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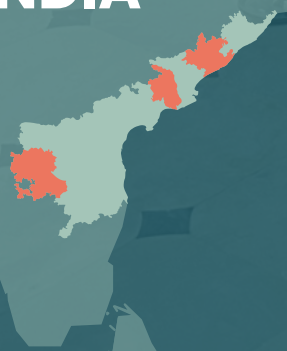

From Fields to Landscapes:

Establishing the resilient productivity of Andhra Pradesh Community-based Natural Farming

Key insights from stakeholder engagement

Acknowledgements

RySS and ICRAF would like to thank the farmers from across Andhra Pradesh (AP) for helping to innovate on the farms and implement the planned comparisons. The participation, extensive expertise and the input from a wide array of stakeholders is critical to the ambitions of the project and wider vision to work at landscape scale to achieve intended impacts from Andhra Pradesh Community Managed Natural Farming (APCNF).

Planned Comparison Report compiled by CIFOR-ICRAF and RySS Team

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Additional project resources

This planned comparison protocol report forms part of the project outputs - From Fields to Landscapes - Establishing the Resilient Productivity of APCNF.

Project Website

Illustrated Workshop Report (2019)

Exemplar Landscape Report

Stakeholder Mapping Report

Planned Comparison Protocol

Blog on the first engagement landscape workshop in November 2019

Blog on the concept of Engagement Landscapes

Restoring soil and land health in Andhra Pradesh with a landscape approach

Acronyms and abbreviations

APCNF	Andhra Pradesh Community-based Natural Farming
ASR	Alluri Sitharama Raju
DF	District Facilitator
DOMU	District Project Management Unit
ICRAF	International Centre for Research in Agroforestry
NGO	Non-Governmental Organisation
NPM	Non-Pesticide Management
PMDS	Pre-Monsoon Dry Sowing
RBK	Rythu Bharosa Kendram
RySS	Rythu Sadhikara Samastha
SF	State Facilitator
SPMU	State Project Management Unit
WASSA	Watershed Support Services and Activities Network

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Background

Andra Pradesh has been losing soil organic carbon, plant diversity and above ground biomass at a rapid rate. Key to increasing soil carbon storage is the implementation of farming practices that curb soil erosion and increase carbon inputs across the landscape. The From Fields to Landscapes: Establishing the resilient productivity of Andhra Pradesh Community-based Natural Farming (APCNF) project was established as a holistic approach to address the loss of usable land for agriculture in the state. The APCNF project's practices are based on the following natural farming principles:

- 365-day coverage of soil with crops.
- Increase organic residues on the soil.
- No application of synthetic fertilisers, pesticides or herbicide.
- Minimal disturbance of soil.
- Management of pests through botanical extracts.
- Cultivation of diverse crops/ trees
- Biostimulants as necessary catalysts.
- Use indigenous seed.
- Integration of livestock.

The APCNF project adopted an **engagement landscape** approach, as acknowledging farmers, traders and other actors as key innovators leads to meaningful inclusion and encourages solutions to be co-developed, co-created and co-delivered within action research teams. Multiple engagement events have been held at the state and landscape levels.

Key terms

Engagement landscapes are geographical locations where concentrated, long-term work is carried out to support transformation and enhance resilience; they comprise:

- Partners who are interested in collaboration and engagement because they see themselves as benefiting from or contributing to generating opportunities for themselves, their organisations or their communities;
- Different types of land-uses, agroecological zone and climates;
- Multiple layers of governance; and
- Diverse groups of stakeholders, from farmers to governmental and non-governmental partners to value chain actors etc.

Landscape - A geographic area with sufficient size, diversity and complexity to capture the various dimensions of social resilience, climate resilience and ecosystem service linkages.

Exemplar landscapes are smaller geographic areas within the engagement landscape where focused work can take place; they comprise:

- Common land and landless people;
- Linkages between urban and rural areas;
- Differing socio-economic and cultural aspects, health and nutrition status;
- Ecosystem services; and
- Varying value chains and collectives.

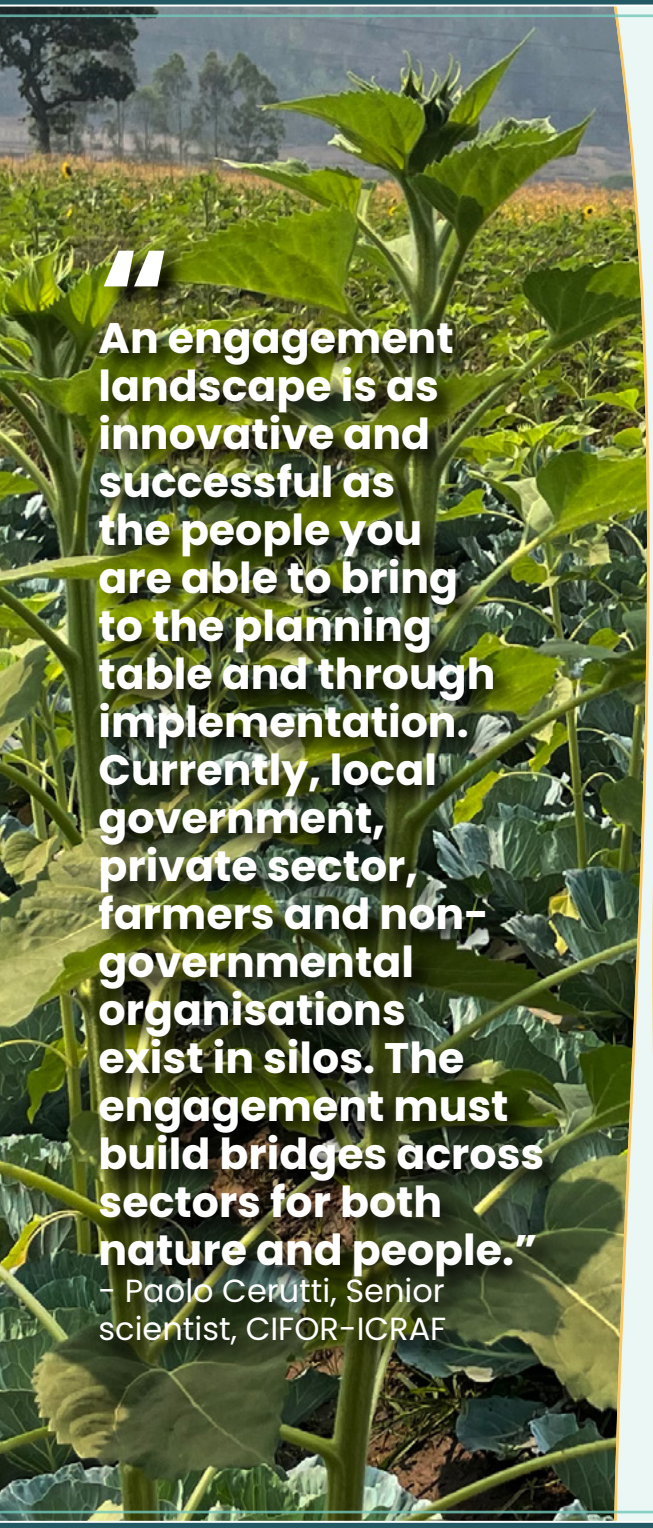
Exemplar landscapes were identified using the following steps:

Establishing the exemplar landscape

- State level virtual inception workshop
- Identify broad areas for the exemplar landscape and key issues
- Identify and train landscape facilitators
- Landscape scoping visit
- District level workshop to define landscape boundary
- Develop a collective vision and action plan/roadmap

Working in the exemplar landscape

- Evidence generation, compilation, analysis with stakeholders
- Partner and community meetings to reflect on evidence and adapt from lessons



“An engagement landscape is as innovative and successful as the people you are able to bring to the planning table and through implementation. Currently, local government, private sector, farmers and non-governmental organisations exist in silos. The engagement must build bridges across sectors for both nature and people.”

