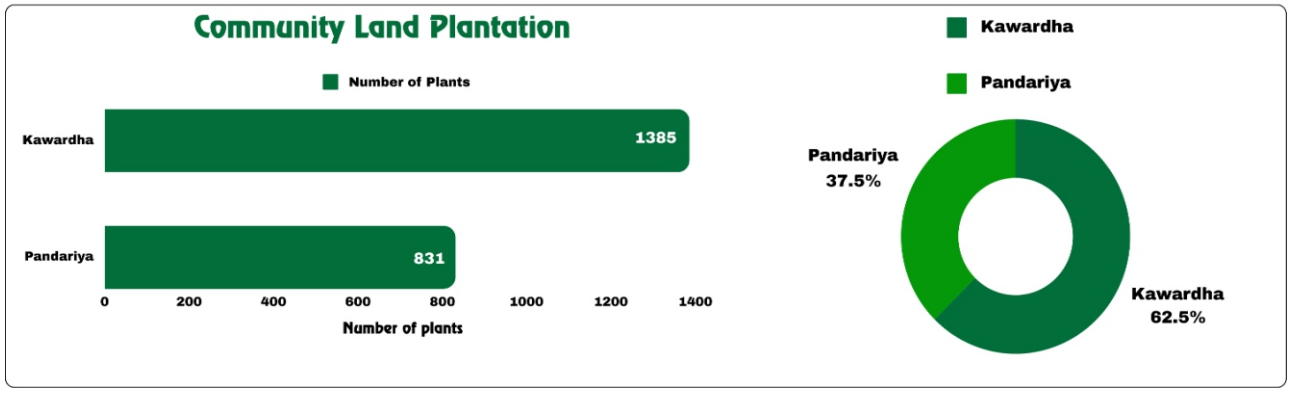


Community Land Plantations: A Shared Vision for Sustainability



In addition to the boundary plantations, we have initiated a community land plantation initiative in four of the ten villages. On 20 acres of community land, we will plant a variety of local species such as Jackfruit, Flamboyant (Gulmohar), Guava, and Amla. These plantations are not just about economic benefits; they are about creating shared spaces that enhance local biodiversity, improve soil health, and provide long-term resources for the entire community.

One of the most rewarding aspects of this initiative will be the integration of existing Self-Help Groups (SHGs) for the maintenance and aftercare of these plantations. These SHGs, composed largely of women, will play a crucial role in ensuring the survival and growth of the plants. We have arranged for them to receive remuneration based on the survival rate of the plants, providing them with a financial incentive to care for the trees while fostering a sense of shared responsibility and community pride.



Overcoming Challenges: Building Trust and Demonstrating Success

The journey towards integrating agroforestry into Kabirdham's agricultural landscape has not been without its challenges. Building trust among the farmers was perhaps the most significant hurdle. Many were initially skeptical, questioning whether these trees would truly benefit them or if they were being asked to sacrifice valuable land for uncertain gains.

To address these concerns, we made sure to involve the farmers in every step of the process, from selecting the tree species to planning the plantation layout. We encouraged them to see the boundary plantations as an investment in their land's future—an investment that would pay off not just in economic terms, but also in environmental sustainability and resilience against climate change. We slowly built confidence among the farmers. They Will begin to see the benefits of agroforestry with their own eyes in sometime, and the initial skepticism will gradually turn into enthusiasm.

Looking Ahead: A Greener, More Resilient Future

As we look to the future, we are hopeful that the success of these boundary and community land plantations will inspire more farmers to adopt agroforestry on a larger scale. The potential for additional income from fruits, timber, and other tree products is significant, and the environmental benefits—such as improved soil health, increased biodiversity, and reduced erosion—are undeniable.

The integration of agroforestry into Kabirdham's agricultural practices is more than just a initiative; it's a vision for a greener, more resilient future. As field officers, we are proud to be part of this journey, working alongside the farmers to transform challenges into opportunities and to build a sustainable agricultural landscape that will benefit generations to come.

The success of the agroforestry initiatives in Kabirdham is a testament to the power of collaboration and innovative thinking. By listening to the farmers, addressing their concerns, and demonstrating the tangible benefits of agroforestry, we have been able to make significant strides in promoting sustainable farming practices in this region.

