



Strengthen Diversity

"Seed & Breeds Carry the Wisdom of the Ages of Interaction between Humans and their ecosystems"

ANNUAL REPORT 2021 - 22

Cover Illustration

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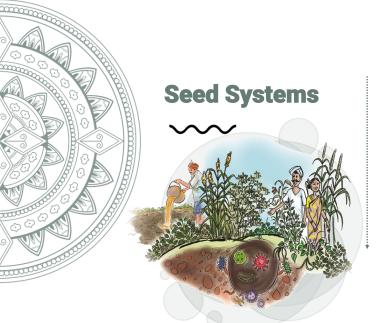
Agro Ecology and Regenerative Farming





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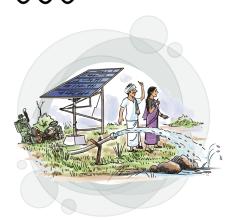


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About WASSAN

WASSAN was formed as a network of civil society organisations interested in the Participatory Watershed Development Programs in 1996 at the initiative of Centre for World Solidarity. The purpose is to build capacities of multiple actors involved, to innovate on participatory processes and to provide a policy interface with Government to strengthen the natural resources development and related livelihoods. watershed development programs.

With the growing need for professional support, Tthe network was registered as a Public Trust in 1999 under the leadership of with Sri. (late) B.N. Yugandhar as the Chair and guiding forceto meet the increasing need for professional support in its engagement with the agenda.

AREAS OF WORKS

While Natural Resource Management forms the core, WASSAN's work expanded to the broad spectrum of areas intertwined with the people and their ecosystems in rainfed areas; and, their changing economic and climate contexts.

APPROACH TO WORK

WASSAN works at three levels viz; partners with several civil society organisations and community based organisations on ground for hands on learning and evolving approaches to development; networks with civil society, other networks and research organisations and engages with the Government in policy and program development.

ORGANISATIONAL STRUCTURE

WASSAN is Governed by the Board of Trustees headed by the Chairperson and various Committees constituted by the Board such as Finance Committee, with external members included, advising the Board and ensuring compliance with all statutory requirements. Executive Secretary and Associate Executive Secretary are the Board positions reporting to the Chair.

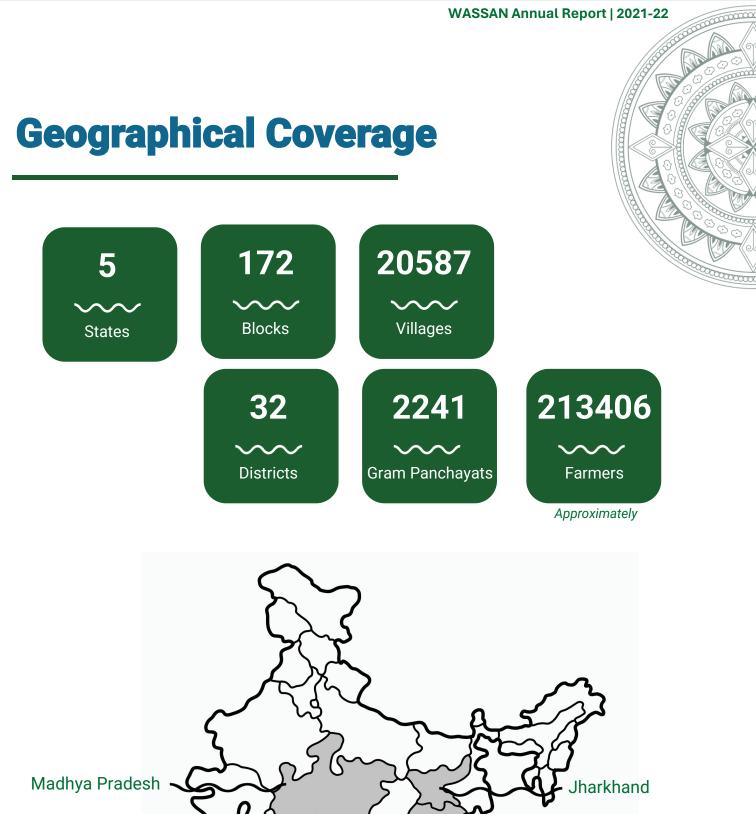
The agenda is led by the team that is organised in a matrix form across thematic areas, geographical spread and projects. The team is led by Directors and Associate Directors. An Employee Council consisting of various Team Leads reflects on the emerging issues and supports in developing organisational policies. The team is backed up by a central administration team.

WASSAN's work is aligned with many of the Sustainable Development Goals (SDGs) of the United Nations (8 out of 17 Goals)



Alignment with





Telangana Odisha Andhra Pradesh





From the Desk Message of Executive Secretary

Sri Jagadananda, has assumed the role of Chairperson of WASSAN taking over from Dr. Rukmini Rao this year. Sri. Jagadananda is a well-known Civil Society leader with over four decades of contribution to the development sector, especially in Odisha impacting several lives of the marginalised. He has engaged with several global initiatives, notably, the Social Summit, developing / monitoring the Millennium Development Goals (MDGs) and the Social Development Goals



Sri. Jagadananda held the office of the State Information Commissioner, Odisha to advance the Right to Information (RTI) agenda in the State and was a member of the State Planning Board of Odisha, following his active campaigning for people-centric decentralized planning. Presently, he is a Member of the Standing Committee (CSOs) at the NITI Aayog on Institutionalizing Partnership between Civil Society and the Government.

WASSAN team welcomes Sri. Jagadananda to the family looking forward to further strengthening its governance structure with the immense experience of the Chair.



WASSAN team thanks **Dr. V. Rukmini Rao** for her support, leadership and for mentoring WASSAN team, especially on prioritising women and gender issues in our work.



Theme of the Annual Report, 2021-22: Strengthening Diversity

Diversity is the hallmark of rainfed areas, the geography in which WASSAN work is spread around. Indigenous knowledge of the Adivasi communities and the rainfed farmers; and, the immense knowledge embedded in the age-old interactions of communities with their ecosystems have become all the more important for us in understanding and evolving approaches to deal with the increasing vulnerability and uncertainty of climate change in rainfed areas.

WASSAN's engagement with the issues of diversity naturally emerged in the course of work in rainfed areas. Diversified crop systems historically provided resilience to the rainfed systems. Building upon our earlier work on Navadhanya, an indigenous crop system of drylands of Anantapur and adjoining areas of Karnataka, the knowledge is further enriched with the study of diversified crop systems across 11 locations across India. The study taken up in collaboration with different organisations was facilitated by our team under the TIGR3SS project supported by the University of Cambridge.

WASSAN has a focus on strengthening diverse production systems integrated within an ecosystem. This has led to working on revival of diversity in crop systems, in livestock and in poultry birds.

Developing trees-integrated foraging poultry systems with indigenous breeds of birds, community-based initiatives on conserving cattle and other animal breeds, evolving institutional protocols and supporting community in conservation leading to the Telangana Government registering its first cattle breed – the Poda Toorpu cattle of Nallamala forests – all these initiatives are helping us in deepening our understanding on the revival of animal genetic resources into production systems.

An intensive exercise on screening of landraces of finger millet in the Odisha Millets Mission along with farmers is helping us to understand the production potential of landraces with natural farming methods.



Reviving poly crop models and crop diversification, brought in the need for diverse seed systems. The work on Community Managed Seed Systems evolved further into supporting revival of diversified crop systems by establishing Crop Diversity Blocks – where communities are engaged in scouting for, and reviving the lost-diversity, trying them out in the diversity blocks and to make selections for the current context. This work is expanding to multiple agroecologies in the country with the RRA Network's initiatives.

Appreciating bio-diversity and its revival now forms an integral part of all initiatives of WASSAN.

~ From the Executive Secretary.

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Vision and Core Values

VISION

"Entrench participatory processes through network approach that strengthens NRM practices, to secure livelihoods of deprived communities in drought prone areas"

Participatory Processes include – capacity building, institutional development, networking and advocacy

EQUITY

Being sensitive and committed to reduce all forms of discrimination with focus on poor, dalit, adivasis and women.

PARTICIPATION

Having faith in people's knowledge, capacities and their institutions

> **COLLABORATION** Developing synergies through networking

TEAMWORK Striving for quality, innovation and diversity

ACCOUNTABILITY

With transparency





CORE VALUES









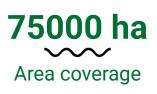
Agro Ecology andRegenerative Farming



SCALE



300 Gram Panchayats





Details of Components and Outreach The Government of Odisha announced SAMRUDHI – State Agriculture Policy of Odisha in 2020. Based on the priorities outlined in this policy and also of Odisha Organic Farming Policy, previous successful experiences of Integrated Farming Systems involving agriculture-horticulture-livestock-fishery and allied enterprises are being scaled up through integration and convergence of different schemes. WASSAN has been steering that effort in Malkangiri District and now extending lead technical support for the scale up initiative. Programme is now extended to 8 more districts - Bolangir, Kalahandi, Kandhamal, Mayurbhanj, Koraput, Rayagada, Gajapathi and Naupada - in 2021-22, covering an area of 75000 Ha and 180000 families in 300 Gram Panchayats. Guidelines have been prepared by the committee formed with representatives of different Directorates, OUAT, CSO and Research Institutes, etc. The program is grounded with the support of 31 Facilitating Agencies and 31 FPOs.

The main objective of this effort is to promote site specific and landscape-based farming system through diversification, intensification, and integration in cluster approach. In the process, focus is on improving livelihoods and income of farmers through enterprises, marketing, and value chain interventions by WSHGs/FPOs.

The program entails a cluster approach with a cluster being a member of contiguous patches of approximately 100 Ha. Within the clusters, integration of different production systems such as Agriculture, Horticulture, Livestock, Fisheries, Agro forestry etc. is being done with the convergence of different schemes. For components not available under any schemes or wherever gap filling budgets are required, budgets are allocated from the SPPIF Budget through state plan.

Several activities have been initiated as part of this project across the different project districts. These include - Crop diversification, Trellis System of vegetable cultivation, Desi-Poultry Integrated Farms, Reviving Fallows to increase Fodder base, Livestock vaccination, Securing crops through Protective Irrigation, Groundwater Management, Promotion of Agro-Ecological practices, Protection of Agrobiodiversity and Conservation of native Breeds etc. Members of WSHGs are being encouraged to run enterprises like Seed Center, Custom Hiring Center, Bio-Input Center, Fish Feed unit, Goat rearing etc. Some of such efforts and results are outlined in the following case studies.

Activities	Block	Gram Panchayat	Villages	Coverage (Acres/ Nos)	Farmers (Nos)
(A) Agriculture					
 Critical/protective irrigation 	2	2	2	395	160
 Micro-irrigation systems 	2	2	2	147	82
Crop diversification	5	40	110	3576.4	1849
(B) Horticulture					
Support for Trellis Cultivation	5	35	124	1050	1050
 Support for Seeds/Seedlings (Part Incentive) 	5	35	124	1050	1050
 Promotion of Adarsha Bagicha Model 	4	23	62	195	195
(C) Livestock					
Goat Shelter	6	12	38	573	573
 Support for Establish Desi Breed farm 	4	10	10	10	10
 Night Shelter 	4	7	8	715	715
(D) Fishery					
 Incentives for fingerling/ yearling stocking @Rs 3000 per acre @ 50 acre per cluster 	2	9	26	200	312
 Integrated Farm Ponds 	4	18	23		28

Case Study –1 🗸

Saving Crops and Arresting Migration through Protective Irrigation in Totaguda

Totaguda is a small hamlet of Somnathpur Gram Panchayat in Korukonda Block of Malkangiri District. Balijodi jhala, a perennial stream runs through this village. Farmers cultivate basing upon rains and the water availability in this stream. In lean season, most of the youth go far off places like Hyderabad and Chennai for employment opportunities. In this scenario, a lift irrigation project with micro - irrigation system outlets was planned to protect crops from a prolonged dry spell and also to provide irrigation facility during Rabi to enhance the cultivation area. A total area of 55 acres was taken up covering 18 households and water is provided across the command area via a 1490- meter main and branch line. A total of 22 outlets constructed with provisions for connecting to portable sprinklers, Rainguns, etc. for efficient water management. It could serve 55 acres of land during the Kharif season, and 35 acres in Rabi season.

The selected land is basically at up and medium levels, with less than 5% land at low level. Preliminary maps i.e. surface geology, cropping pattern, geomorphology, and land type etc. were prepared at the village level to identify the crop failure zones where the crops are critically affected due to dry spells. During Kharif, Paddy is grown in middle lands, whereas, Blackgram and Nizer is cultivated in low land. A water user group was constituted with the beneficiaries and ensured that they select President and Secretary to manage the group. Out of the total project cost Rs 19.56 Lakhs, beneficiaries have contributed Rs 2.10 Lakhs in the form of Shramadaan with laying pipelines and filling the trenches etc. Various capacity building programs were organized to orient beneficiaries on water management, water stewardship, crop water budgeting and efficient agricultural practices. The user group's primary responsibility is to keep records on pumping hours, irrigation cost per acre based on cropping pattern, system maintenance etc. A pump cum valve operator was chosen for the system's ease of operation and maintenance. The completion of the project has brought significant changes in the cultivation area and cropping pattern.

Farmers have shifted to pulses, oil seeds, vegetables. Considering assured market, farmers with some irrigation facility are now cultivating groundnut as a major crop. On an average, each farmer is now able to generate a profit of more than Rs 40000/- in a season. Basing upon the water availability and efficient management, community has decided to extend the network area to 10 more acres, taking the total cultivation under pipeline to 65 acres. The diversified cropping system is now ensuring the returns and local work opportunities. It has its positive

impact on the	SI.	Block with Gram			CCA in
youth, who	No.	Panchayat	Villages	CCA	Rabi
earlier used to		Korukonda		55	55
migrate to	1	(Somnathpur)	Totaguda		
other places,	2	Korukonda	Chitapari-3	90	40
are now	2	(Chitapari-3)			40
staying back in	3	Mathili 3 Temrupalli)	Temrunalli	22	22
the village and			22	22	
engaging in	4	Malkangiri	Potitang	90	40
household	7	(Udupa)			
	5	Malkangiri	Batriatal 195	195	80
farming. The	5	(Sindhrimala)		155	
effort also had	c	Khairput	Talanda	200	74
incremental	6	(Parkanmala)	Tekguda	200	74
returns in the		Total - 4 (6)	6	652	311
form of in-					

creased nutrition, education and reduced migration.

Seeing the results, farmers in other surrounding areas have also taken up such initiatives in their villages. Now there are 6 such pipeline networks in 6 Gram Panchayats, with a total cultivatable of 652 acres in Kharif and 311 acres in Rabi season!!





Case Study -2

Tasting success with Trellis System – Tula Macha is now a Role Model



Tula Machha belongs to a farming family of Machhaguda village of Chaulmendi Gram Panchayat in Malkangiri District. Her family, consisting of husband Guru Machha and 3 children, has 4 acres of land that provides main source of income for their sustenance. She used to cultivate vegetables in 1 acre and cereals in rest of the land. It was a hard struggle for them to earn enough income. While interacting with SPPIF team, she came to know about single-line trellis system of vegetable farming. It was an activity under horticultural activities of the SPPIF program.

Convinced about the potential, Tula decided to take benefit of the scheme and try it in 0.5 acres of land. She also took vocational training on scientific nursery to grow vegetables and production technology at KVK, Malkangiri. As part of model, she has cultivated bitter gourd, ridge gourd, cowpea, and cucumber. In between the rows, she has gone for intercropping with okra, spinach, and coriander that helped her to double the income. She could access seeds, seedlings, biopesticides, bio-fertilizers, etc from the project. Support for iron pipes, plastic wires and incentive for bamboo for the installation of the trellis system was also extended from the project. With the loan taken

from her SHG, she has purchased organic fertilizers and bio-inputs like FYM, *Handikhata, Jeevamruth. Neemastra* was used as bio pesticide for crop protection.

She has been cultivating Chili, Tomato, Cauliflower, Cabbage, Radish, Spinach, Peas in Rabi season and

Cucurbits (cucumber, bottle gourd and bitter gourd), French beans, Brinjal and Tomatoes in Kharif. Seeing her interest, project team motivated Tula to grow seedlings for selling to fellow farmers in that area. After attending trainings, she also started Mushroom cultivation.

All the hard work, fast learning ability and adaptation to better technologies have paid dividends to her; she managed to produce 60-65 kg vegetables in a month; and, nearly 2 quintals of vegetables in a season in the single line trellis system. It has helped her to increase farm production and income gradually. After keeping some produce for her own consumption, the rest she sells in the village haat and also in the weekly market. She earns a net profit of Rs. 50,000/- by selling fresh seasonal vegetables. Her mushroom cultivation has given her good yields and better earnings. At a local price of Rs 120/kg, she earns about Rs 25,000 – Rs 30,000 / annum from oyster mushrooms.

Now Tula's farm has become as a learning ground on Trellis System for other farmers in that area. And on her part, she is encouraging women like her to take up this method by extending all the support. In that sense, she has become like a role model for other women in that area!



Case Study -3

Determination of Dambru Buridi

Inspiring Story of a Desi Poultry Breed Farm Entrepreneur



Dambru Buridi, a resident of Dhuliput Village of Chitrakonda Block owns six acres of agricultural land; he cultivates Paddy, Millets, Maize, Pulses and Vegetables etc. for household consumption and Kidney beans, Turmeric, Kandul etc. for sale. He used to earn around Rs 30000/- annually; Rs 20000/- from agriculture and Rs 10000/- from wage labour. His family always used to be hard pressed for money, as the income was hardly sufficient for hand to mouth. Despite these financial hardships, he has determined to improve his quality of life by exploring opportunities. And he captured one such opportunity with Backyard Poultry Breeding Farm, as part of livelihood improvement activities under Special Programme for promotion of integrated farming in tribal areas under SETU scheme.

In 2021, Dambru Buridi enrolled himself as a member of the Chitrakonda Farmers Producer Company (FPC) by contributing Rs 60/- as membership fee and Rs 2000/as one-time share capital. With a partial investment of Rs 30,000/-, he established a Desi Chick Production Unit and allocated half-an-acre of land for the breeding farm. For this initiative, he got Rs 1,28,000 as project support for construction of shed, fencing, water and feed dispensers, purchase of birds, Azolla and supplementary feed etc. Govt. Veterinary Department extended technical advice.

Dambru Buridi took utmost care in maintaining the Breed farm. ".. Health of the birds is most important aspect in managing the Breed Farm. So, I am particularly keen on cleaning the enclosure daily, fumigation, sprinkling solutions made up of locally available herbs to minimize tick infestation, de-worming and vaccination to prevent mortality from deadly diseases. Anti-septics and antibiotics were administered in case of severe infections or fatal attacks by predators. Birds are provided water mixed with turmeric to boost immunity and control internal parasites. Few grams of edible salt is mixed in the feed and served to birds. In addition to foraging, birds are fed with a mixture of pounded rice, rice bran, cooked rice, azolla and millets etc., twice a day. Clean drinking water was ensured with special feed/water dispenser. The birds consume approximately 2 kilograms of feed every day. To prevent the birds from going too far and being killed by predators or stolen, they are fed once in the morning before letting them out of the pen, and in the evening to bring

them back to roost in the enclosure at night...

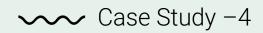
In this way, I took all the care possible to protect and manage the birds in a healthy manner and it paid me well as I earned Rs 30,000/- within six months by selling adult birds. Indeed, it is equal to almost half of my earlier annual income!...", says Dambru Buridi, with a sense of satisfaction.

This breeding firm is spread in more than half-an-acre of land, adjacent to his agricultural land. He started with fifty birds (40 hens and 10 roosters) in Jan 2022. Now the number is increased to 102 birds including Chicks, though nearly 30 chicks died in the monsoon. So, he is very confident that he will earn much more with these birds.









In-situ conservation of Indigenous Landraces

Agro Ecology Center- Chitrakonda, Malkangiri

Introduction of new species and inorganic inputs not only imbalance the ecosystem but also reduces genetic resources and deteriorate soil structure and soil organisms. The enormous genetic diversity is being lost mainly due to genetic erosion, genetic vulnerability and genetic wipe-out. The concept of conservation of genetic resources and its sustainable use has emerged as a pathway to mitigate climate change, conservation of genetic resources, supporting agricultural production and in providing a wider range of 'ecosystem services'.

In this context, District Administration of Malkangiri initiated in-situ conservation of indigenous landraces and, also production of seeds related to in-demand indigenous landraces in the Chitrakonda Block. Different varietal trials and seed production activities were started in 2020 based on the demand their certain landraces. The idea is to make available quality indigenous seeds and revive tribal farming with community knowledge systems in Malkangiri area. Effort is being made in that direction - to strengthen *in-situ* conservation and sustainable use of crop genetic resources around 1000 landraces of different crops; to explore available genetic resources in different rain-fed upland eco-systems of Odisha and examine their performance in this area; and, to characterize and ensure quality seed to farming communities through community managed seed system.

