



INITIATIVE ON
Agroecology

WP5: Understanding and influencing agency and behaviour change in India

Activity 5.1 Country Brief

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Introduction

Agroecology, as an interdisciplinary approach to sustainable agriculture, has gained considerable attention in India over the years. The advent of the Green Revolution in India although ensured food security but at the same time also exacerbated agrarian and environmental crisis in India (Pingali, 2012). The prevalent industrial mode of production relies heavily on expensive inputs to boost yields, creating an unsustainable dependence and undermining the viability of small-scale farmers and their natural resources (Vyas, 1994). In this context, a form of agroecology known as "natural farming" "organic farming" has emerged in India offering promising alternatives. Agroecology is a scientific approach, a set of practices, and a social movement with the collective aim of fostering more sustainable, beneficial, and equitable food and agriculture systems (HLPE, 2019). The CGIAR Initiative on Agroecology (AE-I) in India embodies a transdisciplinary, participatory, and action-oriented approach dedicated to enhancing the resilience, equity, and sustainability of food systems through agroecological principles. Operating within various socio-ecological contexts, AE-I focuses on establishing Agroecological Living Landscapes (ALLs) as localized hubs for collaborative knowledge creation and innovation. The initiative seeks to develop and scale agroecological innovations in partnership with small-scale farmers and other policies, civil society, research, and business actors within the agri-food system. In India, AE-I ALLs operates across diverse regions, contributing to the transformation of agriculture practices. In Anantapur (Andhra Pradesh) AE-I has partnered up with RySS (Rythu Sadhikara Samstha- A farmers empowerment organization under Government of Andhra Pradesh) which is spearheading APCNF (Andhra Pradesh Community Managed Natural Farming) program. The program aims to shift towards crop diversification by promoting 'natural farming,' a word used synonymously for agroecological farming methods. In Mandla (Madhya Pradesh) AE-I has partnered with local civil society organizations known as FES (Foundation for Ecological Security) and PRADAN (implementing partner), Indian Council of Agricultural Research-Indian Institute of Farming Systems Research (ICAR-IIFSR) as technical partner. AE-I aims to develop and scale agroecological innovations for small-scale farmers, and other agricultural and food-system actors in the regions. The initiative will co-design, test and adapt agroecological practices, from food production to consumption, linking markets and investments, while considering policy dimensions and consumer behaviours.

This document is a Work Package 5 (WP5) output within the CGIAR Initiative on Agroecology (AE-I). WP5 focuses on understanding and then influencing individual and collective agency, behaviour change among food system actors (FSAs) to drive inclusive and equitable agroecological transformation. This document attempts to understand the drivers of behaviour change that either facilitated or hindered agroecological transition in India through initiatives from the past 20 years. The review identified relevant initiatives and then mapped the nature of initiatives, the AE principles promoted, and the primary activities undertaken to address these principles. Furthermore, a detailed analysis was conducted on five selected initiatives to comprehend their theories of change (ToC), factors influencing success and failure in achieving behavioural change, and the motives and interests of diverse actor groups engaged in agroecological transformation. The insights gained from interviews with individuals possessing in-depth knowledge about these initiatives serve as valuable evidence to comprehend the driving forces behind agri-food system actor engagement in agroecological transitions.

1. The Agroecological Living Landscapes (ALLs), India

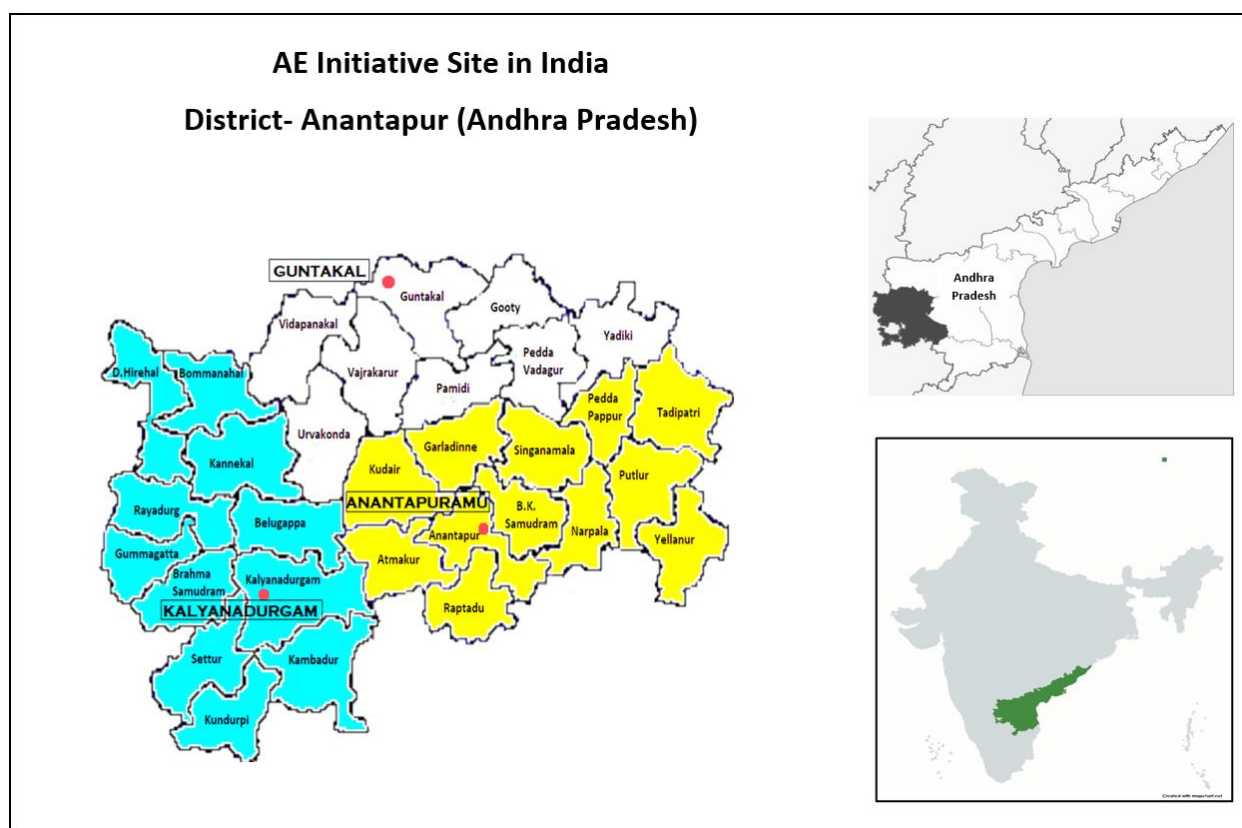


Figure 1: Map showing block-level division of Anantapur district.

