

Building Resilience...

Among Communities ... Amidst Corona

ANNUAL
REPORT

2020-21







**Building Resilience ...
Among Communities ...
Amidst Corona ...**

**ANNUAL REPORT
2020 - 2021**

Cover Illustration

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Vision, Values	...	i
Board of Governance	...	i
Our Approach	...	ii

INTERVENTIONS AND INITIATIVES

1. Rising to the Covid Challenge: Supporting COVID victims

- Reaching out to Stranded Migrant Workers ... 2
- Reaching Vulnerable People in Tribal Areas ... 5
- Securing Seed in Times of COVID-19 ... 7

2. Regenerating & Reviving Resource Restrengthening Livelihoods

- Initiatives under Odisha Millet Mission (OMM) ... 9
- Initiatives for Landscape based Integrated Farming Systems for Improved Income and Nutritional Security ... 18
- Initiatives under Andhra Pradesh Community based Natural Farming Project ... 25
- Initiatives towards Strengthening Agro-Biodiversity ... 30
- Water Management in Rainfed Areas for Improving Livelihood Security of Smallholder Farmers: Out Scaling Australian-Supported R4D in Andhra Pradesh, Odisha and Karnataka ... 37
- Initiatives of National Coalition on Natural Farming ... 38
- Initiatives under RRA Network Hub ... 42
- Initiatives under Food and Land Use Coalition ... 44
- Supporting Andhra Pradesh Drought Mitigation Project (APDMP) ... 46

Index

2. Regenerating & Reviving Resource Restrengthening Livelihoods

• Watershed Development and MGNREGS	... 47
• Supporting Baseline Study Heifer Inter-national Poultry Project	... 47
• Easy Drudgery in Farm Operations with Innovative “Farm Easy” Equipment	... 48
Audited Financial Statement	... 52
Our Donors	... 60





Vision, Values

VISION

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

Participatory Processes include



Capacity building



Institutional development



Networking



Advocacy

Board of Governance

CHAIRMAN

● Jagadananda,
Bhubaneswar, Odisha

MEMBERS

● Gagan Sethi,
Ahmedabad, Gujarat

● P. Balaram,
Anantapur, Andhra Pradesh

● C. Uday Shankar,
New Delhi

● K. Suresh,
Hyderabad, Telangana

VALUES



Being sensitive and committed to reduce all forms of discrimination with focus on Poor, Dalit, Adivasis and

Having faith in people's knowledge capacities

Participation



Developing synergies

Striving for quality, innovation and diversity

Teamwork



With transparency



Scan the QR code

For Details of the Governance Board members of WASSAN

Our Approach

Our Communities

... The farming communities and agriculture labour that remained in the shadows of development with poverty, economic distress fueled by farming crisis, affected by droughts and climate variability and deprived of adequate public investments.

... WASSAN works for Marginalised Communities in Marginalized Geographies in India

Our Place of Work

... Our focus is in the drylands and tribal areas, the marginalized geographies where poverty is deep rooted and ecology is distressed.

Our Approach

... Our approach is to work with grassroots community and civil society organizations in building their understanding and capacities, and support government in evolving, designing and implementing schemes and programs that are relevant and becomes accessible to small holder farmers, Dalits, Tribals, women and other deprived communities.

... WASSAN works with a mandate of improving efficiency and outreach of public investments to the target communities and in bringing civil society networks on board for effective last mile delivery of services.

... This is besides its own focused work with the communities in organizing them, and building capacities for their collective action to better their livelihoods.

... With this approach, WASSAN has been working since 1999 in the dryland areas and the tribal areas – broadly called **Rainfed Areas; more intensely in the states of Andhra Pradesh, Telangana, Odisha and Jharkhand states.**

Having a firm resolve that the poorer rural communities have to have better access to natural resources – such as land, healthy soils, water, biomass and the related ecosystems, of their own or in commons.

Organizing the poor into collectives to strengthen their negotiating power and access to resources, services and markets, the Gram Panchayats strengthened for better leadership and grassroots democracy.

Enabling communities to get access to government investments, knowledge, technology and support services to improve natural resources and production systems sustainably.





Interventions and Initiatives

1. Rising to the Covid Challenge: Supporting COVID victims

The sudden lockdown announced as a response to the Covid-19 crisis has resulted in large-scale human distress and hunger among multitude of people across the entire world. The situation of people where WASSAN working and has its presence is nothing different. As a response to address this human distress, WASSAN focused on the following five areas or population where distress unleashed by 'Covid Lockdown' was immense.

Migrant workers stranded in various cities across the country - connecting and negotiating for some relief to reach these people was a huge task undertaken - supporting the government to closely monitor the situation of browsing through the Call Centre data on distress, following up with various states on the migrant workers.

Huge number of Migrant workers stranded in their shacks in Hyderabad, Visakhapatnam, Bengaluru and several tier 2 and tier 3 cities.

Habitations of Particularly Vulnerable Tribal groups (PVTGs) in the remote forest areas in Telangana and Andhra Pradesh. The tribal communities - *Kollams, Parjas, Konda Reddys* living in far flung habitations who could not find employment nor earn from the non-timber forest produce (NTFP) collection, due to the closer of shandies, their lifelines.

Wage dependent poor and single women households in the drylands of Telangana near Vikarabad, whose misery is equally painful, as these people could not buy anything else, even while rice is available from the government.

Procuring, processing, packing and transporting the seed to the godowns while navigating the red zones of Anantapuramu and Chittoor while safeguarding the people and teams from infection, getting the seed processed and moved to the godowns. It was quite a challenge as WASSAN had a prior commitment of procuring 1.00 lakh quintals of groundnut from 60+ FPOs under community managed seed systems.

WASSAN has approached Azim Premji Philanthropic Initiatives for support for the relief. Omidiyar Network has also supported its initiatives through the RCRC Network. Centre for Collective Development (CCD) has supported extending relief to migrant workers from Odisha stranded in Bengaluru. The initiatives triggered ITDAs and others to take up initiatives in the Tribal areas and to collaborate with us in the relief work. We have built collaborations and partnerships with several civil society organisations, ITDAs and networks in our effort. A much larger relief-resource for addressing migrant workers came from Corporators, MLAs and Government officials, private foundations such as GOWRAVAM Foundation, Sam AgriTech Foundation, with whom we linked several groups. Additionally, WASSAN Team has contributed substantially and mobilised donations from various quarters adding to the resources.



Reaching out to Stranded Migrant Workers

The migrant labour stranded around their workplaces, abandoned by their contractors and companies, which hired them, are all over the place in groups of 5, 10, 20, 30 or more – in rented houses and makeshift shacks at work places, among others. Government relief hardly reached them in any substantial manner with several hiccups in accessing the relief. Many of these are smart young skilled people – welders, small mechanics, masons and some of them just casual labour coming from the interiors of Jharkhand and Odisha; what they have in common is families they left back home in the villages. They lost work, could not earn even living wages and could not send any money back home to their families.

WASSAN chose to focus largely on the migrant workers from Jharkhand and partly from Odisha stranded in Telangana and Andhra Pradesh; Through the RRA Network WASSAN could attend to some of the Jharkhand migrant labour stranded in other states like Chhattisgarh, Gujarat, Rajasthan and Madhya Pradesh. A MoU was made with the Jharkhand Government on the issue of Jharkhand migrant labour stranded in Andhra Pradesh, Telangana, Odisha and few other states. WASSAN team working with Odisha State Government followed up with the cases of Odisha migrant workers stranded in Karnataka and other states. The problem was enormous!; much larger compared to what we could accomplish; but a combination of strategic partnerships and team work enabled us to reach out to considerable number of the distressed migrant workers. The support approach implemented in following streams.



[Stream # 1]

Direct Outreach of WASSAN Team

WASSAN opted for an approach to link the stranded migrant workers with the mainstream relief work/establishment. It involved - talking to government officials, revenue/labour and other departments, contacting or complaining to police against the companies that have abandoned migrant labor, appealing to Corporators, MLAs etc. The idea is to follow up with them to see that the vulnerable groups receive ration; but, wherever the process was taking time, WASSAN provided dry ration immediately to the needy people.

Some vulnerable groups were linked to other charity groups, foundations, and even friends of our team to provide ration. When it was difficult to reach out in person, a virtual method using G-Pay/ PayTm has been employed. A back-end support team was constituted for following up and for online payments. Another method of direct online payment to the shop-keeper was also tried out. This was done after ascertaining the requirements of stranded people. It proved to be much easier process as several small numbers of migrants were stranded in different locations. This method was particularly followed where **'RED ZONES'** are declared.



[Stream # 2]

Through Rythu Swariya Vedika (RSV) Platform

Rythu Swarjaya Vedika (RSV) collaborated with WASSAN to support the migrant workers calling the Help Line established for Andhra Pradesh. About 120 volunteers & organisations across Andhra Pradesh were involved in as full-time volunteers, on line support or on ground distributing rations. WASSAN provided backend support to the RSV platform. It registered 1350 cases of stranded migrant workers in its Call Centre. About 18700 people were attended and about 65% of them were supported; this includes individuals and 4271 families with children.

कोरोना लाकडाउन आन्ध्र प्रदेश पलायन मजदूर फ़ोन सेवा 📞



क्या ऐसे मजदूर हैं जो दूसरे राज्यों से पलायन करके आंध्र प्रदेश में आये है, मगर कोरोना तालाबंदी के कारण आंध्र में फंसे हैं और मदद चाहते हैं?

कॉल करें 📞 **9985833725**

यह सुविधा कुछ सामाजिक कार्यकर्ता एवं सामाजिक संस्थाएं मिलकर चला रहे हैं

[Stream # 3]

RRA Network Hub Initiatives

As we gained experience, it equipped us to set-up and refine processes that could be scaled. We then moved to expand the relief work to other geographies where the migrant crisis was most severe. The approach was to identify a willing organisation in a given geography, help them with forming a team, and train them with a tracking tool and standard processes and ways to reach help. RRA Network Hub approached its Network members to reach out to the migrant workers from Jharkhand stranded in the states of Chhattisgarh, Maharashtra, Gujarat, Madhya Pradesh and Rajasthan. In these 5 states, 17 RRA Network members worked on relief activities with the help of 27 volunteers. These teams worked very closely with the Government, coordinating with other civil society organisations, local corporators for managing the relief and response work. Nearly 10000 migrants stranded in these different states were reached in this manner.