We believe that with continued effort and support, agroforestry will become an integral part of Kabirdham's agricultural landscape, providing economic, environmental, and social benefits for all. The journey has just begun, and we are excited to see where it leads in the years to come.

Empowering Farmers Through Knowledge

A Narrative by **Manisha Motwani**

Project Coordinator for CHiRP

As the Project Coordinator for the CHiRP initiative in Kabirdham, I've witnessed the transformative power of knowledge in agriculture. At Chhattisgarh Agricon Samiti (CAS), we believe knowledge is the most powerful tool for our farmers. This belief has driven us to disseminate modern practices while also documenting the rich indigenous knowledge passed down through generations.

Farmers in Kabirdham face multifaceted challenges, from unpredictable weather to integrating sustainable practices. While new technologies are crucial, the wisdom embedded in indigenous knowledge is equally invaluable. Our approach combined the latest advancements with the preservation of traditional practices.

Documenting Indigenous Knowledge

While these new learning tools are critical, we must also honor the knowledge that has sustained farming in Kabirdham for centuries. Documenting indigenous knowledge is not just about preserving the past; it's about integrating it with modern practices to create a sustainable future. Our farmers have developed methods that are perfectly adapted to the local environment, and these practices often hold the key to solving some of today's agricultural challenges. Documenting indigenous knowledge is vital for integrating it with modern practices. Keeping this in mind we created a Booklet on "Natural Farming" which combines traditional methods with contemporary insights, ensuring that this wisdom evolves and benefits future generations

Building a Repository of Knowledge & Expanding the Reach

At CAS, we are committed to creating a comprehensive knowledge repository that includes both modern techniques and indigenous wisdom. These resources equip farmers to navigate the challenges of agriculture today and in the future.

To amplify this knowledge, we equipped master trainers—farmers who excelled in their training—to share what they learned with their communities. This peer-to-peer model ensured that our initiatives reach every corner of the farming community. We also created booklets on Natural Farming and Nutrition Gardens, providing step-by-step instructions for farmers to follow easily.

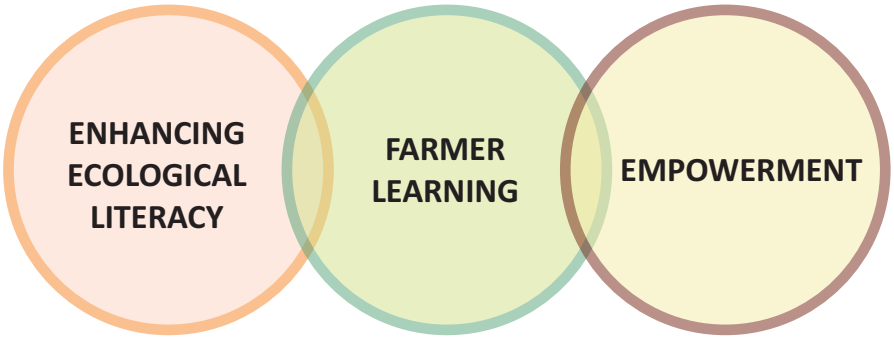
E-Learning Courses: Making Knowledge Accessible

We developed ten e-learning courses covering essential topics like Soil Health Management, Integrated Pest Management, and Agroforestry. These courses are designed to be accessible and relatable, featuring practical examples and the voices of local farmers. By showcasing real-life implementations, we encourage greater adoption of these methods. Farmers can use these courses while conducting trainings at community level.

Empowering Through Knowledge

In my role, I've seen how accessible, well-documented knowledge empowers farmers. Our e-learning courses and resources are just the beginning. By integrating indigenous practices with modern science, we are creating powerful tools that equip farmers to face today's challenges with confidence.

Soil testing has been a cornerstone of our efforts to integrate indigenous knowledge with modern practices. It’s one thing to know that practice works; it’s another to understand why it works. Soil tests have given us the insights needed to validate traditional methods and adapt them for modern use. This scientific approach to farming has not only improved our practices but also given farmers the confidence to experiment and innovate.



Our farmers are not just the recipients of this knowledge; they are active participants in its creation and dissemination. Together, we are building a future where very farmer has the tools, they need to succeed.

Together, we are building a future where sustainable farming practices thrive, ensuring the well-being and prosperity of our communities for generations to come. And it all starts with the power of knowledge.