India has two ALLs- Anantapur and Mandla. Anantapur district is in Andhra Pradesh and covers 12805km². It is a dryland region affected by frequent droughts, with a normal rainfall of 552 mm per annum, significantly lower than the national average (1,160 mm) (Handbook of Statistics Ananthapuramu district , 2016). Apart from receiving low rainfall, the region has experienced high-intensity off-season rains as well and consequent loss of crops in the last five years, demonstrating unpredictable extreme climatic events. The region has poor red soil and black cotton (high clay content) soil. The regions also have up to 30% fallow land, typical of dryland regions. The region has witnessed a steep rise in tubewell/ borewell irrigation since 2000, making tubewells the major source of irrigation. High investments in borewell irrigation, along with declining groundwater resources have been a major cause of farmers' distress. Anantapur traditionally had diversified crop systems in its rainfed areas, but by the early 1980s, there was a shift to monocropping of high-yield varieties of groundnut. This led to an increase in the area of groundnut cultivation (from 18% in 1960 to 74% in 2005), decreased dependency on millets and pulses for household consumption, and reduction in biomass re-incorporated into agricultural soils (Andhra Pradesh State of Forest Report, 2014). The major crops grown in 2019-20 in the district are groundnut (51%), pulses (25.4%) such as red gram and horse gram, cotton (6.5%) and rice (4.1%). Season-wise, groundnut is the major kharif (monsoon season) crop in red soil under rainfed conditions covering 60% of the area. Other kharif crops include cotton, red gram, and horse gram. The major rabi (dry season) crop is gram covering 56% area, followed by other crops such as groundnut (23%), rice (8.7%) and maize (5.4%). The net sown area in Anantapur district in 2020-21 was 0.85 M ha which forms 45% of total area (1.9 M ha) (DES, 2020-21). The total cropped area in the same years was about 0.91 M ha out of which 6.3% was sown more than once.

There are no National Parks, Sanctuaries or Biosphere reserves in Anantapur district but has about 19,130 Km² of reserve forests. Forests of Anantapur fall under Tropical Dry Deciduous, Tropical Moist Deciduous, Tropical Semi-Evergreen and Tropical Thorn Forest types. Demographically, approximately 89% of Anantapur's populace identifies as Hindus, with Muslims comprising 10% of the population. Scheduled Castes and Scheduled Tribes constitute 14% and 4% of the population, respectively (Census, 2011).

Mandla is located in east-central Madhya Pradesh and covers 8771 km². It is a tribal district surrounded by the catchment area of the Narmada River and its tributaries; it encompasses the world-famous Kanha National Park and falls within the Narmada Son rift valley. The landscape includes diverse soils, with black cotton soils covering three-quarters of the area, and the remaining portion comprising.

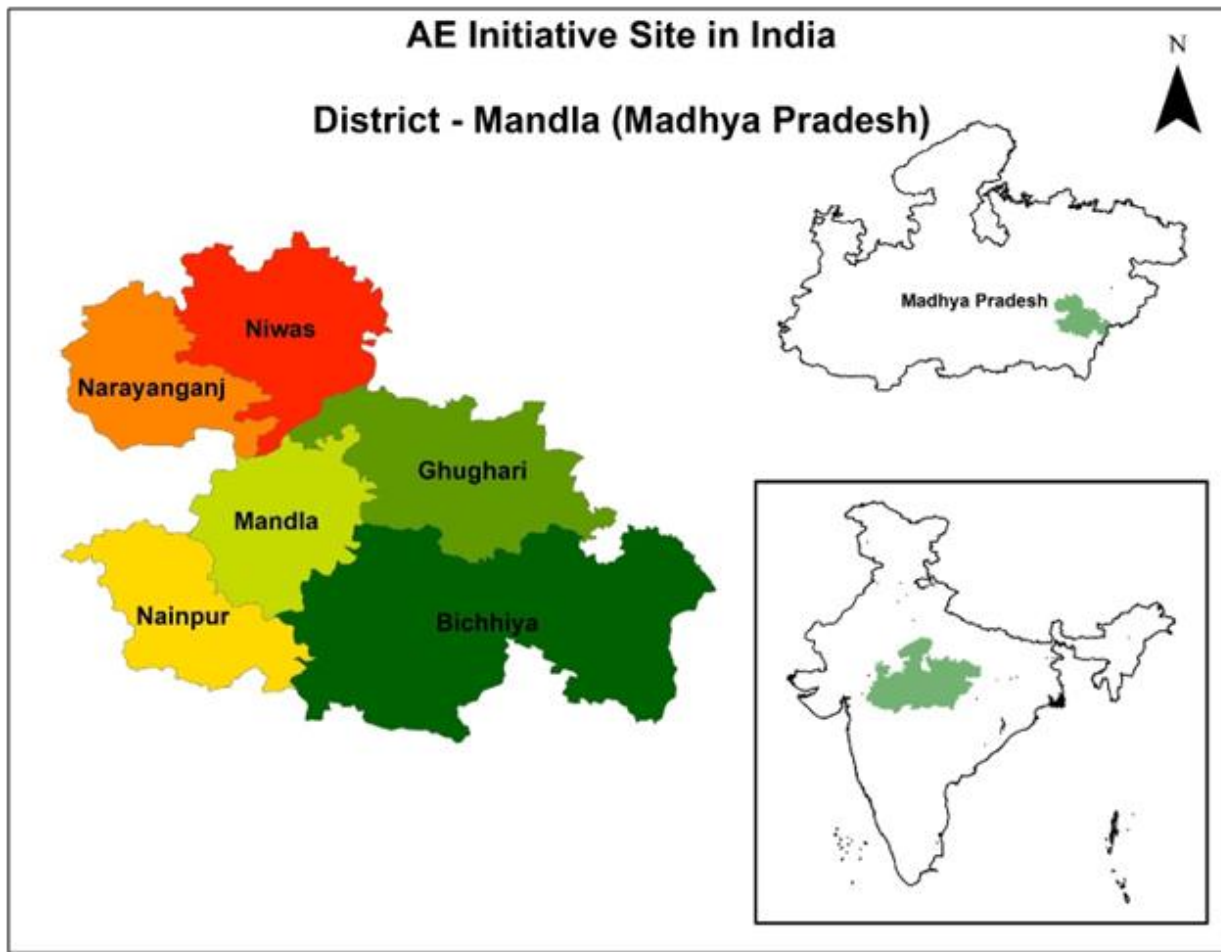


Figure 2: Map showing block-level division of Mandla district.