[Stream # 4]

Initiatives in Odisha

Special Secretary, Department of Agriculture and Farmers' Empowerment for Odisha Millets Mission, sought WASSAN help in managing the relief and response work to be done on behalf of the Government of Odisha for migrants from Odisha stranded in Karnataka. WASSAN responded to the situation by taking charge of the coordination amongst the department staff and government-to-government reporting and compliance. Administrative zones of Bangalore were delineated using Google Earth and each complaint generated through Odisha's official help-line was marked on it. This data with maps is sent through the Special Secretary to Zonal Commissioners in Bangalore and District Collectors of other districts.



It was soon found that the government led efforts in Karnataka, particularly in Bengaluru, are proving to be grossly insufficient and hence help was sought from APPI Bangalore office. The data mapped with geo-locations and BBMP zones of stranded migrants was provided to them. GPS location of each complainant was collected and shared the ready-to-use data with Stop Hunger and APPI. With this, about 2000 cases covering 47000 people were reached. WASSAN's Odisha Team directly provided help to 760 people in 64 groups.

DATABASES AND RELIEF COORDINATION

Team received regular feeds of cases from the State Govt Relief cells of Jharkhand and Odisha.

To manage cases related information, in-house IT team rapidly rustled up an application that proved to be instrumental in providing user-friendly interface and case specific access to a larger number of staff and volunteers. As the application stabilised, the team took on more stranded migrant cases from other states including Maharashtra, Rajasthan, Madhya Pradesh, Chhattisgarh, Rajasthan, Bangalore City, Odisha, Tamil Nadu and Gujarat. In the meantime, a more resilient application system was built in collaboration with Libtech, APU and other partners, to take on relief work for Jharkhand migrants stranded in Tamil Nadu, Kerala and more districts of Maharashtra.

Reaching Vulnerable People in Tribal Areas

WASSAN team highly focused on reaching out to the critically vulnerable PVTG communities in the Tribal areas of Telangana and Paderu division of Andhra Pradesh in collaboration with the ITDAs of the regions and partner organisations working in those areas.

[1] Supporting PVTG villages in Telangana

Effort was put in to focus on the distress in PVTG habitations and stimulated ITDAs and Government to initiate relief work. Rice was provided to all those who do not have ration cards by ITDA and in Asifabad, district administration has taken up special drive to cover PVTG villages. 68 remote tribal habitations

were reached to extend support to 5325 vulnerable tribal families.

Support in the form of dry-ration was extended to PVTG habitations in Adilabad, Kumram Bheem Asifabad, Bhadradi Kothagudem districts.

Almost all the PVTG habitations in Adilabad district have been reached in partnership with CCD, Praja Mitra Farmers' Cooperative, ITDA of Utnoor and GCC; ration support was provided to all the households. ITDA provided rice to all those households who do not have ration cards. In Kumram Bheem Asifabad district, support was extended to households in the Kollam villages, prioritised by the local farmers' cooperatives.



In Bhadradi Kothagudem district, dry ration was given to vulnerable Kondareddy tribals; and to migrant tribals from the bordering Chhattisgarh who were stranded on the AP side. Same type of support in the form of dry ration was provided to Chenchu PVTG households in Lingala mandal of Nagarkurnool district with the support of local NGO.

[2] Supporting Tribal villages of Andhra Pradesh

Support was extended to families in Tribal areas of Paderu ITDA in Visakhapatnam district. This was done in partnership with ITDA and local organizations working in the area, like - Sanjeevini, Laya, Manyaseema and SMILE. A total of 4433 PVTG families from 124 habitations of 29 Gram Panchayats of Paderu, Chinthapalli, Pedabayalu, Dumbriguda Mandals were reached in this process. Rice (25kg) was supplied to the identified families who do not have ration cards; for others who have received rice from PDS, oil, tur dhal, vegetables, meal-maker, soaps, match boxes, mirch powder was provided as a kit.

There was no market for as Cabbage and there was drastic fall in the price in market. To address that, Cabbage was purchased in the

Suvva cluster of Sanjeevini and it was added to the distribution package. Another initiative was on Tamarind marketing; prices have fallen, as there were no market transactions due to travel restrictions, resulting into more distress for tribal families. An initiative was taken up for collective procurement, processing and marketing of Tamarind, in partnership with ITDA, Girijanvikas, Manyaseema, SVDS and Smile organisations.

[3] Initiatives in the Drylands of Telangana

WASSAN is working with 4 Farmers' Cooperatives in Vikarabad district of Telangana; they have formed ARAKA Farmer Producer Company (FPC). Discussion with these farmers led to understanding of the distress situation of the wage dependent women headed families and other waged workers. An effort was made to reach them and they were provided with ration. Contributions were mobilised from the village elders, Gram Panchayat leaders and individuals for this purpose. RCRC has provided some resources (Omidiyar Network) from which the costs were met. In Siricilla town of Rajanna Siricilla district, such support was extended to vulnerable single women and women headed households.







Interventions and Initiatives

2. Regenerating & Reviving Resource Restrengthening Livelihoods

Rainfed areas and drylands are frequently subjected to rainfall and crop failures, resulting in acute farmers' distress. This has been a core area of concern and challenge that WASSAN has been facing. Promotion of natural farming that includes aggressive crop diversification, intensive horticulture and desi-poultry integrated farms, reviving fallow lands to increase fodder base, spreading practices of natural farming to wean away from use of chemicals, establishing support systems in seeds, live-stock vaccination and securing crops through

protective irrigation and management of groundwater – have evolved as potent strategies to revive the drylands into a growth path. WASSAN has taken several such initiatives under different programs in different areas, with support from different donor agencies. The ultimate aim of these interventions and initiatives are to regenerate and revive natural resources and restrengthen the livelihoods of the dependent vulnerable communities. The details of such initiatives are as below;

Initiatives under Odisha Millet Mission (OMM)

OMM is a path breaking initiative where the model of Block level revival program on millets by simultaneously working on aspects of area expansion, improving productivity, increasing household consumption, institution building, supports marketing and setting up processing facilities and inclusion in state nutrition programs & Public Distribution System (PDS) – all that within the selected Blocks.

The program was taken up by the Government of Odisha with WASSAN playing critical support in developing the policy, design of the program and facilitating successful implementation on ground. The program has expanded to 76 blocks in 14 districts with some of the Districts joining by converging with the District Mineral Foundation. It has an outreach of over 100,000

millet farmers supported by 60 partner NGOs in the state.

Ragi procurement is taken up by the Govt. of Odisha for supply in PDS and inclusion in ICDS and MDM schemes. On the process of procurement of Ragi 2.03 lakh quintals procured in MSP of 3295 per quintals and able to reach 24000 farmers. 16 FPOs were engaged as block procurement agencies in 7 districts and successfully able to manage the ragi procurement process and reached 79992.02 quintals covering 11888 farmers during Kharif Marketing Season 2020-21. Ragi Mandis have been established all over the Blocks where the area under Ragi has reached a scale. Productivity of farms in Ragi nearly doubled with the introduction of improved agronomic practices such as (SMI) System of Millet Intensification, Line Transplanting and Line sowing, intercropping in millets.

[1] Improved Agronomic Practices

Method wise Achievement last Kharif and Rabi 2020-21 (Area in Ha)

Particulars	Unit	Kharif	Rabi	Total
Farmer (No.)	Number	103731	6717	110448
Ragi-SMI	Area in Ha.	18710.15	902.34	19612.49
Ragi-LT	Area in Ha.	14739.47	427.22	15166.69
Ragi-LS	Area in Ha.	6001.83	182.9	6184.73
Lille Millet - LT	Area in Ha.	41.1	0	41.1
Little Millet - LS	Area in Ha.	3499.74	0	3499.74
Foxtail Millet	Area in Ha.	762.84	0	762.84
Sorghum	Area in Ha.	888.52	0	888.52
Kodo millet	Area in Ha.	111.12	0	111.12
Barnyard Millet	Area in Ha.	83.81	0	83.81
Bajra	Area in Ha.	90.8	0	90.8
Inter-Cropping	Area in Ha.	957.3	0	957.3
Total	Area in Ha.	45886.68	1512.46	47399.14



[A] Improved Agronomic Practices to increase Productivity

One of the prime objectives of the Odisha Millets Mission is to improve the productivity of millets through promotion of improved agronomic practices such as System of Millets Intensification, Line Transplanting, Line Sowing and Intercropping with an aim to increase in crop yield, crop coverage area and making farmers profitable. The summary of area coverage under the improved agronomic practices in Kharif 2020-2021 is as below.

DETAILS OF RAGI PROCUREMENT

- No. of Districts : 14
- Blocks : 76
- Total Number of farmers : 110448
- Total Area (Ha) : 47399.14

[B] Ragi Procurement at Minimum Support Price

One of the prime objectives of the Odisha Millets Mission, Government of Odisha had approved the procurement of Ragi through

Tribal Development Cooperative Corporation of Odisha Limited (TDCCOL). Thus, TDCCOL procured Ragi with the support of PACS/ LAMPCS/FPO as per the FAQ specification laid down by Government of India. It was in accordance with the guidelines issued by the Agriculture and Farmers Empowerment department from time to time under the scheme. Procurement was done covering all the 76 blocks under Odisha Millets Mission, at the minimum support price for Ragi announced by Government of India. It was at the rate of Rs.3295.00 per quintal, conforming to Fair average quality norms.

DETAILS OF RAGI PROCUREMENT

- No. of districts : 14
- No. of blocks : 76
- Total No. of farmers : 108731
- Total procurement : 203843.72 (in quintals)
- Total amount released : 65, 83,65,218* for farmers (in Rs)

*(Nearly 65.84 Crores)



[C] Ragi distribution under PDS

The Government of Odisha initiated the procurement of millets from farmers and distributed them through PDS in 2018-2019 which was one of the key commitments of the programme. Considering the nutrition benefits of millets, it has been decided to integrate locally grown millets as part of public food systems such as PDS. Ragi based entitlements were included in PDS in the year 2020-2021. In this year, 94,745 quintals of ragi was targeted for distribution in 14 districts covering 50,60,460 households. A 1.5 kg Ragi per ration card in Ganjam, Mayurbhanj and Keonjhar and 2kg ragi per ration card in Bargarh, Bolangir, Gajapati, Kalahandi, Kandhamal, Koraput, Malkangiri, Nabarangpur, Nuapada, Rayagada and Sundergarh were distributed as substitute of rice. Till 31st March 2021, a sum of 3,474.24 Quintals of Ragi from the state pool were distributed among the eligible beneficiaries under the State Food Security Scheme (SFSS) for the month of January 2021.