So far, a total of 103 landraces of different millets **(see the table)** are characterized for 'Distinctness, Uniformity and Stability (DUS)' traits in order to protect the genetic resources through possible ex-situ conservation trials. This characterization is most useful to promote climate resilience cropping adaptive system in this area. Some of the local landraces of Finger millet like *Janha, Mandia, Dasarakhae, Kalia, Mami, Bati* are performing well with significant expression both in phenotypic and genotypic distinctness. Varietal improvement trials are being done through mass line and pure line selection process. The other trait specific characters are being documented for further crop improvement process.

Сгор	Scientific Name	Area of Domestication	Major growing states	Collection	No. of Germplasm
Finger Millet	Eleusine coracana	East Africa	A.P,M.P, Chhattisgarh, Odisha, Tamilnadu, Uttar Pradesh	Parts of Odisha, Chhattisgarh,	63
Foxtail Millet	Setaria italica	Central Asia-India	Karnataka, M.P, Chhattisgarh, Rajasthan, Odisha	Parts of Odisha	8
Little Millet	Panicum sumatrense	South Asia- India	Karnataka, Tamilnadu, Maharashtra, Andhra Pradesh Chhattisgarh, Odisha	Parts of Odisha	14
Kodo Millet	Paspalumscrobilatum	South Asia-India	Tamilnadua, A.P, Chhattis- garh ,Odisha, Jharkhand, Karna- taka	Parts of Odisha	2
Barnyard Millet	Echinochola esculenta	East Asia- India	Uttarakhand, Karnataka, Madhya Pradesh, Uttar Pradesh, Odisha	Parts of Odisha	7
Sorghum	Sorghum bicolor	Africa-India	Rajasthan, Uttarakhand, Uttar Pradesh	Parts of Odisha	5
Pearl Millet	Pennisetum glaucm	Africa -India	Rajasthan, Gujarat, Uttar Pradesh, Madhya Pradesh	Parts of Odisha	2
Teff	Eragrostis tef	Ethiopia	Chhattisgarh	Chhattisgarh	2



2. Promoting Sustainable Integrated Farming Systems through Multi-actor Partnerships Project

This project is being implemented by WHH and the German government in partnership with 4 organizations in Odisha and West Bengal. WASSAN is implementing the project in Malkangiri District, Odisha. The overall objective is to ensure and enable small farmers to improve their incomes, diet diversity and farm productivity through the practice of agro ecological farming. Towards this, focus is on training government extension workers in Sustainable Integrated Farming Systems (SIFS) and Micro Planning, preparation of Gram Panchayat Development Plans (GPDPs) that include sustainable land management measures, ensuring households to get access to public programs that support sustainable food systems. The project approach includes -Concept seeding exercise, Micro Planning, Farmer Field School, Demonstration of SIFS & INRM Models and establishing market linkages.

Concept seeding exercise is basically a rapport building exercise conducted for a village cluster in the core blocks. This is to understand - the extent of penetration and efficiency of the existing extension system; the natural resource status; knowledge, attitude and practices on agriculture, allied activities and natural resource management; and, the topographic condition of the area. During Micro Planning exercise, the focus is on evolving a plan for overall development of the village in a participatory manner. These micro plans are compiled into GPDPs to be approved by Pallisabha. Farmer Field Schools (FFS) are used to build capacities on various agro ecological approaches. The SIFS approach is based on experiential learning and local knowledge and resources and the farm design is much localized with due emphasis on ecological security and financial needs of the farmers.



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Various SIFS and INRM models are created in the core blocks for demonstration on plots of FFS with the objective of learning and scaling up. These models are primarily based on local resources and include components such as land shaping, farm ponds, agroforestry, soil and water conservation, seed and fodder banks, integration of livestock and poultry, composting unit, development of village commons, etc. Most of these models are developed in-situ, mostly by mobilizing government programmes and some critical support from the project.

A key objective for the project is to ensure access for organic producer groups by strengthening supply chains involving small farmers, FPOs, retailers and consumers. Activities towards this objective will be taken up in the coming phases of the project. Nine FPOs are already set up across the blocks of Malkangiri district. Their capacities are strengthened to ensure resilient linkages. A baseline study on production, surplus and market linkages has also been conducted, focussng on the Swabhiman Anchal area of Chitrakonda block.

The following are the key achievements during financial year 2021-22:

- Development of locally customized Participatory Learning Appraisal tools for SIFS and Micro Planning for the Malkangiri context.
- Training to 175 government workers in SIFS and Micro Planning, against a target of 125.
- Preparation of Micro Plans and GPDPs with focus on sustainable agriculture – The target is to prepare 125 Micro Plans in 5 years; so far, 34 Micro Plans have been by the exten-

sion workers in targeted blocks and all of them have been submitted through 4 GPDPs. Over 50% participation was mobilized in each village and a total of 1,852 households were covered during these exercises.

- As part of convergence, 7000, 8000 and 500 households have been covered respectively through Odisha Millets Mission (OMM), Special Program for Promotion of Integrated Farming (SPPIF)-RKVY (Malkangiri), and SPPIF-SETU (Chitrakonda). Several interventions related to crop diversification, fisheries, vaccination, and horticulture interventions have been taken up.
- Baseline study for market linkages for organic produce, NTFP, etc., are completed. Special focus has been given to the previously cut-off Swabhiman Anchal area of Chitrakonda block, Malkangiri.





3. Sustainable Livelihoods, Climate Resilient Community Management Natural Farming (CR-ZBNF)

WASSAN, as a Lead Technical Agency, is intensively involved in promoting Natural Farming in Andhra Pradesh, in partnership with *Rythu Sadhikara Samstha (RySS)* and funding support from Azim Premji Foundation. Several innovations have been integrated with Natural Farming methods towards crop systems improvement, livestock integration, efficient management of water resources and adaptation of solar energy etc., highly focusing on addressing the bottlenecks at farmer level support systems and to bring landscape perspective to natural farming.

The approach of natural farming is effectively integrated into the past several years of work and the earlier Zero based Natural Farming has now taken shape as Andhra Pradesh Community based Natural Farming (APCNF) program; activities are further up-scaled with much more vigour in several districts of North Coastal and Rayalaseema regions. Apart from District Project Managers (DPMs) of Chittoor, Satyasai, Manyam and Alluri Seetharamaraju Districts, several local NGOs like Kovel, Sanjeevani, Laya, SVDS, Jana Jagruti, REDs, Jattu, ARTS are collaborating in these initiatives.

WASSAN has taken up intensive work in 7 selected Gram Panchayats on its own and in another 14 Gram Panchayats working with convergence approach. A total of 7435 households are covered in 126 villages of these 21 Gram Panchayats. The main thrust is on standardizing innovations and establishing appropriate support systems for easing and up-scaling natural farming. Several initiatives have been made in this regard.

Improvising and Standardizing Innovations

■ Locally adapted seed systems: These are promoted to increase the on-farm crop diversity; integrated farming systems are encouraged to build household-level income and nutritional security. At present, a total of 2600 farmers registered and practising these integrated farming systems covering an area of 2592 acres. Certain core principles are keenly followed in this regard that include ensuring that the net income of farmer is not decreased at any cost, extending soil-crop cover till March/April or perennial, ensuring that the diverse crops are not in competition with each other for space, sunlight etc., and promoting the usage of drought bullocks for intercultural operations etc.



■ Diversification of Crop Systems: Various crop combinations are being tried out with the help of farmers, not only to diverse the crop systems but also to enrich soil health. Some of such crop combinations are - Ginger as main crop along with Maize, Redgram and Sunflower (227 farmers); Little Millet (Sama) as main crop with Redgram, Maize, Cowpea (40 farmers); Finger Millet (Ragi) under Poly- crop method (142 farmers); Guli Ragi as main crop with Maize, Castor, Chillies, Sunflower and Pumpkin (145 farmers); Turmeric along with Redgram, Maize, Lima beans, Pumpkin, Cowpea and vegetables etc. An MIS system is developed to study the results of these combination trails and standardise the protocols to develop appropriate practices.



■ De-risking Tomato Cultivation: High level price volatility in Asia's biggest Tomato market in Madanapalli is continuously impinging the interests of the local farmers in Chittoor and its neighbouring districts in Andhra Pradesh. An initiative is made to address this issue by promoting diversification in Tomato cultivation, mixing it with other noncompeting crops and vegetables so as to de-risk the farmers from the losses. Appropriate models have been developed to suit the farmers' choices and land conditions. Such models are being intensively promoted in APCNF project villages.



Fodder from Fallow Lands: Another innovative effort is to address the issue of fodder deficiency by bringing fallow lands into production system. Different types of fodder species have been promoted in individual lands of the farmers and also in lands taken for lease by landless people. Fodder deficit was estimated, local fallow lands were mapped, and a tie-up is facilitated among dairy farmers, who are in need of fodder, with owners of fallow lands. In some places, landless people who have cattle were encouraged to take fallow lands on lease basis to cultivate fodder. Farmers followed Pre-Monsoon Dry Sowing Method (PMDS) to sow multi-species fodder in these fallow lands. The initial effort in Ayyavaripalli, a dairy dependent village, in Chittoor district has yielded much desired results as it became fodder surplus within 2 years. Subsequently, this approach is expanded to 700 farmers of 57 villages, covering an area of 787.55 acres. This



intervention not only addressed the fodder deficit issue, but provided multiple benefits to farmers and their cattle, in the form of access to quality fodder, improved health and milk yields and increased income. Seeing this beneficial impact, Tirumala Tirupthi Devasthanam (TTD) officials sought support for such multi- species fodder development at its Goshala land in Palamaneru in Chittoor District. WASSAN team extended support to TTD in this regard in planning and execution.

■ Diversification and intensification of Mango Orchards: It is another promising intervention in Chittoor district of Andhra Pradesh. A total of 63 farmers, in an area of 106 acres, diversified and intensified their Mango Orchards with several intercrops like vegetables and fodder species. The combination of these crops is being examined deeply to develop appropriate models as there is high potential to take up such initiatives in NABARD promoted Orchards that are existing extensively in the rainfed dry lands.

Enabling Eco- Farm Ponds: WASSAN encouraged farmers of Seethampeta ITDA region to convert their farm ponds as Eco Farm Ponds. These farmers have got support from either NREGS or through some external agencies for digging farm ponds as part of different programs. As it is known, basically they are intended for storage of water for irrigation during critical times and most of the farm ponds are being utilized only for that purpose. WASSAN facilitated a process to integrate these farm ponds with activities like horticulture and vegetable cultivation on bunds, and fish culture with available water in the pond, thus making them as Eco Ponds. These activities are providing substantial supplemental income for these farmers. As farm ponds are categorized as seasonal water bodies and farm pond owners are listed as fish farmers in tribal areas, effective convergence has been worked out with fisheries department for needed support. Each farm pond with a size of 15x15 mts is now providing an additional income of Rs 35000/- to Rs 45000/- through sales of fruits, vegetables and fish, apart from catering water to the crops in Rabi



Promoting and Establishing Appropriate Support Systems

Semi-automated Jeevamrutham Units: On an average, 40% of households have cattle ownership in tribal and rainfed plain areas. As a holistic approach, Natural Farming requires that all the households in a village must have access to the required natural inputs like Jeevamrutham. It is only possible when the sewage of cow urine is controlled through renovation of cattle sheds and it is properly pooled at one place for preparation of Jeevamrutham. Renovation and networking of cattle sheds for establishing Jeevamrutham units had been standardized in these areas, with the experimentation for the last few years. Now another innovation is done to make them semiautomated, using solar energy for fermentation process, in a way to reduce drudgery involved in it. Such units are well received by the farmers and they are operationalized on the concept of entrepreneurial business proposition. So far, five such units are established which are well functioning and converted as resource centres. Eight more units are under preparation; some of these are being introduced into the Odisha Natural Farming program.

Bio-Diversity Blocks and Community-Managed Seed



Systems: Availability of appropriate local diverse seeds in required quantum is crucial for rainfed and tribal farmers for sustaining their farming activities. There is a dire need to identify promising and endagered local varieties for multiplication and place them in the main stream seed chain. For this purpose, Bio- Diversity Blocks are being promoted for Millets, Paddy and Vegetables, with trials on several varieties. Two such Bio-Diversity blocks exist in Manyam district of Andhra Pradesh; one each for Finger Millet (with 5 varieties) and Little Millet (with 2 varieties). A total of 13 seed committees emerged and these are able to supply 6349 kg of seeds to local farmers worth Rs 3.33 lakhs. One



Bio-Diversity Block for Vegetables is promoted in Chittoor District of Andhra Pradesh. With encouraging learnings from these initiatives, such Diversity Blocks are promoted as part of different programs in other states like Telangana, Maharashtra and Himachal Pradesh.

Solar-based lift irrigation systems: Despite having good monsoon, agricultural lands in most of the tribal areas are left fallow for most of the time, particularly during November-May; most people migrate to nearby cities in search of work. WASSAN has carried out several initiatives in these tribal areas for utilising surface water either through means of gravity or by lifting it, so as to bring fallows into productive stream. But most of these places do not have three-phase electricity connectivity, making it difficult for the farmers to use pump sets to lift water. Using diesel sets imposed heavy cost burden. In this situation, WASSAN tried an alternative using solar energy. It established three Solar based lift irrigation systems in Cinerama, Pedagaruvu and Goppulavalasa villages and brought back 124.8 acres of fallows into production. This effort has benefitted 72 farmers and they are cultivating diverse crops in that area. The idea behind this intervention is to promote Natural Farming entirely in that compact block and ensure 365 days of crop coverage that can assure an additional income of Rs 25000/- per acre to farmers. Local farmers have realized the potential of solar energy to lift water for uplands and they are coming forward to repay the entire project cost on an instalment basis annually.

■ Gravity-based irrigation systems: Similarly, gravity-based irrigation systems were established in 5 villages, covering an area of 201.6 acres of 131 farmers. There are many perennial streams in these tribal areas; a proper surface water sharing mechanism among the farmers to save crops as well as irrigating crops in rabi season is much required intervention.





✓ Case Study −5

Transitional Efforts of Goppulavalasa to evolve as a 'Bio Village'

Goppulavalasa, a remote tribal habitation in Dumbriguda Mandal of Alluri Seetharamaraju District in Andhra Pradesh, is setting a trend by gradually transforming as a 'Bio- Village; several farmers are renouncing exploitative agricultural practices and shifting towards Natural Farming. Within no time, half of their irrigated area has come under the natural farming; farmers are integrating poultry, livestock and fisheries in their farmland, for additional income and security.

With the active determination from Gram Panchayat leaders, a Gram Sabha was held on 15th August 2021, coinciding with the Independence Day celebrations, in which villagers announced their commitment to move towards Natural Farming. Though that declaration was for entire Gram Panchayat, it was decided to start with Goppulavalasa village, considering more inclined interest of its local people. The idea was to make it as a demonstration model for other habitations to follow. Initial focus was to bring back fallows into cultivation and enable the farmers to practice natural farming principles. Plans emerged during the participatory planning exercise were consolidated and presented to the Sarpanch, Ward members and local CBO/FPO leaders. Stakeholder's workshop was held with Spice board, Coffee Board, Horticulture and Agriculture departments for sharing these plans and finalizing as per their format to submit. Soil moisture conservation and water works have been consolidated and submitted to NREGS through GP Sarpanch. WASSAN explored a model to for providing irrigation covering entire fallow lands of 43.12 acres to grow crops in Rabi and also in Summer. A solar based lift irrigation system was established for this purpose with a cost of R. 12.82 Lakhs, to cover 53 acres of 26 farmers. Farmer's contribution was 10% (1.28Lakhs) of the total project cost; remaining capital investment was given under loan to be repaid in 4 instalments to DIMSA FPO. A specific mandate was given for the beneficiaries to go compulsorily for less water consuming crops like vegetables, sunflower and cultivating Ragi in Guli method, along the lines of natural farming principles.



Nearly 1000 liters of cow urine was procured by farmers to prepare Drava Jeevamrutham (DJA) which they applied in their fields. By, 1st April 2022, half of the fallows have got new life. Cattle owners realized the importance of DJA unit for easy availability of cow urine and DJA; they invested in renovating their cattle sheds; 22 cattle sheds connected with pipeline and an automated DJA unit was established with support from WASSAN.



Multiplication of Muntha Vankaya, a Desi Brinjal variety has been undertaken in Demuduvalasa village; a farmer Kamaraju tried out this process. Another farmer Nageswara Rao went for revival of Indigenous paddy variety called *Isuka Ravvalu* (Scented Rice). For promoting Kitchen / Nutri Gardens, seeds were supplied through Dimsa FPO to 32 households. These



seeds are for crops like Ridge gourd, Bottle gourd, Chilly, Gongura (Red Sorrel), Amaranth, Okra, Beans, Brinjal, and Tomato. Vaccination was ensured for livestock with the support of Rythu Bharosa Kendra (RBK). Efforts are on to integrate fisheries in the water bodies. There are 17 water bodies available in 6 habitations in Sovva Gram Panchayat having potential for fish rearing. Seven ponds were newly constructed as part of the ongoing program. Linkages are being established with nurseries entrepreneurs for timely access to fingerlings.

Thus, with the active participation of Gram Panchayat leaders and community, Goppulavalasa village has made a new beginning towards natural farming. A clear direction is emerging for the local farmers to make their village as a Bio- Village.



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4. Natural Farming in Mandla district, Madhya Pradesh

GIZ India

In March 2022, a team from the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), along with officials from the Department of Agriculture (DDA), Madhya Pradesh and other line departments embarked on a 4-day visit to Andhra Pradesh. The purpose of this visit was to gain insights into the successful implementation of natural farming practices in the region over the past years. During the visit, the team engaged in interactions with local farmers, agricultural experts, and practitioners of natural farming. The workshops, field demonstrations, and knowledgesharing sessions provided the team a deeper understanding of the principles and methodologies behind natural farming. Following this visit, a team from WASSAN went to Mandla to identify suitable villages for the implementation of natural farming practices in collaboration with FES and prepare a plan of action with interventions for Kharif 2022.

The two-month activities undertaken by WASSAN in partnership with FES in Mandla marked a significant step toward the adoption of natural farming practices in the region. The knowledge exchange visit to Andhra Pradesh played a crucial role in enhancing the team's understanding of natural farming, while the subsequent village identification and community engagement efforts set the foundation for successful project implementation. The collaborative efforts of WASSAN and FES (Foundation for Ecological Securities) are poised to bring positive transformation in the agricultural landscape of Mandla; promoting sustainable practices would benefit both farmers and the environment in the long run.

A total of 8 villages of 4 different clusters in 2 Blocks of Mandla District were selected for this initiative. Assessment was done considering agricultural practices, soil health, water availability, and the willingness of local communities to adopt natural farming. Awareness programs were conducted during this community engagement.



A 'seed mela' was organized on women's day with the support of local women federations - Halon Nadi Ghati Federation and Matiyari Nadi Ghati Federation; the importance and diversity of indigenous and endangered seed was stressed upon.



During the community level participatory exercises, farmers suggested several measures to preserve soil and moisture conservation that includes construction of bunds and farm ponds, usage of crop residues and other bio-material to cover the land, adding more bio-manures into the soil, no-tillage for Rabi season, etc.

A 'crop circle' exercise was used as a participatory tool to generate the idea of the diversity of crops, duration of crops, and assess the time-length of keeping lands fallow.







The project implementation aimed at introducing sustainable farming techniques, facilitate access to organic inputs, and encourage the adoption of eco-friendly agricultural practices. Initial work on promoting bio-stimulants and botanical methods of control of pests and diseases has been well spread by FES's initiatives. Cattle sheds were constructed in each of the villages to make collection of animal urine easy. However, the quantum of these material prepared and their application is limited to some areas and inadequate to cover larger areas. Efforts are on to build upon this initial work in the following areas - establishing an automated Drava Jeevamruth Unit that operates on solar energy to ease and upscale the production process; promoting solar powered spray equipment on business mode; and, encouraging community level bulk preparation of Ghana Jeevamruth with semi – automation, particularly in the Bari and midlands.

Reviving and Diversifying Millets Consumption:

At present, there is a good focus from SRLM on the marketing of millets. The Kutki (little millet) getting a good price is encouraging. Foundation for Development of Rural Value Chain (FDRVC) is working with the regional level FPC in procuring Kodo and Kutki; it is planning to establish a processing unit in Dindori.

Interaction with women provided insights to work on simplifying the processing of Kodo and Kutki. Presently, they use an indigenous handoperated chakki made with mud & bhusa - a very innovative indigenous technology; but has low output and is strenuous. WASSAN tried to provide them an alternative in the form of Millet Mixies; local women expressed their enthusiasm over these Mixies as they informed that these are easy to operate and less time consuming. Effort was also put in to introduce other millets (foxtail, barnyard) in local production system. Recipe competitions were organized to build nutrition awareness and increase the consumption. An effort is going on to build potential collaboration with State Rural Livelihoods Mission of Madhya Pradesh.



5. Nutritional Support through Backyard Poultry and Kitchen Gardens in ITDAs

WASSAN engaged with TRICOR, Andhra Pradesh for improving Desi Backyard Poultry in the tribal villages. The idea is not only to increase the supplemental income but also to improve the nutritional security of the tribal households. The promotion of Breed Farm Enterprises guarantees a consistent supply of chicks and fosters entrepreneurial ventures. Package of practices were refined and standardized along with the promotion of 250 Desi Poultry breed farm entrepreneurs in these regions.