- Paolo Cerutti, Senior scientist, CIFOR-ICRAF

Stakeholder engagement approach

Landscape-level engagement

District facilitators (DFs) work at the ground level within the landscape, collaborating with the Rythu Sadhikara Samastha (RySS) District Project Management Unit (DPMU) field-level staff, partner non-governmental organisations (NGOs) and government departments. Key activities include:

- Engagement with other extension staff to understand the ongoing work and scope for collaboration.
- Regular engagement with the farming community to understand their challenges, innovations, and crops they are interested in comparing using the planned comparison approach.
- Registration of interested/motivated farmers for establishing planned comparison plots.
- Establishment and monitoring of demonstration plots.
- Regular meetings with farmers to make them aware of natural farming protocols and their benefits.
- DFs also attend the meetings/events conducted by other stakeholders in the landscape.

Landscape to District Project Management Unit

DFs and state facilitators (SFs) regularly inform the DPMU of the ongoing field activities. Data collected from the landscape on the interest of farmers to undertake planned comparisons for a particular season were presented to the DPMU and other stakeholders before initiating action on the ground.

Landscape to State Project Management Unit

- The SF communicates project updates to the State Project Management Unit (SPMU) on a monthly basis.
- The SF collects information from the SPMU level.

Key learning and reflections on the engagement method

WHAT WORKED?

Timing of meetings
Farmers in different landscapes have different work schedules, adjusting the timing of the meeting to select a window that is suitable for most farmers is critical. For instance in ASR and Ananthapuramu most of the meetings were conducted in the late evening/ nighttim

Regular field-level meetings.
Continuously meeting with farmers in their fields enabled the D develop a trus thy relationship with them.

WHAT CAN BE IMPROVED AND BUILT UPON FOR FUTURE WORK?

Virtual engagement at project inception.
The project was started during COVID-19 and so all the initial planning time was dedicated to online meetings with limited engagement on the ground both with farmers and other stakeholders. Field-based exercises and workshops from project inception would have been beneficial for a productive landscape approach.

Reliance on host organisations for human resource support. The level of support from host organisations needs to be clearly understood at the start of the project. Support from existing organisations offered at project inception may not translate into action on the ground when their field cadre are engaged in their daily tasks.

Stakeholder communication.
Mapping stakeholders is a starting point but bringing them together for collective change is a challenge unless efficient communication channels are established among them. Effective communication ensures work is not replicated by multiple parties in the same areas with the same farmers.

- **State- to district-level communication.** Clear communication is needed from the state to district level as inherited conflicts in communication lead to an exhaustion of efforts.

Stakeholder identification.
The stakeholder mapping exercise generated names of stakeholders that were thought to be key but ignored the fact that stakeholder engagement in a landscape is not equal in time and space. So, stakeholders that seemed important on paper were not necessarily useful for ground-level action as they were each driven by different agendas and followed different approaches. Oftentimes project ground-level work was delayed or affected by relying on stakeholders who seemed to be key but in reality were engaged in limited ground-level activities.

Approach for stakeholder support. Most projects in India that require stakeholder collaboration are based on one of two models:

- Hire the needed professionals and task them with working alongside partner organisations as a team; or
- Incentivise the staff of partner organisations with monetary support to undertake the additional responsibilities.

The APCNF project followed neither approach, it relied on the stakeholders' teams (including RySS) for support at the landscape level. This did not work as the stakeholders' teams were already engaged in their own activities and so were not always available for support. This affected both the quality and scale of work that could be achieved.

RECOMMENDATIONS FOR FUTURE ENGAGEMENT

Any landscape approach must focus on multiple dimensions for real-time understanding and outcomes. For instance, the mindset of the farmers is a challenging constraint which cannot be overlooked, however, changing mindsets during a short-term project is difficult without a special focus. The landscape approach needs to determine the origin and bases of barriers perceived by the community/farmers. For example, the Green Revolution found it difficult to access farms at the start as farmers were initially sceptical, but with incentives they reached a stage where farmers took on debt to purchase agrochemicals and are not ready to trust methods which are of minimal cost. It is therefore recommended that the project design be split into the following components:

- Science - yields, practices, soil health etc.;
- Socio-economic - income, risk taking capacity, debt cycles/ patterns, willingness to spend money or time on practices; and
- Socio-psychological - peer pressure, non-acceptance by peer farmers or family, feeling of dead-end in agriculture.

Stakeholder identification: Stakeholder mapping can be improved by:

- Ensuring mapping questions are more comprehensive to better understand the stakeholders' level of engagement over time and space; or
- Conduct 2 tier mapping which involves a general mapping exercise to trace the stakeholders followed by a detailed session with those identified. This approach allows for the categorisation of stakeholders in terms of who could best be engaged with. This would be followed by ground-level planning using evidence collected from the field in advance.

Initial project planning must take place in the landscapes in the form of meetings, workshops and field visits to address any pre-conceived notions, biases or misinformation. evidence collected from the field in advance.

Ground-level execution of the project should be clear and planned, for example hiring enough staff or incentivising the partner organisation's team for their extra efforts. Relying on goodwill support has proven to be ineffective and as the agricultural seasons follow one another there is limited time to plan and execute.

Key insights from state-level engagement

Engagement landscape workshop

(2nd–6th November 2019)

The engagement landscape workshop was held to help participants understand the phenomenon of desertification and land degradation across the district of Anantapur and identify sustainable options to reverse them. **A key objective of the workshop was to develop an operational plan for developing an 'engagement landscape' by drawing an initial set of hypotheses, building on best practices and local successes and including modalities for implementation by the District administration with technical support from partners for monitoring and scaling out.**

The workshop commenced with knowledge-sharing sessions, including the identification of the root causes of desertification, the changes that have taken place over time — both socially and ecologically — across the district and the current land management being implemented to reverse degradation processes.

Candidate landscapes were introduced and participants were encouraged to interact with existing data through 'data walls', with the aim of generating a shared understanding of key characteristics and issues. This involved discussions about what participants already knew from the data, where the gaps were, and their expectations around what they thought would work under the various contexts. Based on this understanding, and through extensive consultation with local communities prior to the workshop, a field trip allowed participants to engage with the communities within the landscape. During the trip, participants divided into thematic groups and conducted group discussions with the communities. Themes included out-migration, livestock, gender issues and water constraints.

A key outcome of the workshop was the development of an operational plan for developing an engagement landscape in Anantapuramu. In addition, through stakeholder consultations, the process secured agreement to scale up the use of such engagement landscapes across Andhra Pradesh to promote innovation and the adoption of alternative, climate-resilient farming and landscape practices that are carbon positive. Stakeholders involved in the process were eager to start implementation and learning in the engagement landscape.

State level inception workshop – virtual workshop

(25th March 2021)

To launch the APCNF project, a one-day virtual workshop was held, jointly facilitated by RySS and the International Centre for Research in Agroforestry (ICRAF) and attended by 86 people from India, Africa, Europe, the United Kingdom and the United States of America, representing multiple sectors and backgrounds, including research, government, non-governmental and community-based organisations. The purpose of the workshop was to introduce the landscape approach, draw from the experiences of others and share knowledge, link with the many ongoing efforts and initiatives, and identify additional partners to co-develop an engagement action plan.

The scale of work at the landscape-level was introduced, noting the importance of exemplar landscapes. Participants were invited to give their understanding of the term 'landscape'. They understood the complex systems nature of landscapes as many participants mentioned the living elements and various components of landscapes being dynamic and integrated, as well as the need to consider how farms in one area may be affected by other farms upstream.