[D] Seed Multiplication

The Seed is the crucial and basic input to increase crop yields. Quality seed ultimately increases the efficiency of the factor of crop multiplication. There is an acute need for the improvement of millets' productivity without disturbing the fabric of biodiversity in this region. In this regard, seed multiplication of Ragi was undertaken during Kharif, 2021. Agreements were made between FPOs of the concerned block and the selected farmers who came forward for seed multiplication. This agreement defined the mutually agreed terms and conditions of seed production and the agreeable price at which seed to be purchased along with quality and quantity

parameters. Agricultural officials/workers at Block and Village level provided the needed guidance and support for this process. The seed multiplication plot is treated with organic inputs such as cow urine, FYM, Jeevamruta, Handikhat, Neemastra etc as per the guideline of organic farming along with a compulsory 3 times weeding. Guidance and support were given by BAO, AAO & VAWs.

DETAILS OF SEED MULTIPLICATION

• Districts	:	9
• Total Cultivating Area (Ha)	:	50.2
• Volume of Procured Seed (Qtls)	:	122.75
• Price offered to farmers: (Rs/Kg)	:	33-57
• Germination	:	85-95%



[5] Multi-location Trials of Purified Seed Varieties

Nursery and transplantation was done in panicle to row separately for mother and tillers of the bulk seeds of Mami, Kalia, Bharati (Local name: *Bhadi*) and Bati varieties in Koraput, Nayagarh, Puri and Mayurbhanj districts to study the phenotypic variability. For further purification, true plant types of 4 varieties were planted in Dandamukundpur village of Pipili block in Puri district. At the flowering stage, experts visited the trial plots and shared their technical inputs.



Multi-locational Trial in Ragi

Decision was taken to conduct confirmation trial of selected Ragi landraces in their place of origin of Malkangiri and Koraput districts along with its parent and other promising varieties of State, National and Local check. Chitrakonda block of Malkangiri and Kundra and Boipariguda blocks of Koraput were selected based on the availability of water resources and crop security. Total 17 varieties (4 purified ragi varieties + parent varieties of 4 purified + 2 local check + 2 state check + 5 National Check) were grown in Randomised Block Designed (RBD) method with three replications. For data recording

AICRPSM data sheets have been used.

Results of multi-locational trial in ragi: Rabi

- From the preliminary data of the Malkangiri trial, all the check varieties are performing better than traditional varieties.
- Purified BATI variety can easily be differentiated from traditional BATI. But in case of MAMI and BHADI there were no much differentiation observed
- Janha, Dasarakhai and Pankakhai are not competing with others due to early mature.
- Among the check variety GPU - 67 performed well with more uniformity
- The 4 selected varieties are late in duration, so the seed setting was poor.
- The vegetative and reproductive growth of crops at Malkangiri was better than other two places of Koraput due to proper water management.

Suggestions:

- Exploration information of MLT varieties
- Consolidation of data of MLT for 3 years (Visual, Quantitative data)
- Nutritional profiling of MLT varieties (EUREKA Analytical Services Private Ltd. , Haryana and IIMR, Hyderabad)
- MLT varieties yield data cultivated by farmers (both traditional & check) should be compile from OMM tracking sheet & CCE
- Discussion with SSTL for seed testing of MLT varieties
- DNA fingerprinting (if required).

[6] Inclusion of Ragi in State Nutrition Programme

The initiative provided an additional source of income to Women's SHGs, an assured price to farmers for ragi and boosted local production of ragi and other millets. This joint initiative shall potentially enhance the nutritional status of the pre-school children and the nutrition scenario of these districts.

As part of this, Ragi Laddoos have been introduced as morning snacks for preschool children in the Supplementary Nutrition Programme (SNP) under ICDS in Keonjhar and Sundargarh districts. Department of Women & Child Development and Mission Shakti supported this initiative. Odisha Millet Mission provided technical support; financial support came from District Mineral Foundation of the respective district. Initially it was piloted in Anganwadi Centres (AWCs) of Keonjhar Sadar in 2020; subsequently scaled up in 3254 AWCs across 13 blocks in Keonjhar district, benefitting 86,917 Pre-school children. Each child was given two Ragi Laddoos per week in these AWCs.

In **Sundargarh**, 62495 children from 3809 AWCs of 17 blocks were benefited. Here, each child was given four Ragi Laddoos per week. Local SHGs were roped in for preparation of a premix for Ragi Laddoos. They were trained on aspects like storage of Ragi, preparation of Ragi flour and premix for the Laddoos. When Anganwadi Centres (AWCs) were closed due to lockdown, premix was supplied at the doorstep of the enrolled pre-school children.



Appreciation by Niti Aayog

Odisha Millets Mission featured as a success story in Health and Nutrition Practice Insights Report of Niti Aayog.

Efforts for increasing the area of Millets, Inclusion of Ragi in PDS and Anganwadi Menu etc. have been highly appreciated .



[7] FPOs as a Block Level Procurement Agencies

Government of Odisha has been procuring Ragi through LAMPCS and PACS in selected blocks of Odisha Millet Mission. In order to increase the outreach of procurement and to promote farmers organizations in agriculture value chain development, an initiative is made to provide space for Farmers Producer Organizations (FPOs) to procure Ragi in some selected Blocks. As such, these FPOs were empaneled as Ragi Procurement Agencies. This was in addition to or instead of LAMPCS and PACS in these selected blocks.

For empaneling purpose, a grading exercise was undertaken to identify suitable FPOs, which could deliver this promise. Scoring was given on a set of parameters basing on the institutional and financial health of the FPO. Only those blocks were chosen for the pilots where the surplus of Ragi available for procurement was sufficient for FPO to generate a net profit. Consent was also taken from such FPOs to undertake Ragi Procurement operations with stipulated norms. A District level Committee headed by District Collector guided

this selection process. Experts from the Agriculture department, TDCCOL and WASSAN were involved in this process. Final selection was done by the District Level Procurement Committee, under the Chairmanship of Collector and District Magistrate.

[8] Establishment of Bio-inputs Centers

These are promoted to increase the organic input production and to promote its use at the block and GP level. The intention is to reduce the use of chemical fertilizers and pesticides in the nutrient and pest management in millet cultivation and relatively reduce the input costs in agriculture by promoting the use of locally available raw materials for preparation of organic inputs. These centres are promoted through Farmer Producer Organizations in 10 blocks of the 7 districts. Initially these centres focused on producing and marketing of 5 products - *Jeevamrutha*, *Handikhata*, *Nimastra*, *Agniastra*, and *Bijamruta*. FPOs handled all the campaigns on Bio Inputs, to create awareness among the farmers at the block level. Village-level gatherings boosted the collection of raw materials in their territories.



[9] Primary Small Millets Processing Units

Irrespective of production, there was a challenge in quality processing of these minor millets. Post harvest processing of millets is a labor intensive process which involves a lot of drudgery and even time consuming. There was a need for understanding the value chain of small millets processing and fine-tuning the existing processing methods to improve the quantity and quality of output. As such, some innovative technology was promoted to ease the processing related constraints. OUAT Ragi Thresher cum Pearler, is one such technology introduced with the help of AICRP, Utilization of Animal Energy, CAET. It helps simultaneous threshing, pearling and cleaning operations. The machine comprises of a hopper, threshing cylinder, oscillating sieves and an aspirator type blower. It has the advantage of obtaining clean hygienic quality Ragi grain, with lower cost of operation. The output also proved to be on the high side with 93.5 % threshing efficiency and 92.4% cleaning efficiency. Apart from this ragi cleaner cum grader cum destoner of different capacities are also being established in the districts to make the post harvest processing a little bit easier. These units also serve the purpose of providing cleaned ragi for ICDS laddoo programme being run in Keonjhar and Sundargarh districts.

[10] Establishing Millets Shakti Tiffin Centers/ Millets on Wheels

Millet Shakti Tiffin Centers are promoted to encourage the consumption of Millets and also as business enterprises. These centres primarily

focused on serving millets-based value-added products among urban / rural people. They could generate demand for hot-cooked millets-based breakfast, and other value-added products. The women self-help groups (WSHGs) entirely manage these centres and prepare a range of millet-based hot cooked items and ready to cook products. It is designed to promote WSHGs as entrepreneurs by providing them financial support and making millets-based value-added products as a profitable business and to create a brand of millets/value added products. Odisha Millets Mission provided a one-time support of Rs. 30000 per unit. SHG utilized this fund for



purchasing brand new cooking and serving vessels, gas stove, cylinder and lighting equipment. These Tiffin Centres served hot cooked items like – Idli, Samosa Chana, Chakuli, Vada, Aloo Curry etc. that provided good source income for women. The price per plate ranged from Rs 20-30 rupees; some sweets were priced at Rs 10-20 per piece. In the reporting period, 19 millet tiffin centres were established in Bolangir, Ganjam, Mayurbhanj, Malkangiri, and Sundargarh districts.

Another such innovative initiative was 'Millets on Wheels'; it is a Mobile Food Truck, serving different varieties of Millet recipes. The first Millet on Wheels of Odisha (food truck) was inaugurated on 13.01.2021 at Collectorate campus, Baripada by Collector & District Magistrate, Mayurbhanj, as part of the Odisha Millets Mission. The food truck is managed by Jashipur Farmers Producer Company Ltd. in Jashipur block. Locally preferred hot cooked millet recipes like chakuli bara, idli, jilapi, and dry snacks like biscuits, namkeen, etc are available. Clean millets and dry products are supplied by different WSHGs supported by Mission Shakti. This is expected to generate a buzz and increase millet consumption in urban pockets as well as provide livelihoods to women through millet-based entrepreneurship.

- **Financial support:** Odisha Millets Mission has supported Rs. 2,00,000 to Jashipur

Farmers Producer Company Ltd for vehicle designing and Rs. 2,00,000 for equipment and working capital. As a self-contribution, the Farmers Company Ltd invested Rs.90,000 for the vehicle.

- **Manpower and supply:** The Millets on Wheels is operated by 1 driver-cum-manager and 1 cook. FPO engages additional 1 person in special occasions or mega events. The unit does weekly basis stock maintenance of all raw materials. The supply of items is supported by WSHGs through Jashipur Farmers Producer Company Ltd. The target for sale is Rs. 3000/- per day.
- **Total sale:** The total sale reported in January and February in 2021 Rs. 14,400 and Rs. 12,600 respectively. In March, the Farmers Producer Company participated in the Krushi Mela held at Bhubaneswar and sold items amounting Rs. 41,200.