ITDA, Paderu entered into an MOU with WASSAN to establish 15 Desi poultry breed farms and construct 375 household-level night shelters in 14 villages of 5 Gram Panchayats in Alluri Seetharamaraju District, Andhra Pradesh. These villages are part of 5 Mandals- G. Madugula, Paderu, Peddabayalu, Dumbriguda and Araku Valley. Meetings were organized with tribal women in the villages for promoting desi poultry, renovating night shelters, and educating them about preventive measures against Ranikhet and Fowlpox diseases. A total of 15 mother units were established initiating poultry production in those areas. Trainings were conducted on feeding and health management, incorporating the utilization of locally available herbal medication. Maintenance of cold chain for vaccines was ensured; linkages were established with veterinary assistants of respective Raithu Bharosa Kendras (RBKs) to ensure services for poultry care and immunization. Breed farm entrepreneurs were encouraged to take up horticulture and vegetable cultivation in that half-acre of land to make the farm as an integrated breed farm. All such initiatives ensured the farmers to improve their incomes and also household nutritional security. Those who used to earn an income of Rs. 3000-4000 annually from half-acre dryland, are now able to get Rs. 40,000, with these Desi Poultry Integrated Models. Ronanki Gopala Krishna, IAS, Project Officer, ITDA visited these units, interacted with beneficiaries and reviewed the progress.





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Case Study –6 ~~~ A Breed Farm helped them to buy some additional land

"Yes, it is helping us to sustain and improve our life and supporting our children's education", says Arika Shanthi when anybody asks about her Desi Poultry Breed Farm. She belongs to Mettuguda Village of Somagandi Panchayat in Seethampeta Mandal of Manyam District in Andhra Pradesh. Her family is primarily dependent on agriculture and Non-Timber Forest Produce. Once oriented about the potential of breed farm to improve income, she established a breed farm in 2019; subsequently she made it as a 5 – layered breed farm, with a variety of plantation in it— Tubers, Mango, Pineapple, Sopata, Papaya, Banana, Cashew, Drumsticks and some creepers plantas are part of her breed farm. Birds enjoy the shade of these plants when scrambling in the yard.

She maintains the shed by plastering it with cow dung regularly and lime occasionally. The shed is partitioned and covered with gunny bags. There is an Azolla pit in it and birds get fresh azolla in addition to a mix of grains (paddy and millets) and broken rice as supplemental feed. She has earned a total income of Rs 58000 by selling birds, Rs 1000 from eggs and Rs 15000 from fruits. Apart from this net income of Rs 74000, her family also got some nutritional benefit as they consumed nearly 40 birds and significant number of eggs during the year. Still there are 36 Hens, 12 Cocks, 12 Growing Birds and 30 Chicks in her farm. With the additional income, they could buy some additional agricultural land, and also a motor cycle. Her mother-in- law loves to stay in the farm and takes care of



feeding and watering of birds on daily basis. She says, "...We are getting more tasty and nutritious food from the farm; we are now able to eat our desi birds than buying broilers from markets."





6. Planning Ecological Intensification at Sri Venkateswara Foundation for Indigenous Cattle, Palamaner, Chittoor district, Andhra Pradesh

This was an effort to visualize Tirumala Tirupathi Devasthanam (TTD)-Goshala at Palamaner as an Ecological Learning Centre, that blends ecology with religion, with modernity, with renewability, self-sufficiency and carbon neutrality. The story started with the then EO of TTD, Jawahar Reddy visiting Ayyavaripalle village, along with Sri. Vijay Kumar, Executive Vice- Chairman, RySS, to see how farmers regenerated fallow lands using multi-species fodder to move out of chronic fodder deficits to become fodder surplus. The initiative was facilitated by WASSAN as part of Andhra Pradesh Community Managed Natural Farming program. Following the visit, TTD provided WASSAN an opportunity to visit the Palamaner Goshala to suggest a plan for fodder self-sufficiency.

After several interactions with TTD officials, a proposal was accepted and funded by Sri Venkateswara Foundation for Indigenous Cattle (SVIC)) to develop a comprehensive

Ecological Intensification plan for the TTD Goshala. The plan included several interventions like soil and moisture conservation, hydrogeological investigations and water resources development. It also included planning and designs for Bio-Resource Centre, application of solar power technologies, feed mixing plants etc. Profiling of the bio-diversity of the farm was also done. With the help of Hunnarshala Foundation, landscape design was done; it also helped in visualizing the Educational Eco -tourism plans blending theological concepts into the farm ecosystem. Entire planning process was done in a participatory manner, involving local communities, members of SHGs of nearby villages. The ecological visualization of the Goshala farm is a confluence of several minds, thematic specializations and perspectives integrated into one ambitious plan. A comprehensive DPR was prepared on these lines and submitted top TTD for necessary approvals.



7. Multi-species Nutritive Fodder Production and Supply in TTD Goshala - Palamaner, Chittoor district, Andhra Pradesh

Sri Venkateswara Foundation for Indigenous Cattle (TTD) has proposed WASSAN to undertake Multi-species fodder promotion through natural farming methods in its Palamaneru Goshala to make it self sufficient in fodder. As a pilot initiative, WASSAN facilitated this initiative in 10 acres of Goshala farm land, part of it not cultivated for some years; multi-species fodder production was done in partnership with the Morum Village Organisation, consisting of Women SHGs. 25 representatives from SHGs were oriented on muti-species fodder production, methods of natural farming and their benefits. Moram VO entered into an agreement with WASSAN to take responsibility for the production using natural farming methods. A committee representing five SHGs taken responsibility for regular supervision and payment of wages paid. The Goshala made available the dung and urine while other material was procured. The teams were trained in the preparation of Ghana and Drava Jeevamrutam. The seed mix (Jowar, Horsegram, Cowpea, Field Beans and Maize) ratio was arrived at in consultation with the livestock experts. Total 63% of seed mix was cereals and

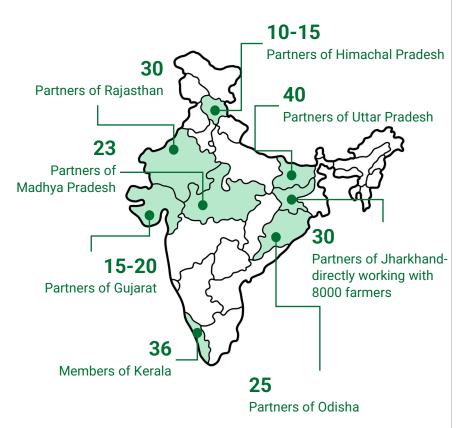
37% legumes. The seed was treated with Beejamrutam. A total of 14000 liters of Jeevamrit was applied in the field. Crop cutting experiments were conducted for estimating the fodder production.

Though the Crop Cutting (CC) results showed about 30 tons of green fodder per acre or ha, the weighment of the quantity at the time of supply to the Goshala with formal weighing bridge has shown about 11 tons/ ac; the mean productivity is coming to 3.17 kg per sq.m i.e., around 13 tons per acre (32 tons per ha). The range is from 2.3 to 4.23 kg/ sqm with variance of 29%. At the end, nearly 54 Tonnes of multi species fodder was produced and supplied to Goshala, Palamaneru. The experience demonstrated that it could be a role model production system involving communities that generates income to the community while easing the management burden on the TTD. Basing on this, WASSAN proposed TTD-Goshala to consider bringing the entire arable area of the farm into such fodder production system to make the Goshala self-sufficient in fodder.



8. Mainstreaming Natural Farming across India

The status of state level coalitions formed so far...



New Venture Fund—Agro Ecology Fund

In the year 2021-22, NCNF has been able to engage over 1000 members – representing from CSOs, funder organisations, independent farmers, research institutions, government and academic institutions, experts, activists, etc., which has formed the base of the coalition's spread. At present, it has over 450+ active partners from the multiple states where it is actively forming state coalitions or state chapters. In the **8 active states** -*Madhya Pradesh, Uttar Pradesh, Gujarat, Rajasthan, Kerala, Odisha, Himachal Pradesh and Jharkhand*, partners have been engaging to create an action plan for the next five years aimed at transforming farmers in each of these states.

Over the year, NCNF has hosted more than 40 capacity building workshops, training and sessions of different kinds on variety of themes -Bio-Resource Centres (BRCs), package of practices, Conservation Agriculture, Prakritik Kheti, Seeds, Champion farmers training, etc. A three session workshop was hosted with philanthropists, policy experts and partners to understand the landscape of natural farming and formulate working plans in its state coalitions for scaling of natural farming. The main changes resulting from the above interventions have been around the degree of collective and collaborative initiatives that are emerging. It is a slow process but multiple stakeholders are coming together to work in collaboration with each other.

The status of state level coalitions formed so far is as below; Gujarat (15-20 partners); Himachal Pradesh (10-15 partners); Jharkhand (30 Partners) directly working with 8000 farmers; Kerala (36 members); Madhya Pradesh (23 Partners): Odisha (25 Partners); Rajasthan (30 Partners) and Uttar Pradesh (40 Partners).

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9. Mainstreaming Natural Farming across India: National Coalition for Natural Farming (NCNF)

Mainstreaming Natural Farming across India: National Coalition for Natural Farming (NCNF)

As the state coalitions were being formed in each state, there was considerable effort in parallel being made towards creating openings for public-CSO partnerships to enable the ground movement of natural farming. The overall initiative was supported by the New Venture Fund / Agro Ecology Fund. Following are some of the collaborative interventions facilitated in the past first year:

- A Memorandum of Understanding (MoU) with the Gujarat Organic Agriculture University. A partnership enabling capacity building initiatives across Gujarat state
- Adopted two Gram Panchayats in Kerala

for preparing them as model Natural Farming Panchayats.

- MoU signed with the Madhya Pradesh state rural livelihoods mission and agriculture department to work closely with over 40,000 farmers.
- Natural Farming scheme introduced in the Odisha state Tribal Welfare Department
- Collaboration with Rajasthan State Organic Farming Mission is underway
- MoU signed with the National Institute of Agriculture Extension Management (MANAGE), Agency of Ministry of Agriculture and Farmers Welfare, Government of India as knowledge and implementation partners for extension of natural farming in the country.

Study material for natural farming prepared for the Ministry of Agriculture and Farmers Welfare, Govt of India. This is being used for the



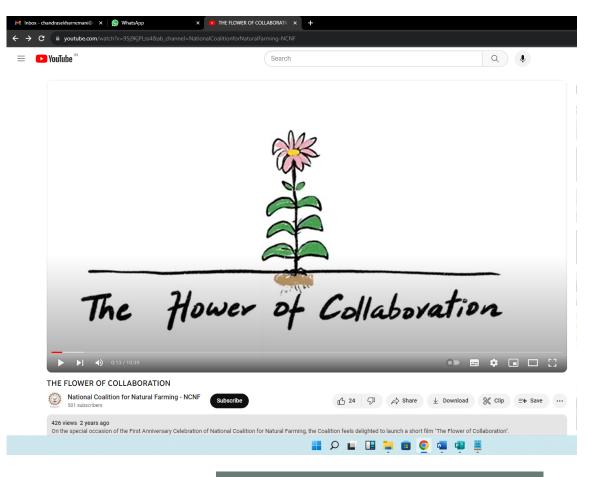
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- master trainers' training programs for natural farming in the country.
- Supported the 'Low Carbon Agriculture and Nutrition' program in UP in areas of liaison with district and state Departments drawing lessons learnt for scaling up. The program was implemented by AKF, AKRSP (I), FES and IIM-Ahmedabad and with the support of CIFF.
- Supporting NABARD's Agroecology Programme JIVA on Data Monitoring and Evaluation framework.

The following are in addition to the multiple webinars, workshops, convenings and events being carried out throughout the year to enable dialogues. The communication formed in the coalition worked with the other stakeholders and partners to facilitate some of the following activities :

- Champion farmers repository: Identified an initial list of champion farmers who are practicing NF from across the country. Documented farmers stories which cover the different NF practices followed, support systems received, innovations carried out, challenges faced etc. In collaboration with WHH have published these stories in the form of booklets. The soft copy of the booklet was in the process to be released.
- Organisation mapping report: Mapped the different CSOs associated with NF for Madhya Pradesh, Gujarat, Kerala, Rajasthan, Odisha and the North East of India. Curated following nation /international repository of Resource persons, Publications on NF, Evidences and research on NF; compiled learning materials (video and written)
- Film on Natural Farming The flower of collaboration (Link)





10. Bio-inputs Resource Centers

Easy availability of Bio-inputs is a prerequisite for scaling up of natural farming. Over last few years, WASSAN has evolved the concept of Bioinput Resource Centres. National Coalition for Natural Farming has taken up extensive capacity building of civil society organisations on promoting Bio-input Resource Centres (BRCs) with support from the New Venture – Agroecology Fund.

Five training programmes were conducted on establishing BRCs with over 18 CSOs from across India. Out of these sessions, over 75 BRCs have opened in different parts as of September 2022. Detailed technical manual of bio-inputs and business plan preparation have been prepared and distributed amongst the coalition partners. Video documentation of learning resource materials for establishing BRCs was initiated. Meanwhile, videos from the ecosystem have been curated and circulated.

Multiple solutions (offline, online and hybrid) are being explored for scaling capacity building of NF. Existing IT platform – **'Farmbook'** was piloted in Madhya Pradesh with support from Swiss Aid. Primary users were the CRPs and field functionaries, with the understanding that by building their capacities the extension services reaching farmers would be effective. An in-person workshop with over 100 CRPs across 5 CSOs in different geographies of MP. The platform has both a learning and co-learning section with curated crop wise videos being shared in the former. To enable co-learning amongst the participants multiple engagement nudges were employed (e.g. Quiz) and resource persons & champion farmers were introduced in the app to answer queries and provide support.

However, due to low response from the on-ground partners and this being a high resource intensive activity, the coalition had not taken forward the application beyond pilot. Meanwhile, it has been adopted by few partners in other states who were extended support. In addition to the above, rounds of training sessions were facilitated on documentation, monitoring, research (DMR) tools, communication tools, and also designed training programmes for seed systems.



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2 Millets 'farm to plate'



OMM is a five year flagship program of Govt. of Odisha, promoting the consumption and production of Millets. Dept. of Agriculture and Farmers Empowerment launched OMM in 2017; presently it is being implemented in 84 blocks of 15 districts (Angul, Bargarh, Bolangir, Gajapati, Ganjam, Kalahandi, Kandhamal, Keonjhar, Koraput, Malkangiri, Mayurbhanj, Nabarangpur, Nuapada, Rayagada and Sundergarh).

OMM is one of its first of its kind agricultural initiative with a vision to increase nutritious, rich millets in Odisha and to revive millets in farms and on plates. The program has also aimed to tackle malnutrition by introducing millets in the Public Distribution System (PDS) and other State nutrition schemes. The critical focus of this millets mission is promote households' consumption, improve productivity through agronomic practices, ensure minimum support price (MSP), set up decentralized processing facilities and business enterprises, include millet in the state nutrition program (SNP) and the public distribution system (PDS). The present operational framework of OMM includes collectivizing farmers into FPOs for marketing and price realization; improved agronomy in millet crops over 1000 Ha per block under System of Millet Intensification (SMI), Line Sowing (LS) and Line Transplantation (LT); consumption campaigns from village to state level with women SHGs; market linkages and value addition; processing units at different levels through Mission Shakti WSHGs and FPOs; and, inclusion of millets in State Nutrition Program (SNP), Public Distribution System (PDS), and Mid-Day Meal Scheme (MDM).



Innovative features of OMM

- A supportive policy framework for disbursal of public funds through convergence of government departments and programs;
- A participatory multi-stakeholder consultative approach and a strong partnership between the government and civil society;
- Decentralized governance and research honoring indigenous knowledge and grassroots experiences allowing for ownership of the program by farmers;
- Ongoing collaboration between the research and program implementation agencies, ensuring regular monitoring of practices and real-time policy recommendations to make the food system responsive and resilient;
- Creating consumer awareness and encouraging household consumption by producers;
- Encouraging research and entrepreneurship of the private sector;
- Piloting millet inclusions in State Nutrition Plan.
- Promotion and establishment of decentralized processing and value addition enterprises with farmer collectives and WSHGs.
- Building capacities of local communitybased organizations, such as FPOs and WSHGs to add value to the supply chain and thereby enhance rural livelihoods.

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Key Progress during 2021-22

- Promotion of improved agronomic practices among 118561 farmers covering 54495.83 ha under millet cultivation.
- Average productivity of Finger Millet is reported 14.57 Quintals/ Hectare during Kharif and Rabi 2021-22.
- Procurement of 3.23 lakhs quintal finger millets from 14 districts; it was sold by 41286 farmers and procured by 56 FPOs. With infrastructure provided to these FPOs from OMM, they made an earning of Rs. 82.17 cr in 2021-22.
- Mainstreaming millets in ICDS in Keonjhar and Sundargarh districts, covering 6077 Anganwadis and reaching out to 149562 pre-school children with providing millets-based recipes to boost their health.
- Empowering over 1100 women representing 102 WSHGs and Federations through Millet-based Enterprises, including Millet Shakti Tiffin Centers, Millet Shakti Cafe and Millet Shakti Outlet.
- Establishing 884 primary small millet processing units, boosting income generating opportunities of 884 WSHGs/Federation/FPOs and driving millet economy in the state.
- Inclusion of three new blocks (Lathikata, Lahunipada & Gurundia) of Sundargarh district into Odisha Millets Mission, with the support of District Mineral Foundation.
- World Food Programme published a special report titled, "Lessons from Odisha Millets Mission: A Case for Mainstreaming Millets," in December 2021.





Millet Journey of Odisha Millet Mission CASE STORIES FROM THE FIELD









PROGRAM SCALE

000000000



84 Blocks

118561 No. of Farmers

54495.83 Achieved Area (Ha)

Improved agronomic practices to increase productivity

Improved agronomic practices are intended for enhanced production, productivity and soil health. These include - System of Millet Intensification (SMI), Line Transplanting (LT) and Line Sowing (LS) methods. Farmer to farmer learning and extension approach is adopted for greater impact at community level. Progressive farmers were motivated and supported through incentives; hand holding support was extended through community resource persons, thematic experts and local partner NGOs. The summary of area coverage under the improved agronomic practices in Kharif and Rabi 2021-2022 is as below.

Method wise Achievement (Area/Ha)

Millets / Cropping	Kharif	Rabi	Total
Ragi (SMI)	16142.82	886.72	17029.54
Ragi-LT	18443.91	631.25	19075.16
Ragi-LS	9406.51	91.54	9498.05
Little millet-LT	33.8	0	33.8
Little millet-LS	4792.6	0	4792.6
Foxtail millet	749.25	15	764.25
Sorghum	1057.65	0	1057.65
Kodo	680.2	0	680.2
Barnyard	153.2	0	153.2
Bajra	145.2	0.4	145.6
Inter-cropping	1240.75	25.03	1265.78
Total	52845.89	1649.44	54495.33

OMM is providing incentive support to farmers for the initial 3 years for adoption of improved agronomic practices. It is transferred to the farmer's accounts directly. So far, a total incentive of Rs.35.44 Crores has been transferred to 3, 12,749 farmers. The details are provided below.

Sl. No.	Year	No. of farmers	Total Incentive (in Cr)
1	2017-18	8,030	2.16
2	2018-19	29,056	4.69
3	2019-20	51,045	11.82
4	2020-21	108,731	13.49
5	2021-22	115,887	3.28
T	otal	312,749	35.44

Application of Bio-inputs are critical in agronomic practices. They not only help in reducing the costs, but also improve soil health and crop productivity. Bio-input Centers have been promoted in all the program blocks as business enterprises to make available such inputs. Members of WSHGs/FPOs took up this activity for enhancing their livelihood base. In some places, WSHGs are looking after the production and FPOs are doing the marketing of those bio inputs. These centers are producing and marketing 6 types of bio-products - Jibamruta, Ghanajibamruta, Handikhata, Nimastra, Agniastra, and Bijamruta. FPOs handled all the campaigns on Bio Inputs, to create awareness among the farmers at the block level.

Year-wise incentive breakup (Rs/ha)

Practice	1st year	2nd Year	3rd Year
SMI	5000	3000	1500
LT/LS	2500	1500	1000



Ragi Procurement at Minimum Support Price

Government of Odisha has approved procurement of Ragi through Tribal Development Cooperative Corporation of Odisha Limited (TDCCOL) like the previous years. A procurement policy has been developed to facilitate the process and maintain Fair Average Quality (FAQ) norms. The procurement is basically to provide Minimum Support Price (MSP) to the farmers and also to make available required quantum of millets to cater the needs of its inclusion in nutrition programs like Public Distribution System (PDS), Integrated Child Development Scheme (ICDS), Mid-day Meal (MDM) Scheme and ST Hostels of the State of Odisha. In turn, it would assure production of millets in a sustainable manner.