Some responses included:

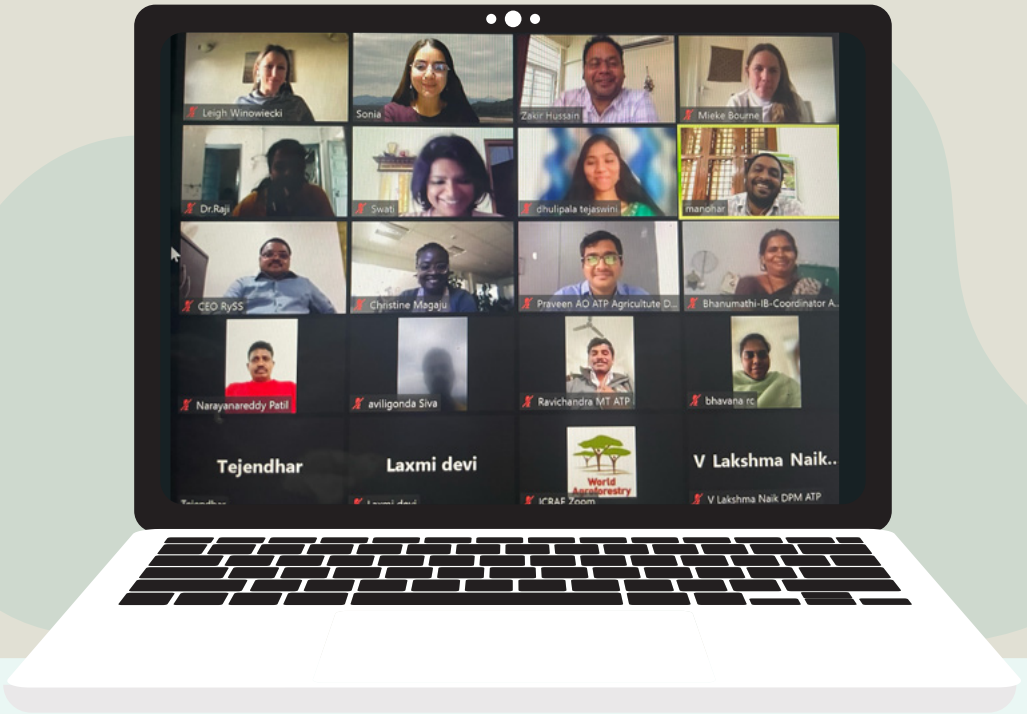
> **"All the features of particular area of land as well as its landforms, and the way they integrate with natural or man-made features."**

> **"Contiguous area, larger than a farm, smaller than a nation, though may cross national boundaries in which case smaller than the additive size of the countries with a coherent boundary defined in relation to the place people involved."**

> **"Geographically defined unit, not necessarily following administrative boundaries, comprising multiple land uses, e.g. farms, forests, common land, pasture, homesteads, etc."**

> **"Features of an area of land, it's form, shape, composition, natural and human made features including the flora and fauna habitation and their inter relationship and inter dependence."**

> **"All the natural constituents including man-made components, people, biodiversity, infrastructures."**



Participants were given clarification on defining boundaries, especially in regard to scaling a landscape approach. They were then asked what they would want to achieve from working at the landscape level, some of the responses included:

> **"Creating clusters of farmers and villages and the convergence of existing projects and networks in order to provide support and learn from each other's experiences."**

> **"Enabling scaling up of smaller projects and programmes and visibility of impact at a larger scale."**

> **"Working in harmony with nature to improve environmental health including an increase in biodiversity and soil health in order to achieve optimal land use."**

> **"Overall sustainable development, livelihood enrichment and visible positive socio-economic and environmental impacts."**

> **"Equitable access to, control and distribution of resources to support gender inclusion and equality."**

The project team proposed three exemplar landscapes in *Anantapur*, *West Godavari* and *Vishakhapatnam* districts. Low biodiversity conservation, scarce rainfall, tribal land and high intensity farming were some of the factors that informed their proposal. During subsequent plenary and break-out sessions, participants were given the opportunity to share what they would want to achieve from working at the landscape level. They discussed the key considerations, opportunities and challenges for developing exemplar landscapes, as well as increasing scale and measuring resilient productivity. Feedback from participants on opportunities for scaling the landscape approach included:

- There is the need to standardise the process for scaling, while keeping the model flexible for scaling across the different topographies and agroecologies.
- The model should be easily replicable with a certain set of standard procedures to be used as guidelines for the different areas. You run the risk of damaging the biophysical and cultural diversity if areas are not able to adapt solutions to particular contexts.
- Defining the boundaries and social capital of the landscape are also important steps for scaling these efforts.
- It is important to consider the non-congruence of the landscape boundaries and how the project will cope with understanding the specific boundaries that encapsulate the flows of the important ecosystem services.
- Involving the farmers in the development of these scaling models will be important for ensuring the models are suited to the contexts and needs of the farmers, and thus are adopted with willingness and ease.
- The learnings from individual landscapes can be used as case studies to inform both farm level and food system level interventions.
- Input and support from local governments will be important for making these interventions sustainable in the long run.

Feedback from the participants on ways to integrate evidence included:

- To integrate research in the landscape approach, high levels of adoption are required to generate sufficient evidence. In addition, it is important to consider the farmers' aspirations and contexts in order to design interventions that are suitable for individual farmers but are also scalable across different contexts and landscapes. It will be important to assess the adoptability of natural farming practices to achieve landscape level resilience.

- It is important to understand the extent of indebtedness of households and be able to measure the financial implications of these interventions. A household's indebtedness indicated their ability to mobilise around these interventions. Farmers could replicate other successful areas or develop new models based on their needs and context.
- Participants discussed how research results could be brought into the development or scaling up of this project to ensure they inform interventions.
- Suggestions included bringing data into the decision-making processes with the farmers identifying suitable interventions that will benefit the specific communities' context and needs.
- Consider the socio-economic dynamics such as power dynamics and the flow of information and resources as these may become constraining factors when looking to scale up. Social network mapping could be used for this.
- It is also important to understand the existing knowledge systems and networks and where farmers get the information they need to make decisions. We need to be sensitive about how different communities respond to and absorb information, therefore it is important to select the method most suitable for that community.

The initial stakeholder workshop, held in November 2019, was used to identify stakeholders and explore participatory support for the concept of engagement landscapes and natural farming. This project inception workshop served as the initial screening of participatory methodologies that built the foundation for embedding the landscape approach. **The workshop established that there were multiple factors influencing farmers' adoption of natural farming that go beyond the nature and performance of farm-level agronomic interventions. The methods that allow for this variation, in combination with farmer innovation, would be incredibly useful in the scaling of this project and in the evidence generation to understand what works, where, for whom. For these reasons, the key outcomes of the APCNF project are to implement a landscape approach and to build it on evidence.**

Key insights from landscape-level engagements

Alluri Sitharama Raju (ASR) workshop

Held on 16th March 2023

Involved **26 participants** including farmers and representatives from Rainforest Alliance, the Coffee Board, Agri Entrepreneur Growth Foundation, Watershed Support Services and Activities Network (WASSAN), and the Agriculture Department.

West Godavari workshop

Held on 1st April 2023

Involved **33 participants** including farmers and representatives from Rythu Bharosa Kendram (RBK), the Agriculture Department, ICRAF and RySS.

Ananthapuramu workshop

Held on 8th April 2023

Involved **32 participants** including farmers and representatives from the Rural Development Trust/ AF Ecology and RySS.

Participants of the ASR workshop

Participants of the West Godavari workshop

Participants of the Ananthapuramu workshop

The objectives of the workshops

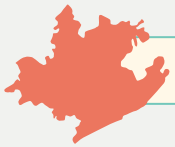
- Review and discuss the evidence from the exemplar landscapes.
- Share insights on natural farming from the exemplar landscapes.
- Receive feedback from stakeholders on stakeholder mapping and evidence generation.
- Strategise on how best to address challenges to scaling natural farming in the exemplar landscapes.
- Develop a map of current projects and interventions in the exemplar landscapes.
- Develop a road map of action points to be achieved.

PERSPECTIVES ON STAKEHOLDER COLLABORATION FOR SCALING NATURAL FARMING

Workshop participants were asked whether all stakeholders were working well together to scale natural farming (based on a scale of strongly disagree to strongly agree), the responses are summarised below.