Success Story



Ragi Thresher cum pearler reduces drudgery for Tribal Women Farmers in Southern Odisha

Tribal women farmers in Southern Odisha's Koraput district mostly use traditional techniques or threshing ragi, which is labour intensive, involves drudgery and often increases processing costs. After harvesting crop, women sun-dry the ragi panicles on sunlight which makes ragi fingers to expand. Women pound the ragi panicles using wooden stick to extract ragi seeds. In this case, once the ragi panicles cool down, it affects proper extraction of seeds. Hence, extraction of ragi seeds needs to be done simultaneously when it is dry. Women spend around 5-6 hours in a day drying and extracting ragi seeds manually. This complete process takes three to five days.

To address this challenge, Odisha Millets Mission OMM, a flagship program of Department of Agriculture and Farmer's Empowerment, Government of Odisha has distributed 10 ragi threshers-cum-pearler among 10 women self-help groups (WSHGs) in Boipariguda block of Koraput district. These threshers were introduced under the tripartite agreement sponsored by Agriculture Technology and Management Agency (ATMA), Government of Odisha, in collaboration with Watershed Support Services and Activities Network (WASSAN), the Program Secretariat and Centre for Youth and Social Development (CYS) the Facilitating Agency for OMM in Boipariguda block.

IMPACT

After distribution of ragi threshers to WSHGs, they are now able to smoothly process marketable quality of ragi. One of the WSHG group known as Sabari WSHG of Doraguda village at Doraguda Panchayat in Boipariguda block have been earning good income from their processing units. Women farmers often bring their harvested ragi to process with the help of ragi thresher managed by Sabari WSHG. Currently they are taking a service charge of Rs.1 for one kg of ragi from the farmer.

The future plan of Sabari WSHG is to provide ragi threshers to millet farmers on rental basis in order to reduce manual drudgery. The WSHG has decided to charge Rs.100 per quintal of ragi processing. The threshers usually process 30-40 kg of ragi in a day. The WSHG group generally give top priority to those farmers who use traditional techniques for threshing. By using the thresher, time taken for threshing is reduced to a day in comparison to 5-6 days when done manually.

With the introduction of ragi threshers, awareness about its usability has been created among the people. Many farmers are showing interest to process their raw ragi into fine and marketable quality which could fetch a better market price. As of now, the Sabari WSHG is generating increased income for both ragi farmers as well as women WSHG members and strengthening their livelihood.

This became possible as necessary impetus has been provided by OMM and its partner civil societies in convergence with the Department of Mission Shakti, Department of Women and Child Development. OMM has been promoting agricultural value chain processing units in tribal districts of the state. As a result, OMM is increasing millet production and creating consumption awareness and reducing women's drudgery.

Initiatives for Landscape based Integrated Farming Systems for Improved Income and Nutritional Security

National Rainfed Area Authority (NRAA), Food and Agriculture Organisation (FAO) and WASSAN in collaboration with District Administration of Nuapada District in Odisha initiated this project in two villages of Komana Block of Nuapada.

The objective is to evolve climate resilient millet-based crop diversification and Integrated Farming System (IFS) models in upland rainfed areas. After due deliberations and field visit by the ATMA officials, three villages namely *Burkhadhoda*, *Chindpani* and *Patparpali* were selected.

One of the key principles of the project is area integration of different components in convergence approach. Focus was on the integration of crop-livestock, crop-soil linkages in the overall rainfed agriculture framework. For the convergence purpose, a Gram Panchayat level Resource Centre was conceived for undertaking the different activities and monitor the GP level convergence. Free & Prior Informed Consent (FPIC) planning process was adopted during the PRA, as part of the mandate of this project. Focus was on elements like; Landscape based Agriculture Production system analysis, Crop Demonstrations, Bio inputs, Custom Hiring centre, Post-Harvest & Processing, Critical irrigation and Livestock production system. Critical constrains and



[1] Trials in Local seed varieties

As part of developing improved capacity for wider adoption of resilient cropping models, crop demonstrations were completed on different crops in an extent of 161.02 acres, covering Millets in 92 acres, indigenous paddy in 50 acres, and intercropping with pulses in 19 acres. 311 farmers were selected from villages through village level discussions. Expected

area coverage was finalised according to the farmer list and crop plan. As per the requirement, different variety of seeds were arranged from different sources and special permission was taken from the ATMA Nuapada for the transport of the seeds. Trainings were given on package of practices and IPM etc along with field day demonstrations.

Before this project, millet was cultivated in very small patches and was on verge of disappearance. Millet and local paddy varieties were reintroduced after long time. Hence, farmers were reticent to take up a significant acreage of land under unfamiliar agronomical practices, crops, and varieties in the first year of trial. COVID-19 protocol also limited the time available for engagement with farmers. Hence, they opted to go for smaller areas.

The target for improved agronomic practices through Crop demonstration was 100 ac and seeds were distributed for 433 acres. Nursery beds for indigenous paddy and finger millet was raised in 224 ac. 108.6 acres were planned to be covered under line sowing for little millet, kodo millet and sorghum. Intercropping was followed with groundnut and pulses, and maize and pulses, and millets and pulses, in 30 acres in the three villages. Falling under the rain shadow region, these villages received very little rain in the months of July and August. After the rain event on July 5, a substantial rain event took place only on 19th - 21st August.

During this period only a couple of minor rain spells occurred. This led to damage of seedlings and limitation of area coverage, only 142 acres has been achieved under improved agronomic practices.

DEMONSTRATED CROPS & NO. OF FARMERS:

• Finger Millets	:	282
• Paddy	:	99
• Gurji	:	76
• Sorghum	:	93
• Kodo	:	38

Rabi crop demonstrations: Rabi action plan focussed on Horse gram and vegetable cultivation. Seed for 10 vegetable varieties distributed to 95 farmers; training on PoP and IPM were extended to nearly 105 farmers. Farmer Field School on nursery beds for vegetable seedlings held for farmers from Chhindpani and Patperpali. While the Horse gram was cultivated in 32.18 acres, vegetables were grown in an extent of 16.65 acres.



[2] Crop Demonstrations

These were held in Randomized Block Design (RBD) with 9 traditional varieties and one government check for finger millets. These 10 varieties were grown to assess genetic diversity and variation in genotypes. There were three replications, and each replication had 10 equal sub-plots, one for each variety. Productivity and characteristic analysis of the trial took into consideration the differences that arose from varied ages at which transplanting took place. The varieties *Santara* (local), *Khutuni* (local) and *Arjun* (improved) were the most preferred ranked highest.

[3] Promotion of Bio-inputs

As organic inputs preparation is time consuming, it was decided to promote production through women SHG. Three groups were identified for the local preparation of bio-inputs, and distribution to farmers at some price. Trainings were organized for these SHG women in Chhindpani village of Nuapada district. They were trained in the preparation of bio-manures (*Beejamruta*, *Jibamruta*, *Anda*

tonic, Fish tonic) and bio-fertilizers (*Handikhata*, *Agniastra*, *Neemastra*). All three SHG have sold *Jibamruta* and *Bijamruta* at ₹20/ liter. A total of 54 liters *Bijamruta*, 65 liters *Jibamruta*, 25 liter *Agniastra* and 1 liter *Handikhata* were prepared and sold during the Kharif season. Most farmers used these inputs for paddy, and to a lesser extent on millets.

[4] Establishing Custom Hiring Centres (CHCs)

As part of the project, these CHCs are intended to test newly designed implements. Design of the implements were taken up based on the feedback received from the farmers on the existing designs. A cycle weeder with tines mode has been developed to suit the local soil conditions. After validation, 50 such weeders with modified design have been developed and given to farmers with project support. In addition, 30 markers, 10 drums were also converged with OMM. A local fabricator was engaged to develop a marker suitable to local conditions.



Millet mixies technology developed by WASSAN is also tested in CHCs. 12 such mixies were procured and tested. There is positive response on these mixies. It is being planned to promote these mixies, on the platforms of SHGs, linking women members as nano-entrepreneurs on millets value addition, which is expected to have significant effect on the household millet consumption.



[5] Testing post-harvesting and processing technologies

As there were no millet processing enterprises present in the three project villages, potential for small-scale or household level processing was identified. Accordingly, an indent for 3 Finger Millet Threshers and 1 Processing Unit was placed with ATMA, Nuapada, in convergence with Odisha Millet Mission. Maa Adisakti SHG of Bhurkadhoda village got a Finger Millet Thresher. It is a Mission Shakti SHG engaged as the sub-CHC; and also involved in preparation

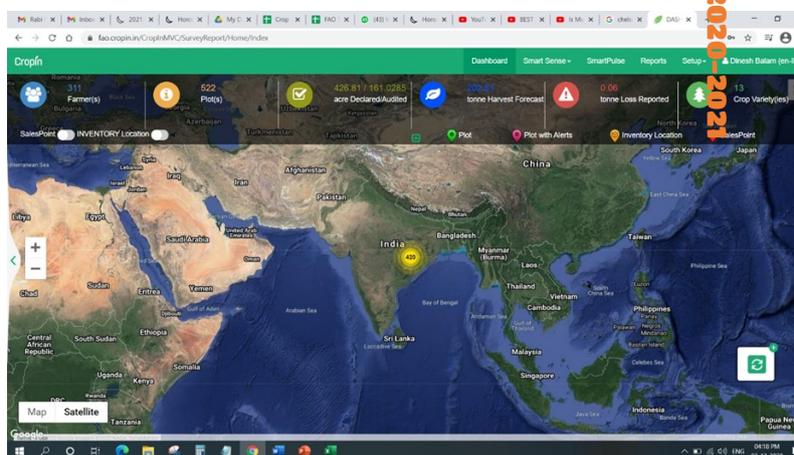
of bio-inputs. In addition to this, project funds were utilized to procure Millet Mixie Dehullers from FarmEasy for field testing and piloting the technology.



[6] Demonstration on Millet Recipes

Millet recipe demonstration and value addition trainings were conducted for Women SHGs, with a focus on inclusion of millets in farming and diets to strengthen the resilience of village production systems and nutritional security. The Millet Dehuller was demonstrated at the trainings with locally produced Little Millet. Different variety of Recipes with Finger Millet, Little Millet (gurji) and Kodo millet were demonstrated using locally available ingredients. Children tasted these recipes and enjoyed Ragi ladoo, Gurji kheer and Kodo khichdi.

were also shared via the application. WASSAN developed templates for package of practices and pest management. 420 plots of 161 acres have been audited on this platform for the Kharif season, exceeding the target of 100 acres, despite the dry spell.