Seed Conservation and Multiplication

Majority of farmers preferred local seed varieties over the improved ones. FPOs played a lead role in seed multiplication of preferred varieties at the community level. To ascertain the productivity of selected seed varieties, participatory varietal trials (PVTs) were conducted in collaboration with farmers. Seed varieties were selected based on their suitability to local conditions; proper documentation of seed characteristics was ensured. Seed varieties are characterized and evaluated based on the farmer's requirements, which are quite wide -ranging. Some of the criteria includepalatability and cooking time, ability to compete with weeds, adaptability to the environment, crop-duration, pest and infestation resistance, height of the plants, tillering potential, grain and fodder yields, storage quality of seeds, and special cultural values and use in ceremonies. As such, PVTs were conducted in 12 blocks of 2 districts (Angul and Sundargarh). There are 23 traditional varieties and one Hybrid variety among the final selected varieties, with which seed production and multiplication was undertaken for the crop seasons of 2022-23.

Ragi Procurement158420084No. of DistrictsNo. of Blocks412863.23Total of farmers
involved3.23Total procurement in
quintals (lakhs)

Details of

Total amount released for

farmers (Rs in crores)

Seed Production of Finger Millet (Kharif 2021-22)

No. of Districts	3 (Bargarh, Keonjhar and Nabarangpur
No.of Blocks	12
No. of Panchayats	20
No.of Villages	20
No. of Farmers	31
No. of Traditional varieties	17
No. of HYV	1
Total Production Area (Ha)	11.72
Total Seed Yield (Kg)	4680

Seed Multiplication of Finger Millet

No. of Districts	12
No.of Blocks	51
No. of Panchayats	234
No.of Villages	395
No. of Farmers	670
No. of Traditional varieties	64
No. of HYV	14
Total Production Area (Ha)	264.96
Total Seed Yield (Kg)	129080.6



Inclusion of Ragi in State Nutrition Programs

One of the key commitments of OMM is to integrate locally grown millets as part of public food systems like ICDS and PDS, mid-day meals and eventually in government-run hostels and homes. As such, it has introduced millet-based meals such as Ragi Laddu mix in ICDS Anganwadi centers for preschool children in Keonjhar and Sundargarh districts. Ragi Laddu program was initially piloted during August 2020. Later it was introduced in Keonjhar district in November 2020; and, in Sundargarh district in March 2021. Apart from the nutritional benefits, this initiative is providing income to women self-groups. So far, a total of 63,000 Children were provided Ragi Laddus (each with 4 per week) in Sundargarh district, covering 3809 Anganwadi Centers. 38 THR Units led by WSHGs are functional for this activity in this district. In Keonjhar district, each child is being given 2 Laddus per week. This initiative has a reach of 3257 AWCs and 88,000 preschool children; 19 THR units are being operated by local WSHGs.



Promoting FPOs as Block level Procurement Agencies

Strengthening farmer's collectives and institutionalization of value added services is another focal area in OMM. In that process, OMM has facilitated registration of Farmers Producer Organizations (FPOs) and their empanelment as procurement agencies at block level. These FPOs are supporting local farmers in terms of enhancing their market linkages, access to bio-inputs, farm machineries etc. It all started with 16 FPOs in 8 Districts in 2018, enabling them to procure Ragi from farmers at MSP. Over these years, the number of FPOs and their procurement has increased significantly. During 2021-22, a total of 56 FPOs and 3 WSHGs covering 84 Blocks in 15 Districts could procure 3.23 Lakhs Tonnes of Ragi for Tribal Development Co-operative Corporation of Odisha Limited (TDCCOL). At the MSP rate, an amount of Rs. 109.08 crore was paid to 41,286 farmers who sold their produce in local Mandis. The support provided to FPOs under OMM is as below; technical support from the program secretariat for registration and management of FPO; one time working capital and official peripherals; supporting the establishment of community infrastructures like Custom Hiring Centers (CHCs) and also for millet-based enterprises such as processing and value addition units.

Small Scale Millet based Enterprises and Processing Units

Women self-help groups (WSHGs) and FPOs have established 102 millet-based-tiffin-centres at various community locations in 13 tribal-dominated districts. The initiative has fortified the strength and conscientiousness of women-collectives by setting up primaryprocessing and post-harvesting-units for millets in rural-areas. OMM has extended institutional and technical support to these women-self-help groups and FPOs. So far, 281 Thresher Units, 258 Pulverizers and 17 Cleaner-cum-De-stoners Units have been provided to FPOs and WSHGs.

Millet Shakti Cafe

Odisha's first Millet Shakti Cafe was established at the

Collectorate campus of Keonjhar district on 29th October 2021. It is being managed by Maa Mission Shakti GPLF Naranpur, Keonjhar. Last year, the group has earned Rs.4,93,963/-. Another Millet Shakti Cafe is established at



Koel Nagar, NAC market, Rourkela, Sundargarh on 30th March 2022. Dibyajyoti SHG of Jhirpani, Sundargarh is managing this Café. Different types of millets-based hot cooked food is also available in these Cafes.

Millet Shakti Outlets

It is established at Krushi Bhawan, Bhubaneswar on 05-11-2021, managed by Shaktimayee Mahila Parishad. This group is earning Rs.3000-4000 per day, by selling a range of millet-based food products.

Integrated Millet Processing Unit

It is established at Baramunda, Bhubaneswar on 01-10-2021 with Cleaner, Grader and Destoner facilities. This unit is being managed by Trishakti Mahila Parishad and it is processing Little Millet and Foxtail Millet at present.







An effort to revive Browntop Millet in Mohona Block

Mohona region in Gajapathi district of Odisha is traditionally known for cultivating Browntop Millet. It requires very less water and can be even cultivated under shade. For various reasons, this millet got extinct from the region and was replaced with high value cash crops and plantation. An initiative is made as part of Odisha Millet Mission to revive this crop in this region. A farmer producer company known as TFPCL collected the local landrace variety of Browntop millet and started its seed multiplication. Subsequently, several farmers have started adopting the cultivation, with inter cropping.

Along with Ragi, Little Millet, Foxtail Millet and Sorghum, Mohona region had a specific variety of Bajra; farmers used to cultivate Barnyard in few areas and Brown top millet as well. Unlike many other crops, brown top millet grow even in a less fertile land, and it requires some shade to grow with its natural capacity to provide high yields. Over the years, Dhadianba and Birikot Panchayats of Mohona block is completely converted with plantation. As the trees have started growing, the scope of intercropping and crop diversification has reduced drastically. Region being rainfed, the scope of cultivation of other crops also reduced. In this context, TFPCL took the initiative of re-popularizing brown top millet variety, mobilized local farmers, and oriented them on the improved agronomic practices. It all started 3 years back. Block coordinator of OMM met a farmer Ramchandra Dalai of Danupata village in Dhadianba Gram Panchayat. He was only farmer in the region cultivating brown top at that time. After Maize, he used to cultivate brown top in an acre of land. The yields of this millet were very impressive, more so, it could withstand the havoc of Phailin cyclone in that year. This promoted Block Coordinator to introduce it to other farmers. Slowly the effort has got attention of farmers and in the subsequent year 10 farmers went in for this crop in 10 acres of land.

Basically this was intended for seed production for distributing to other farmers in the region through TFPCL. This seed production not only provided some economic incentives to the farmers in the short run, but also paved the way for promoting brown top millet in the entire region as farmers could realize the benefits, in terms of its suitability to cultivate even in difficult terrains. The importance of this crop in terms of soil health, crop diversity, and food consumption is also being realized by the local farmers.

12. Inclusion of Millet based Recipes as Hot-cooked Meals through ICDS Scheme

It is being piloted in 3 Aspirational Districts of Telangana supported by NITI Aayog, with an aim to establish a decentralized, integrated and scalable 'local circular economy model' of promoting millets in food, nutrition, agriculture and livelihood systems. It is being steered under the guidance of Women Development and Child Welfare Department, Government of Telangana and District Administrations of *Kumaram Bheem Asifabad, Jayashankar Bhupalapalli* and *Bhadradri Koththagudem*.

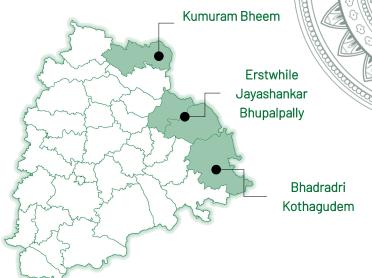
The idea is to trigger local production, procurement, processing and supply of millets to Anganwadi Centres; improve nutritional quality of the diet (Hot Cooked Meals) served under ICDS; setting-up of decentralized processing units & mechanism of supply to ICDS; improve productivity of millet crop systems and make millet cultivation profitable to farmers; and, increasing consumption of millets in the Millet Producing Households.

Focused Activities

- Enabling Improved Production
- Creating Local Processing Facilities
- Enhancing Consumption







PROGRAM SCALE



age group

Bhadradri Kothagudem District Administration has placed 100 cycle weeders to facilitate easy intercultural operations in millet cultivation

\checkmark Creating Processing Facilities

Millet Mixies and Millet Processing Units

 For promoting household consumption, 10 millet mixies were distributed to the SHG women in KB Asifabad district. A training session was also conducted regarding the operation and maintenance of these mixies.
 Establishing of Millet Processing Units in KB Asifabad and J Bhupalapally are under way.

Enabling Millet Cultivation

Details of Seed Distribution and Procurement (Kharif 2022)

Districts	No. of mandals	Villages	Acres	Households
Bhadradri Kothagudem	2	57	1307	1595
KB Asifabad •	4	123	1736	2075
Jayashankar Bhupalpally 🍑	4	58	502	465
Total	10	238	3545	4135

• In KB Asifabad district administration along with department of agriculture has supplied seeds to 4355 acres in addition to the 1736 acres in the project mandals

•• In Jayashankar Bhupalpally, survey has been conducted to cover 500 acres more. The process to procure the seed is under way.







Recipe Training Sessions to AWCs Staff

The objective is to train AWCs staff prepare millet-based dishes both at AWCs and also for Food Festivals, organised at the village level; with the participation of community members, people representatives, and mothers' committee members, so as to promote consumption.

Districts	No. of AWCs	Total no. of staff given trainings
Bhadradri Kothagudem	625	1240
KB Asifabad	973	1946
Jayashankar Bhupalpally	1000	2000



MILLET RECIPES

- Foxtail / Little Millet Rice
- Curd Rice of Korra / Sama
- Foxtail / Little Millet Pulihora
- Multi atta roti
- Ragi malt / Multi atta malt
- Foxtail / Little Millet Kichidi
- Millet Upma
- Muruku
- Ragi laddoo
- Little Millet Payasam (Sweet

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100000

Millet-based Food to Children, Pregnant and Lactating Mothers

This initiative was launched by Bhadradri Kothagudem District Administration and WDCW Department on 2nd March 2022. Pre-school Kids (3 to 6 years), Pregnant and Lactating Mothers of the selected 100 AWCs are being served with Multi Millet-based (Jowar and Foxtail Millet) Kichidi and Ragi (Finger Millet) Laddus twice a week. It is covering about 1531 pre-school kids and 673 pregnant and lactating mothers in two ICDS projects of the district.

- In K.B. Asifabad Millet Meal and Ragi Laddu will be served in the Anganwadi Centres with high malnutrition children and pregnant ladies from the month of November. This would cover 2860 children and 367 pregnant women.
- A Millet Food Cart will be set up in the premises of the District Collectorate which serves millet-based tiffins and snacks and will be run by SHG women.

FOOD FESTIVALS

Sector wise food festivals were organized by the Anganwadi Centres in all the 3 districts to create awareness among the village members about the importance of millet-based food in improving nutritional strength.







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13. System of Millets Intensification-'Guli' Method

The effort of WASSAN to combine SRI principles with traditional 'Guli' method (widely practiced in Karnataka) in Finger Millets (Ragi) had given much needed relief in terms of yields to the farmers of tribal and dry land areas in Andhra Pradesh. It started in 2014 and the steady increase in number of farmers following this method over these years clearly indicates its wider acceptance. Subsequently, natural farming principles are integrated into this method. The crop cutting experiments have consistently proved the incremental yields to an extent of minimum 2-3 folds with this method. Based on that, the effort to promote Guli method continued this year in Andhra Pradesh, as part of Climate Resilient Zero Budget Natural Farming with support from RySS (Government of Andhra

> Name of the District

Fast Godavari

Visakhapatnam

Vizianagaram

Grand Total

Srikakulam

Pradesh) and Azim Premji Philanthropic Initiatives. A total of 3792 farmers have been targeted to promote Guli Ragi method in the newly demarcated Manyam and Alluri Seetharamaraju Districts of Andhra Pradesh in the year 2021-22: out of which 49.6% (1879) of farmers followed the method, covering an area of 1194 acres (0.6 acre/ farmer). 69 crop-cutting experiments were done in several locations to assess the yields, comparing both the normal fields and Guli Ragi fields. Farmers have achieved an average yield of 12.2 quintals/acre in this method, where finger millets was cultivated as mono-crop; the average yield under poly crop system is 12.74 quintals. In traditional method in the controlled plots, on an average the yield is 6 quintals/acre.

% of Percentage

Acres

26.3

13.2

64.6

93.4

39.6

Farmers

33.4

13.8

82.6

123.1

49.6

Total Achieved

Acres

248.59

111.85

679.2

153.87

1193.51

Farmers

389

156

1041

293

1879

"When results a	are visible,
how can one ig	nore 'Guli'
method?"	

Total Target

Acres

945

850

1052

165

3011

Farmers

1164

1130

1260

238

3792

Mandal, Alluri Sitharamaraju District, Andhra Pradesh

is generally 5-6 guintals per acre in normal method. We could see the result of applying natural farming principles on clear terms. I have followed all the prescribed processes under Guli method; transplanted 15 day old seedlings; applied 1-ton Farm Yard manure during ploughing and 400kg of Ghana Jeevamrutham (GJA) at the time of planting; applied Drava Jeevamrutham 3 times (nearly total 600 Lrs) as prescribed in 15 days intervals; Weeding was done twice and planking once. All such measures have given desired results in terms of much better yields - 19.20 quintals per acre, comparing to yield of 8.2 quintal per acre in nearby controlled plot... All this is observed during a crop cutting experiment done in presence of Scientists from Agricultural University, Kondempudi KVK, Officials of Agriculture Department, Local Sarpanch, MPTCs and other farmers... When results are visible, how can one ignore such method?"

"...After deducting all the excess moisture, finally I could get a yield of 19.20 guintal per acre in this Guli method. It

Sisa Jagannadham, Onuguputtu Village, Munchinguputtu







14. Technical Support on Millets with special focus on Jowar and Ragi in OAK Jharkhand Project

TRAIDCRAFT

WASSAN have collaborated with TradeCraft Exchange and its partner organization in Jharkhand in order to provide technical support to build capacities of partner organization in introducing millets cultivation among the Particularly Vulnerable Tribal Groups (PVTGs) in Godda district of Jharkhand. During the year, the focus was on building the capacities of community and field functionaries on package of practices of different types of Millets. Both, online and offline training programs were conducted for this purpose. Field training programs were organized at Sunder Pahadi block, to orient the tribal farmers on these practices. Appropriate training modules and IEC (Information Education Communication) materials were prepared and provided to the Tradecraft Exchange.



the two



3 Seed Systems

15. Mainstreaming of Neglected and Underutilized species under CROPS4HD project



CROPS4HD (Consumption of Resilient Orphan Crops and Products for Healthier Diets) project is aimed to improve food security and nutrition of smallholder peasants, through sustainable use and conservation of peasants' cultivars/landraces, neglected and underutilized species (NUS); it primarily focusses 'push, pull and policy approach' integrated with principle of promoting local knowledge agro-ecological approaches in seed and food systems.

CROPS4HD implements the project in East Africa (Tanzania), Central Africa (Chad), West Africa (Niger) and South Asia (India); In India, it is being implemented in 3 States Karnataka (Dharwad and Mysore), Odisha (Bargarh) and West Bengal (South 24 Parganas and North 24 Paraganas). Project partners include; SWISSAID (project implementation), FiBL (production), WASSAN/RRANetwork (policy), Bioversity International (production), Ecociate (value addition), Sahaja Samrudha (Karnataka), DRCSC (west Bengal), Bhitti Bhumi (Odisha).



During the year, WASSAN, in association with RRA Network Working Group on Seed Systems (WGoSS) approached multi stakeholders (Department officials, State Agriculture Universities, Crop based Research Institutes, KVKs, NGOs, Farmers organizations, etc.) for developing approaches to bring the NUS and peasant seeds into the mainstream by - developing required protocols / standardization of processes; creating enabling policy space and a budgetary allocation from the states.

Key elements of policy, push and policy approach

PUSH

PULL

POLICY

FOOD SYSTEM Agro and agroecological production

- Strengthen peasants and their networks
- Linking to markets by farm level processing and constant supply (market)

SEED SYSTEM

- Inventory and characterization of crops / cultivars
- Participatory cultivar selection /
- plant breeding Create networks and broaden
- outreach linking PSS and CSS

SEED SYSTEM

- Evidences in favour of peasant seed systems
- Awareness about rights to seed

- Policy spaces in favour of peasant seed systems

FOOD SYSTEM

- Awareness creation healthy diets
- Market development (processing, marketing)
- Build consumers producer linkages for healthy
- diets and agroecological food

SEED SYSTEM

- Information on Seed cultivars
- Market development (quality, packing seize)
- Strengthen linkages and feedback mechanism

FOOD SYSTEM

- Representation of peasants organizations in policy fora
- Awareness about right to food and adequate diets
- Integrated NUS in food policies and promote agrobiodiversity and agroecology

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Key Activities

RRA Network has submitted inputs in this regard to the policy document of National Rainfed Area Authority (NRAA) – "Accelerating the Growth of rainfed Agriculture – Integrating Farmers' Livelihood Approach". The need to focus on NUS and consideration of releasing new climate-resilient varieties suited for rainfed regions was stressed upon. Approached NRAA to chair a National level Steering Committee to provide advice and guide the project implementation for mainstreaming NUS Consultations were held with various people in states like in Karnataka, Odisha and West Bengal to appraise the proposal and seek possible collaboration. A multi-stake holders' workshop was organized in Karnataka to develop a plan towards mainstreaming of landraces. Representatives from University of Agriculture Sciences – Bangalore, Bio-Diversity Board, NGOs, and Farmers' Networks participated in this workshop. University of Agricultural Sciences, Bangalore agreed to be a knowledge partner to the program in Karnataka taking in principle responsibility for evaluation of the landraces for mainstreaming; developing the Package of Practices; etc. Marketing space was enabled for seeds of different land races in RSK's (Raithu Samparka Kendras) to make them available for selected Farmer Producers Companies. Certain seed standards have been set by the university in Karnataka for this purpose.









4 Natural Resources and Rainfed Farming

16. High Impact Mega Watershed in Partnership between BRLF and MGNREGA Cell Department of Rural Development, Government of Jharkhand

Bharat Rural Livelihood Foundation (BRLF), in partnership with the state MGNREGA Cell, Rural Development Department, Government of Jharkhand has taken up the program called 'Jiwi Da Hasa'. It attempts to build capacities of Gram Panchayats in planning and implementation of MGNREGA for a comprehensive eco-system



revival based on watershed development principles, with an aim to create sustainable livelihood opportunities. In the initial stages, WASSAN anchored the Project Monitoring Unit for this program. At present, it is functioning as field Implementing partner in Anandapur and Gudri Blocks of West Singbhum district, Jharkhand.

So far, a total of 36 DPRs have been prepared out of 48 villages in the intensive block of Anandapur, with a total treatable area of 15000 Hectares. Orientation and training programs have been conducted for PRI members. Mates. GRS and other MGNREGA functionaries on watershed concepts, mobile app, GIS based planning process etc. Orientation meetings were also organized for members of Adivasi Mahasabha/Manki Network, on the project objectives and field level planning process. An intensive communication campaign was undertaken in the name of 'Apke Adhikar -Apki Sarkar- Apke Dwar' with the help of state government machinery to create awareness on the rights and entitlements in MGNREGS and how they can be utilized for effective planning and implementation of the program. Relevant IEC material was exhibited during the campaign to explain the watershed planning process, soil and water conservation works etc. These campaigns and planning process were organized involving members of respective Panchayats. Apart from facilitating planning process, some field level initiatives have been initiated in some villages. Revival of millets and integrating fisheries are part of these initiatives.

17. Towards More Sustainable and Regenerative Rainfed Agriculture in India and Ethiopia

WRI India and WRS

WASSAN is the site partner for implementing the activities, in Vikarabad and Anantapur (now Sri Sathya Sai) districts of Telangana and Andhra Pradesh respectively, under the FOLU India Sustainable Rainfed Agriculture Programme (FISRAP -Towards More Sustainable and Regenerative Rainfed Agriculture in India and Ethiopia) - an effective approach to sustainably transform agricultural practices and deliver social and economic cobenefits, a project supported by IKEA Foundation.