STATEMENT: All stakeholders are working well together to scale natural farming

STRONGLY DISAGREE	DISAGREE	NEUTRAL NOT SURE	AGREE	STRONGLY AGREE



ASR workshop

Some workshop participants agreed that stakeholders were collaborating well, although it was indicated that there is room for improvement particularly in communication, knowledge sharing and building the capacity of farmers. Some participants were less sure, or neutral, expressing the need to include other farmers in natural farming such as coffee producers, as well as the need for better communication, stakeholder inclusion, and support between organisations.

> **Everyone is working but still there is a communication gap among the stakeholders."**
> - Udaykumar (KOVEL)

> **Support from the different organisations is there but if we look at the landscape level, or even mandal level, all farmers are not able to practice all the natural farming methods and there is still a need for more training and knowledge sharing."**
> - Agriculture extension officer

"Not all the stakeholders are actively involved with each other, and there is still a need to come together to bring natural farming to other crops like coffee and pepper, as presently farmers are practicing natural farming methods in field crops only. Farmers are getting good income from the plantation crops like coffee, pepper etc., natural farming extension to these fields will help them to further enhance their income"

- Dr MLS Rao (WASSAN)

"Natural farming needs to focus on coffee and other crops as well, as many farmers are using DAP granules and other fertilisers in turmeric etc. (in the whole district). There is a gap among organisations, most of the organisations are focusing on natural farming methods in field crops, so all need to come together to focus on all the crops growing in the landscape."

- Jayanth Gosh (Coffee Board)

"We need to work to bring all stakeholders together to get the required change, the communication gap is still there, and we need to encourage more involvement. Every organisation in the landscape should support each other so that farmers will get more benefits."

- Aniruddha Brahmachari (Rainforest Alliance)

West Godavari workshop

Some of the farmers participating in the workshop agreed that all stakeholders are working well to scale natural farming. They highlighted how farmers have learnt to plant multiple crops in the form of navdanya (pre-monsoon dry sowing (PMDS)), as opposed to monocropping during the period between the Kharif and Rabi seasons, and they are aware of the benefits to the health of their soils and crops. It was also noted that farmers are spraying *kashayams* in their fields as a result of stakeholder support and the provision of inputs.

One of the farmers disagreed with the statement and said that despite the stakeholders' efforts there is still much that could be done to scale natural farming. He stated that the scaling of practices

"It is in the hands of the farmer and depends on their interest to follow natural farming which is presently lacking in the farmers."

Ananthapuramu workshop

The perceptions of workshop participants from the Ananthapuramu exemplar landscape varied from strongly agree to neutral/unsure. The participants that strongly agreed with the statement said that the organisations are showing farmers the benefits of natural farming with demonstration plots as well as explaining the differences in the cost of cultivation. Through this work, the farmers are becoming more knowledgeable on the natural farming practices. The reasons participants gave for only agreeing to a certain extent with the statement included:

- There are issues surrounding crop pests and diseases and as a result farmers are still applying agrochemicals.
- Mulch material is unavailable and unaffordable for farmers.
- There is a lack of coordination between the ground-level staff from different organisations.

Some of the key reasons that participants gave for being neutral/unsure of the statement included:

- There is a lack of ground- level staff to attend to all the farmers.
- There is need to motivate ground-level staff to increase their efforts to work with greater numbers of farmers.
- All farmers need to receive the same subsidy price for the seed kits.

PERSPECTIVES ON WHETHER FARMERS WILL CONTINUE WITH NATURAL FARMING IN THE ABSENCE OF OTHER STAKEHOLDERS

Workshop participants were also asked whether they believed farmers would continue implementing natural farming in the absence of other stakeholders (based on the same scale of strongly disagree to strongly agree).

STATEMENT: Farmers will continue with natural farming in the absence of other stakeholders

STRONGLY DISAGREE	DISAGREE	NEUTRAL NOT SURE	AGREE	STRONGLY AGREE

West Godavari workshop

The responses to the statement by participants from the West Godavari workshop varied from agree to strongly disagree. Those that agreed with the statement said that the farmers would continue with the practices as they know the soil health benefits, especially of *navadanya*/PMDS, and that they are now able to implement the practices themselves. The participants that disagreed indicated that people are shifting away from agriculture to other professions and stated that natural farming is less profitable than chemical farming so without continuous support they would be unlikely to continue with it. The role of field cadres was noted as being critical to motivate the farmers as well as for the supply of inputs. Further, it was highlighted that natural farming requires a lot of care and patience and as a result interest among farmers had decreased. Those that strongly disagreed with the statement said that as the field cadres were supplying the inputs the farmers were not investing time in learning how to make them. Another participant indicated that land tenancy is a major challenge, with a lack of formal land agreements between farmers and landowners. In addition, it was mentioned that farmers are unlikely to continue implementing the natural farming practices because they do not guarantee good yields and the products do not sell for premium prices at the available market.

> **"Everyone (organisations/government) says farmers are the backbone of the nation and society but in reality, we are not considered important, and farmers are not getting the support they need."**
> - Anon

> **"Farming is vanishing as the younger generation has no interest in agriculture and the farming community is shrinking."**
> - Hanumanth Rao

Ananthapuramu workshop

The responses of participants from the Ananthapuramu workshop ranged from unsure/neutral to being in disagreement with the statement. The participants that believed that farmers were unlikely to continue with the natural farming practices said that the farmers required long-term support (10-15 years), so when faced with challenges they did not revert to conventional farming methods. Those that were unsure/neutral said that the farmers are still learning about natural farming and are only applying it to small areas of land, so if the support is removed it is likely that they would return to chemical farming. The overarching message was the need for long-term support for the farmers.

FARMERS' EXPERIENCES WITH NATURAL FARMING

Farmers were invited to share their experiences with natural farming practices.

ASR workshop

The ASR farmers' experiences with natural farming were very positive. Two farmers said they had expanded the natural farming practices to other crops, and one farmer indicated that she had not used chemical fertilisers since 2018. One farmer said that he had received support in establishing a *dravajeevamrutham* unit and had even started supplying other farmers at a cost of R 4/litre.

West Godavari workshop

The farmers from West Godavari had mixed experiences with natural farming. One farmer, practising fish-paddy natural farming, said that he had a positive experience as he was able to generate multiple incomes at regular intervals from the same piece of land. Some farmers had negative experiences stating that they did not get the yields they had hoped for and so they had stored their produce in anticipation of premium prices at a later date, as natural farming requires considerable effort. However, they ended up selling their produce for conventional prices which they found very demotivating.

Ananthapuramu workshop

The feedback from two farmers implementing natural farming practices was positive. The first farmer said that he did not see much of a result with the first cropping season but he maintained the practices for the second season and got good yields. The farmer is motivated not only by the increase in income but also by knowing that he is not applying harmful chemicals and so is benefitting the health of future generations. A women farmer who had been practising PMDS since 2018 with 20 crop types said she was very satisfied with her results and would continue to practise natural farming. Her results were as follows:

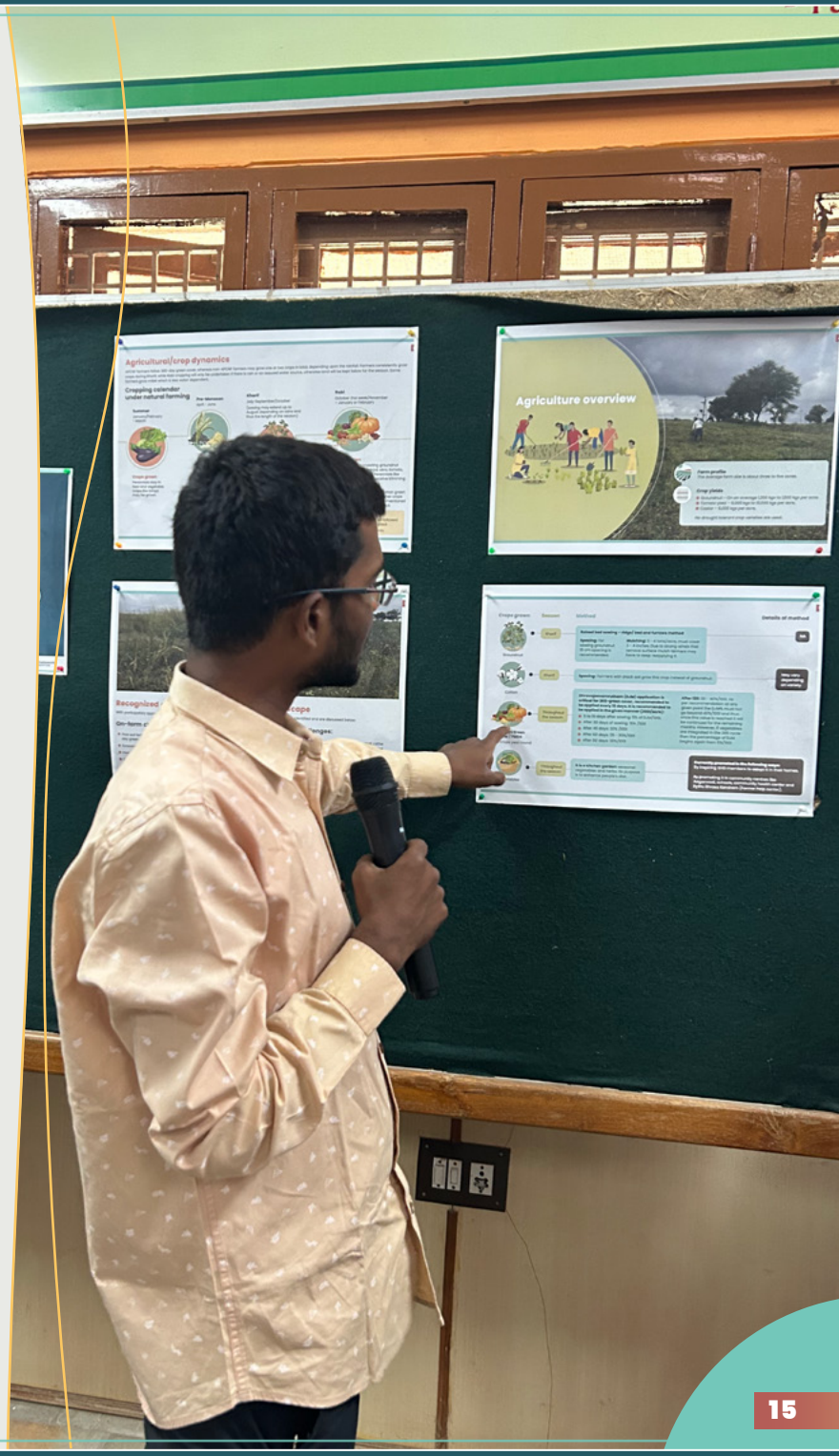
- Leafy vegetables produced good yields in 25 days from which she earned R 1,300 – R 1,500.
- Cowpea yields were 50 kg, she consumed 10 kg and sold the remaining 40 kg at R 60/kg.
- In total, from all the vegetables under PMDS, she received an income of R 65,000.

> **"This workshop is an eye opener as a farmer, I learnt about the methods and their impact on the crop, and I am very happy and would like to participate in more such workshops."**
>
> - Manjurekhar (farmer)

Advice to farmers in the Ananthapuramu exemplar landscape (Narayana Reddy – Mandal Team leader – AF Ecology)

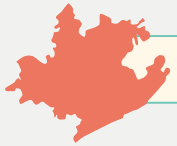
It was recommended that farmers:

- Apply *ghanajeevamrutham* before sowing their fields.
- Grow border crops.
- Check their fields every 10-15 days for pests or diseases and apply *kashayams*.
- Consult the relevant staff should an issue be observed.
- Grow millet as it requires less water and is highly nutritious.
- Preserve seeds for future use rather than depending on the seed market.
- Consider intercropping to generate income until the main crop is harvested.
- Registered farmers should use the subsidised seed kits which contain thirty variety.



EVIDENCE AND EXPERIENCE

Workshop participants were invited to a physical data and evidence wall to interact with the evidence generated by the project so far. The evidence and data wall encouraged dialogue and discussion on the meaning, relationships, relevance, and implications of the data and information. Some of the key points mentioned by the stakeholders are provided below.



ASR workshop

STAKEHOLDER COLLABORATION

- **Improve stakeholder collaboration**
  - There is a communication gap between stakeholders.
  - Stakeholders from different organisations working in the landscape at different levels should collaborate and communicate, they should support each other.

CHANGE MINDSETS

- **Create interest** - To scale natural farming, farmers need to be interested in the practices.

NATURAL FARMING PRACTICES

- **Simplify protocols** - Too many protocols will confuse the farmers, there is a need to share practices that are easy to follow.
- **Soil erosion and weed infestation** – Soil erosion and weeds are common in the landscape because farmers leave their fields fallow for long durations without any green cover.
- **Improve phytosanitation** – Improved phytosanitation measures are needed during turmeric processing and grading.
- **Improve post-harvest management** - Farmers are unable to get good prices for their produce as there is a lack of adequate post-harvest management.
- **Manage open grazing** - The open grazing of cattle in the Rabi season is a major drawback for farmers who want to cultivate crops. The farmers expressed the need for fences but some stakeholders responded saying that the methods used for managing cattle grazing during the Kharif season could be applied.
- **Include other crops** - Coffee and pepper crops should also be targeted for natural farming.

NATURAL FARMING INPUTS

- **Establish a local seed network**
  - There is need for developing a seed network in the ASR district, seed banks are critical for maintaining biodiversity.
  - More than 38 tuber varieties are available in the district, of which 12 have medicinal properties.
  - Diverse varieties of millet used to be grown in the district, but the number has reduced significantly.
  - Until 2006 farmers used to sow traditional (local) seeds in the landscape but floods limited their ability to store the seeds for the next season and as a result they have started procuring seeds from government departments and private vendors.
  - At present, farmers are mainly storing seeds for paddy, but for Rajma and for certain vegetables they are purchasing them from the Agriculture Department and retailers in Chinthapalli.
- **Improve water use efficiency**
  - Farmers mentioned that they are unable to grow crops in the Rabi season as there are inadequate amounts of water available. In response, some stakeholders suggested that farmers should use their water more efficiently such as by conserving it when it is abundant and using the residual moisture in the fields after harvesting paddy to grow their crops with only critical irrigations until March-April.

MARKETING

- **Better prices for high-quality produce** – The Farmer Producer Organisation offers the same price for all produce regardless of the quality. To incentivise farmers to adopt natural farming practices and improve their produce they need to be offered higher prices. Also, there is no difference in price for long and short-duration crops such as in the case of turmeric which may have a quality difference.
- **Need for certification** - Farmers are concerned with the low prices received for their produce and so stakeholders suggested that they apply for organic certification to fetch better prices.

CAPACITY DEVELOPMENT

- **Build capacity** – There is a need to train farmers on cow urine collection and management and how to maintain cow urine collection sheds (e.g. WASSAN's urine collection centres). Only a few farmers are storing urine for the preparation of *dravajeevamrutham, ghanajeevamrutham* etc.

FURTHER RESEARCH/ANALYSIS

- **Biodiversity assessment** – There is a need to assess the landscape's biodiversity.
- **Study on alternative mulch materials** - One farmer said that he used silver oak (*Grevillea robusta*) leaves for mulch material as they decompose easily and alleviate soil erosion. Some stakeholders disagreed saying that the leaves would take a long time to decompose. It was suggested that a detailed study be carried out on the use of silver oak leaves for mulch and how it affects soil erosion.
- **Further analysis of incomes** – There is a need for further analysis of the income percentages provided by segregating the incomes into categories (e.g. display as a pie chart).

Natural farming for increased coffee yields and incomes (Jayanth Gosh – Director of the Coffee Board)

Current farming practices such as monocropping and burning have led to environmental degradation and reduced microbial activity in the soils. Attending to coffee fields and maintaining proper pruning techniques can improve yields. For example, farmers should apply farmyard manure to their fields once a year as it will increase the size of their coffee cherries.