[7] CROPIN - A Digital Agricultural Platform

After series of capacity building exercises, 'CROPIN', a SmartFarm application was configured and went live in 1st week of July 2020. Advisories on package of practices, integrated pest management techniques and activity reminders were configured through application. Plot-specific weather forecasts

[8] Ensuring Critical and Protective Irrigation

Ensuring critical irrigation is one of the key interventions in this project. Village meetings were held for collective deliberation on the need, scope and feasibility of critical irrigation activities. Prospective sources for critical irrigation demonstration were also discussed. In Bhurkadhoda, the community proposed 19 patches; each patch could irrigate 5-10 acres. Community did not show interest to select contiguous patches. Instead, they preferred patches that were most vulnerable to lack of precipitation/ soil moisture, and those having community water structures that could provide critical irrigation. Community also suggested for renovation of existing ponds, instead of going for new structures. In Chhindpani, two patches of 200 acres and 50 acres were identified. These patches would draw water from existing minor irrigation structures that are currently being used by 10 farmers for Rabi cultivation.

In Patperpali, three patches of 60, 25 and 15 acres were identified. Villagers suggested for converting a small pond, locally called as Pipal Munda, currently servicing 10 acres, into an earthen check dam that could provide critical irrigation to about 150 acres.

They also suggested for enabling a pipeline infrastructure for Gangasagar Bandha, that is being currently used for rabi irrigation in about 10-15 acres. With the pipeline, it could provide critical irrigation for about 60 acres. It is interesting to see the community willingness to share water for critical irrigation.

DETAILS OF CRITICAL IRRIGATION PLAN

- Villages : 3
- No. of Patches : 24
- No. of Farmers : 441
- Area Coverage (Acres) : 490



Mapping of 183 water bodies in these 3 villages was done. It is decided to first demonstrate protective irrigation in two villages - Bhurkadhoda and Chhindpani. Water Security maps were prepared through community discussions and these include - Water Resources Map, Land Type Map, Cropping Pattern Map, Surface Geology Map and Crop Failure Zone Map. A tentative protective irrigation design for the highest priority patch has been made for an area of 21.7 acres.

[9] Strengthening Livestock

Key issues associated with the livestock like mortality, diseases, unavailability of treatment and vaccination services, etc. were analysed. The issues related to grazing practices and fodder availability, the Inter-linkages between crop-livestock were discussed with the villagers. Community showed interest in vaccination for small ruminants and livestock. They also agreed to apply for livestock sheds and poultry infrastructure through convergence with MGNREGA.

Rearer field schools are planned to improve the knowledge of herders and livestock disease reporting systems. During June-July 2020, 736 small ruminants were with PPR vaccine. It was supplied under AH Department scheme. HS vaccination for small and large ruminants was completed in Bhurkadhoda through special camp held by Livestock department. Deworming tablets and vitamin powder were distributed for small and large ruminants.

[10] Business Strategy for Diversified Livelihoods

It is in contrast to the plans typically addressed by FPO initiatives that aggregate high-value mono-crops with substantial surplus. But this plan consists of a focus on low-investment services at the Gram



Panchayat level through mechanisms like Local Custom Hiring Centres, Bio-Resource Centres and Community Seed Centres etc. Business strategy tools developed under OMM for CHCs and BRCs were adapted for this project.

Based on the experiences, a scale up proposal was developed in consultation with Line Departments. This scale up proposal for Rs 26.43 Cr under RKVY is approved by Chief Secretary, Government of Odisha.

EMERGING MODEL FOR DEVELOPING RAINFED AREAS

Though final assessment is still to be done, there is a broad framework emerging for the rainfed areas based upon the initiatives undertaken by this project. It has following pointers:

- Rainfed areas are source of many water bodies, but a micro water source utilisation is the key.
- Solarisation of the village with Mobile Energy Carts are the way forward for revitalising of rainfed agriculture. Focus should also be on micro level processing technologies, like - threshers, micro-graders and mirco-destoners and primary processing units.
- Critical irrigation backed by source utilisation, common pooled resource framework and mobile solar energy will be a game changer.
- Pre-Monsoon dry sowing with legumes will play a great role in utilisation of the rainfed.
- Rearer field schools and community health care systems needs to be considerably strengthened.
- Tremendous scope for backyard vegetable garden but sustainable nurseries is the key. This will lead to better minimum dietary diversity in families. 10-food group framework of FAO has enormous potential for rainfed areas.
- Improved fodder for goat/sheep kids will play an important role in income increment.
- Fodder development in PMDS framework will be very useful.
- FPO centric bio inputs and promotion of farmer led living soils approach is necessary. Investment in soils needs to be seen as public investment. Tremendous scope to save funds for the government on fertiliser subsidies.
- GP level integration and convergent planning with grassroots government officials will play greater role. Necessary IT systems will help in better monitoring and outcomes.
- Enormous potential for income and nutrition security through small fisheries. Revised scale and options needs to be explored for nursery development for small fish plus IMC cultures.
- Moving from commodity centric FPOs to service centric FPOs nested with service capacities will be key for rainfed areas. This will also build circular economy sustainable models.



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Initiatives under Andhra Pradesh Community based Natural Farming Project

WASSAN is facilitating Andhra Pradesh Community based Natural Farming Project (APCNF) in 5 districts of Andhra Pradesh - East Godavari, Visakhapatnam, Srikakulam and Ananthapur and Chittoor, with a focus on scaling up integrated natural farming practices in selected clusters. Azim Premji Foundation is extending support for these initiatives with a thrust to innovate and standardise integrated natural farming models for the benefit of rainfed and tribal communities. For this, 7 out of 21 Gram Panchayats have been chosen as intensive Gram Panchayats for developing innovative models to upscale and promote the same practices in the remaining 14 GPs.

REACH / COVERAGE

• Districts	:	5
• Mandals	:	18
• Gram Panchayats	:	21
• Villages	:	124
• Total No. of Families	:	7435

[1] Desi Seeds through FPOs

Janajeevana Mana Vittana Kendram (MVK) in Balleppalli Thanda cluster in Anantapur district and Dimsa Vithana Parirakshana Samithi in Sagara CNF cluster of Visakhapatnam Districts have become as nodal points for the marketing seeds and other grains. These FPOs with a strong membership base demonstrating their business potential by catering the services to the local farmers. Considering the need and significance of Desi Seeds, these FPOs are undertaking procurement and distribution operations in a big way. Desi seeds are performing well in millet intensification/ better agronomy practices.

As part of participatory varietal trials, 341 varieties of crop seeds / accessions were characterized during the year. They are assessed in terms of their performance, withstanding capacities to the vulnerabilities. Efforts are on to multiply promising varieties to increase their availability.

[2] System of Ragi intensification (Guli Ragi)

WASSAN introduced Guli method in Ragi cultivation in Srikakulam district in 2014. Later it was familiarised through the Comprehensive Revival of Millet Program in seven districts of Andhra Pradesh. This method is being intensively promoted for increasing the productivity. The experiences of the farmers with substantial incremental yields led us to integrate these practices in CRZBNF clusters. With the support of APCNF, farmers standardized the POPs for GULI Ragi under the poly crop system.



During the year, crop cutting experiments were conducted randomly in 92 plots for estimating yields and productivity. Eight out of these 92 were control plots, under the conventional method. These experiments proved the effectiveness the method that is being validated by mainstream scientific community.

The yields were estimated at 13 quintals per acre in 59 plots. On an average, 12 quintals per acre was estimated in 25 plots. The 4 control plots, where transplantation method was followed, yielded an average of 7 quintals per acre. In other 4 plots, where broadcasting method followed, could show only 4 quintals per acre. With these encouraging consistent results, project is targeting to cover 10000 acres from 100 CNF clusters from North Coastal Tribal area, for the coming 3 seasons. This would be taken in collaboration with *Rythu Sadhikaratha Samstha (RySS)*, an empowered body established by Government of Andhra Pradesh.

[3] Testing innovative micro-technologies to ease drudgery

Taking support from 'Farm Easy', an establishment promoted by WASSAN Foundation, several micro level innovations have been tried out with a focus to reduce farm drudgery and processing of Millets. Farm implements like cycle weeders, wheel sprayers have been tested and standardized. These are made available to the farmers extensively through 'Farm Easy'. Another innovation is introduction of Millet Mixies - De hullers for processing millets at the household level. It is well received by the tribal community in remoted villages. Apart from easing the drudgery in processing at household level, these mixies are also showing some promise in terms of providing additional income for entrepreneurs who extend processing related services.

[4] Supplying Jeevamrutham through Enterprise Models

Jeevamrutham is one critical component in promoting natural farming. Farmers are not able to extend their area due to the lack of sufficient Jeevamrutham or their inability to prepare it on their own. To ease out such

constraints, an initiative is made to supply Jeevamrutham through enterprise models. For this, cattle sheds are renovated to prevent the drain of cow urine as waste material. Few such cattle sheds are connected with a pipeline network, so that all the cow urine is collected at common place. Enterprising farmers are using this raw cow urine to make Jeevamrutham, using solar technology and making it available for other farmers on demand and cost basis.

[5] Ensuring Critical Irrigation

Water has been a critical issue in agriculture on the slopes in tribal areas; crops are often subjected to climate risks. Farmers generally leave their lands as fallows soon after harvesting their Kharif crops. Despite having perennial streams, they are unable to use them for irrigation. To address this issue, some pilots were initiated to provide critical irrigation, using perennial streams in villages like - Sirasapalli, Rangasila, Pedagaruvu, Chinarama, Gurrampanuku, Vasabanda, Pinakota, Goppulavalasa of Sovva cluster.

Two village scale irrigation systems with Solar Energy were established with active contribution of the community; one in Chinarama cluster in Srikakulam and the other at Goppulavalasa in Paderu division of Visakapatnam district. These irrigation systems lifts water from streams and provides irrigation to about 40 acres, providing access to all households in the village. The plan is also to bring the water through a pipeline network from a perennial stream and use it for irrigation in Rabi. It is also used to save Kharif crops during dry spells. Thus, nearly 200 acres of fallow land was brought into production in Kharif 2020; through establishing solar and gravity-based irrigation systems.