This project aims towards developing landscapelevel strategy action plans for the chosen sites to achieve the wide scale adoption of sustainable and regenerative agricultural practices in the rainfed areas of the state. In 2021-22, the WAS-SAN team was mainly involved in supporting RRA Network and other partners in ground data collection through surveys and other secondary sources. The major activities can be summarised as follows:

- WASSAN technical and field teams supported research partners (CEEW (Council on Energy, Environment and Water) in Anantapur and TERI (The Energy and Resource Institute) in Vikarabad) in collecting, collating and analysing secondary data and information available from various government departments, technical agencies and other stakeholders. A state level inception meeting was organised for Telangana on 8th December 2021 at MANAGE, Hyderabad. Sri Hanumant K. Zendage, IAS, Special Commissioner of Agriculture, Telangana, Dr. P. Chandra Shekara, Director General, MANAGE participated in this meeting as special guests while several representatives from prestigious institutes like CRIDA and IIOR also participated.
- Field visits were organised for research partners and representatives of FOLU India PMU to the selected villages in Telangana

(Gokafaslwad, Erlapalle and Doulthabad in Vikarabad district) and Andhra Pradesh (Oravoy and Talamarlavandlapalle in Anantapur district). WASSAN's resource team helped in developing, translating and finalising the Household Survey Questionnaires for both the sites with the research partners by providing inputs on ground level scenarios. WASSAN coordinators along with RRA Network team trained 12 enumerators and 2 field coordinators on Household survey data collection in their respective regional language on ODK platform. By engaging field enumerators, 397 surveys were completed in Ananthapur and 375 in Vikarabad districts. The data had been cleaned and shared with the respective research partners.

Further implementation of the project and engagement activities are planned in the subsequent period in the project - which finally aims to create a model landscape and showcase economic, ecological and environmental transformation of the food and land use of the landscape.



Case Study –8 🗸

The Digital Youth adopts Natural Farming

How digital media has changed Sai Reddy's idea about agriculture and promoted natural farming

Present scenario shows that agriculture needs the involvement of the new generation. Social media plays a vital role to disseminate the information related to agriculture and new techniques.

The majority of farmers use traditional agricultural methods due to lack of knowledge about new practices and the belief that conventional means are better than using modern ways. Every day, India loses approximately 2,000 farmers shifting out of the agricultural ecosystem, and the total number of farmers in the country has decreased by 15 million since 1991. Distress migration of farmers has become even more prominent after recent pandemic situations, when the existent issues of insufficient prices and unsustainable production systems have intensified. This has several implications for the future of Indian agriculture and India's food security.

If young farmers are motivated to get active in agriculture and the obstacles they confront are addressed, they can play an essential role in achieving food security. Rural youth have shied away from agriculture in recent years, and there is a growing interest worldwide in developing strategies to engage adolescents in agriculture.

According to a recent research conducted by the National Institute of Agricultural Extension Management (MANAGE), the majority (47.5%) of farming youths feel that social media is highly beneficial in obtaining fresh information relevant to farming. Youth can receive important information about agricultural products and save time and money by using social media.

One such young farmer who has learnt about sustainable agriculture and implemented it in their field is Sai Reddy from Erlapalle village of Vikarabad, Telangana. In the ongoing Rabi season, he has been growing 4 acres of Khulakar rice - a local indigenous variety of red rice.

Sai learned about natural farming by watching online videos, and decided to try out the system. When he went to find out more about the same at the local Agriculture Extension Office, he learned about some specific crops that are being promoted in natural farming, and was provided with a region specific package of practices. With his prior knowledge from online learning, Sai started natural farming a couple of years ago on 1 acre land.

The inputs required for natural farming were prepared from livestock discards. This reduced the cost of input material procurement. Jeevamrut and Panchgavya are prepared at his home. He also stopped using chemicals in his mango orchard and started using natural fertilizers and growth promoters. He also sprays sour buttermilk on mango flowers for better yield. The other agricultural processes like sowing and weeding have also undergone changes, as Bijamrut is now used for seed treatment and cycle weeders have replaced weedicides. The naturally produced products are sold at premium prices to wholesale buyers as well as procurement agencies like FPO/ FPCs.

In the last Rabi season, Sai cultivated 27 varieties of indigenous rice on his land as a part of development of community-based Biodiversity Blocks promoted by WASSAN. The naturally produced seeds were procured by MACS Society, a FPO functioning in the Vikarabad district, who packaged and promoted the sale of the best suited varieties for the landscape.

This success of Sai's natural farming endeavour can be attributed to online videos, which embedded the seed of curiosity in him to learn and explore more and subsequently implement the same on his fields. Constructive use of digital and online platforms can make huge differences in people's economic development as well as environmental sustainability. Sai's story is such an example. There is a need to educate the younger generation about the use of internet media for agricultural development, and related policies will undoubtedly benefit the younger generation.



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"A few years back, I started watching videos on natural farming, and these intrigued me to implement them in my field. As I already had livestock, I started using the waste from there to begin natural farming on 1 acre initially. Now I have 8 acres of natural farming including orchards."



18. Climate Proofing in NABARD Watersheds

With the support of NABARD, WASSAN has taken up implementation of Kouthuguda, Ringanguda Climate Proofing Projects along with two watershed projects i.e.; Salpalaguda and Kumarambheem projects in Asifabad Mandal of Kumrambheem District in Telangana. NABARD is also supporting another climate proofing project in Gandlagude Aswaraopet mandal of Bhadradri Kothagudem district. These two districts are aspirational districts.

Koutaguda CPP is in 4th phase while Ringanguda CPP is in 2nd phase; Gandlagudem CPP is in the 1st phase of the project. For Kumrambheem watershed project, FSR has been prepared and submitted to NABARD for the implementation of watershed interventions in an area of 1113 Ha. Salpalaguda watershed is in Capacity Building Phase (CBP). Several interventions have been planned and implemented as part climate proofing projects, that include; soil moisture conservation, soil health & productivity enhancement, sustainable agriculture practices, livelihoods etc. As part of capacity building, exposure visits were organized and Knowledge Centers were established at village level. An initiative is undertaken to develop fodder in hydroponic method in Ankusapur village.



PROGRAM SCALE



4 Districts





This project, supported by BFTW, has focus on resource optimization, productivity enhancement and climate mitigation measures. Project sites are in both Telangana and Andhra Pradesh, covering 4 districts (Srikakulam, Bapatla, Nagarkurnool & Yadadri Bhongir), with nearly 70 villages. These are identified in close consultation with the communities; also keeping in mind the possible local collaborations with government and other agencies.

19. Transforming Livelihoods of Poor in Agriculture

through Innovative Technologies and Collective

Most of the activities during the year are related to preparatory phase, that includes, pin-pointing the locations and target communities, staff identification and deployment, apart from a few entry level activities. Efforts were also made to collaborate with the local forest department in accessing the harvested bamboo poles for use in trellis structures being set up by farmers. A short video communication film on revival of a lift irrigation scheme that is based on reuse of drain water was done as an awareness and mobilization drive among many other lift schemes in the project area.

Traditional Trellis with local Bamboo

Promotion of traditional trellis structures involves use of locally available wooden poles, of bamboo or other local species. Efforts are made to meet and collaborate with the Forest Department at the district level to access the bamboo poles that are harvested and sold by the same. The collaboration not only helps to access the poles at much cheaper rates, but also helps to scale up this initiative by the department in future to other parts of the district.

Baseline data generation and analysis:

Approaches

The baseline collection was carried out during Mar-April 2022, taking the Kharif (June-Sept) and Rabi (Oct-Jan) as the reference agricultural seasons. A total sample of 109 farmers were randomly chosen for this baseline study, basing upon their cultivation practices and available water resources. Details like cost of cultivation, gross production, net income from agriculture etc. were also assessed. Since, it is planned to scale-up trellis cultivation of vegetables and rainwater harvesting conservation among many farmers in this project, it is expected that these measures will lead to one or both of 'input cost reduction' and 'productivity enhancement'. Thus, the design of baseline data collection and analysis was tailor-made for measuring and quantifying these two aspects.

Resource optimization and productivity enhancement measures

Promotion of traditional trellis cultivation of vegetables by small farmers:

The project location in Srikakulam district is located on the north-eastern part known as Uddanam area, where Chronic Kidney Disease (CKD) of unknown origin is crippling the lives of many farming families. The landholdings are tiny generally varying between 0.05 acres and 1.5 acres. Though cultivation of vegetables on ground as well as on the trellises is a traditional practice. the proportion of trellis cultivation is as low as 3.30% of the total land owned by farmers. Trellis cultivation leads to better productivity of vegetables, less pest problems and better quality of produce. Growing vegetables also adds to the nutritional security of family, especially the CKD victims and children. Therefore, project is encouraging both, (i) expansion of existing trellises and (ii) switching from ground cultivation to trellis cultivation of vegetables.

Field studies on drip irrigation, fertigation practices and weed prevention:

The use of sprinklers for irrigating groundnut crop and drip irrigation for irrigating vegetable crops is prevalent in Nagarkurnool district and to some extent in Srikakulam district. Farmers in Nagarkurnool district are familiar with application of chemical fertilizers through drip systems. Excessive use of fertilizers and pesticides are not only increasing the input costs, but also affecting the soil quality. In this context, the project initiated a rapid study to understand the problems in use of micro irrigation in the area as well as the fertigation practices. The outcomes of this study will inform the specific interventions to be made to wean away farmers towards less chemical and more eco-friendly agricultural practices.

Excessive weed growth in crop lands results in nutrient deficient to the crops resulting in lowering of productivity and net profits. Furthermore, farmers may need to invest additional labor or resort to chemical herbicides to effectively manage weed control.

A study has been undertaken in Uddanam region to observe and analyse the pattern of common weeds and weed management practices. The concept behind the study aims to investigate interventions focused on preventing weed growth rather than relying on treatment methods after they have already grown.

Climate Risk Mitigation Measures

Promotion of rainwater harvesting and recharge:

The project has been making effort to (i) revive the silted-up farm ponds and (ii) promote new farm ponds in rainfed lands. During summer months of Mar-April 2022, 3 farm ponds were built and 504.3 Cum of water storage capacity created in the few agricultural lands in both the Nagarkurnool and Srikakulam districts as a demonstration to farmers. Efforts are also made to enumerate existing farm ponds in defunct condition. Farmers are constantly motivated to come forward to renovate their farm ponds. In Srikakulam district, farmers are planning to directly use the stored water in form ponds for providing life-saving irrigation to coconut plantations and vegetable crops. In Nagarkurnool district, farmers are encouraged to construct farm ponds in proximity to existing bore well sources. This approach allows for direct recharge and augmentation of groundwater resources.

In addition to the farm ponds, the project is also making efforts for the renovation, particularly desiltation of the tanks. During the year, one tank at Inole village, Achampeta mandal of Nagarkurnool district was desilted and 1,949 tractor loads of silt applied on 48.75 acres of agriculture fields belonging to 40 small and marginal farmers. The desiltation also resulted in creation of 4,385 Cub.m of additional water storage capacity.

Revive and Reuse practices in agriculture in coastal areas:

Several farmers installed lift irrigation schemes on the irrigation drains in Bapatla region, a newly carved district of Andhra Pradesh. These irrigation drains carry excess water from upstream command areas to the Bay of Bengal. Thungabhadra Drain is the major drain in this area which is fed by all the smaller drains from different areas. The lift schemes are primarily two types, (i) smaller schemes installed and operated by 10 -15 farmers, (ii) larger schemes built by Government department and handed-over to farmers cooperatives. Some of these schemes are defunct and damaged due to salinity effects. An initiative was made to revive one of such lift schemes, that was constructed by Government of Andhra Pradesh during 2008-09 and handed-over to the farmers later. The scheme covers 375 acres of land belonging to 311 small and marginal farmers in Machavaram village, Karlapalem mandal, Bapatla district.

Promotion of piped irrigation networks :

Water saving irrigation practices such as piped irrigation networks were promoted at Gundala mandal of Yadadri Bhuvanagiri district, Telangana, as part of earlier project. Negotiations were done with PVC pipe manufacturing companies like Jain irrigation and Nandhi Pipes to supply pipes at a discounted price. The companies agreed and supplied at around 15 % discounted price compared to market. And because of the scale of purchase, they delivered pipes without transportation charges at the respective villages of the farmers, this has given an additional benefit to the farmers.

During the reporting period 2,574 PVC pipes of various sizes distributed to 74 farmers (Figures 16 and 17 of Annexure -1). This activity resulted in switching of farmers from open canal irrigation to piped network irrigation to prevent seepage and evaporation loses of water in open channel irrigation. In addition to pipes distribution, 1 new farm pond with 648 Cum of water storage capacity was also built in this location.





20. Restoration and Renovation of Heritage *'Bansilalpet Step Well'*

Step wells are subterranean structures that were primarily meant to access, manage and conserve groundwater. Some of the step wells built during the medieval ages were beautifully detailed, ornamented and stand as testimonies of excellent craftsmanship and architectural heritage. Through the ages they evolved in size and form to accommodate large public gatherings, religious ceremonies and spaces for pleasure and relaxation.

Bansilalpet step well is one of the most significant and iconic step-wells in the twin cities of Secunderabad - Hyderabad, having its origins in Nizam's era. Locally known as 'Nagannakunta', this well represents the heritage of Telangana region in water centric development of human settlements. An architectural marvel, it belongs to the typology of parks (Bagh) with measurements of 35.5mts x 19.2mts x 17.5 mts. Once it used to cater drinking water to local residents and also to famous Gandhi Hospital. Due to sheer neglect over the years, it is degraded into a derelict dump yard with over 2000 tonnes of debris and garbage posing a health threat to communities living around it. The accumulated garbage generated black water when combined with rainwater in the monsoons, polluting the groundwater. The huge step well, with a holding capacity of more than 35 lakh litres, acts as a collection point that could reduce occurrence of urban floods that are a challenge the city is struggling to handle in recent years.

The need to conserve and protect our subterranean heritage structures is of utmost importance in the sustainable development of cities. Besides being relics of history, step wells can still play an important role to recharge ground water and hence stands for extreme significance in the present day context. It is important to study the soil, water table and carry out underground aquifer mapping to understand the extent to which restoration works will improve / affect the groundwater condition.

In this context, **The Rainwater Project**, an organisation involved in several water management related projects in the city has taken initiative to clean, renovate and restore this traditional water tank, with the support from government authorities and local community. Restoration of the step well involved cleaning, dewatering and desilting, structural strengthening of retaining walls, rebuilding and finishing works etc. With the support from SVP foundation and WASSAN, major works were taken up at the site. The Rainwater Project worked with several

> departments and got the community residents and local authorities to be part of restoring the well back to its function and maintain good hygienic environment in their neighbourhood. As part of restoration works, teams were

deployed for clearing the garbage, de-watering, and desilting the well filled with debris,

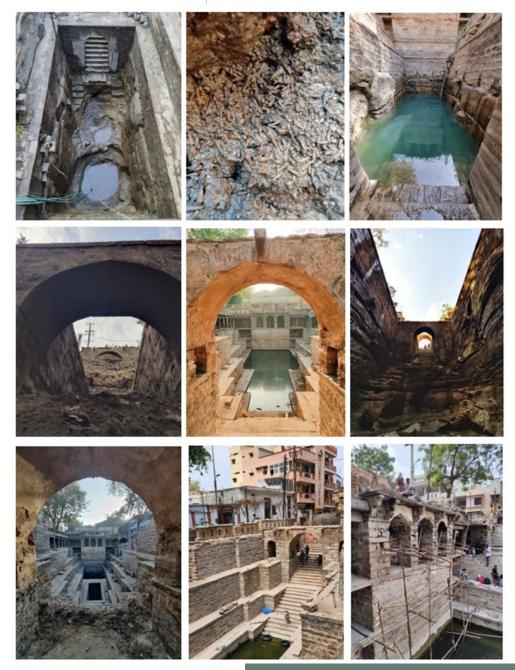


Major works undertaken include - Data collection and site visits for Visual documentation and Archival research; Lime testing and Conservation plan for the holistic restoration; Architectural and Conservation drawings; Conceptual precinct development plan and proposals. As part of Desilting, dry garbage, plastics, fabrics, film rolls, stones and construction debris were removed from the well. As part of De-watering, sludge was removed and water was pumped out from the well. The Greater Hyderabad Municipal Corporation had engaged workers and earthmovers for the cleaning process, with several tonnes of garbage cleared from inside the step well. Authorities have decided to complete the restoration and renovation by August, 2022. It is being planned to inaugurate it on 15th August, 2022.

Restoration will also help improve ground water in the locality and make the communities sustainable for water. After the revival, people will have better living conditions and a hygienic neighbourhood. It acts as a catchment area for the adjoining half square kilometre radius benefiting a population of approx. 20,000 people.

With the completion of all the planned works, this heritage structure would get a fresh lease of life and it would be an amazing transformation, from a garbage dump to a beautiful architectural work of historical significance, as authorities are planning to illuminate the site and make it as a tourist point with all the facilities.







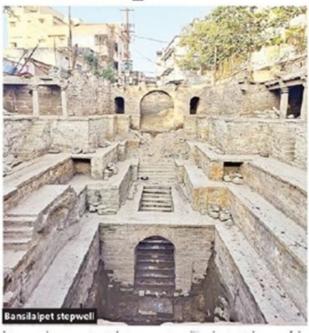
PM 'dil se' lauds revival of Bansilalpet stepwell

HANS NEWS SERVICE Hyderabad

PRIME Minister Narendra Modi has mentioned about the restoration of a stepwell in Secunderabad during his monthly radio programme 'Mann ki Baat' on Sunday.

Referring to the efforts of water conservation being made in various parts of the state, the Prime Minister mentioned the restoration of a historic stepwell at Bansilalpet in Secunderabad, the twin city of Hyderabad, is noteworthy.

Modi noted that the stepwell was dumped with debris and garbage but is now being restored with public participation. It may be mentioned here that The Hans India had carried many stories on the dilapidated condition of the well which had turned into a dump-





PM pats India for achieving \$400 bn export

NEW DELHI: Prime Minister Narendra Modi started his 'Mann ki Baat' programme by congratulating India for achieving \$400 billion exports target. The Prime Minister said the achievement signifies India's capabilities and potential and that the demand for Indian goods is rising across the world. "India has achieved

Appreciation by Prime Minister in *'Man Ki Bath'* Program on 27th March 2022

21. Supporting Pastoral Communities to Secure Rights over Resources

WASSAN has been working with pastoral communities who rear Poda Thurupu cattle which has been registered as 1st cattle breed of Telangana state. These pastoral communities are highly dependent on Amrabad Tiger Reserve for grazing of their animals since generations, but their rights have not been settled under the Forest Rights Act 2006. WASSAN is supporting local organization CONARE which is working on this issues with technical support from Sahajeevan – Centre for Pastoralism.

Primary objective of this project is to build capacities of pastoral communities to claim their community forest rights under the FRA Act. 40 villages have been selected for this purpose. Poda Thurupu Cattle breeders association along with CONARE have initiated awareness building, capacity building, and formation of Forest Rights Committee (FRCs) in Nagarkarnool district of Telangana.





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72 Strength Diversity



5 Local Circular Economies



22. Ecological Intensification of Tribal Economics

HDFC Bank Parivartan

For the past several years, WASSAN tried out several innovations in the tribal areas to promote natural farming and improve household income through integrated approaches. Such efforts are being up-scaled with support from different agencies. Ecological intensification of Tribal Economies is one such project supported by HDFC Bank Parivartan. Project area comprises of 12 Gram Panchayats in 3 Mandals -Seethampeta, Veeraghattam and Bhamini of Srikakulam district in Andhra Pradesh. The focus is on enhancing income, ecological health, food and nutrition security of 7000 tribal families of 75 habitations, by strengthening eco farming systems based on integrated natural farming approach.

The critical interventions include - natural resources development, management of water resources, natural farming, integrated rainfed farming systems with extensive livestock and fisheries, renewable energy and localising the value chains with organized farmers' organizations (FPOs) and community based institutions. All these interventions have certain premises to address the high risk profile of these areas, and they provide the basis for theory of change envisaged for this project. It includes livelihood portfolio in rainfed areas must have diversity to address risk across agriculture and



livestock; development and access to water resources is crucial for securing rainfed crops against drought spells; protective or lifesaving irrigation in extensive areas is a requirement; production system needs a regenerative/ agro ecological approach with diversified crop systems, extended soil cover regenerating soil health, good fodder base and livestock integration; regenerating common lands and improved recharge and management of aquifers is crucial. Organised community, with enterprises providing different input and value added services, infrastructure and access to market is crucial to achieve the above.

Project was formally initiated in January 2022; during the subsequent 3 months (Jan-March

2022), the focus was on preparing the community and other stakeholders to steer the program and providing basic orientation on some critical interventions. A team is placed in Srikakulam district and an orientation meeting is conducted at Visakhapatnam to the newly inducted team on the program deliverables. A strategic workshop with elected Gram Panchayat leaders was conducted on 8th Feb, 2022 to ensure their active involvement in the program.



Gram Panchayat leaders explained their challenges in terms of lack of infrastructure and access to market, apart from the issues related to the local production systems. Turmeric, Cashew, Pineapple, Broom grass are major commercial crops in the region, however farmers lose the opportunity to raise their income due to lack of post harvesting facilities and market linkages. Assuring all the support, they suggested to conduct Gram Panchayat wise meetings with farmers.