As coffee and pepper are cash crops, farmers should concentrate on getting good yields by following proper crop management practices. Farmers should also focus on drying, pulping, and grading to generate good income. There is a need for stakeholder collaboration to prepare natural farming protocols for coffee.

West Godavari workshop

INNOVATION

- **Need for innovation**
  - Conventional sprayers get blocked and damaged when used to spray natural farming *kashayams*, as a result the farmers expressed the need for innovation.
  - Weed infestation is problematic to farmers practicing natural farming, they mentioned the need for innovation to control weeds as the labour required to manually remove weeds is expensive.

FARMER SUPPORT

- **Government support** - The government should supply tarpaulin sheets for storing produce, they were previously supplied on subsidy.
- **Subsidise PMDS seed** - Farmers cannot allow PMDS crops to grow until seed formation due to the limited time period between the two seasons. As such, they are required to purchase PMDS seeds at the end of every Rabi season, but the seeds are expensive.
- **Lump sum payouts** - Rythu Bharosa money should be paid as a lump sum as opposed to instalments as farmers are unable to make efficient use of the money.
- **Need for affordable equipment** - Materials to prepare bio-cultures, such as water cans and trays, are expensive.
- **Ongoing support from field cadres** - Farmers said that some of the field cadres are not receiving their salary on time which is hindering progress.

NATURAL FARMING INPUTS

- **Lack of access to inputs**
  - Inputs are not always available at the Non-Pesticide Management (NPM) shops, and the NPM shops are not accessible to all farmers.
  - Farmers have limited access to cattle for preparing natural farming inputs such manure and urine.
- **Political complications** – There are political issues at the field level which are affecting benefits, such as tractor subsidies, from reaching farmers.

MARKETING

- **Marketing** - Markets specific to natural farming vegetables should be established with premium prices secured for the produce as it is more nutritious.

> **"I am attending this kind of meeting for the first time where collected data was shared back with us, it is really empowering."**
> - Narsimurthy

> **"Feed the soil, not the plant, soil health equals plant health, and plant health equals human health so we need to save soil."**
> - Ramchandra Raju (RySS - Natural farming Associate)

OPPORTUNITIES AND CHALLENGES TO SCALING NATURAL FARMING

Workshop participants discussed and presented the challenges and opportunities they faced in scaling natural farming. Participants were divided into two groups: a farmer group and another group comprising NGOs and government department representatives.

ASR workshop

FARMERS

Challenges

- **Water accessibility** – Many farmers have an available water source, but they are unable to use it due to a lack of water-lifting mechanisms/machines.
- **Open grazing** - Farmers are unable to grow crops in their main fields during the Rabi season due to the issue of open animal grazing.
- **Low access to cattle** - Farmers are unable to get the required quantity of cow dung and urine to prepare their inputs.
- **Lack of equipment**
  - Farmers need access to *dravajeevamrutham* preparation drums.
  - Farmers require turmeric boiler and drying machines at the village level to reduce transportation requirements.
- **Drying yards** - Farmers do not have adequate drying yards to dry their produce after harvest, this is affecting the quality of their produce.
- **Lack of motivation** - There is a lack of motivation to adopt natural farming within the farming community.

Opportunities:

- **Water availability** - Sufficient water is available in many parts of the landscape, but water-lifting mechanisms are needed. By pooling resources farmers could potentially afford the water-lifting mechanisms, alternatively, the government could provide support.
- **Open grazing solutions**
  - The community could commit to growing grass for livestock on a dedicated piece of land.
  - Farm fencing at the community level could prevent crop damage by livestock.

NGOs AND GOVERNMENT DEPARTMENTS
(RySS, WASSAN, IDH, Rainforest Alliance, and Agriculture Department)

Challenges

- **Low access to cattle** - Farmers lack access to cattle for manure and urine inputs.
- **Lack of equipment**
  - Farmers need access to drums for the preparation of inputs like *dravajeemrutham*.
  - Lack of cattle urine collection and storage units.
- **Open grazing**
  - Fields in the ASR district are mostly left fallow in the Rabi season due to open grazing which is not monitored and controlled.
- **Lack of motivation**
  - Farmers are not motivated to produce their own natural farming inputs (e.g. *dravajeevamrutham* and *ghanajeevamrutham*), they expect to receive them for free.
  - Farmers lack self-motivation to implement natural farming practices after training and demonstrations.
- **Soil erosion** – Soil erosion is a major challenge in the landscape.
- **Lack of access to seed** - PMDS is not common in the landscape and seed kits/seeds are not easily accessible.
- **Mindset challenges** – There is a need for a change in the farmers' mindsets for example they keep requesting new drying yards and machinery when those that have been provided are not properly used or maintained.
- **Lack of knowledge** – Farmers need more technical knowledge and support on natural farming practices.
- **Lack of a market** – There is no market dedicated to natural farming produce.

Opportunities:

- **Mindset change** – A community-level SWOT (strengths, weaknesses, opportunities, and threats) analysis is needed followed by the preparation of an action plan.
- **Grazing management** - With community-level commitment, Rabi season open cattle grazing can be managed as it is during the Kharif season.
- **Community-level planning** - Input related challenges can be addressed through community-level planning and preparations.
- **Planned comparisons and demonstration plots** – Need for more planned comparisons and plot demonstrations at the landscape level with active participation from the community and the feedback/data must be shared with the community.
- **Marketing and sales**
  - For better market opportunities proper grading, segregation, and processing practices are needed.
  - Appropriate branding and certification would be helpful.
  - Barcoding and tracing of the products would assist in fetching good prices.

West Godavari workshop

FARMERS

Challenges

- **Climate change** – Rainfall is irregular and so farmers are unwilling to take risks in cultivating their crops with natural farming practices when there is no yield assurance.
- **Inadequate land tenure and land use agreements**
  - The majority of farmers are tenant farmers, they need to pay back 12-14 bags of produce (in general) per acre per season to the landowner, so the farmers are not willing to take the risk of yield loss by cultivating their crops through natural farming practices.
  - There are typically no lease agreements between the landlord and the tenant farmer which affects the benefits realised by the farmer, for example, any government schemes or subsidies are credited to the landlord and not to the farmer who is cultivating the land.
  - In the case of crop failure e.g. due to natural events the payout goes to the landowner thus tenant farmers have very low risk-taking capacity.
  - Soils improve with time under natural farming and so benefits in yield are gradual, but landowners may not rent the same piece of land to tenant farmers each season and so the tenant farmers may not reap the rewards of their efforts.
- **Lack of NPM shop**s - There is a shortage of NPM shops to buy natural farming inputs, whereas chemical inputs are easily accessible.
- **Lack of motivation** - Farmers are not motivated to adopt natural farming practices.
- **Access to water** - Irregular management and distribution of irrigation water means some fields do not receive adequate water at critical crop growing stages.
- **Weed infestation** - The natural farming plots have a higher incidence of weeds than the plots where chemicals are applied.

Opportunities:

- **Land tenure and land use agreements**
  - The government needs to intervene and develop new laws surrounding the lease of agricultural land.
  - Robust policy should be drafted to ensure tenant farmers also receive government benefits.
  - Lease contracts should be put in place between landlords and tenant farmers and they should indicate the benefits for the tenant farmers.
- **Motivational meetings** Regular motivational meetings are needed at the ground level to encourage farmers to practise natural farming and the farmers should be actively involved in the meetings.
- **Marketing** - More NPM shops need to be established in the areas where farmers are practising natural farming.

NGOs AND GOVERNMENT DEPARTMENTS
(RySS and agriculture department)

Challenges

- **Behavioural change** – The farmers' attitudes needs to change; they expect instant results from implementing natural farming as well as free inputs and subsidies from government.
- **Yield gap** - Natural farming paddy can compete with the yields of chemical plots in the Kharif season, but in the Rabi season there is a yield gap favouring chemical farming.
- **Weed infestation**
  - Weeds are prevalent in natural farming plots, whereas herbicides control them in the chemical plots.
  - Controlling weeds in the natural farming plots is done manually, this requires the added expense of labour.
- **Marketing** – There is a need for markets dedicated to natural farming products as farmers expect premium prices for the produce.
- **High cost of labour** - Natural farming plots require more labour which is expensive.
- **Lack of inputs** - There is a lack of natural farming inputs.
- **Lack of awareness** - Natural farming is relatively new and lesser known than chemical farming.