A solar based cold storage unit was established with the Dhimsa FPO of tribal farmers in Paderu division in support of the vegetable growing farmers who are accessing Rythu Bazaar in Visakapatnam.

with about 50 desi-hen units. Managed under natural forage systems, these provide chicks to about 25 to 50 households in the village who have taken to backyard poultry. The income from the Desi Breed Farms is averaging at about Rs.60000 to Rs.75000 per year; that from the backyards is around Rs.8000 after meeting the household demand per year.

About 350 breed farms are established in the region with support from ITDAs and the Tribal Welfare Department and out reached to over 10000 tribal families in the last three years.

WASSAN provided critical support in mobilisation, technical design, training and support in establishing service fee based vaccination system managed by a community group. This successful experience in Backyard poultry led WASSAN to take up a collaborative initiative with BRLF to train their partners in 3 states on backyard poultry; an online course was designed for this purpose and executed.

[6] Promotion of Desi Poultry Breed Farms

Backyard Poultry with Desi breeds has been a major initiative that has been successfully scaled up in the tribal areas. Initiated in 2017-18 in a small way, the model has now become a main successful program of the Tribal Welfare Department and ITDAs. Desi Breed Farms are promoted as enterprises in half acre of land





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[7] Integrated Fish Farms

Fisheries in seasonal water bodies has greater potential but unused. A system of fish production in a cluster of ponds was evolved to make



use of all the water bodies for fish production. There are several seasonal and perennial types of water bodies in 21 Gram Panchayats covered in this project. 159 such water bodies have been identified which have a total water spread area of 377 acres. Considering the water availability in these water bodies, an initiative is tried out to develop integrated fish farms. Focus was on increasing fish production from existing 50 kg to 250 kg, with the help of natural farming practices. Fish ponds are integrated with horticulture plantation, vegetables cultivation and fodder production. The idea is to enable farmers to earn an additional income of Rs15,000 from a half-acre size pond, apart from fish production. Fish harvests, though not of Table size, have good demand locally and consumed by villagers and sold nearby.





[8] Un-fallowing of lands for meeting fodder scarcity

With increasing risk and uncertainty, many lands are left fallow without cultivation and the trend is increasing. A major breakthrough in the last few years of work is on reviving the fallow lands to meet fodder scarcity; this initiative taken up in some fallow lands and leased lands in Ananthapur and Chittoor districts has proved out highly successful. It started in the Chittoor clusters & expanded to over 1926 acres by now with 1650 farmers. Farmers having animals but with severe fodder shortage are tying up with those having fallow lands within the farmers groups to do diverse fodder production (including legumes, millets etc.) using natural farming methods. 652 farmers have taken up fodder production in 869 acres of land. Some of the villages Chittoor have moved from scarcity to surplus in just a matter of one year.

Fodder plots were promoted with 5 types of fodder crops - Jowar, Bajra, Horse gram, Field Bean and Cowpea. These are sown as intercrops. Fodder kits were provided to the farmers who were willing to take up this initiative. Each kit has 8 kgs of seed with multiple varieties - 6kg Horse Gram, 500gm Jowar, 500gm Bajra, 250gm Field Bean and 750gm Cowpea. Farmers observed good yields of highly nutritious quality fodder in these plots. In some places, elevated goat sheds were promoted with provisions for feed and water.



PROMOTING NAVADHANYA CROP SYSTEM

Diversification of crops from the extensive mono cropping of groundnut is a prerequisite for improving the drylands in Rayalaseema districts of Andhra Pradesh. WASSAN has been working on reviving the traditional Navadhanya crop system and the last three years have shown very promising results. This system has shown an additional income of about Rs.10000/- per acre in addition to providing much needed millets, pulses for consumption at the households, fodder for livestock and lot of biomass for soil health. The Navadhanya system expanded to over 2500 acres. A more important achievement is that experienced farmers have collected the traditional seeds of multiple crops that are part of the system (specific phenotypes) and multiplied their seeds. Now the

groups have seeds sufficient to expand to 15000 acres. These are taken up as a part of the farmers' cooperative – Jan Jeevana MACs Society as a business. This initiative has expanded in 15 clusters of Gram Panchayats in Anantapur and Chittoor districts and is being taken by RySS for upscaling.



Initiatives towards Strengthening Agro-Biodiversity

These initiatives include efforts to preserve local seed varieties and land races, promoting indigenous freshwater fish species, facilitating registration of indigenous cattle population, reviving forbidden indigenous paddy varieties, popularizing native poultry breeds, conservation of multi-crop germplasm, establishment of seed diversity blocks, application of digital technology for characterization and conservation of local landraces and facilitating formation of appropriate institutional mechanisms at various levels to protect agro-ecology and bio-diversity in Odisha, North Coastal Andhra Pradesh and Telangana states.

[1] Multi-location Trials of Millet Landraces in Odisha

The idea on varietal purification in controlled conditions under proper guidance by experts was emerged in one of the discussion in the OMM-SPMU meeting. During Rabi, 2018-19, 15 hills each from 14 traditional varieties and 2 Government recommended varieties were selected from Participatory Varietal Trail Plots of Raikia block in Kandhamal and Rayagada block in Gajapati districts. These were raised in two places in Bhubaneswar (NCDS & I-concept, Damdamumkundpur village of Pipili block of Puri) in control conditions during Kharif -2019-20. From these 16 varieties, four best varieties were selected based on defined parameters. Experts from OSSC & DA and FP and WASSAN Research team facilitated this process during Kharif 2020 - 21. Six true plant types from these 4 varieties (Mami Mandia, Kalia Mandia, Bati Mandia, Bharathi/Bhadi Mandia) were finally selected and their mother panicles and tillers panicles were kept separately. During Kharif 2020-21, they are

tested for replication, with a spacing (25 x 25 cm) in Dandamukundpur. Then, these seeds of these four varieties in bulk are given to farmers of Mayurbhanj, Koraput, Nayagad, Puri for multiplication. Experts from OSSC and NRRI visited these trial plots and gave their valuable inputs on purification. They found that these four varieties are uniform and purified but suggested for multi-locational trails for two seasons in different districts.



Subsequently, the multi-locational trials were undertaken in four districts - Malkangiri, Koraput, Rayagada and Mayurbhanj. Three new local landraces of Ragi were included in the Rabi varieties to make the varietal list from 17 to 20. All the trials were conducted in Randomized Block Designs (RBD) in three replications. Nursery beds were raised and organic nutrient and pest management practices were followed as part of productive and protective measures. The basic objective of these trails is to compare some of the varieties with the released variety at the state and national levels, and to arrive at a benchmark to approximate the released variety.

[2] Pilot on Testing the Efficiency of Singhi-IMC Poly-culture under a Low Input Production System in Small-size Water bodies of North Coastal Andhra Pradesh

Both lab and field experiments have shown that small indigenous freshwater fish species (SIFFS) like *Singhi* (*Heteropneustes fossilis*) can be successfully cultured with the Indian Major Carps (IMCs) under polycultures, without any negative effect on the production of IMCs commercially. Furthermore, unlike the other commercial stock fish species, SIFFS are self-recruiting and does not need any investment every year. They can be maintained in small ponds even with a depth of one meter. Despite their significant contribution to the food and nutrition security and local livelihoods and income, SIFFS have not been given enough attention in the inland fisheries policies and programmes neither at the centre nor at the state levels.

In the above background, WASSAN has piloted the production of Singhi-IMFs poly-culture under low input production system in small-size seasonal freshwater waterbodies to test the efficiency and compatibility and their competency in ensuring food and nutrition security and improve local livelihoods in tribal dominated areas of North Coastal Andhra Pradesh. The results of the pilot suggests that even small-size seasonal water-bodies in rainfed regions are highly suitable for Singhi-IMC poly-culture. Due to the high demand in market price, the culture of Singhi can provide a profitable income to fish farmers with simple management techniques.

[3] Developing an Open-Source Digital Platform for Landraces

The application of digital technology for characterization and conservation of local landraces and indigenous crop seeds is relatively new. The open source digital platform for landraces (OSDPL) is an example of application of digital technologies in this domain. The OSDPL is a web application, which allows not only the creation and storage of data pertaining to local landraces and indigenous crop seeds but also offers different other services such as seed profiling and data analysis. The major advantage of OSDPL is the ease of retrieving the data quickly, and ready availability of automatically generated reports for use.

The main objective of OSDPL (a people-technology partnership) is the promotion of community-based, participatory identification and characterization of the indigenous crop seeds and local landraces, participatory data generation and analysis, conservation and popularization of the local landraces and indigenous crop seeds, and increased accessibility of data and information to the public. WASSAN facilitated collection of data related to morphological and genetic characteristics of 341 landraces of 34 crops. It was done with community participation and made available to the public on OSDPL.

[4] Facilitating formation of a State Level Committee in Odisha on Agro ecology and Agrobiodiversity

The Government of Odisha launched a Special Programme for Promotion of Integrated Farming (SPPIF) in 2017 based on experiences of comprehensive pilot undertaken by RRA

Network in Malkangiri. Under SPPIF, a district level committee on agro ecology and agrobiodiversity was formed in May 2020. After this, a community led centre for excellence on agro ecology and agrobiodiversity was proposed in Chitrakonda block of Malkangiri district. Under this centre, 103 millet landraces and 23 pulse landraces are being conserved. In addition, conservation, and promotion of native livestock breeds such as Malkangiri goat and others is also being taken up. Based on the positive feedback, a state level committee on agro ecology and agrobiodiversity has been formed by the Department of Agriculture & Farmers' Empowerment, Government of Odisha. The Committee is focusing on following things;

- Training programme for the officials of DA&FE and FARD Department on the regulatory framework of biodiversity acts and statutes.
- Mapping of agro-biodiversity in mission mode in convergence with line departments. Master subsets for special areas with high prevalence of biodiversity.
- Mapping of botanical, socio-ecological and bio cultural aspects of agro biodiversity in SPPIF Malkangiri on pilot basis.
- Initiation of recognizing custodian farmers who conserve agro biodiversity & providing incentives to them.
- Developing action plan for promotion of biodiversity blocks through RKVY/State Plan Schemes. Standard Operating Protocols (SOP) for the Seed system for landraces on the lines of OMM. A pilot on participatory plant breeding.
- Developing a research framework for evaluating performance of landraces in inter cropping/poly cropping/integrated farming/non chemical approach.

- Scientific validation and Nutritional profiling of landraces .
- Promotion of consumer collectives for creating awareness in urban areas.
- Preparation of a roadmap for safeguarding heritage status of Koraput.
- Registration of native breeds with focus on livelihood development through breeder societies, on mission mode.
- Promoting agriculture interventions in the Swabhiman Anchal of Malkangiri through Organic/Natural farming methods.
- Preparation of a proposal for a biodiversity centric livelihood plan.