Mandla has a tribal-majority population, including sub-castes like Baiga, Gond, Kol, and Pradhan. It is characterized by forest cover, non-cultivable areas, cultivable land, and cultivated areas (Census of India 2011 Madhya Pradesh, District Census Handbook Mandla., 2011). It has a gross cropped area of 279,000 hectares and a cropping intensity of 130%. Paddy, maize, wheat, peas, mustard, and lentils are primary crops. Agriculture is the major source of livelihood in the region with 26.61% of the total workforce engaged in cultivation, and 56.98% working as agricultural laborers. Additionally, 1.69% are involved in household industries, and 14.72% pursue various other occupations (Census of India 2011 Madhya Pradesh, District Census Handbook Mandla., 2011). Non-Timber Forest Products (NTFPs) play a significant role in the economic landscape of Mandla, particularly for the tribal community. The district is categorized into four NTFP-rich areas, namely Mohgaon and Paudi, Ghughari, Ghotas, Bichhiya, Mawai, Babliya, Bakori, Pipariya, Niwas, Maneri, Narayanganj, Chiraidongri, and Nainpur, Bamhani, Banjar. Among the various NTFPs, the mahua flower tree (*Madhuca longifolia*) is a primary resource, extensively gathered and processed for making alcohol, sweeteners, and flavoring traditional dishes. Mahua flowers are sun-dried at home and sold to local traders either at the farm gate or in the local market. Chakoda (*Cassipourea*) sourced from pods of a small shrub found around farm fields and barren lands is another valuable NTFP, sun-dried and sold for use in animal feed or as a coffee alternative. Additionally, households collect and sun-dry fruit from the char tree (*Buchanania lanzan*), known as chironji seeds. These seeds, obtained through manual decortication, are considered high-value products in mainstream markets, and can be consumed raw, roasted, or ground (Singh, 2009).

The district experiences a distinct climate, marked by a hot summer, aridity, and a monsoon season contributing to 87% of the annual rainfall of 1427 mm approximately. Despite its rich biodiversity and natural resources, the region faces challenges, including economic disparities, limited landholding sizes, and reliance on rain-fed agriculture. The average monthly household income of tribal farming households is lower as compared to general and other backward castes (OBCs) compounded by factors

such as small land holdings, suboptimal land utilization, and insufficient farming techniques. These economic constraints force many to resort to seasonal and distress migration, exacerbating the hardships faced by marginalized communities.

2. Methodology

The review focuses on agroecological principles identified by the High-Level Panel of Experts on Food Security and Nutrition (HLPE, 2019). To identify these initiatives, searches were conducted using Google and Google Scholar databases using the search terms "agroecology projects in India," "natural farming/organic farming projects in [each state]," "climate resilient programs," and "conservation agriculture." The search produced a diverse range of source material, including grey literature such as project documents and evaluation reports, as well as published scientific papers and electronic resources obtained from project and organization websites.

(HLPE, 2019) Some of the themes explored include climate resilient smart agriculture, sustainable agriculture, multi-stakeholder collaboration, organic farming, zero budget farming, among others.

After using the source material to identify initiatives to include in a country-level inventory of agroecology-related initiatives, a selection process was applied to identify five key initiatives for in-depth review. The selection included the following criteria:

- At least some identified initiatives are carried out in the same location as the ALLs.
- Initiatives encompass at least 3 AE principles and demonstrates visible behavioural change on ground.
- Initiatives focus on gender aspects/marginalised communities.
- Initiatives have well-defined goals and outcomes.
- Initiatives have distinct innovations or features to reach marginalized communities.

For the five selected key initiatives, Key Informant Interviews (KIIs) were conducted to identify the key actors involved in the initiative's Theory of Change (ToC), the targeted behaviour changes, the approaches used to stimulate behaviour change, the underlying assumptions linking the approaches to the intended behaviour changes, and the factors perceived to contribute to success or failure in achieving behaviour change.

3. Results

3.1 Overview of AE inventory in India

A total of 41 agroecology-related initiatives were identified, taking place from the 1980s to the present day. These initiatives received support from various stakeholders, including the government, civil society organizations, and research institutions. Most of the initiatives addressed three to five agroecology principles, while some addressed up to eleven principles. Most initiatives identified (90%) were projects or programs implemented by civil society organizations or government bodies. Fewer initiatives emerged from associations, civil society organizations and research institutions. (10%, Table 1).

Table 1: Overview of AE initiatives in India 2000-present.

		Frequency
Type of Initiatives	Projects and Programs	90.24%
	Social Movement	7.31%
	Multi Stakeholder Collaborative	2.43%
Number of AE principles addressed	3 to 5	58.53%
	6 to 8	31.70%
	more than 8	9.75%
Implementing Agency	Civil Society Organization	39.02%
	Farmers Association	4.84%
	Gov Body	25.51%
	Research Institute	16.01%
	Research Institute and Gov Body	7.31%
	Research Institute with civil society organization	7.31%

The initiatives primarily addressed agroecological (AE) principles of soil health, input reduction, and biodiversity (Figure 3). Principles of fairness, connectivity, and land and nature resource governance, received less attention within the initiatives (refer to chart 3 below)