Subsequently, orientation meetings were held on community solar irrigation systems in two villages, Chinagora in Veeraghattam Mandal and Karraguda in Seethampeta Mandal. The idea is to provide irrigation to 100 acres of uncultivated rainfed area in these villages. It will benefit 75 farmers who own that land. They are organized into village level groups to manage the affairs and infrastructure. Survey for plot identification and land levelling is completed, planning and estimation process for these two sites are in progress under the guidance of thematic experts.

Another effort is being made to introduce mobile irrigation systems with solar energy carts to provide access to irrigation from seasonal water bodies, on custom hire basis. It is being taken up in Maniga village of Bhamini mandal; 10 farmers are identified and a group is formed in the name of 'Prakruthi Rythu Sangham'. They regularly meet to plan and prepare the estimations.

Focussed Group Discussions were held in Mulanka and Gopalapuram villages of Veeraghattam mandal to understand the scenario of the Desi Back yard poultry. 50 tribal households were identified for Intensification of Desibackyard poultry; these families extended support through Intensive integrated Desi Poultry Farms.

With an intention to promote ECO farm ponds – Farm ponds are integrated with fisheries and multiple species of fruit trees, vegetables around the bunds. So far, five farmers were identified through 4 orientation meetings.

Non availability of cow urine due to inefficient and inappropriate collection practices is a major hindrance in spreading the natural farming practices among the farmers. Considering this, a Bio- Resource Centre is initiated at Sannai Colony village in Bhamini Mandal. The planning process for this initiative is completed. It is aimed at collecting more quantities of cow urine by minimizing loss (through seepage) and improving collection efficiency. Seven farmers owning a total of 35 cows agreed to be part of this initiative; and, plans are being prepared to connect their cow sheds.

Efforts are also being put in to improve the productivity in Turmeric cultivation and Cashew orchards in Veeraghattam Mandal. Village level meetings were organized to understand the current practises and develop appropriate package of practices. 10 farmers of Mulanka village are in process testing of test new varieties and 20 farmers from Gopalapuram and Mulanka villages agreed to try efficient methods in cashew orchards.

On the occasion of International Women's Day on 8th March 2022, a get together event was organized in Navguda village. *Rythu Saadhikaratha Samstha (RySS)* supported this event where nearly 150 SHG leaders from 3 Mandals have participated. The occasion was also used to orient women on the nutritional aspects of Millets. They were trained on preparing different snacks and recipes with Millets. Women and district officials participated in a Walkathon, organized with a slogan **'Mana Panta – Mana Aaharam** (Our Crops – Our Food)'.





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Tribal women get together On International Womens Day 2022 for promoting Millet's Nutritional aspects



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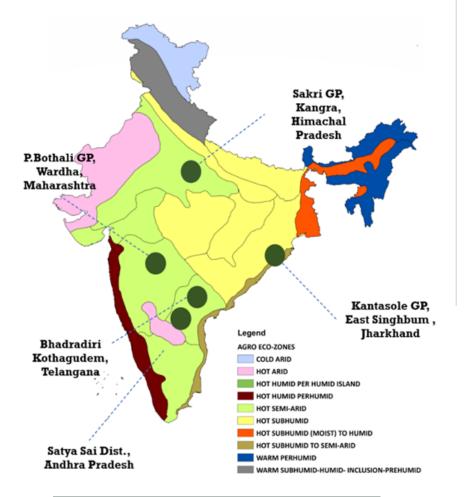
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23. Mapping of Eco-zones and their production

WASSAN in collaboration with Rainmatter Foundation and RRA Network started a first of its kind initiative to 'co-create an ecosystem of services at scale enabling smoother transition of regenerative and climate resilient agriculture using various forms of natural farming methods.' The program spanning 5 years started in January 2022 with initial project funding for 2 years.

The program works on three main levels:-(i) identifying operational Eco-zones (landscapes with uniform agroecology, issues of development and access to services and potential for transformation) that helps in exploring key landscape indicators, contextualize knowledge and application as well as provide a larger 'canvas of action' in the coming years; (ii) work on critical areas such as millets, farm inputs and equipment (to make farming easy), seed systems, regenera-



tion of commons, water bodies, market access along side other themes that emerge during the course of engagement (participatory workshops, GIS mapping etc.); (iii) Develop platforms around the different areas of support owned by and accessible to the larger CSO networks.

Mapping of Eco-Zones & their Prioritisation

As part of this, 6 diverse landscapes were identified based on a set of relevant criteria, some of which include-type of agro-ecological zone, % tribal population, vulnerability to climate change, presence of strong Network partners etc. These landscapes fall under 6 states and the features of these landscapes are broadly as below; they fall under Hot- arid, Hot Semi-Arid, Hot Sub Humid, Warm Sub Humid and Hot Sub Humid regions of Deccan Plateau, Central High Land, Western Himalayas, Eastern Plateau - Eastern Ghats regions. Cropping intensity ranges from 106% to 163%, while annual rainfall is in the range of 560 mm to 1376 mm; area under commons and reserve forest (as % of total area) is in the range of 18.20% to 62.50%; the percentage of tribal population ranges from 3.20% to 67.30%; there is also significant level of climate change variability in these areas. CSOs like Dharamitra in Maharashtra, RTDC in Himachal Pradesh and Kalamandir in Jharkhand are taking part of this initiative along with WASSAN and RRA Network.

Building Ecosystem of Support Services

Millets

An ecosystem of support around millets implies ensuring access to critical services across the value chain. This includes access to millet seeds, knowledge about production, processing, technical support for millet processing units, knowledge about recipes, access to credit and other enterprise development support, access to different market channels etc.,

With support from the team in Odisha, a plan of action was developed to build an ecosystem of support around millets that access to critical services across the value chain. A group consisting of experts (Millet machines, processing, Unit operations, technical issues etc) has completed two rounds of exploratory visits across Odisha to understand the existing status of Millet processing in the State and documented their findings.

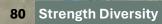
SEED SYSTEMS

Strengthening community managed seed systems requires facilitating actual 'exchange' of seed in addition to conservation, characterisation and documentation of indigenous seed varieties in different landscapes. A 'Traditional Seed Portal' has been designed to bridge the existing gaps in the support available in this context to CSOs, farmers etc.

MARKET ACCESS

The attempt here is to experiment with agri-business models that provide a sustainable solution to the issues faced by Rainfed farmers, namely those of lack of fair and remunerative prices at harvest, unfair trade practices, lack of storage, credit, lack of access to better market channels etc. Few existing warehousing based agribusiness models managed by Farmers' institutions have been explored for potential replication (as per local context) and scaling up.







6 Networking



24. Network Hub of the RRA Network

The Revitalising Rainfed Agriculture Network (RRAN) is a widespread network of civil society organisations for policy advocacy for appropriate investments into rainfed agriculture. **WASSAN** hosts the Network Hub of the RRA Network. The Network Hub hosts regular meetings and seeks to build the capacities of its state chapters for strengthening rainfed agriculture in the respective states. It also supports research and innovations in various themes related to rainfed agriculture. In this past year, RRA Network consolidated its achievements by supporting collaborations between **thematic groups** and **state chapters**.

National and International Collaborations

RRA Network Hub, as the knowledge partner of National Rainfed Area Authority (NRAA), developed a strategic framework for rainfed agriculture. Almost all of its inputs were incorporated in the policy document on rainfed agriculture by NRAA.

Recognizing the work done by RRA Network in the incorporation of draught animal power in rainfed agriculture, the Indian Agricultural Research Institute -All India Coordinated Research Project (ICAR-AICRP) on Increased Utilization of Animal Energy (UAE) with Enhanced System Efficiency recommended RRA Network to be one of the AICRP Centre for UAE.

As a founding member of the National Coalition for Natural Farming (NCNF), RRA Network helped the National Institute of Agricultural Extension Management (MANAGE) to organise training programs in natural farming for 35,000 Gram Pradhans across the country. 750 online programmes with the support of the state training institution SAMETI will be held for about 50 Gram Pradhans, at a time, in the rainfed states.

In Odisha and West Bengal, RRA Network partners with WHH to promote Sustainable Integrated Farming Systems (SIFS). SIFS ensures that smallholder farmers have significantly improved incomes, diet diversity and farm productivity through the practice of agro ecological farming. The programme made significant strides towards its overall target of 10,000 households this year. Key innovations of this programme are training government workers in SIFS and micro planning as well as getting sustainable land management measures included in the Gram Panchayat Development Plans.

RRA Network has an active partnership with the Jharkhand State Livelihood Promotion Society (JSLPS) of the Jharkhand Government to design the Jharkhand Millets Mission. In collaboration with Welthungerhilfe (WHH), RRA Network organised the United Nations Food System Dialogue in Jharkhand.

As a technical agency in the millet programme for Traidcraft, RRA Network provided knowledge and policy advocacy support to the partner organisations of Traidcraft who are implementing programmes on the millet value chain in Jharkhand and other states.

As a knowledge partner for the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) RRA Network, in collaboration with the Karnataka State Chapter established a new national network, the India BioChar and Bio Resources Network (IBBN).

RRA Network is a member of Food and Land Use Coalition (FOLU)-India. FOLU (India) is a chapter of FOLU International and seeks to effect a paradigm shift to sustainable agriculture in India. To that end, the RRA Network Hub, with other FOLU India partners, collaboratively worked on a research document called the Action Agenda that seeks to give direction to the agricultural sector of the country. As a member of FOLU (India) RRA Network supports the Odisha Rainfed Agriculture Mission (ORAM) with funds from the Government of Norway. To that end, the Network Hub engaged with the Department of Agriculture, Odisha and the local technical partner, WASSAN, for the implementation of ORAM.

In the FOLU India Sustainable Rainfed Agriculture Programme (FISRAP), RRA Network Hub coordinates the research work of FOLU partners and landscape partners in Maharashtra, Telangana and Andhra Pradesh. For FISRAP, RRA Network Hub coordinated State Level Inception Meetings in the three states, built capacity of all partners on various best practices and interventions, gave design inputs and facilitated theoretical research for the selection of intervention districts, blocks and gram panchayats for all the landscapes based on secondary data analysis. In the selected sites, it helped partners in qualitative research data collection and analysis and helped organise Block and District Level Consultations and Site visits for FOLU (India) partners.

State Chapters of RRA network

RRA Network actively supports three state chapters in Himachal Pradesh, Maharashtra, and Karnataka. Himachal Pradesh is a pilot site for revitalising rainfed agriculture in a Himalayan ecosystem. The Himachal Pradesh RRA Network (HimRRAN) currently has a core team of 14 organisational partners and resource persons. The most significant achievement in this period has been HimRRA's work in promoting indigenous seeds, and organised a residential training programme for 23 farmers and CSO members that was led by the members of the Working Group on Seed Systems. The training mainly focused on types and characteristics of seeds, seed management, and storage system. An action plan was prepared to mobilise and identify farmers and crops for the production and multiplication of desi seeds and local varieties. A trained cadre of 60 persons known as Beej Mitra has now emerged in the state who serve as resource persons for promoting indigenous seeds as well as integrated natural farming.

The Maharashtra RRA Network (MahaRRAN) has evolved to a network of 20 organisations that has a presence in all the 6 divisions of the state. Its core achievement was signing an agreement for developing a prospective development plan on rainfed agriculture in six districts of Nagpur Division as well as with the Osmanabad District Collector for addressing core developmental issues in that district through rainfed agriculture development. Also, most significantly, MahaRRAN continued the Kharif Campaign it had started during the pandemic for homestead production and consumption of millets. In collaboration with National Coalition of Natural Farming, 16 organizations across Maharashtra with a cadre of 56 Community Resource Persons reached out to 17,000 farmers in 18 districts and 22 blocks of the state.

The Karnataka RRA Network (KarRRAN) partners with over 50 civil society organisations and works actively in 8 districts of the state. Its core work has been to promote Akkadi Saalu, an indigenous multi-cropping system, at scale. It seeks to do this amending existing institutional systems to support this natural farming tradition in rainfed districts and establishing Raithara Anubhava Mantapa, a peer-based learning platform for farmers. Its most significant achievement this year was to launch and host IBBN.





In the Vidarbha region of Maharashtra, community forest rights (CFR) for nearly 6,500 villages totalling about 8, 00,000 hectares have been recognised since 2013. Collection of Tendu leaves gives seasonal employment to millions of tribal households. Depending on the selling price, each individual can gather between 1500 and 2000 bundles for which they are paid Rs 9 to 11 for each bundle of 70 leaves. These bundles are brought by collectors to collection centres where they are dried, and marketed.

Under the Maharashtra Forest Produce (Regulation of Trading) Act 1969, the Maharashtra government has exclusive jurisdiction over the trade in Tendu leaves. Only the officials designated by the government or the agent chosen by the government c\may purchase Tendu leaves from common and private landholdings. This is intended to stop contractors from exploiting

Case Study –8Tendu Story of Gadchiroli

labourers and prevent stealing Tendu leaves. In 2014, Maharashtra became the first state to deregulate its Non Timber Forest Produce (NTFP) rules and regulations. It enabled community to directly take control the leaf collection process and its value chain. Since the deregulation, hundreds of communities in the Vidarbha region of Maharashtra have used these rights to independently choose the contractor, establish the terms, and sell the leaves they had collected to traders. Initially it was challenging due to inadequate management and erratic collection frameworks. The communities risked losing the produce due to spoilage in the extended search for a suitable trader. But success stories are emerging from the field where the Adivasis have successfully organised themselves to command the best price for their produce.

In the Dhanora block, the Gram Sabhas have streamlined their procedures and gained financial independence. In some places, community nominated a Munshi to supervise the collecting and sale process. They learnt the art of the trade; keeping track of who had collected how much as well as of hired labourers and daily wagers for handling Tendu leaves. RRA Network with their member organisations like Amhi Amchya Arogyasaathi (Gadchiroli), Centre for people's collective (Nagpur), FEED (Chandrapur), Srushti (Gadchiroli), Vidarbha Nature Conservation Society (Gondia) and Vrikshamitra (Chandrapur) in the Eastern Vidarbha region work closely with indigenous farmers there to support them in getting their entitlements under Individual forest rights (IFR) and CFR.



Thematic Groups of RRA N

Working Group on Seeds Systems (WGoSS)

The Working Group on Seed Systems (WGoSS) has made considerable headway in analysing the current seed systems, identifying specific policy, institutional and programmatic requirements for rainfed areas, bringing several CSOs and ICAR and Government institutions (central and state) related to seeds into partnerships. Its work is also being increasingly recognized internationally with collaborative projects being undertaken or in pipeline with funders such as SWISSAID and networks such as APAARI to bring back forgotten foods back into people's diets. Its significant achievements are listed below:

- Landraces and indigenous seeds: Establishing standard operating protocols and alternate seed systems for landraces in Odisha; Initiated the landraces mapping exercise in Odisha and Chhattisgarh; Coordinating with Seeds Saver to source seeds based on the indent received from the farmers; Seed Distribution to the farmers on various initiatives in Telangana and Andhra Pradesh; Packaging and distribution of Seeds to the Mana Vittana Kendras (MVKs) were accomplished; Created a Digital Repository of Indigenous Seeds with 230 landraces
- Biodiversity Conservation: Initiated the process of establishing crop-based Biodiversity Blocks in Rayalaseema, Andhra Pradesh; established Paddy Diversity blocks in Vikarabad and Chittoor.

Collaboration with the Registrar of PPV & FRA for mapping the germplasm in biodiversity hotspot area; Collaboration with ICAR-NBPGR for exchange of germplasm; Signed a MoU with ICAR-Indian Institute of Rice Research (IIRR) for mapping the genotypes and phenotypes of 58 heirloom rice varieties that are preferred by the farmers in Telangana; Finalised Sorghum and Foxtail millet characterisation and varietal release format with ICAR-Indian Institute of Millet Research (IIMR).

- Promoting underutilised species for healthier diets: A workshop was held in Bengaluru to create awareness about the importance of cultivating landraces and underutilised species; Developed a network proposal on Consumption of Resilient Orphan Crop for Products for Healthier Diet in collaboration with SWISS-AID. RDCSC, Sahaja Samrudha and Bhitti Bhumi are the partners in West Bengal, Karnataka and Odisha; Initiated "Mana Panta - Mana Aarogyam" - A cropping system internalized by the farmers to cultivate all the field crops which they have been consuming in their households for a year.
- Awareness and capacity building programmes for seed systems: Capacity Building Webinar programme on "Quality Seed Production" – it is a six-webinar series on organic seed production; Training programs for HimRRA and Karnataka RRA State chapters were taken up.







✓ Case Study −9 Conserving the Seeds

Community-based biodiversity blocks (CBB) is a method to promote conservation, bringing the landraces/ indigenous varieties which are going to be extinct and to identify promising indigenous varieties/landraces at local level, with prominence on agro-biodiversity. CBB has unique strategies on in-situ conservation which has capabilities to take decision making power for Communities on conserving landraces at CBB. Currently, biodiversity blocks in more than 6 states are being technically supported by RRA Network.

The Working Group on Seed Systems (WGoSS) of RRA-N played a vital role in the initiation of Community Managed Seed Systems for Natural Farming in Andhra Pradesh. It is actively involved in characterization of landraces. A total of 230 landraces belonging to 45 crops are characterized, out of which 12 high potential landraces have been selected for multiplication during Kharif 2021.

Odisha Millets Mission (OMM) is involved in identifying, testing and popularizing local land races of millets. Over 300 landraces were screened and tested for their performance by OMM. At the initiative of the OMM team, the Department of Agriculture has constituted a formal Working Committee to develop a detailed framework for popularizing well performing land races into a formal seed chain. WGoSS anchored the work of this Working Committee to develop a framework for Landrace Seed Systems for Odisha.



Working Group on Millets

The Working Group on Millets (WGoM) views the cultivation and consumption of millets for promoting sustainable and climate resilient crop-systems in rainfed areas, health through nutritious diets and reducing water and carbon foot-print in public food systems through decentralised inclusion of millets. It also works for decentralised processing of millets for the economic growth of rainfed areas through promotion of ancillary millet-based cottage industries. This year, it achieved the following:

WGoM provided inputs to roll out program on decentralised inclusion of millets as Hot Cooked Meals through ICDS supported by NITI Aayog in Asifabad district of Telangana; developed project briefs for inclusion of millets in mid-day meals, Andhra Pradesh; Submitted the draft proposal for inclusion of millets in ICDS – Madhya Pradesh; Contributed to the Chhattisgarh Government program on Millets Mission; Supported proposal development for scale up Millets Mission program in Maharashtra and Jharkhand with Tribal Welfare Depts., Efforts were put in for capacity Building of RRA Network partners from Jharkhand, Rajasthan, Madhya Pradesh and Chhattisgarh.

■ Working Group on Markets, Institutions and Finance Working Group on Markets, Institutions and Finance was established to provide conceptual clarity, ground empirical engagement, and make recommendations to the government for well-directed public investments to help market-based systems in rainfed areas. This is relatively a young working group focussed on certain research outputs in this current year;

Working Group has created a database and mapping of FPOs and key farmer groups in rainfed regions along with their key commodities in order to facilitate fair and efficient product and price discovery; Worked on critical analysis of MSP and public procurement policies and practices in focus states and also consolidated learnings from Odisha Millet Mission, PDS millet procurement in Karnataka; Reviewed FPO policies of Karnataka, Maharashtra, Odisha, SFAC, and NABARD and recommended policy inputs to ad-







25. General Support to Strengthen Civic Engagement of Smallholder Farmers in Rainfed and Support for Institutional Strengthening (Ford Foundation)

WASSAN as an organisation and its networking initiatives have significantly expanded over the last two decades. The scope of work also expanded thematically as we move towards agroecological approaches. The societal context has also changed substantially.

WASSAN was one of the few organisations chosen by the Global Building institutions and Networks (BUILD) program of the Ford Foundation. The program gave us an opportunity to revisit the organisations' vision, mission and strategy in the current societal context. Inputs were taken from a slew of eminent people – from bureaucracy, CSO leads, activists and others to revisit our priorities and strategies. Social Synergy Foundation was taken in to support in improving the institutional systems.

These consultations led us to initiate activities with Gram Panchayats, communities' traditional leadership - especially with pastoral communities and Adivasis. The networking initiatives to promote agroecology programs at scale have been initiated. WASSAN facilitated a design workshop for NABARD to evolve a larger scale agroecology program named 'JIVA' overlaying on their completed watershed development and TDF projects. 25 projects in 11 states have been commissioned. WASSAN trained all the officials of at multiple levels on the agroecology. An orientation and field immersion program were also organised for the national team of GIZ-India on agroecology. WASSAN team organised online training program for the Project Facilitating Agencies and their teams on the concept of JIVA and agroecology with modules developed using Google Classroom.

The framework for a program on Enabling Natural Farming Transition in Tribal landscapes of Odisha was developed with the ST & SC Department of Government of Odisha targeting 6 tribal districts of Odisha working with women self-help groups at scale.