[5] Community-led Centre for Excellence for Agro ecology and Agrobiodiversity in Malkangiri district in Odisha

On the eve of International Day for Biological Diversity (May 22) in 2020, District Administration of Malkangiri, Odisha issued terms and references for committee on agro-ecology and agro-biodiversity with focus on Swabhiman Anchal of Chitrakonda. Accordingly, since May 2020, characterisation of native goat breed by name **"Malkangiri Goat"** was completed and submitted to NBAGR for registration. In addition, collection of native landraces of finger millet, little millet, turmeric and other crops are also in process. Collaboration is also being proposed with anthropologists for documentation of linkages between culture



and agriculture. This initiative has generated enormous enthusiasm in the national and international arena. A district committee on agro-ecology and agro-biodiversity has already received praise and recognition in the “*Organic and Natural Farming in India: Challenges and Possibilities*” from Centre for Science & Environment (CSE), New Delhi.

In this context, the Community led Centre for Excellence for Agroecology and Agrobiodiversity launched in Malkangiri by the Government of Odisha. This centre aims to become on-farm custodian of genetic diversity of flora of the region. It is proposed that the centre will also take up active participatory research on biodiversity-related activities with the active collaboration of the community, especially with WSHGs. Centre will take up *in-situ* conservation and maintain the genetic purity of landraces. It will also undertake diverse seed production of endemic varieties, which are in demand by the farmers and supply through Women SHGs / SHG Federations / Farmer producer organizations.

[6] Preparation of Breed Registers for Registration of Indigenous Cattle Populations of Andhra Pradesh and Telangana

WASSAN had been associated with a Network Project on AnGR of the ICAR-NBAGR for identification and characterization of two yet undefined indigenous cattle populations of Telangana and Andhra Pradesh, namely: *Vandhara* and *Nallamala-Pasa* cattle breeds. One of the cattle populations is small-sized and the other is medium-sized, draught breeds found predominantly in Telangana and the adjacent state of Andhra Pradesh. The ICAR-NBAGR funded AnGR Network project was initiated during 2017-18.

- **Nallamala - Pasa Cattle Population:** Around 101 breeders have been identified from 34 villages from 6 mandals - *Atmakur, Bandi-Atamkur, Gaddivemula, Kottapalli, Pamulapadu, and Velugodu* of Andhra Pradesh. Breed characterization and preparation of the breed descriptor of Nallamala-Pasa cattle population has been completed and registration of the cattle as a unique cattle breed is in progress with the National Bureau of Animal Genetic Resources, Karnal.
- **Vandhara Cattle Population:** Around 118 breeders have been identified from 32 villages of 6 mandals - *Kamareddi, Nizamabad, Rajanna Sircilla and Vikarabad* of Telangana. Biometric traits and physical traits of the cattle have been recorded for the purpose of characterization adopting the format prescribed by the NBAGR. Preparation of the breed descriptor is in progress and breed application will follow soon.

[7] Bringing Back the Forbidden Rice Varieties in Telangana

The extent of area under cultivation of forbidden indigenous paddy varieties was next to none before the intervention in Vikarabad district of Telangana, but by the year 2020 about 58 acres, involving 90 farmers have been brought under the cultivation of eight forbidden indigenous paddy varieties; another 54 accessions of such forgotten paddy landraces in Vikarabad district, Telangana have been revived.

[8] Popularizing Native Chicken Breeds under the Backyard Poultry Programme in Andhra Pradesh

The population of native chicken breeds was dwindling across Andhra Pradesh (AP), similar to the situation across the country, since the implementation of the backyard poultry at four districts of AP with native chicken breeds, the population of native chicken breeds have increased to over 350,000 among 405 tribal villages of the state.

[9] Establishment of Seed Diversity Blocks for Production and Supply of Locally Popular Landraces

Seed diversity blocks have been established in seven districts of Andhra Pradesh for conservation of desi paddy and millets varieties. Documentation of indigenous ridge gourd, pigeon pea, and tomato varieties was conducted with an objective of community-

based conservation in the tribal dominated areas of Srikakulam district.

[10] Conservation of Multi-Crop Germplasm in North Coastal Andhra Pradesh

Efforts are on for In-situ management of indigenous crop diversity with a focus on value addition and improved market access, in rainfed high altitude tribal areas of four districts of north coastal Andhra Pradesh. These are integrated into the community managed seed systems. Multiple crop landraces (> 300 samples) consisting of cereals, millets, pulses, oilseeds germplasm were collected from indigenous farmers of Araku region of Visakhapatnam district during the Eastern Ghats seed festival organized in the year 2017. All the collected samples are distributed for assessment of characterization, evaluation and multiplication and supplied to farmers from the subsequent year.



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Water Management in Rainfed Areas for Improving Livelihood Security of Small-holder Farmers: Out Scaling Australian-Supported R4D in Andhra Pradesh, Odisha and Karnataka

WASSAN implementing this project in collaboration with Commonwealth Scientific and Industrial Research (CSIRO) and National Rainfed Area Authority (NRAA). Australian Water Partnership (AWP) and Australian Centre for International Agricultural Research (ACIAR) providing financial support.

REACH / COVERAGE

- States : 3
(Andhra Pradesh, Karnataka and Odisha)
- Districts : 12
- Villages : 12

Project area in Andhra Pradesh consists of 6 villages in 6 districts covering Rayalaseema and North Coastal area. These villages are also part of Andhra Pradesh Drought Mitigation Program (APDMP) and Zero based Natural Farming (ZBNF), now called as Community based Natural Farming. In Karnataka, it is being taken up in 2 villages in 2 districts that were part of NABARD supported Watershed projects. In Odisha, project area consists of 4 villages in 4 districts, which are also part of Odisha Millet Mission and Integrated Farming Systems Project.

This project aims to comprehensively understand water – as rainfall, soil moisture, water for strategic irrigation and groundwater in the context of Rainfed agriculture. It provides a scientific exposition to understand water;

learn analytical tools, methods and measurements practiced in the field in real time situations to the resource farmers and facilitators. These tools are derived from the field experiences in India, Australia and Africa. The project basically intend to improve capacity of the field teams to use scientific tools for local decision making in water resources management and crop systems. Practice and scaling the tools and methods in large rainfed agriculture projects is an important component of this project activity. On the whole, its' focus is on improving crop production and ecosystem health by addressing issues related to strategic irrigation, soil biology, climate risks and groundwater monitoring.

Strategic irrigation aims to assess the root zone soil moisture & solutes using Chameleon sensors; and decisions are based on extending cropping seasons based on soil moisture balances. Groundwater / Aquifer management provides an understanding of participatory mapping of aquifers and their characteristics, delineating aquifer recharge areas and participatory groundwater monitoring and management at the village level. As part of Soil Micro-Biology, focus is on analysing various bio-inputs, their effectiveness & standardisation through participatory experimentation, for improving water use efficiency. Climate risk analysis includes hands on learning with tools to analyse local rainfall and link that climate information to on-farm decision making.

Project is expecting outputs in terms of having critical and practical experiences in the field sites using the defined tools and methods; trained Resource Persons with a comprehensive understanding on water resources, tools and techniques; and, a scalable approach to integrate into other programs/ states.



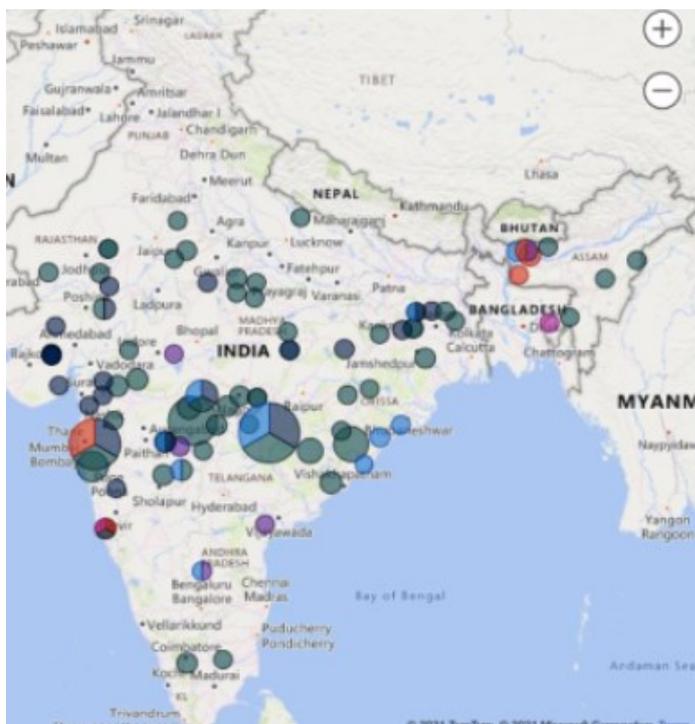
Initiatives of National Coalition on Natural Farming

The National Coalition for Natural Farming (NCNF) is a collaborative platform of farmers' collectives, CSOs, NGOs, Women Farmer Cooperatives, grassroots organisations and institutions across the country; its objective is to accelerate the spread of agro-ecology based farming practices in its multiple variants, improving on existing practices, and advocating for policy changes. It was launched on 9th July 2020. WASSAN took an active role in evolving this Coalition. ATE Chandra Foundation, Matthai Foundation, Swiss Aid, Caring Friends, CIFF and Agroecology Fund are supporting this initiative.

At present, there are 700+ members in the Coalition. It's secretariat has been striving hard to strengthen and promote its vision by interacting with multiple stakeholders; it is constantly trying to learn from field experiences, develop insights and figure out solutions to fix the multiple gaps in the system. In this process, it is focusing on collaborations and collective action across the multiple stakeholders. Some of the core principles adopted to realise its goal are: demand driven approach, scale through policies while in parallel, enabling a people's movement, action through partners and members, Identification and rectification of obstacles to scaling.

NCNF vision is to enable at least 50 million small & marginal farmers and farm workers, covering 30 million ha of agricultural land, practicing natural farming in the next 10 years. This is with the objective of building system-wide capacities in terms of practice, knowledge, awareness, human resources and architecture for mainstreaming natural farming across India.