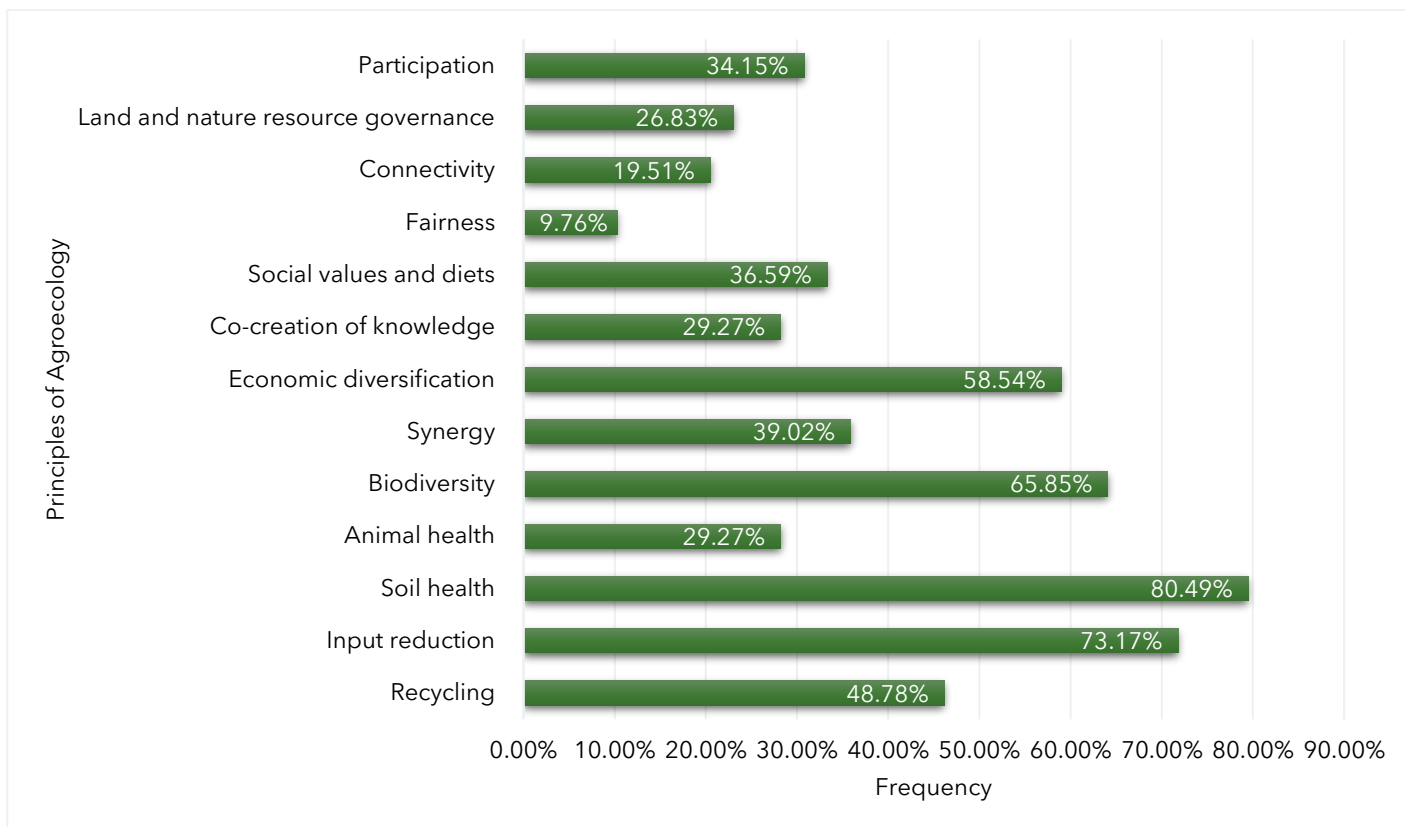


Figure 3. Frequency of initiatives addressing each of the 13 Agroecological principles.

The inventory demonstrates the initiatives were commonly referred to as organic farming or natural farming, however the term agroecology is beginning to emerge and gain prominence in project discussions and literature. Major themes that emerged from the inventory as the approaches to address AE principles were:

- Organic Agriculture
- Natural Farming
- Climate Resilient Agriculture
- Value Chain Development
- Multi stakeholder forum
- Capacity Building
- Conservation Agriculture
- Agroecological Transformation

Most of these initiatives primarily implemented organic agriculture, natural farming, and value chain development as their core activities to address agroecological (AE) principles. Natural farming entails the utilization of indigenous natural inputs, adoption of multiple cropping techniques, provision of context-specific mentorship and training, and continuous support to farmers to ensure the sustainability of organic farming practices. Organic farming focuses on promoting the use of organic manure, reducing reliance on chemical fertilizers, enhancing soil health, conserving native cow breeds, and employing efficient soil micro-organisms, albeit without the necessary incorporation of multiple cropping. Value chain development efforts revolve around facilitating dialogue and collaboration among various actors involved in the value chain, such as producers, buyers, service providers, and consumers. These endeavors are complemented by coaching services that cover production, processing, packaging, and marketing aspects, as well as the establishment of public-private partnerships. Additionally, capacity building initiatives are implemented, encompassing activities such as communication and advocacy campaigns at local or national levels, development and dissemination of training materials, and the organization of training courses. Conservation agriculture, climate resilient agriculture, and the establishment of multi-stakeholder platforms are less prominently featured compared to organic farming, natural farming, and value chain development (refer to chart 4 below).

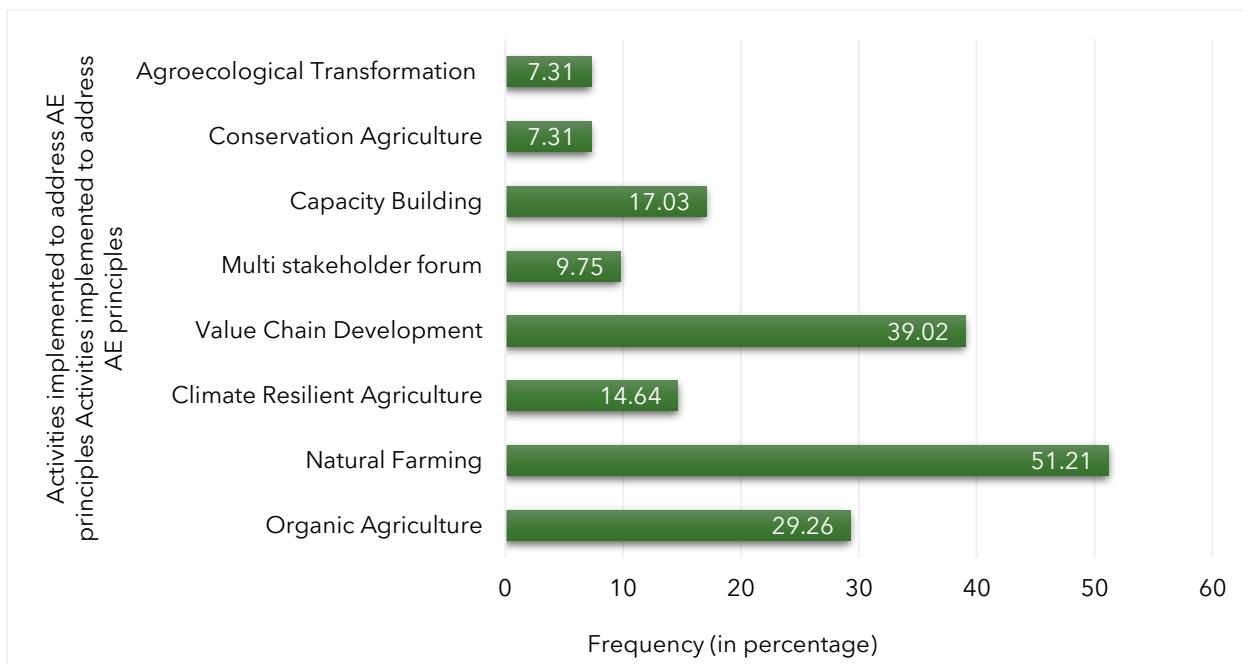


Figure 4: Distribution of Key activities implemented to address AE principles.

Looking at the evolution of the AE principles addressed by the initiatives, it is evident that soil health, input reduction, and biodiversity have consistently maintained their significance as key considerations. However, the trends indicate modest changes in terms of participation and economic diversification. Conversely, aspects such as fairness, connectivity, and land and nature governance have exhibited consistently low attention or response within the context of the initiatives (refer to chart 5 below).