On the ground, series of orientation programs were organised with Gram Panchayats in the Tribal Area. A detailed planning exercise to enable agroecological transition was taken up using GIS-Mobile-web application developed for the purpose. Ward wise plans were prepared by the Ward members of the Gram Panchayat along with trained youth and the plans were consolidated at the Gram Panchayat level. The total budget for planned actions amounted to Rs.9.16 crores. Gram Panchayat initiated some activities through MGNREGS, made representations to the District administration and were exploring resource mobilisation to implement the plans. The initiative with pastoral communities is detailed further in this report.

The BUILD program in essence, helping us prepare for the future.

Fisheries	12	0.83
GP leaders Capacity building	1	1.4
Land Development	17	567.57
Livestock	18	91.49
Natural Farming	18	4.66
Pasture land development	9	8.55
Podu lands developments	18	113.7
Processing Hub	1	2.5
Seed System	18	0.75
Water Resource Development	13	100.92
Grand Total	18	916.64







7 Research and Technology development



26. Water Management in Rainfed Areas for Improving Livelihood Security of Smallholder Farmers

This initiative is part of Australian-Supported R4D Project in Andhra Pradesh, Odisha and Karnataka; it focuses on up-scaling technical innovations from previous research of Australian Centre for International Agricultural Research (ACIAR) to assist water management and drought mitigation in India. The National Rainfed Area Authority, an expert body within India's Ministry for Agriculture and Farmers Welfare, Government of India is coordinating the project. It is working with the above three state governments, applied research institutions, universities both in India and Australia, NGOs and farmers to develop suitable frameworks and solutions to improve water management. WASSAN is one among the project partners that also include ACIAR and the Australian Water Partnership (AWP), Commonwealth Scientific and Industrial Research Organization (CSIRO), Western Sydney University and South Australian Research & Development Institute (SARDI).

This partnership is supporting five large developmental projects related to rainfed agriculture in India: the Andhra Pradesh Drought Mitigation Project; Andhra Pradesh Zero Budget Natural Farming; Watershed projects in Karnataka supported by the National Bank for Agriculture and Rural Development; Integrated Farming Systems project in Odisha; and Odisha Millets Mission.



Operating across the waterstressed regions of 3 project states, the initiative is focusing on helping farmers and rural communities who depend on rainfall to better manage water resources to become more resilient to extreme weather events like drought. The project involves a course to share tools and methods developed through research projects with extension staff and farmers. They are helped to implement these tools and methods to optimize water use, making their farms more productive and resilient. Chameleon Soil Water Sensors and related equipment are being tried out to help with soil moisture monitoring.

Technology solutions being utilised in the project include monitoring tools developed by the Virtual Irrigation Academy, such as the Wetting Front Detector (WFD) and the Chameleon Wi-Fi System. The WFD measures the depth of water and the level of salt and nitrate in the root zone. The Chameleon uploads water data to the cloud-based VIA platform to monitor and analyze water productivity on farms.

Facilitating the project, a series of online learning workshops and hybrid (online + offline mode of trainings were organized for partners. An off-line workshop was organized in Hyderabad from 27th to 30th October 2021 to develop common vision and action plan among the partners for upcoming months. 45 participants from 5 major projects (OMM, SPPIFS, APDMP, APCNF and NABARD) representing 13 NGOs and government departments participated in this workshop. A common vision was reinforced among the participants, project partners and anchors on the potential of knowledge-based water resources management in rain-fed conditions, apart from developing clarity on roles / responsibilities and protocols for coordinated digital learning; a road map was also developed for the remaining part of the learning program.

Learnings

Course Delivery: Hybrid mode (online + offline) of trainings found to be an effective method to deliver the capacity building program. Proximity of team members around the project locations

increase the scope of effective implementation and experimentation. Participants showed keen interest in topics where direct application of the learnings is possible home project

Course content: Tools like Chameleon sensor for strategic irrigation are readily used by farmers. Root test and nodule test learning in modified form was applied by participants in soil

microbiology. Use of rainfall data and crop climate calendar is effectively guiding to deal with more climate risky decisions. The details of the training sessions conducted are as below; these trainings were in hybrid mode. Participants represented 13 project locations across the country.

Theme	No. of training sessions	
Climate Risk Mitigation	13	
Participatory Groundwater Management	13	
Soil Microbiology	10	
Strategic Irrigation (VIA)	11	
MEL and Ethics	2	





27. Economic and Empowerment Impacts of Millet Processing and value addition enterprises by WSHGs in Tribal areas of Odisha" (E2IMPART) -(3IE Funded Project)

This is an action research project funded by international initiative for Impact Evaluation (3IE), led by Natural Resource Institute (NRI, UK) and implemented by WASSAN with support from NCDS, University of Greenwich, Brunel University and University of KENT. It is being undertaken with 1669 women from 170 WSHGs of 10 blocks of Koraput district, where Odisha Millets Mission (OMM) is already operational. The objectives of this research is to document evidence on the impact of gender responsive capacity building training and support services focusing on the millet processing and value addition-in assisting WSHGs to set up sustainable millet based enterprises in tribal areas of Odisha.

Though Millet is a traditional and indigenous staple food of tribal belts of Odisha, it is not a preferred food option by majority of the consumers due to poor post -harvest processing mechanism and lack of exposure in consumer-based value addition. OMM is putting lot of effort to create demand for millet based value added products, but it still is a struggle to visualise scale-up of these enterprise development. And the major gap lies with lack of adequate envisioning and skill building support to existing institutions in the ground, that is women SHGs to make it sustainable and gender-responsive but in scale.

For a gender responsive initiative like this, the quality parameters that are being focussed are - socioeconomic independence, decision making power, control over assets, drudgery reduction, food and nutrition security and empowerment of women. To understand the impact of interventions, capacity building mechanisms are being studied in terms of 6 module trainings that include, internalisation of importance of millets, collectivisation, envisioning and skill building for enterprise development, detailed marketing and resource management and financial plan etc. Exposure of SHG members to other SHGs who are already running millet based enterprises for vision building and cross-learning is also being studied. The expected outcome is to support women to build a sustainable millet-based enterprises with better understanding of consumer demand and market so as to contribute to the ultimate goals of OMM - socio-economic empowerment of women and making millets as a front-line crops with demand from all class of consumers.

Sample target groups for this action research are selected on a random sampling basis, from 10 out of 14 OMM blocks i.e.; Boipariguda, Borigumma, Dasmantpur, Koraput, Kundra, Lamtaput, Laxmipur, Nandapur, Pottangi, Semiliguda, of Koraput district. A total of 175 WSHGs are selected from 85 villages, a pair from each village. In this two WSHGs , one owns a thresher supported by OMM. As per the intervention & impact study plan, these 170 SHGs are further divided into 3 categories again in random sampling method; one category (58 WSHGs) provided support for visioning through capacity building in terms of exposures, market linkages for business enterprise. Second category of 58 WSHGs were given extended support in terms of extra exposure on business enterprises with millet based value products; they are also provided with exposure given to first category. And, third category (54 WSHGs) is controlled group with no interventional support.

Progress so far...

■ Baseline survey: A baseline survey was done with 1669 members of these 170 WSHGs, to quantify various economic and empowerment indicators of an individual and their households. This data will form the base on which the impact of gender responsive capacity building trainings and support services for enterprise development will be assessed. Kabil Professional Services Private Limited (KPS) undertook this baseline survey in the field. The cadre employed for the survey was trained beforehand.



Capacity building trainings: Six gender responsive training modules have been designed as per the defined research protocol on themes like - understanding cultural and nutritional importance of millets, power of women collectivisation, visioning around millet enterprises to business plan development, financial management and recipe trainings. Visually aided evaluation sheets are designed to make the trainings more participatory, ensuring illiterate members also able to completely participate without any hindrance. A total of 35 trainings on Module 1 - related to understanding the cultural and nutritional importance of millets have been completed across all 10 blocks of Koraput district by March 2022.

■ Exposure visits: A batch of 23 members from 2 WSHGs of Semiliguda block were taken to the processing unit of Manyam Grains situated in Anakapalle in Andhra Pradesh for a two day visit. Participants got an opportunity to understand the millet processing from starting to end and understand the available market options which were available.

Nutrition Profiling and Recipe Innovation:

These exercises have been done to document and highlight the nutritional content and diver-



sity of millets. As such, profiling of 20 varieties of millet landraces from Koraput region has been completed. It will be followed with more varieties and also some popular millet recipes such as *Muduki, Sattu andB*. The varieties which have been profiled are listed as follows:

Testing of new millet recipes and getting feedback from community was undertaken to assess the level of acceptance. Different variations of Ragi noodles have been tried, which will be tested during the future field trainings.



PROFILED VARIETIES

Finger millet: Bati Mandia, Dasara Khae, Janha Mandia, Kalia Mandia, Mami Mandia, Panaka khae, Kala Kerenga, Kantamera, Dasara mandia, Bada Mandia, Lara kani, Kumudu nail, Khutuni, Dangar mandia, Sana mandia

Little millet: Bada Suan, Sana Suan, Guruji Suan.

Foxtail millet: Nali Kangu, Dhala Kangu.

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■ Participatory Improvisation in Farm Equipment: For utilization in the research process, three types of farm machineries (one each) were purchased. These are - Mini Rice Mill Pulverizer (3HP single Phase), Mobile Multi Deck Grader (0.5 HP single Phase with 3 grading decks,hopper screen and bottom dust tray) and Ragi Thresher cum Pearler.

Based on reviews from field, the farm engineer of the team will be working on suitable modifications on these machines to improve their efficiency and ease of use.



■ Survey on impact of COVID lockdown on millet supply chain: This was undertaken to collect information on the impact of the COVID lockdowns on the various levels of the millet supply chain in Koraput district. Surveying is being done with 170 farmers, 30 intermediary traders, 40 persons involved in millet processing, 30 members of FPOs and 40 retailers.





28. Documenting Arts and Crafts including Agricultural Traditions Unique to Telugu Culture

Many art forms and the invisible artisanal skills of common people are linked to usage of natural resources. With the changes in lifestyle and technology these skills and art forms developed over centuries fades away. In an attempt to conserve this immense traditional knowledge in routine life of the communities WASSAN had collaborated with the Detroit Telugu Literary Association (DTLC) and Sri. Savem Ramesh in supporting video documentation of over 100 such art / skills of Telugu people – under the name "Telugu Nadaka". These are available in You Tube and in the website http://telugunadaka.in/ .terms of extra exposure on business enterprises with millet based value products; they are also provided with exposure given to first category. And, third category (54 WSHGs) is controlled group with no interventional support.



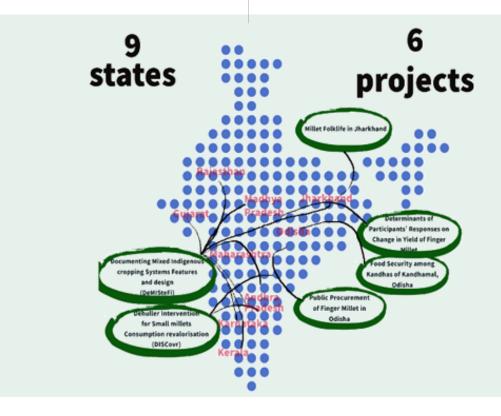


29. Transforming India's Green Revolution by Research and Empowerment for Sustainable Food Supplies (TIGR²ESS)

TIGR²ESS is a research project anchored by the University of Cambridge and with partners drawn from research, industry, government and NGOs in the United Kingdom and India. The project is an outcome of the realization to address the 21st-century challenges to the Agri-Food Systems in India; and, a collaborative, longterm research partnership in sustainable agriculture (TIGR²ESS n.d.).

TIGR2ESS is structured across six Flagship Projects (FP), of which projects undertaken by WASSAN are associated with the FP-6 — Impacting Wellbeing in Rural and Urban Communities; a tripartite agreement is there for this project with University of Cambridge and (NCDS) Nabakrushna Choudhury Centre for Development Studies - Bhubaneswar. While NCDS is Co-Investigator of this project, WASSAN has taken the role of Principal Investigator.

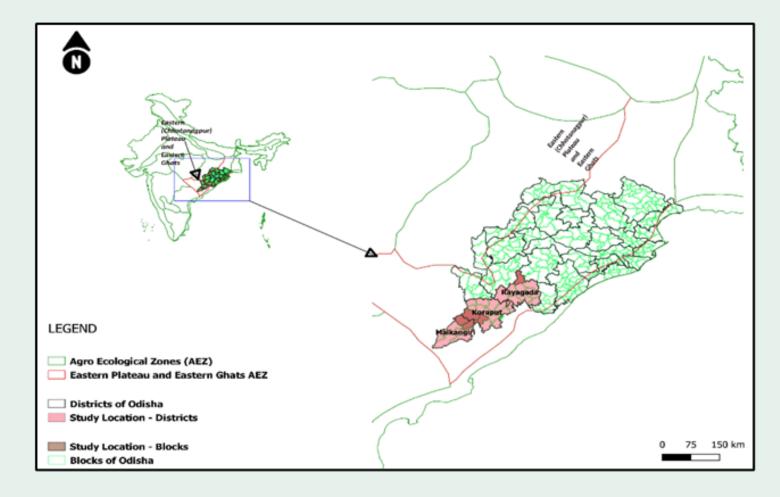
Six initiatives have been undertaken as part of this project covering **9 states** (Rajasthan, Gujarat, Madhya Pradesh, Jharkhand, Odisha, Maharashtra, Andhra Pradesh, Karnataka and Kerala) across the country; the details are as hereunder.



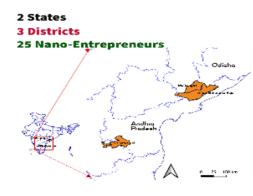
In 2017, Government of Odisha has launched Odisha Millet Mission (OMM), under the aegis of Department of Agriculture and Farmers and Empowerment. The objective is to revive millets in farms and on plates in the state. Several initiatives have been undertaken by OMM in that direction. Public procurement of Ragi (Mandia in Odia) at Minimum Support Price (MSP) is one such flagship initiative of OMM. Launched in 2018, this initiative is to absorb the improved production of millets while giving an assured price to farmers. Meanwhile, Cambridge University has partnered with OMM to explore possibility of looking at the design of OMM as an alternative to Green Revolution framework. In this context, this research initiative was undertaken as part of TIGR²ESS, primarily focusing on to understand the changes in the private market trading of Ragi in Odisha, subsequent to the initiation of public ocurement by OMM.

The study was carried out **3 Districts** -Malkangiri (Mathili and Khairput), Koraput (Boipariguda and Lamtaput) and Rayagada (Muniguda) between October 2021 and March 2022. As part of this study, 1157 farmers and 9 millet traders were interviewed; 9 Focus Group Discussions were held; and, 55 farmers' surveys were conducted to understand the cost dynamics of finger millet. Field enumerators selected for farmer surveys were given an orientation about the project, and hands-on ODK training at a residential training session organized at MSSRF, Jeypore, during 12-17th December 2021. Research ethics sessions were also imparted to the researchers and field enumerators before the field activities. Resource persons from Institute of Forum for Medical Ethics Society, Mumbai supported this process.

Preliminary and intermediate observations from the study were presented at the TIGR²ESS Summative Workshop on the 19th of January 2022. Incidentally, the farmer surveys helped identify one of the field locations for the DISCovr action research, also a part of TIGR²ESS.







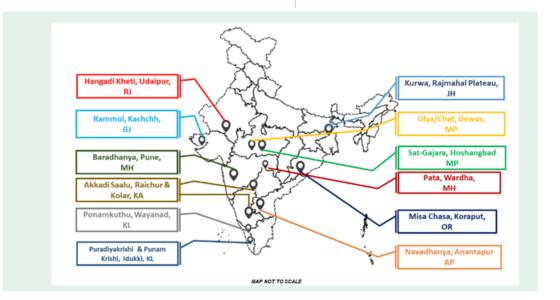
Documenting Mixed Indigenous Cropping Systems Features and Design (DeMISteFi)

India's rainfed agricultural systems have for many centuries catered to the local needs for food, feed and fibre. They evolved over years under highly specific agro-ecological conditions. The DeMISteFi exploratory research contributes to the TIGR²ESS objectives by documenting some of the mixed multi-cropping systems of India, in terms of their climate resilience, agrobiodiversity, sustainable agronomic practices, and provision of nutrition to soils, humans and livestock.

As such, 12 cropping systems from 9 states were documented by 12 research partners between February and March 2022. The project began with an online orientation meeting for the partners on 14th of February 2022. Research findings were later consolidated at a two day consultation workshop organized at Hyderabad, during March, 2022. Some common design principles were discerned based on the type of sowing and rainfall in the study locations. A closer look into the cropping systems identified further features to explore like border crops, wind direction, labour use, duration and order of sowing, role of creepers and climbers integration and interrelationships with livestock and practices of pastoral communities. It was further decided to explore assess the crop system processes in the field during Kharif, 2022. Multiple outlets for communicating the study results were identified. This includes apart from peer-reviewed research journals, popular articles in local languages, regional workshops focusing on individual cropping systems etc.

Dehuller Intervention for Small Millets Consumption Revalorization (DISCovr)

The marginalization of small millets in India is unprecedented in its scale in comparison with other cereals grown or even with large grain millets of Sorghum and Pearl millet; in fact, it is the same case with Finger millet too, though it is also a small millet. One reason for this distinction is that all three of them are naked millets i.e. without a layer of husk covering the rice kernel and hence easier to mill. Manual removal of the husk involves drudgery and is primarily a task culturally delegated to women. This drudgery has played a major role in husked small millets like Little Millet and Foxtail Millet becoming less popular in terms of cultivation and consumption.



Addressing the bottlenecks in post-harvest processing at a household level consumption scale is hence essential. In this context, DISCovr action research is taken up to find an answer to the following question: Does the provisioning of a post-harvest processing machine for small millets result in its increased consumption? Does this, in turn, increase the local cultivation of small millets? This study is conducted 2 States - Odisha (Malkangiri District) and Andhra Pradesh (Sri Satya Sai District and Alluri Seetharamaraju District). Data has been collected from the field and 25 Nano- Enterprisers who have taken up decentralized millet processing on business mode in these locations. These entrepreneurs are seen as a means for establishing/catalysing a millets ecosystem which includes the farmers producing small millets, the consumers of processed millets and its by-products including traders and small-scale businesses. The findings are being analysed.

Assessing Determinants of Participants' Responses on Change in Yield of Finger Millet

One of the verticals of Odisha Millet Mission (OMM) is to increase yield/production. This study examines the responses of participant farmers' about the determinants concerning changes in yield after production interventions with new agronomic practices. An ordered logit model has been estimated for examining the responses of participant farmers' about the determinants. The model was based on the primary data collected in February and March 2021 from three blocks (Boden, Komana, Sinapalli) of Nuapada districT in Odisha.

The statistically significant estimates of odds ratio (derived from the ordered logit model) indicated that the determinants of participants' responses to change in yield were on account of production interventions through new agronomic practices—the adoption of a system of crop-intensification as a method of cultivation, seed treatment through locally available natural ingredients, frequency of weeding, and on having received training on agronomic practices. Results from this research were communicated through publications and paper presentations as follows:

- *'Factors influencing Ragi yield:* Participant farmers' responses in Odisha Millets Mission' - paper presented at 29th Annual Conference of Agricultural Economics Research Association (AERA) organized by Odisha University of Agriculture and Technology (OUAT) Bhubaneswar during 27-29th October 2021.
- 'Participant Farmers' Response on Changes in Ragi Yield under Odisha Millets Mission' paper presented at Doctoral Colloquium on Management and Development-2021 organised by Institute of Rural Management Anand (IRMA), Gujarat, India during 15 -17th November, 2021.
- 'Production and its Components for Nutri-cereals and Other Crop Groups, India: 1960-61 to 2019-20' - paper presented at the 81st Annual conference of Indian Society of Agricultural Economics organised by School of Business & School of Economics, Faculty of Management, Shri Mata Vaishno Devi University, Katra, J & K, India during 1-3rd December, 2021.
- Growth and Decomposition of Millets in Odisha: 1960-61 to 2019-20, Jena, D., & Mishra, S. (2022), Agricultural Science Digest. Agricultural Research Communication Centre.





Studying Food Security among Kandhas of Kandhamal, Odisha

Given the global commitment to zero hunger and the backdrop of the Asian enigma, the study looks into nutritional deprivation among the Kandhas Adivasis of Odisha. The fieldwork during the harvest period has shown pervasive household-specific and nutrient-specific deprivation. An inverse relationship between the number of nutrient deficiencies and the number of food groups consumed is observed. Food intake among pregnant and lactating mothers at home was found to be lower than that at Maa Gruha, a care facility. The outcome of this research was disseminated through the following outlets.

 Rashmi Rekha Samal, and Srijit Mishra
 (2022), "Food Security among Kandhas of Kandhamal, Odisha, India: A Mixed Method
 Study." Journal of Asian and African Studies, pp. 1 -22 (https://journals.sagepub.com/doi/ abs/10.1177/00219096221086525)

Rashmi Rekha Samal, and Srijit Mishra, "Nutrient Deficiencies among Kandhas of Kandhamal: A Mixed Method Study," in 29th Annual Conference of the Agricultural Economics Research Association (India) on Public Policies and Agricultural Transformation in India, Odisha University of Agriculture and Technology (OUAT), Bhubaneswar, India, 27-29 October, 2021.