From Land to Sky: Revolutionizing Agriculture with Science and Technology

Narrated by **Kavita Lanjhi** and **Sanjay Yadav**
Lab coordinator GIS Weather Expert

Kavita Lanjhi on Pioneering Soil Science

As dawn breaks over the fields of Kawardha, a quiet revolution is underway, driven by the power of knowledge buried deep within the soil. My role as a soil scientist has placed me at the heart of this revolution, where each grain of soil holds the potential to alter crop yields and farming practices.

Unearthing the Potential Below

The establishment of the first soil testing labs in the villages of Jarti and Domsara marked a turning point for local agriculture. For the first time, farmers had access to scientific insights that were once beyond reach, insights that could dictate the very success of their agricultural endeavors. These labs became the cornerstone of a new era, providing critical data that empowered our farmers to foster the health of their soil as never before.

Expanding Horizons

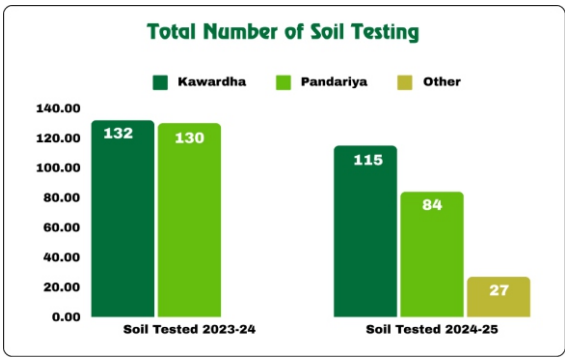
Driven by success, we expanded this initiative, moving our labs to the bustling center of Kawardha City. The move was strategic, aimed at amplifying our impact, reaching more farmers, and enhancing the precision of our soil assessments. This transition was not just a change of location; it was an expansion of our vision.

Testimonials from the Field

> *Before we had access to soil testing, it was as if we were farming in the dark. Now, with each test, it's like the soil speaks to us, guiding our hands and our decisions. The changes in my farming practices have improved my yield*
>
> ***Vijay Maravi***
> *Farmer: Dashrangpur, Kawardha*

> *The soil test reports have been enlightening. They've taught me to understand the needs of my land, transforming how I nurture every crop. The difference is visible, palpable, and rewarding*
>
> ***Rajendra Verma***
> *Farmer: Naudih, Kawardha*

Data & Graphs



Sanjay Yadav on Harnessing the Winds of Change

Above the rich earth, the skies tell their own powerful tale. As a GIS weather expert at CAS, I translate the language of the skies into actionable advice for our farmers, delivering it directly into their hands through modern technology.

Forecasting Futures

Every week, personalized weather advisories crafted from data provided by prestigious meteorological institutions make their way to the smartphones of our farmers. These advisories predict not just weather but future possibilities, allowing our farmers to plan with precision and protect their livelihoods against the capricious nature of climate.

The Impact of Timely Information

Armed with timely weather forecasts, our farmers can dodge the bullets of unexpected storms or droughts. This proactive approach is not just about avoiding losses—it's about optimizing every sunny day and every drop of rain.

Testimonials from the Clouds

The weather advisories have become my weekly strategic guide. With them, I'm no longer at the mercy of the weather; I work in sync with it, harnessing each day's potential to the fullest

Satish Chandrakar
Farmer: Baniyakuwa, Pandariya

I've saved my crops from untimely frosts and excessive rains, thanks to the alerts. It's empowering to feel that with every forecast, I'm securing my family's future.

Bhagvat Chandrakar
Farmer: Bandha, Pandariya

Strategic Partnerships: Pioneering Sustainable Agriculture and Community Development in Kabirdham

by **Chhattisgarh Agricon Samiti (CAS)**

Introduction

Chhattisgarh Agricon Samiti (CAS) stands at the forefront of transformative agriculture and community development in the Kabirdham district. Our strength is amplified by strategic collaborations with various governmental and non-governmental organizations, enabling us to implement sustainable development practices effectively.

Government Partnerships Enhancing Agricultural and Community Development

National Institute of Plant Health Management (NIPHM)

Through our MoU with NIPHM, CAS leverages sustainable plant health management practices, benefiting from training for our community members and technical support for establishing bio-input labs. This partnership is crucial for advancing our sustainable agriculture initiatives.