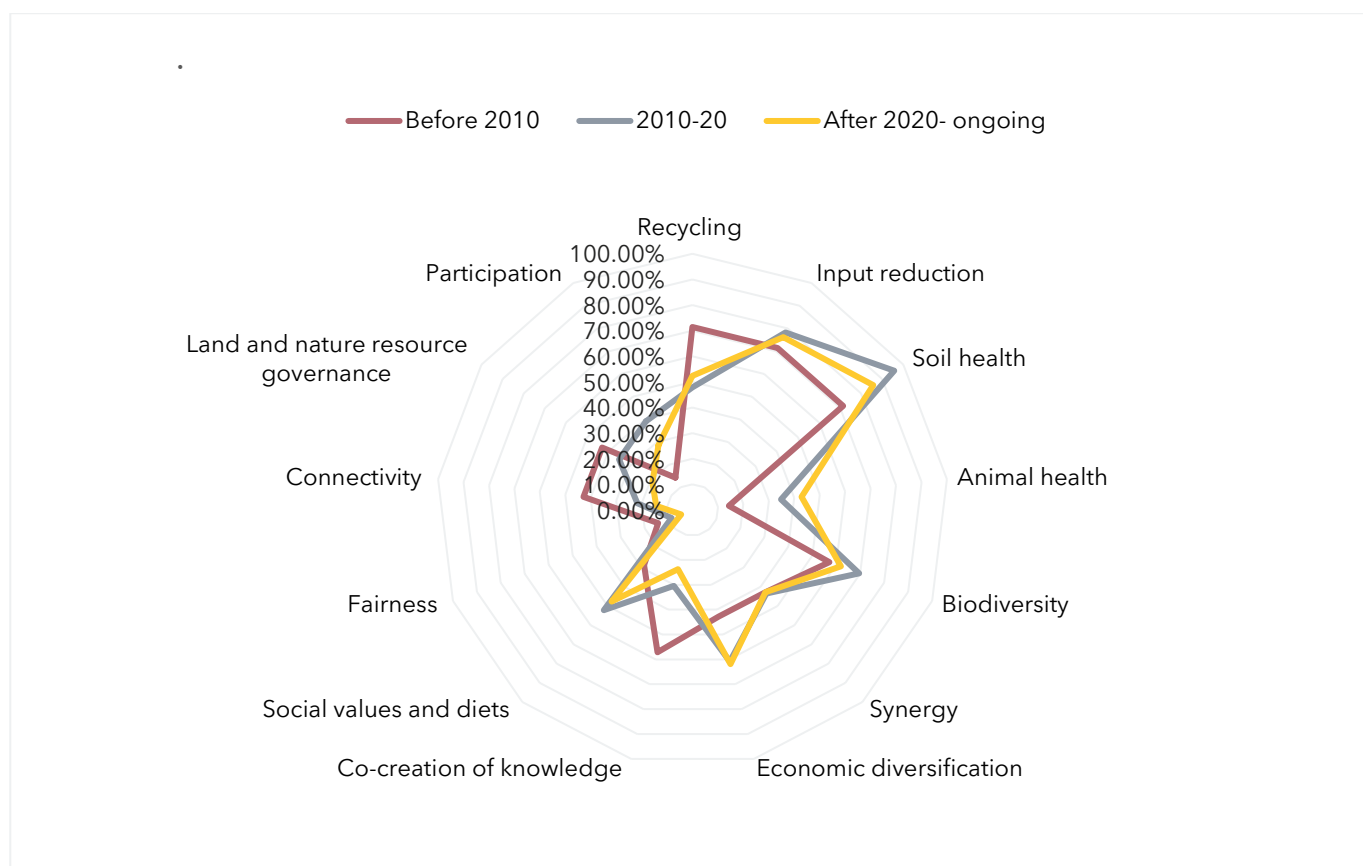


Figure 5: Distribution of AE principles addressed over the years

3.1. Prioritized Initiatives

	Initiative 1	Initiative 2	Initiative 3	Initiative 4	Initiative 5
Name of initiative	Pro-soil Pro-ject	Sustainable Farming Project	The Dharani program-Timabaktu Collective	SENU	Landscape Restoration
Type of initiative	Project	Project	Community level initiative	Project	Project
Goal and objectives	To conserve and restore soil and landscape health through collective action with activities such as watershed planning, lantana eradication, commons restoration etc.	To bolster sustainable farming practices and promote use of bio inputs as well as the financial stability of communities by diversifying income opportunities through integrated farming system methods, bio-resource centres, horticulture crops. Conducting village-level assessments to quantify the impact of interventions, information sharing with local government stakeholders to ensure alignment for a sustainable transition.	To promote organic farming practises, crops diversification, native crops rescuing, improving soil management practices. Create market channels and access for produce.	Agroecological transformation through establishing Community Nutrition Garden. To increase dietary diversity among women and children, sensitizing both men and women to the importance of nutrition promoting resilience, self-sufficiency, and improved well-being for all members of the community..	To promote organic productive systems and revitalize the environment while empowering communities through resilient and eco-friendly practices, prioritize uplifting local economies and enhancing the well-being of individuals and families. This encompasses implementing agroforestry practices to enhance biodiversity and soil health, establishing community-led organic farming cooperatives for collective empowerment, and provide education and training on sustainable farming methods to build capacity and expertise, and collaborate with local governments to develop policies supportive of organic agriculture.
Location	Mandla, Madhya Pradesh	Mandla, Balaghat district MP	Andhra Pradesh	Madhya Pradesh and Maharashtra	Madhya Pradesh
Years of implementation	2015-2023	2012-2023	2008-23	2014-23	2022-27
Agricultural system(s) targeted	Diversified farms (upland, forest land, lowland, commons resotation)	Family agricultural lands- uplands, homestead land.	Family agricultural lands- groundnut, chilly, vegetables.	Community owned lands- hosrticulture crops,lentils, millets, livestock	Family agricultural lands, forest lands and commons.
Motivation	More than 40% of commons, upland and forest land was infested with invasive species	The deteriorated condition of soil health in agricultural lands, coupled with elevated levels of poverty	The region suffered high farmer suicides, debts, degrading soil health, depleted	Malnutrition among women of reproductive age	Very high level of degradation of commons and forest land which are infested

	called Lantana. The region has high poverty and malnutrition among its population. Women were not part of village development plans.	experienced by farmers.	ground water. The initiative also focussed on yielding price premiums for organic produce to farmers.	and young children, poor diet diversity.	with invasive species of Lantana.
Most important innovation(s)	Collective action through women collectives known as 'mahila sabhas' to participate in village development plans, natural resource management (commons, forest)	Promoting agroecological transformation through capacity building. Collective action utilising existing women self help groups. Establishing Bio-resource centres for bio-inputs owned and managed by women.	Creating marketing channels and access through Farmer Producer Organisations, Women Self Groups. Timabaktu Collective is established to exclusively procure from FPOs and SHGs and assure price premium to farmers.	To transform a community owned common land into community nutrition land managed by women.	Workshops to train farmers on agroecological practices.
Target beneficiaries	Small and marginal farmers, women	Small and marginal farmers, women and native communities	Small and marginal farmers, women	Women farmers	Indigenous communities, Small and marginal farmers
Number of target beneficiaries	10000 families in 145 villages	No data	2000 families	No data	1500 families
Marginalized groups targeted	Tribal communities, Women farmers	Native communities and women farmers	Native communities	Native population, women, children	Native population, women,

Table 2: Overview of prioritized five initiatives.