Opportunities:

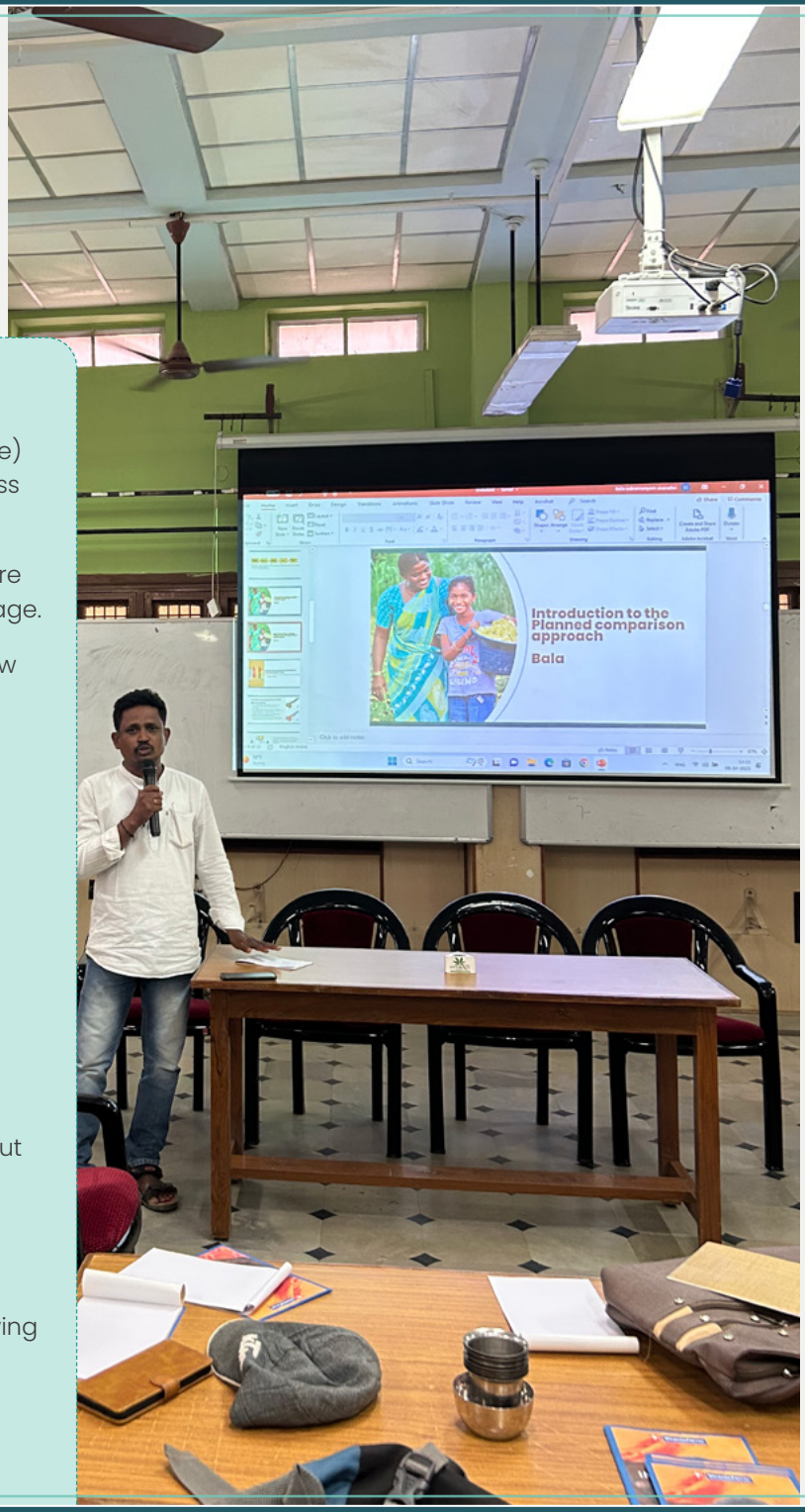
- **Limit the accessibility of chemicals** - Reduce the supply of fertilisers and pesticides to encourage the search for alternative options.
- **Encourage integrated farming** – The adoption of multiple farming enterprises reduces the risks associated with one of them failing.
- **Weed suppression**
  - Practices such as line sowing with square planting, proper puddling with a 15-day interval, and PMDS assist with weed suppression.
  - The PMDS seed kit should contain a higher seed rate for weed suppressing plants.
- **Certification** - Individual certification should be provided for farmers who adopt natural farming practices as opposed to group/block certification.
- **Awareness creation** - Media such as television, newspaper, and social media, should be used to advertise natural farming inputs and successful natural farming cases.
- **Access to machinery** - Low-cost machinery needs to be made available to the farmers as per the Mahatma Gandhi National Rural Employment Guarantee Act.
- **Reduce labour needs** - Increase the concentration of inputs and decrease the application intervals to reduce dependency on labour.
- **Access to inputs** - Increase the availability of natural farming inputs by establishing more NPM shops.
- **Increase targeted suppor**t –Farmers should meet to discuss the most common challenges faced with natural farming and the outcomes should be communicated with the Agriculture Department to provide additional support in the identified areas.

Ananthapuramu workshop

FARMERS

Challenges

- **Low access to cattle** - There is a lack of desi (native) cows in the villages, which limits the farmers' access to inputs such as manure and urine.
- **Inadequate support staff** - APCNF staff numbers are not sufficient considering the population of the village.
- **Need for further training** - Ground-level cadre know the basics of natural farming practices but must be trained further on all relevant natural farming practices.
- **Lack of market** - There is need for a market dedicated to natural farming products.
- **Lack of access to seeds** - Access to desi seed varieties at the village level is poor.
- **Lack of equipment/machinery**
  - Lack of access to drums for making the natural farming inputs.
  - Lack of structures for cow urine collection for input preparation.
  - Shortage of machines such as grinders to make *kashayams*.
  - Lack of access to specialised equipment for sowing diverse crop varieties.
  - Lack of millet harvesters.



Opportunities:

- **Government/organisational support**
  - Government or other supporting organisations should provide seed and desi cows for free or at subsidised prices.
  - Input preparation drums should be provided at a subsidised price.
  - Cow urine collection drums should be provided to farmers at a subsidised price.

    Grinders should be provided with proper maintenance and guidelines for use.
- **Draw on local capacity** - Educated persons should be hired from the villages to motivate the farmers.
- **Capacity development** - Regular assessments and training of ground-level staff should be carried out.
- **Storage** - Natural farming produce storage units should be established at the mandal level.
- **Innovation** - There is a need to develop special implements for sowing different crops in the same field as well as for harvesting millet.

NGOs AND GOVERNMENT DEPARTMENTS
(RySS and AF Ecology/Rural Development Trust)

Challenges

- **Manure accessibility** - There is a lack of desi cows in the villages, which limits the farmers' access to inputs such as manure and urine.
- **Lack of infrastructure and/or equipment/machinery**
  - Lack of access to drums for making the natural farming inputs like *dravajeevamrutham* and *kashayams*.
  - Lack of structures for cow urine collection and storage.
  - There is a need for *kashayam* making machinery, as it is a time-consuming process that is off-putting for farmers.
  - There is a need for improved sprayer nozzles which are suitable for the application of *kashayams* and *dravajeevamrutham* etc.
  - Lack of pheromone traps.
  - Lack of produce storage units.
- **Mulching material accessibility** - Crop residue is used for livestock feed and buying mulch material is not cost-effective.
- **Pests** - Monocropping encourages severe pest outbreaks, affecting crop productivity and the cost of cultivation.
- **Water scarcity** - Irrigation during the critical growing period is required for 365-days green cover.
- **Lack of knowledge** – Farmers lack knowledge on the application of *kashayam*.