Indira Gandhi Krishi Vishwavidyalaya (IGKV)

Collaborating with IGKV has advanced our agricultural research and technology transfer, empowering local farmers with innovative techniques that bolster productivity and sustainability.

International Rice Research Institute (IRRI)

Our ongoing collaboration with IRRI since 2021 focuses on introducing high-yielding, climate-resilient paddy varieties, through on-farm trials and cluster demonstrations, enhancing the agricultural landscape of Chhattisgarh.

UNICEF

As a strategic and funding partner, UNICEF supports numerous initiatives including SBCC, youth empowerment, and community mental health, contributing significantly to our social development efforts in Kabirdham.

District Administration and Governmental Bodies

The support from the district administration of Kabirdham is vital. Their collaboration has enabled convergence with several key government programs:

- **Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS):** We leveraged MGNREGS for community land plantation, which are crucial for sustainable agriculture and ecological balance.
- **Horticulture and Agriculture Departments:** These departments are integral to our initiatives, providing technical expertise and resources that support sustainable farming practices and diversification through horticulture.

CHiRP Coalition

The CHiRP coalition connects CAS with various partners like Commonland Foundation, Samerth Charitable Trust, FES, PRADAN, and the Forest Department, creating a unified force for landscape restoration and sustainable community development helping us to have conversations at landscape level.

Through strategic partnerships with both national institutions and local government bodies, CAS is driving a vision of sustainable agriculture and robust community development in Kabirdham. These collaborations are fundamental to our approach, providing the expertise, resources, and support needed to foster innovative solutions and ensure enduring community well-being. As we continue to build on these relationships, our combined efforts will undoubtedly lead to a more sustainable and prosperous future for the entire region.

Visionary Leap: Cultivating Tomorrow with Kavir Sakhi and Bio-Innovation

Authored by **Manas Banerjee**

Secretary of Chhattisgarh Agricon Samiti (CAS)

In the lush greenery of Kabirdham, where the soil pulses with life and potential, we at Chhattisgarh Agricon Samiti (CAS) stand on the brink of a transformative era. Our journey thus far has been marked by substantial achievements in sustainable agriculture and community empowerment. Yet, our vision extends far beyond the present, embracing a future where every stride is geared towards renewal, sustainability, and collective empowerment. This vision is encapsulated in our forthcoming initiatives: Kavir Sakhi and a suite of groundbreaking bio-input projects.

Kavir Sakhi: Empowering Women, Transforming Communities

The inception of Kavir Sakhi marks a significant evolution in our approach to community development and gender dynamics within agriculture. Recognizing the pivotal role that women play in the fabric of rural economies, Kavir Sakhi is designed to harness and elevate the collective power of women in our agricultural communities.

Kavir Sakhi will be more than just a collective; it will be a movement aimed at shattering the traditional barriers that women face, catalyzing gender transformation through behavioral change and empowerment. Through Kavir Sakhi, we will conduct targeted awareness campaigns and provide outreach programs that not only educate but also empower women to take lead roles within their households and beyond.

Moreover, by connecting these women to economic and financial opportunities through skill development and sustained support, we aim to create a robust ecosystem where women are not just participants but leaders and innovators in agriculture.