3.1.1. Theory of change and behaviour change

Actors' motives and interests

One of the common threads among initiatives is that most of them are implemented by civil society partners with support from donor agencies and government funding/schemes. They also share similar objectives of enhancing the livelihoods of farmers and the tribal native population through the adoption of sustainable agricultural practices, capacity building and value chain development. Projects in Madhya Pradesh (Pro-soil, SENU, Landscape Restoration and the Sustainable Farming Project) aim to address issues related to hunger, enhance dietary diversity, improve soil health and natural resource management, and promote sustainable farming practices within the region.

Similarly, the initiative in Andhra Pradesh is centered around the promotion of sustainable agriculture, livelihood improvement, and the assurance of food security in the arid landscapes of Anantapur. Actors involved in the initiatives in both ALLs share a common commitment to catalyzing positive agricultural transformation and ensuring the economic well-being of local populations. Whether in Madhya Pradesh or Andhra Pradesh, the diverse motivations and interests of stakeholders knit harmoniously towards the overarching goal of achieving changes in agricultural practices, nutritional and dietary patterns, and ensuring the economic stability of indigenous communities.

Targeted behaviour and relationship changes

The initiatives target specific behavioural changes within the communities with a shared objective of moving away from conventional agricultural practices reliant on chemical inputs. Instead, they seek to cultivate a culture of natural farming techniques, crop diversification and reviving native crops, and landscape restoration through the construction of bunds to combat erosion, ultimately fostering a more sustainable, ecologically responsible, and nutrition sensitive approach to agriculture. The methods employed to stimulate behavioural change included a combination of theoretical and practical training sessions, capacity-building workshops, collective action through existing institutional structures like women self-help groups, and farmer-to-farmer exchanges.

SENU initiative in Madhya Pradesh focuses on improving dietary patterns and nutrition among women, particularly those of reproductive age, and children. The deliberate engagement of women to cultivate and manage of community nutrition gardens (CNG), and the engagement of women and men in nutrition workshops, aimed to instigate substantial behaviour changes within the farming communities. Through the gradual increase in understanding of the importance of health on infant well-being and reproductive health, consumption patterns improved, with families, particularly women, incorporating a variety of vegetables, lentils, and fruits into their diets obtained from CNGs. The behaviour change was pursued through multifaceted strategies such as the establishment of Community Nutrition Gardens, active involvement of women in self-help groups, and the integration of nutrition education with agricultural practices. Similarly, the Sustainable Farming Project focused on advocating natural and organic farming practices, providing training to farmers, and addressing challenges faced by marginalized groups.

The community-based initiative, Pro-soil, targeted effective natural resource management through collective action. The local population engaged in the restoration of forest land, commons, and ponds, contributing significantly to their livelihoods by obtaining vegetables, fruits, and non-timber forest products like tendu patta and mahua from these restored areas.

Furthermore, the Dharani program and the Sustainable Farming Project strategically addressed both backward and forward supply chains. They ensured the availability of inputs through the establishment of bio-resource centers while simultaneously developing market channels for the produced goods, creating a holistic and self-sustaining ecosystem within the communities.

Success factors to achieve behaviour change.

Consensus building among stakeholders- The strategy of consensus building among stakeholders, particularly emphasizing the active involvement of the community throughout the planning and implementation stages was one of the common successful elements in all five initiatives. The strategy not only fostered a sense of ownership but also ensured sustained engagement, as community members became active participants in the transformation process. In the context of these initiatives, women emerged as change champions, playing a pivotal role in shaping interventions and advocating for behavioural changes. Their involvement went beyond mere participation, extending to leadership roles like leaders of natural resource management group, Mahila Sabha (women groups), that significantly contributed to the overall success of the projects such as Pro-soil, SENU and Sustainable Farming Project in Madhya Pradesh. The comprehensive approach to include adopted by the projects further adds to their success. For instance, initiatives such as the Pro-soil project strategically integrate various components like forest conservation, income generation from Non-Timber Forest Products (NTFPs), and the adoption of integrated farming systems. This holistic strategy addresses multiple aspects of sustainability, contributing to the success of the project. The synergy created by combining different elements ensures a more holistic impact on the community, leading to positive behavioural changes. Collaborative partnerships with diverse stakeholders, including local communities, governmental bodies, and non-governmental organizations, strengthen the initiatives' foundations and contribute to their sustained success.

Market access- Market access emerges as another critical element in the success of Dharani Initiative with Timbatku Collective. In the case of the Dharani program, the collaboration with smallholder farmers exemplifies how enhanced market access can lead to the success of sustainable initiatives. This collaboration resulted in increased knowledge and adoption of organic farming practices, improved market access, and better pricing for farmers through the establishment of a cooperative (the Dharani Farming and Marketing Cooperative Ltd) that played a pivotal role in providing farmers with a platform to collectively market their produce. Additionally, the incorporation of critical inputs, digital soil testing facilities, and certification under the Participatory Guarantee System enhanced the credibility and marketability of organic produce. This, in turn, translated into increased returns for farmers, showcasing the significant impact of market-oriented strategies in ensuring the success and sustainability of these initiatives.

Input-Availability- Input availability emerged as a strategic success factor, particularly concerning bioresource centres and their role in reaching more women in the Sustainable Farming Project. By providing access to bio inputs, these initiatives empower women to actively participate in sustainable agriculture practices while simultaneously generating additional income. This strategy not only addresses the economic aspects of sustainability but also contributes to the broader goal of fostering gender inclusivity in agriculture. As more farmers adopt these sustainable practices, the ripple effect of more farmers adopting sustainable farming methods, use of bio-inputs, enhanced the overall success and impact of the initiative. The provision of essential inputs catalysed positive behavioural changes, underscoring the significance of strategic planning and community feedback in addressing challenges. Village-level assessments of needs and challenges are pivotal in executing sustainable solutions such as BRCs, ensuring effective outcomes through continuous engagement and adaptation to local needs.