Opportunities:

- **Government schemes and subsidies** - There are many government schemes and subsidies which farmers are unaware of such as *Tirumala Tirupati Devasthanams* which provides desi cows to eligible farmers for free.
- **Input machinery/equipment**
  - Farmers could share input preparation drums among themselves or rent them out.
  - Provision has been made for farmers to pay for the drums in instalments.
  - All farmers who have desi cows should plan to establish urine storage units.
  - Proper filtration and the cleaning of sprayers after the application of *kashayams* and *dravajeemarutham* may prevent damage to the nozzles.
  - *Kashayam* making machines should be made available at the village-level or in NPM shops.
  - Need to make pheromone traps and yellow boards available through the NPM shops.
  - Storage units for produce should be established at the mandal level through government support.
- **Mulching material**
  - Farmers should explore and use the materials available in the surrounding area for mulching.
  - Incentives should be provided to farmers for mulch application.
- **Awareness creation**
  - Farmers should be sensitised on the drawbacks of monocropping and the advantages of crop diversification.
  - There is a need to create awareness on the importance of applying *kashayams* at the right time.
- **Access to irrigation**
  - The government should develop special policies for farmers to access adequate irrigation.
- **Market access** – Farmers should receive certification through a participatory guarantee scheme to access good prices for their crops.

MAPPING EXISTING PROJECTS AND INTERVENTIONS

A stakeholder mapping survey was originally conducted between December 2021 and March 2022 for the three exemplar landscapes to understand the stakeholders working on natural farming or restoration in the landscape including how they relate to each other. Initial stakeholders interviewed were selected by the state level facilitator, starting with staff from RySS and lead farmers and other actors known to be working on natural farming. Additional stakeholders working on natural farming were then identified via snowball sampling based on the organisations/ individuals people reported communicating/ working with on natural farming. Stakeholders were asked: are there any organisations or individuals that you/your organisation is currently communicating or interacting with on working with on natural farming, or restoration issues in the area? Stakeholders and their interactions were then mapped for each exemplar landscape (see the report **here**).

The stakeholder mapping survey was built upon in the three exemplar landscape workshops. Participants were asked for details on current projects and interventions implemented in the exemplar landscapes. The results are given below:

ASR workshop

Syngenta and IDH

- Works across the district.
- Trains farmers to be entrepreneurs by providing guidance and technical assistance to those who are interested in agri-business.

Integrated Tribal Development Agency

- Works across the district.
- Supports farmers by providing incentives such as subsidies for machinery, drying yards, forest plantation etc.

Coffee Board of India

- Provides coffee saplings and support for building drying yards.
- Provides technical information regarding coffee plantations.
- Conducts soil testing.
- Creates awareness among the farmers on marketing coffee.
- Provides subsidies for machinery such as pulping units.

Girijan Cooperative Corporation

- Works across the district.
- Markets tribal produce including coffee, pepper, turmeric, long pepper, sama millet, korra millet and soapnut.

Agriculture Department

- Works across the district.
- Provides technical information regarding field crops.
- Conducts soil testing.
- Procures agricultural produce through Rythu Bharosa Kendram.
- Provides subsidies on agricultural machinery such as puddlers, tractors, cono-weeder etc.
- Provides subsidised seeds to some farmers.

WASSAN

- Provides technical information on natural farming to the farmers, as well as seed kits, and develops 365-days models in collaboration with RySS.
- Runs a vaccination programme for livestock and pets.
- Provided solar pumps to three farmers in the landscape.
- Supported a farmer in setting up a *dravajeevamrutham* preparation unit.

RySS -APCNF

- Trains, motivates and supports the farmers in adopting natural farming methods.
- Supports lactating mothers and infants through the health and nutrition team initiative.
- Assists farmers in developing and maintaining kitchen gardens.
- Promotes 365-days green cover in the fields.

LANDSCAPE LEVEL

Rainforest Alliance

- Forest Department
- Biodiversity Management Committee
- Animal Husbandry Department
- Girijan Co-operative Corporation Limited

West Godavari workshop

District Scheduled Castes Service Cooperative Society Ltd

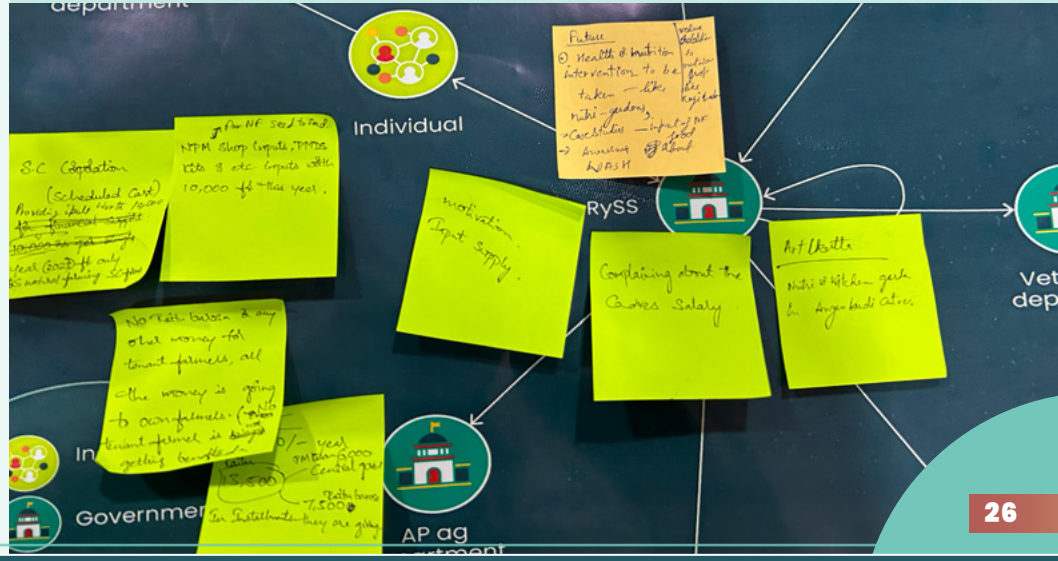
- In 2023, provided inputs worth R 10,000 for natural farming scheduled caste farmers.

Primary Agricultural Cooperative Society

- Provides loans, pesticides, and fertilisers to farmers on an interest basis.

RySS

- Provides value addition training for products like millet (e.g. ragi malt, biscuits, jelly and jam).
- Health and nutrition staff provide awareness on water, sanitisation, and hygiene (WASH) and they also run a health and nutrition field school.
- In Aratlakatta, a nutri garden was established at the Anganwadi Centre.
- In the future, health and nutrition interventions are to be undertaken in the area such as nutri-gardens, and case studies on the impact of natural farming.



Ananthapuramu workshop

AF Ecology

- Works at the mandal and village level.
- Aims to increase agroforestry and carbon sequestration.
- Distributes fruit tree saplings to farmers who are willing to practise natural farming.
- Provides seed kits for kitchen gardens, PMDS, and border crops at subsidised prices.
- Partners with Say Trees to supply mango, jamun, guava, and amla plants.
- Have covered 40 acres of land in all the villages in the area including Jayapuram and Korrakodu. This provides alternative income for rainfed farmers.

RySS

- Works at the village and mandal level.
- Motivates farmers, provides technical support, maintains model plots and works with self-help groups to motivate group members.

ICRAF

- Works in Jayapuram and Korrakodu (Kuderu Mandal).
- Provides technical support, motivates farmers, provides seed kits for PMDs and collects data.

Rythu Bharosa Kendram (State Government)

- Works at the mandal and village level.
- Provides seeds, sprinklers, drip irrigation, sprayers, and tarpaulins to all eligible farmers at subsidised prices.

Andhra Pradesh Veterinary Department

- Provides vaccines for livestock every six months.
- Provides fodder at a subsidised price when there is a shortage of forage grass.

LANDSCAPE LEVEL

AF Ecology

- Partners with the Say Tree organisation to establish agroforestry models.

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Climate and
Land Use Alliance
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