Rashmi Rekha Samal, and Srijit Mishra, "Nutrient Deficiencies among Kandhas of Kandhamal: A Mixed Method Study," in 2nd Doctoral Colloquium on Management and Development (DOCMAD), Institute of Rural Management Anand (IRMA),15-17 November, 2021.

Rashmi Rekha Samal, and Srijit Mishra, "Where and How the Pregnant and Lactating Mothers Met Food Needs during COVID-19 Pandemic in Kandhamal", Policy Workshop Series by Transforming India's Green Revolution by Research and Empowerment for Sustainable food Supplies, UK and India (online), 19th, 27th Jan & 2nd, 10th Feb 2022.

Millet Folklife in Jharkhand

Millets have been an integral part of the Adivasi communities, agrarian culture, food, and festivals of Jharkhand since time immemorial. Most uplands and homesteads had different millets along with pulses, oilseeds, and fibre crops in the past; these were grown in a mixed rotational pattern with intermittent years of fallow. Millets are well adapted to the undulating terrain, marginal soils, and tropical savannah climate region of Jharkhand.

Independent researcher Soumik Banerjee conducted this study to understand the current status of millets and their relevance in the lives of Adivasis, including their medicinal uses and the cultural life associated with them in Jharkhand. Methodology for the study involved secondary and field research across all the five divisions of Jharkhand with a special focus on Millet-intensive areas. It was observed that Millets are embedded in the Creation Stories, Legends, History, Songs & Folklore of different communities across the state. Social functions of birth, marriage, and death are incomplete without the invocation of millets and the preparation of different foods and drink.

Currently, 88% of sown area in Jharkhand is under mono-cropping, predominantly transplanted medium to long-duration Rice. Millets are no longer preferred - since the need for staples is being met with Rice farming, PDS, and Wage labour; thus, farming of uplands for millets, pulses etc has declined. These days, Millets are largely confined to some places like, Ranchi Division (Finger Millet) and Rajmahal Hills (Sorghum) of Santhal Pargana Division. Most other millets have been greatly marginalized or disappeared from the landscapes. No system is found to be in place through which farmers could replenish their lost seeds to revive cultivation. Study highlighted the need to revive Millets under Mission Mode, as is being done in neighbouring states like Odisha & Chhattisgarh; the efforts in the southern states providing a broad direction to encouraging similar initiatives in Jharkhand, particularly in the International Year of Millets.





30. Improving Prototypes, Standardizing Innovations and Extending Eco Services

Throughout the year, the FarmEasy team intensified its efforts in the development of several prototypes and the enhancement of existing ones. While there wasn't a dedicated project akin to Sustain+ as in the past, the team provided technical support and interventions to various ongoing WASSAN projects, including CRZBNF-II, HDFC, RM, DMF, OMM, SPPIF, TTD Goshala, ICDS, Tigress, CIRC, and more. These endeavors involved adapting proven technology to suit the geographical context and community requirements of each project, alongside the pursuit of novel innovations. The subsequent section outlines the specifics of this work.

1. Mobile Solar Pumping Solutions

■ Energy Cart: After field trials, few more modifications have been done to the initial Energy Cart model. Detachable panels added to the cart to enable set of 3 panels to be carried like a Pallaki by 2 persons and access surface water sources having no proper approach path for the cart. The inverter/batteries sized sufficiently to power equipment with 2Hp AC, single phase. Aluminum frame are made for panels with



metallic hinges for enhancing the rigidity in place or FRP & canvas cloth hinges.

■ Solar Pallaki It has been developed especially for Tribal and Hilly terrains with a 1Hp pump for irrigation This year, 2 Energy Carts & 2 Solar Pallakis have been supplied under ZBNF-II program.



Energy Cart (new) - 2Hp pump & VFD, inverter & battery & Solar Pallaki -1Hp pump & VFD deployed on field

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■ Solar Automated Drava Jeevamrutham (DJ) Preparation unit: Based on the learnings and observations of the existing stirrer model (designed for a single tank), FarmEasy has developed a new model for better utilization of resources. This new model has following features - an aerator mechanism which can operate 2- 3 tanks simultaneously, saving capex; and, a filter mechanism designed with a metallic frame for holding the mesh, fitted on top of each tank for easy disposal of residual material, to reduce drudgery & cleaning time after each cycle.

Pratima Organic, an organization based in Titlagarh, Odisha has ordered 2 such units for its field locations. WASASAN team helped them from the design phase; plan was provided to connect 7 cow sheds and support was extended in identification of DJ unit location. The site preparation work is under process.



Solar Automated DJ unit controller & filter mechanism

2. Other Technical

Interventions

■ Bed Maker: A bullock drawn bed maker was developed by Malyaj and field tested in Jharkhand. Based on the inputs, one such Bed Maker was fabricated in Kadiri and was sent to project locations in North Coastal Andhra Pradesh for field trails.

■ Seed Dressing Unit: Initially done with a plastic drum for proof of concept; SS drum

(modified standard available drum in market) was used in the subsequent prototype. The results from initial demo trials done in Kadiri area are satisfactory based on the feedback from farmers. More trials are going on in that area for firming up the model.







Customization of Agni Cart: The 5 row cultivator attachment was customized to suit the soils of Kadiri area which has lost stones. The stones jammed in between the tines was causing difficulty; the farmers and the bullocks faced problems as it was heavy to lift the attachment & clear the jam. Upon enquiry, it was found that the problem was with a common spring arrangement for the entire unit, the recoil action & noise with which bullocks were frightened. As a solution, it was figured out to fit spring individually to each tine to reduce the impact. The farmers who participated during demo and initial trials were happy with the modified attachment, though it is to be tested and assessed further for a longer duration on field.



5 row attachment basic version and customized with springs to individual tines





3. Support for Technical interventions and Services to other Projects

■ Mini Millet Dehuller (Mixies) for ICDS and Tigr²ess project: Supported project team in procurement of Mixie components, sieves, assembly and logistics for Tigress Project. A total number of 30 Mixies were assembled and disseminated through the project. Women entrepreneurs and rural youth underwent training in the assembly and maintenance of these Mixies. Such trainings were conducted in Asifabad, Aswaraopet in Telangana and Kadiri, Araku, East Godavari in Andhra Pradesh for both the above projects.



■ Dhravajeevamrutham (DJ) units for CRZBNF-II, DMF, CIRC, TTD Goshala projects: Assistance was rendered in the establishment of Dhravajeevamrutham (DJ) units for projects including CRZBNF-II, DMF, CIRC, and TTD Goshala. This encompassed aiding in the layout design for constructing sheds and stands for different models (single tank, double tank) and capacities (500L, 1000L, or 2000L). The process also involved facilitating the compilation of tank lists, identification of required plumbing components, and the procurement of necessary materials. Furthermore, assistance was provided for assembly, installation, and on-site training. An instance of such a unit was established in Madanapalle, Chittoor District, Andhra Pradesh, as



part of the CRZBNF-II project. Concurrently, work is in progress for similar units in Keonjhar (Odisha) and Achampeta (Telangana) for the DMF and CIRC projects, respectively. Additionally, a 10KL capacity DJ unit was proposed for the TTD Goshala Project, accompanied by a mechanized Ghana Jeevamrutham Unit. The formulation of a comprehensive proposal, encompassing elements such as constituents, area, power requirements, and budget estimates, was undertaken. Moreover, support was extended to address issues with the stirrer model of the DJ Unit supplied by a Nasik vendor, which had been deployed in the Kadiri and Paderu regions of Andhra Pradesh.

Establishing and supporting Solar Pumping solutions:

There are 2 categories of fixed > 5Hp solar lift irrigation & 2Hp mobile solar pumping systems. FarmEasy involved in liaising with vendor from quote to installation phase in setting-up 10Hp solar lift pumping system in Peddagaruvu in CRZBNF. Explored different options & vendors for Solar lift pumping system in Karraguda under HDFC project, with off-grid power generation option. It also involved in procurement of components, assembly, installation & on-site training for 2Hp mobile Energy cart in Keonjhar as part of DMF project.





Mobile solar energy cart deployed in Keonjhar (DMF Project)

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Equipment sourcing for Service Centers and **Processing Units:** There are several Agricultural Service Centers (ASCs) and Custom Hiring Centers (CHCs) promoted by WASSAN in its field area, as part of different projects like CRZBNF-II and HDFC. FarmEasy extended support in the form of exploring market for available farm tools, implements and agri-processing units for different applications and procuring them for these centres. Support was also given in repairs and maintenance of such equipment. Field visits were undertaken to areas like Araku, Srikakulam, Nuapada, etc., to understand site conditions, discuss with farmers on the utility and challenges faced in using the existing tools and equipment. Some feasible suggestions were given for implementation that included replacement of 5Hp diesel engine pepper thresher with 0.5Hp grid power model, usage of Pepper pole ladders with different choices in terms of legs and metal or non-metal etc.



chinery or develop new models – like pepper thresher to process multi-grain. It was undertaken as part RM & CRZBNF-II projects. After exploring various available options, an economical model for solar vaccine cold chamber was worked out for Malkangiri area as part of SPPIF project. An effort is also going on to suggest models for fodder processing and solar generation for Palameru Goshala with the support of field team for TTD.

■ Exploring Ecosystem Support Services (ESS) for Small Millet Processing units

Evolving eco-system services that are critical to stimulate local economies and regenerative ecosystems is a key mandate under Rain Matter Project. For exploring the feasibility to evolve such services, a workshop was held in Hyderabad on 23rd & 24th Dec, 2021. Another workshop was held in Bhubaneswar during 13th - 14th Feb, 2022 to support Odisha Millet Mission (OMM) in setting-up new Small Millet Processing Units (SMPUs) and extending technical support to the existing units. The outcome of these meetings was the formation of an Eco System Service (ESS) team with subject matter experts from various fields. It was decided to make preliminary visits to few locations to assess the ground reality and practical problems in operating the units.

OMM team proposed two visits for that purpose in 3 districts of Odisha. During the first such trip to Nuapada, Koraput and Gajapathi districts in between 4th to 9th Mar, 2022, ESS team visited some existing small millet processing units, cleaning and threshing units of Finger Millet. Team interacted with local groups and those engaged in operating such enterprises. It was found that these units are functioning below par to their potential for obvious reasons and these units require lot of handholding to revive them up to the expected potential. The identified issues to work upon are - forward & backward linkages, selection of equipment to suit local millets, vicinity of the units from the fields, delivery of quality machines, training and orientation on operation and maintenance of machines, proper housekeeping and safety aspects etc. Feasibility of extending such support is being worked out.



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8 Financial Statement

MAHESH, VIRENDER & SRIRAM Chartered Accountants

6-3-788/36&37A, Ameerpet, Hyderabad - 500 016.

Tel: 040 - 23401738, 23401739 Email :mvshyd@yahoo.com

AUDITORS REPORT

We have audited the accounts of WATERSHED SUPPORT SERVICES AND ACTIVITIES NETWORK, a registered Trust having its office at Plot No.685 & 686, Road No.12, Narasimha Swamy Colony, Nagole, Hyderabad – 500 068 for year ended 31.03.2021. These financial statements are the responsibility of the Management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in India. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our Audit provides a reasonable basis for our opinion.

- a. We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of audit.
- b. The Balance Sheet and Income and Expenditure Account dealt with by the report are in agreement with the Books of account.
- c. In our opinion and to the best of our information and according to the explanations given to us, the statements together with the schedules attached thereto and read with the Accounting Policies and Notes thereon give:
- i. In case of the Balance Sheet of the State of affairs of the Trust as at 31st March, 2021.

and

ii. In case of the Income and Expenditure Account the Excess of Expenditure over Income for the year ended on that date.

Chartered Accountants Firm Reg. No.001939S (B.R.Mahesh) Partner M.No.18628 UDIN No · 21018628 AAAAA6Y4583

for Mahesh, Virender & Sriram

Place : Hyderabad Date : 08.10.2021.

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Watershed Support Services And Activities Network (WASSAN) Plot No. 685 & 686, Road.no.12, Narasimha Swamy Colony, Nagole, Hyderabad 500 068 - Telangana CONSOLIDATED BALANCE SHEET AS ON 31-03-2021						
CORPUS FUND	1	5,008	5,008			
GENERAL RESERVE	2	58,85,998	93,72,325			
ENDOWMENT FUND	3	2,42,51,458	2,38,98,305			
BUILDING FUND	· 4	1,82,00,000	1,56,00,000			
RESTRICTED FUND	5	6,64,20,130	8,03,16,725			
SOURCES OF FUNDS		11,47,62,594	12,91,92,363			
FIXED ASSETS	6	2,56,20,543	2,28,17,170			
CURRENT ASSETS	7	9,70,02,480	10,63,75,193			
APPLICATION OF FUNDS		12,26,23,023	12,91,92,363			

Vide our report of even date for Mahesh Virender & Sriram Chartered Accountants(Reg.No 001939S)

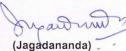
(B.R.Mahesh)

Partner (M. No. 18628) Place: Hyderabad Date: 08.10.2021



for Watershed Support Services and Activities Network(WASSAN)

(A.Ravindra Babu) Executive Secretary



Chairperson



	•	Plot No. 685	Watershed Suppo & 686, Road.no.12, N Consolidated Dep	Watershed Support Services And Activities Network (WASSAN) 8.866, Road.no.12, Narasimha Swamy Colony, Nagole, Hyderabad 500 068 - Consolidated Depreciation statement for the year ending 31.03.2021	tivities Netwo ny, Nagole, Hyo the year endin	Watershed Support Services And Activities Network (WASSAN) t No. 685 & 686, Road.no.12, Narasimha Swamy Colony, Nagole, Hyderabad 500 068 - Telangana Consolidated Depreciation statement for the year ending 31.03.2021	gana	•
							Annex -6	
SING	SI No Name of the Asset	Rate	W D V as on 01.04.2020	Additions Before sep/aftersep	Deletion	Total	Depreciation	W D V as on 31.03.2021
Forei	Foreign Contribution							
-	Furniture ·	10%	1,40,345	1.03.942	1	2.44.287	. 24.429	2.19.859
2	Office Equipment	10%	1,02,954		ı	1.02.954	10.295	92,659
3	Land at Hyd	%0	13.97.500			13.97.500	1	13.97,500
	Work In Progress (WIP) Nagole Office							
4	Building	%0	9,25,001	1,99,816		11,24,817	т	11,24,817
	Total		25,65,800	3,03,758 -	1	28.69.558	34.724	28.34.834
OCA	AL Contribution							
-	1 Furniture & Fixtures	10%	1,31,724			1.31.724	13.172	1.18.552
2	Office Equipment	10%	. 65,541			65,541	6,554	. 58,987
3	Land at Parigi	%0	14.29.241			14.29.241	I	14.29.241
4	Land at Hyd	%0	14,87,252			14.87.252	1	14.87.252
2	Building A/c ·	5%	14,83,139			14.83.139	74.157	14.08.982
9	UPS.	10%	96,647			96.647	. 9,665	86,982
	Work In Progress (WIP) Nagole							
2	Office Building	%0	1,55,57,826	26,37,887	1	1,81,95,713	1	1,81,95,713
	Total LC .		2,02,51,370	26,37,887 -		2,28,89,257	1,03,548	2,27,85,710
	Grand Total		2.28.17.170	29.41.645 -		2.57.58.815	1.38.272	2.56.20.543





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Watershed Support S Plot No. 685 & 686, Road.no.12, Nara	simha Swamy Colony, N	es Network (WASSAN) lagole, Hyderabad 500 068 - Tel	angana
INCOME & EXPENDITU	CONSOLIDATED RE ACCOUNT FOR THE Y	EAR ENDING 31.03.2021	
		2020-2021	2019-2020
PARTICULARS	Annex	Amount Rs	Amount Rs
INCOME:			
Grant Income during the year		12,13,879	31,55,057
Other Income:			
Bank Interest - FC		2,63,244	3,34,100
Bank Interest - NFC		9,31,506	23,46,186
		24,08,629	58,35,343
EXPENDITURE:			
General and Admin exp - FC	16 * *	12,44,584	11,45,205
General and Admin exp - NFC	39	19,12,099	16,84,184
General Programme Exp - NFC		-	24,69,014
General Programme Exp - FC		-	5,527
Income Tax (TDS written off)			2,36,254
Depriciation		1,38,272	1,37,750
		32,94,955	56,77,934
Transfer to General Reserve Excess of Expenses Over Income c/f to Balance Sheet		(8,86,327)	1,57,409

Vide our report of even date for Mahesh Virender & Sriram

Chartered Accountants(Reg.No 001939 S)

(B.R.Mahesh) Partner (M. No. 18628)

Place: Hyderabad Date: 08.10.2021



for Watershed Support Services and Activities Network(WASSAN)

(A.Ravindra Babu) Executive Secretary

and

(Jagadananda) Chairperson



9 Partners and Collaborators

- * Agro Ecology Fund
- * Arghyam
- * ATE Chandra Foundation
- * Azim Premji University (APPI)
- * Bharat Rural Livelihoods Foundation (BRLF)
- * Bread for the World | Brot für die Welt
- * Caring Friends (Ashish Kacholia)
- * Childrens Investment Foundation
- * Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- * CPCA
- * Detroit Telugu Literary Club
- * Directorate of Agriculture and Food Production(ODISHA)
- * Directorate of Agriculture and Food Production(ODISHA)
- * District Mineral Foundation (DMF) ANGUL
- * District Mineral Foundation (DMF) KENJHAR
- * District Mineral Foundation (DMF) SUNDARGARH
- * District Mineral Foundation (DMF) SUNDARGARH
- * District Welfare Officer (Adilabad)
- * DRDO SBM Chandravancha
- * DRDO SBM Roopkhanpet
- * Ernst & Young Foundation
- * Fodder Production with NFM TTD
- * Food and Agriculture Organization (FAO) India
- * Ford Foundation
- * Friends of Women's World Banking (FWWB)
- * German Society for International Co-operation" GIZ India
- * Government of Andhra Pradesh TRICOR Project
- * Government of Andhra Pradesh (GoAP)
- * HDFC Parivarthan
- * ICAR-CIRC Central Institute for Research on Cattle
- * Indian Council of Social Science Research (ICSSR)
- * Integrated Tribal Development Agency (ITDA) Asifabad



- * Integrated Tribal Development Agency (ITDA) Eturunagaram
- * Integrated Tribal Development Agency (ITDA) Kothagudam
- * Integrated Tribal Development Agency (ITDA) Paderu
- * Integrated Tribal Development Agency (ITDA) Paderu
- * ITDA Chittoor
- * Nabakrushna Choudhury Centre for Development Studies
- * National Bank for Agriculture and Rural Development (NABARD)
- * National Institute of Agricultural Extension Management
- Praghathi Abhiyan
- * Rainmatter Foundation
- * Revitalising Rainfed Agriculture Network (RRA N)
- * SVP Philanthropy foundation
- * SWISSAID India
- * The Duleep Matthai Nature Conservation Trust
- * TRAIDCRAFT
- * TTD Goshala Palamaneru
- * University of Cambridge
- * University of Greenwitch
- * Welthungerhilfe India
- * World Resources Institute (WRI)

1() **Abbreviations**

- * APCNF Andhra Pradesh Community Based Natural Farming
- AWC Anganwadi
- * BRC Bio-resource Centre
- * CMSS Community managed Seed Systems
- * CSO Civil Society Organization
- * DDA Department of Agricultura
- * DJA Drava Jeevamrutham
- * DPM District Project Manager
- * FPO Farmer Producer Organization
- * FRA Forest Rights Act
- * FRC Forest Rights Commission
- * FYM Farm Yard Manure
- * GJA Ghana Jeevamrutham
- * GP Gram Panchayat
- * ICDS Integrated Child Development Services
- * ITDA Integrated Tribal Development Agency
- * Kharif Autumn
- * KVK Krishi Vigyan Kendra
- * LS Line Sowing
- * LT Line Transplating
- * MDM Mid-day Meal
- * MGNREGA Mahatma Gandhi National Rural Employment Guarantee Act
- * MoU Memorandum of Understanding
- * NABARD National Bank for Agriculture and Rural Development
- * NF Natural Farming
- * NGO Non-government Agency
- * NRAA National Rainfed Area Authority (NRAA)
- * OMM Odisha Millets Mission
- * ORAM Odisha Rainfed Agriculture Mission
- * OUAT Odisha University Agricultural Technology
- * PVTG Particularly Vulnerable Tribal Group
- * Rabi Winter
- * RySS Rythu Sadhikara Samstha, Andhra Pradesh Community Managed Natural Farming (APCNF)
- * SDGs Sustainable Development Goals
- * SMI System of Millet Intensification
- * SPPIF Special Programme for Promotion of Integrated Farming in Tribal Areas
- * TTD Tirumala Tirupathi Devasthanam
- * VO Village Organisation
- * WASSAN Watershed Support Services and Activities Network
- WGoSS Working Group on Seed Systems
- * WSHG Women Self Help Group





Watershed Support Services and Activities Network (WASSAN)

Plot Nos. 685 & 686, Road No 12, Narasimha Swamy Colony, Nagole,

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