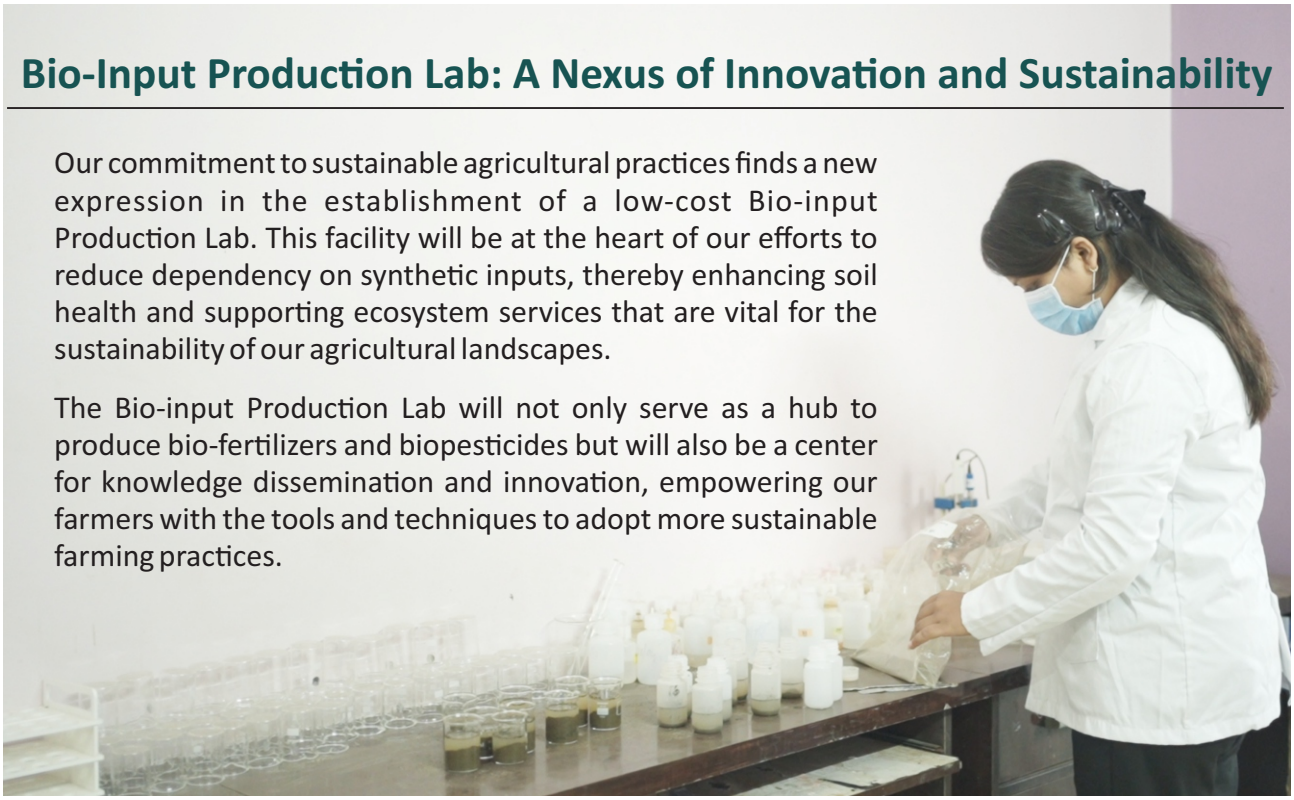
Fostering Collectivism Through FPOs

The formation of Farmer Producer Organizations (FPOs) is another cornerstone of our strategy to strengthen the economic backbone of our farming communities. These FPOs will embody the spirit of collectivism, bringing farmers together to achieve greater economic viability, share resources, and amplify their voices within the agricultural sector.

Bio-Input Production Lab: A Nexus of Innovation and Sustainability

Our commitment to sustainable agricultural practices finds a new expression in the establishment of a low-cost Bio-input Production Lab. This facility will be at the heart of our efforts to reduce dependency on synthetic inputs, thereby enhancing soil health and supporting ecosystem services that are vital for the sustainability of our agricultural landscapes.

The Bio-input Production Lab will not only serve as a hub to produce bio-fertilizers and biopesticides but will also be a center for knowledge dissemination and innovation, empowering our farmers with the tools and techniques to adopt more sustainable farming practices.



Mass Production of Bio-Fertilizer: Empowering Women at the Village Level

The mass production of bio-fertilizers and biopesticides at the village level is a strategic move towards building a self-reliant agricultural community. Spearheaded by women farmers, this initiative will leverage their intrinsic leadership capabilities and untapped potential. By providing comprehensive training and resources, we will enable these women to produce high-quality, sustainable agricultural inputs, reducing the community's reliance on chemical alternatives.

Looking Forward: A Vision of Sustainable Prosperity

As we look to the future, our vision is clear and our resolve unwavering. We envision a community where sustainable practices are the norm, where women lead and innovate, and where every member has a stake in the collective prosperity. With enthusiastic energy and a forward-looking perspective, we are ready to transform this vision into reality, ensuring that our agriculture not only feeds us today but nourishes the generations of tomorrow.

Together, as a community and as CAS, we are planting the seeds of a greener, more equitable future. With each step we take, we are not just growing crops—we are growing hope, resilience, and abundance for all.

AAVARTAN

CHHATTISGARH AGRICON SAMITI

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