Participatory training and learning exchange- The role of training emerges as a pivotal element in the success of behavioural change among initiatives. Across various projects, the implementation of multiple rounds of training workshops among farmers has proven to be instrumental in bridging knowledge gaps and instigating shifts in practices. These training sessions act as a cornerstone, equipping farmers with the necessary skills to uptake sustainable farming practices. One noteworthy aspect of the training activities is their recognition of the value embedded in traditional wisdom and farming practices. The initiatives like Sustainable Farming Project, Pro-soil project, the Dharani program aimed to create a synergistic relationship between age-old agricultural practices and modern scientific insights. In addition, the exchange of experiences and knowledge among peers (farmer-to-farmer exchanges) facilitates a relatable and grassroots-level learning environment. Farmers, being at the forefront of these initiatives, are not only recipients of knowledge but also active contributors to the collective wisdom. This participatory model of learning ensures that insights gained through training workshops are disseminated through farmer-to-farmer exchange within the community. The impact of farmer-to-farmer exchanges extends beyond the acquisition of technical skills; it fosters a sense of camaraderie and shared responsibility, further strengthening the fabric of the community's agricultural practices.

Building on past- experiences- Past experiences of communities represent another critical element influencing the success of behavioural change initiatives. The targeted communities, often tribal in nature, have a rich history of practicing natural and sustainable agricultural methods. These communities, however, have undergone a shift in recent times with the introduction of chemical inputs, use of tubewells etc. Leveraging past experiences becomes a strategic advantage in this context. For instance, the Pro-soil and Landscape restoration projects both involved major tribal populations who have historically practiced natural farming. These initiatives built upon the existing foundation of sustainable practices within these communities to introduce innovative sustainable practices or re-introduce abandoned ones. According to the project coordinator of Pro-soil, "These communities have been using natural farming methods for generations, and now with new methods, we have seen changes. When we talk about old farming methods in workshops, it is easier for us to refer. There are also traditional practices like seed treatment with saltwater that they have known for ages, and they're starting to go back to them now."

Challenges of behavioural change

Overcoming exclusionary norms- One of the challenges faced in multiple initiatives was the presence of exclusionary norms in the participant community, which affected engaging with women. For instance, a key informant reported that there were instances of resistance and misunderstandings within communities, particularly concerning women's roles. The patriarchal norms prevalent in these communities have historically excluded women from public spaces, decision-making processes, and discussions related to development plans. This entrenched societal structure poses a formidable barrier for project implementers seeking to involve women. The resistance was further exacerbated by the unfamiliarity of community members with concepts like Mahila Sabha, a term representing women's collective forums for empowerment and decision-making. Moreover, the initiatives faced opposition from local institutions when people started exercising more agency. One key informant reported on the steps one initiative took to overcome multiple exclusionary norms: "People initially thought we were turning women against men. They thought men will become inferior and women will become superior... So, we had taken few initiatives in which both men and women came together and started deliberations to build a consensus among themselves. Then we faced challenges from the panchayat... Most of the time it is noticed that without any discussion or little discussion, decisions are taken, and others are used to follow that decision even if they are not agreed to it. However, going through continuous capacity building and handholding programme, now people are aware of their agency, keeping themselves engaged in discussion and deliberations and influencing the decision-making process. It is reflected in terms of engagement of various stakeholders such as Gram panchayat, Forest Department etc. and its committees for obtaining permission for commons restoration. Amicable relations were then established among various stakeholders. Everyone started giving credit to others in various successful interventions,... all tried to engage themselves in a positive way. Now a sense of mutual trust and respect is noticed, and all are comfortable to collaborate with one another."

Addressing simultaneously the needs of profitability and soil replenishment- Farmers that have been dependent on conventional farming practices may be reluctant to transition to more sustainable practices. The root of this resistance is the severe depletion of soil nutrients and the need for cost-effective labor and yields and the lack of conviction that organic fertilizers can meet these challenges simultaneously. The benefits of conventional agriculture practices with respect to yields and income and the absence of tangible evidence, like the experience of others farmers, in the field of agroecological systems **also contribute to farmer reluctance to try agroecological practices, as reported by** the Dharani Program coordinator. . Moreover, the challenge extends beyond mere reluctance to adopt sustainable practices; some farmers express hesitancy in switching from commercial cash crops that traditionally yield high and secure incomes. The financial stability associated with conventional cash crops becomes a significant deterrent for farmers considering the switch to sustainable alternatives. The key informant of the Dharani programme **reported** "One of the key challenges was the initial resistance or skepticism from farmers in transitioning from conventional to organic farming practices. People have been following chemical conventional farming of groundnut for years, it is very difficult to let go of those years of practice. Price (of natural produce) was a big problem, there was hardly anything that farmers were getting."

Insufficient price premium- The key informant interviews of the Dharani Program and Sustainable farming project revealed price premiums for natural produce were a significant concern, primarily because the involvement of middlemen and inefficiencies within the value chain resulted in farmers receiving only a meagre share of the profits. The interviewees of the Dharani program highlighted the challenges faced by farmers, emphasizing that the labor-intensive process of preparing bio-inputs often goes uncompensated. This discrepancy becomes more pronounced when comparing the effort required for organic farming practices with the seemingly easier application of chemical inputs that yield similar or mostly better results in terms of yields. Farmers participating in these initiatives argued that the labor-intensive nature of preparing bio-inputs, which are essential for organic and sustainable farming, demands fair compensation. As a result, this challenge created a disincentive for farmers to fully adopt sustainable farming practices.

Going beyond information dissemination- The key informants revealed that trainings, while valuable, may not be enough to ensure the initiatives' effectiveness. It is crucial to go beyond merely providing information and verify whether the participants have truly comprehended and internalized the knowledge shared during these sessions. Project coordinators emphasize the need for a comprehensive assessment of participants' comprehension levels, taking into account the diverse learning styles and backgrounds within the target audience. This involves not only evaluating theoretical knowledge but also ensuring that practical skills are developed and retained. Moreover, the sufficiency of training is not solely dependent on the participants' understanding; it also intersects with the availability of financial resources. Even if individuals possess a solid grasp of the information provided, the lack of financial resources hinder the implementation of the acquired knowledge. For instance in the Sustainable Farming project, it's recognized that simply providing training isn't always enough to ensure success. Key informants of the project say "...our job is does not end at trainings and workshops, we have to regular check-ins with farmers, sometimes they forget things like how to make beejaamrut, then we have to remind them, explain them again...we train few CRPs (community resource persons) from tola (can be understood as one neighbourhoods or locality) itself, who sometimes keep check on their peers..."

Effective engagement with multiple stakeholders- As these initiatives aim to address diverse themes such as nutrition, livelihood, financial security, natural resource management, they require interaction with a broad spectrum of stakeholders such

as forest dwellers, farmers, government bodies, and women. The challenge of engaging with multiple stakeholders arises from the diverse interests, priorities, and perspectives of each group. Projects such as SENU, Pro-soil, Sustainable farming project highlighted the difficulty in balancing the different targets among local institutions (usually mandatory government targets) and navigating complex bureaucratic processes and institutional barriers that sometimes impeded the smooth implementation of activities. For example the sustainable farming project liaised with various government stakeholders and policies to arrange for funding for its project, such as NREGA (National Rural Employment Guarantee Scheme- a national scheme that provides 100 days of guaranteed employment to all citizens), tribal welfare schemes, agricultural extension schemes like ATMA (Agriculture Technology Management Agency -it aims to support State Government's efforts and to make available latest agricultural technologies and good agricultural practices in different thematic areas of agriculture and allied areas to farmers through different extension activities via - Farmers Training, Demonstrations, Exposure Visits, Kisan Mela, Mobilization of Farmers Groups and organizing Farm Schools etc). The project coordinator stresses the challenge of effectively coordinating tasks among various departments involved in the project. This entails understanding and adhering to the protocols and procedures of each department while fostering effective communication and collaboration among them. Moreover there are always risks of delays, inefficiencies, and potential roadblocks that could impede the project's progress and overall success. Similarly the interactions of the Pro-soil project with forest department, tribal department and local panchayats highlight similar challenges of navigating through various bureaucratic processes that lead to conflicts and delays.

Addressing the needs of marginalized groups

Best Practices to address the needs of marginalized groups

The initiatives primarily focus on addressing the needs of marginalized groups, with a particular emphasis on women and tribal communities such as:

- Targeting women first through informal group setting and building mutual trust among them. For example, pro-soil project started with establishing Mahila Sabhas (women groups) from each locality. This platform played a pivotal role, granting women a voice in discussions that spanned from commons management to issues of domestic violence and women's roles in agriculture.
- Engagement strategies of maintaining transparency and continuous dialogue with difficult stakeholders employed to overcome community resistance and build trust. This was demonstrated in the previous example of engaging with village, panchayat, and forest department for women's agency and inclusion.
- Activities tailored to address the unique needs and interests of women and indigenous groups, with their input sought from the initial stages of project planning. For instance, in the Sustainable Farming Project, recognizing the necessity for accessible bio-inputs led to the establishment of bio-resource centers, catering to this requirement.
- Promoting gender equality and raising awareness about nutrition within households. The SENU project adopted a comprehensive approach, targeting both women and men to sensitize them about the significance of nutrition.

Why the best practices are needed-Meeting the needs of marginalized groups poses several common challenges that were highlighted by key informants involved in the Pro-soil initiative. One major obstacle is the difficulty of integrating women farmers and indigenous women into the initiative's activities, primarily due to cultural concerns. Cultural norms often dictate that women require their husbands' consent to participate in various activities, reinforcing the traditional gender roles where the man is the head of the household. Additionally, the substantial workload borne by women, leaving them with limited time, further impedes their active involvement in the initiative.

Furthermore, addressing the needs of tribal communities also proves to be a complex task. The lack of proper documentation, particularly in terms of land records, poses a significant challenge. This documentation gap makes it difficult to implement targeted interventions for tribal communities effectively. Additionally, an ongoing struggle is evident between forest-dependent communities and forest government bodies. This conflict presents a continuous hurdle in aligning the interests and needs of these communities with the policies and regulations enforced by governmental bodies responsible for forest management.

Indicators measured success and failure in reaching marginalized groups

Most of the initiatives did not have clear defined indicators measuring success and failure in reaching marginalised communities. They relied on women's participation in groups, women owned bank accounts, income of women, number of women led households. Evaluating success and failure in initiatives targeting marginalized communities can be achieved through:

- Engaging target communities in the theory of change development and the monitoring and evaluation process through participatory approaches which ensures their perspectives are included in decision-making processes and strengthens ownership of interventions.
- Developing a clear and specific theory of change that outlines the current situation, desired behaviour changes, interventions adopted and the assumptions behind them, and expected outcomes and impact on marginalized communities. This could provide a roadmap for understanding how interventions would lead to desired outcomes and which metrics or indicators could be used to evaluate progress.
- Ensuring that monitoring and evaluation processes are gender-responsive by considering the specific needs, priorities, and experiences of women and men. This may involve disaggregating data by gender and conducting gender analysis to understand differential impacts, including indicators that provide insight on gender-specific changes.

- Collecting baseline data to understand the current status of marginalized communities. This data would serve as a reference point for measuring progress and evaluating the impact of interventions over time.
- Creating mechanisms for continuous feedback from marginalized communities allows for the assessment of intervention effectiveness and identification of areas for improvement. This could involve regular community meetings, surveys, or establishing feedback channels through mobile phones or community centers. An adaptive approach to the interventions is key to ensure that activities remain relevant and reflective of the evolving needs of marginalized communities.
- Providing training and capacity-building support to project staff and community members involved in monitoring and evaluation activities, ensuring they have the necessary skills and knowledge to collect, analyze, and interpret data accurately.

4. Conclusion

This report examines past initiatives related to agroecology in India. The majority of the inventoried initiatives were projects and programs and predominantly implemented in the last two decades. These initiatives focused on addressing key agroecological principles, with animal health, input reduction, recycling, biodiversity, economic diversification being the most frequently incorporated principles. Notably, principles related to fairness, synergy, participation, social values, and dietary practices were less commonly included. Five initiatives were selected for in-depth review due to their alignment with multiple agroecological principles, reported successful behaviour change outcomes. These initiatives, responsive to the needs of farmers and addressing under-represented AE principles, showcased notable shifts in mindset and attitudes. The role of women in decision-making processes facilitated behavioural changes, with increased awareness and discussions on sustainable agriculture, bio-inputs, and women's empowerment. The initiatives fostered a sense of ownership and empowerment among community members, contributing to the successful implementation of interventions. The success of initiatives in achieving behaviour change is perceived to have largely resulted from their emphasis on participatory approaches, leading to increased community engagement and ownership. Collaboration among various stakeholders, including community-based organizations, government departments, and organizations, also played a crucial role. The programs prioritized capacity-building and technical assistance for farmers, ensuring they were equipped with the necessary knowledge and skills. Integrating traditional knowledge with scientific approaches facilitated a holistic approach to landscape restoration, bridging the gap between traditional wisdom and modern innovations.

The theory of change and behavioural change strategies implemented in these initiatives in Madhya Pradesh and Andhra Pradesh underscore a unified commitment to enhancing livelihoods through sustainable agriculture and natural resource management. Despite diverse challenges, consensus building, market access, input availability, strategic training, leveraging past experiences, and engaging with multiple stakeholders emerged as critical success factors. The challenges faced, such as engaging with women, transitioning to organic practices, addressing price premiums, and the assumption that training alone is sufficient, highlight the complexities involved in behavioural change efforts. Tailored strategies are required to address these challenges effectively. The emphasis on addressing the needs of marginalized groups, especially women and tribal communities, reflects a commitment to inclusivity. However, the lack of clear indicators for success and failure in reaching marginalized communities is a gap that warrants attention.

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