[1] Collecting grass root level data on NF practices



One of the significant outcome of this Coalition is to collect grassroots level data and evolve a countrywide map, on the otherwise disparate interventions of promoting natural farming. This data was derived from within the coalition's members and member organisations who are working with rural farmers and vulnerable groups on agro-ecology based farming. Details of expertise, location, practices being promoted and challenges faced etc are part of this data. The map was developed in collaboration with Foundation for Ecological Security (FES). To know more about this, please visit: <http://nfcoalition.in/interactive-summary-report/>

REACH / OUTREACH

- Districts : 88
- Villages : 1142
- No. of Farmers : 94,000



CAPACITY BUILDING PROGRAM ON
BIO-INPUT RESOURCE CENTRES



KVK



जैविक संसाधन केंद्र के लिए
क्षमता वर्धन कार्यक्रम

किसान और फील्ड कार्यकर्ताओं के लिए जैविक संसाधन के उत्पादन और बिक्री पर प्रशिक्षण

Training on Production and Marketing of Bio-Inputs for Farmers & Field Level Functionaries

Date :

Krisi Vignana Kendram (KVK)
Vagimtpalli, Banaganapali Mandal
Kurnool District, Andhra Pradesh

मुख्य अधिकारी (क.जी.के.)
बागनपली, बानगनपली मंडल
कूर्नूल जिला, आंध्र प्रदेश

दिनांक



As part of this data collection, 'Stories of Champion Farmers' are being documented. For this purpose, a fellowship on story writing for field level staff of partner's organizations was launched in collaboration with WHH.

[2] Activities Updates

Formation of state chapters, capacity enhancement and education, undertaking or supporting pilots, research for bio-input resource centres, formation of working groups for marketing etc are some of the key activities undertaken by National Coalition during the year. State chapters were initiated in Odisha, Madhya Pradesh, Kerala, and Rajasthan; and, these are in process in Gujarat, Chhattisgarh.

• State wise Chapters

- * In Kerala, state coalition is documenting the NF practices for respective agro-ecological zone. Facilitation support is extended to implement the BPKP program. In collaboration with NSS, a program is being designed to involve youths in kitchen gardening. Works to scale up NF has begun In Thrissur and Palakkad districts.
- * In Rajasthan, state coalition is formed. Organisation mapping exercise is completed. Key working areas for the state have been identified. A proposal was developed and shared with the state agriculture department for natural farming training.
- * In Madhya Pradesh, state chapter is launched. Organisation mapping is presently in progress in order to get an understand the partners demands.
- * In Gujarat, state level meeting was organised with over 30 partner organisations. Organisation mapping is being

carried out to understand the ground reality and partner demands.

- * In Himachal Pradesh, RRA-N, is leading the effort; Interactions took place to advocate civil society engagement for NF
- * In Odisha, state level committee and a drafting team is formed in consultation with Director Food Production. Identification and addition of members to state network is in process. Proposal submitted for a BPKP cluster in association with WASSAN. Compendium of natural farming practices of the state is being documented.
- * In North-East, an organisation from Assam, SeSTA, carried out a stakeholder mapping exercise to understand the landscape.
- * Maharashtra has come at a hibernation stage for the lack of coordination and government engagement.

Collaboration with CIFF - Low Carbon Agriculture project: It aims to create an umbrella of organisations and strategic investments to serve Madhya Pradesh, Gujarat, and Uttar Pradesh with an aim to convert 50 per cent farmers by 2030 towards natural farming practices. NF Coalition is a key strategic partner is collaborating and engaging with all the CIFF grantees to drive a collaborative impact.

• Capacity Enhancement

- * Capacity Enhancement programme for the Rabi season were conducted in Gujarat and Himachal Pradesh.
- * First season of Conservation agriculture pilot program completed in collaboration with AKRSPI. Sessions for Khariff season are in progress.

- * First season of Conservation agriculture pilot program completed in collaboration with AKRSPI. Sessions for Khariff season are in progress.
 - * Ten organizations from across India have been identified to scale and five key organizations were selected to initiate Pilot Bio-Input Resource Centre's (BRC). They have 91 functional BRCs. Initial research and field visits to existing BRCs conducted. Basic guidelines for setting up BRCs is under review.
 - * Digital Content has been shortlisted for testing; content curation is under process. Existing digital solutions are being analysed. Insights are being gathered from the CRPs. Geography selected for the initial research and pilot run is MP, partner organisations finalised Partners for field-testing - AKRSP-SRIJAN and I.
- **Marketing and Education:**
 - * Interactions initiated with academicians and experts of the agriculture education ecosystem to take forward the agenda of bringing agro- ecology based natural farming pedagogies into the agriculture training.
 - * Realising the influence of KVKs' in agriculture training, "KVKs as Leaders in Natural Farming Education", a webinar was hosted which received participation from over 70 KVKs from across the country.
 - * Valuing Ecological Services is one of the core components of new paradigm. Coalition has started looking onto various avenues to build prospect of the same.
 - * A collaborative research to understand carbon sequestration potential of regenerative agricultural practices is underway.
- * The process of studying & mapping existing government schemes, programmes and policies relevant to NF is undergoing. This is to identify and address gaps in the current understanding of the policy prospects, different schemes that govern the public investments in agriculture, and which could be leveraged to scale NF in India.
 - * Support is being given to a pilot project on the Conservation Agriculture to devise the impact indicators and a framework for monitoring and assessment.
 - * Working Group formulated to work on creating awareness on the advantages of consuming naturally farmed food products, both in rural and urban India;
 - * Published a literature review on Nutritional Benefits of Naturally grown food products. Conclusive research is being planned to thereby increase consumer awareness.
 - * Initiated collaborations with NNedPro, NCBS and University of Edinburgh to carry out research and experimental studies on the health and nutritional benefits of consuming naturally farmed food.

- **Key Learnings**

The natural farming movement is bigger than estimated. Most of the civil society ails with the market indifference for better products. Market interventions, narratives, and structures are required to arm these organisations at large. Except some autonomous agricultural institutions like Krishi Vigyan Kendras (KVK), the traditional education institutions are hardly having any interventions in the space of agro-ecology based farming. Considering the growing narrative around organic/natural farming, many from the traditional spaces are showing interest in testing them out through

pilot studies and demonstration plots. In most rural regions, despite growing food using natural farming practices do not consume it themselves. It is essential to communicate benefits in tangible and measurable terms to make visible the value adds for the consumers in their daily life. In this regard, there is a need for the Coalition to serve the public at large in rural areas through procurement and distribution interventions and welfare schemes for localisation and decentralisation.





Initiatives under RRA Network Hub

WASSAN has networking as a larger approach to build communities of civil society, develop their capacities, to interface with mainstream programs, and to evolve relevant programs and public investments.

WASSAN has played a key role in the emergence of RRA network. Networking with other organisations and individuals working on issues of rainfed areas, RRA Network facilitates interaction, collaborations between civil society networks and government, sharing of experiences and promotes dialogue on policy development. It has over 600 members from multiple institutions- CSOs, researchers, bankers, farmers / their organisations and interested individuals—in 12 states across the country.

RRA Network actively supports **3 state chapters** in *Himachal Pradesh, Karnataka, and Maharashtra*, and **several thematic working**

groups such as *Seeds, Livestock, Water, Millets, Soil, Agro-ecology*. RRAN actively partners with National Rainfed Areas Authority (NRAA), Ministry of Agriculture & Farmers Welfare, Government of India, MANAGE, an autonomous national-level training institute and several public research institutions, such as ICAR-CRIDA. As of 31 March 2021.

RRA Network's Board comprises the following people

- Gagan Sethi, *Founder, Janvikas, Ahmedabad*
- B. Venkateswarlu, *Retd. Vice Chancellor, Vasant Rao Naik Marathwada Agricultural University, Parbhani*
- Aruna Rangachar Pohl, *Chairperson, IFHD, Bengaluru*
- D. Narendranath, *Executive Director, PRADAN, New Delhi*
- Dr. D.K. Sadana, *Founder and Secretary, ILSI, India*
- Jayesh Joshi, *CEO, VAAGDHARA, Banswara*
- A. Ravindra, *Director, WASSAN, Hyderabad*

This year, RRA Network initiated two new collaborations:

- With the Working Group of Women for Land Ownership (WGWLO), a Gujarat state-based network to build the capacity of women farmers, particularly on seeds and millets.
- With GIZ to build a national forum to take up Biochar applications to scale and create awareness of the need for healthy soils by making optimal use of all available biore-sources.

Important events hosted by RRA Network this year include:

- A webinar session with P. Sainath, an acclaimed journalist on rural India on “Imagining post-covid Rainfed Agriculture: Learning from the current crisis” on 3 May 2020.

- A webinar series of “Re-imagining The Next Generation of Watershed Development in India was organized on July 28, 2020 with Dr. Ashok Dalwai, CEO of NRAA as the guest of honour.
- A webinar on “Springshed Management in Himalayan Region Based on Field
- Experiences of Himachal Pradesh: Way Forward on October 09, 2020 in which national and state government officials participated.

This year marked the end of Phase 2 of RRA Network’s journey from 2017-2020 (though due to the Covid pandemic an extension was granted till September 2021 for the Network to meet its deliverables). RRA Network’s work was evaluated by a team of external evaluators appointed by its Board. A copy of this evaluation report is available upon request.



Initiatives under Food and Land Use Coalition

The Food and Land Use Coalition (FOLU) is an international network spanning several countries in the Global North and South. It is committed to transform the ways the food is produced and consumed and the way the land is used on sustainable terms. In that process, it undertakes action-research projects and data supported narratives. The ten critical transitions for a sustainable food system that FOLU recommends resonate with the work that the RRA Network is doing in terms of regenerative rainfed agriculture. FOLU started working in India in 2018 and RRA Network was invited to become a core member in it in 2020. Though FOLU's overall work includes irrigated agriculture, it fully supports the RRA Network in its agenda of promoting a different paradigm for rainfed agriculture. As part of FOLU, the RRA Network has participated, as both a participant and a key speaker or panelist in

multiple international seminars/webinars. It shared its experiences in promoting rainfed agriculture in three international events in 2021, namely - UNFCCC COP 26, IUCN and the UNFSS dialogues.

[1] National Report on Nutritional Security by 2050

Phase 1 of FOLU India activities ended in December 2020; its focus was on bringing out a national level report that seeks to identify the policy and governance design and other measures required to achieve the nutritional security of the country by 2050. Diversifying and intensifying sustainable agriculture, re-organising, reforming the distribution systems, and nurturing responsible citizenry to consume and absorb a healthy diet with a fork to farm approach are the core elements of this report. RRA Network research team contributed the section on distribution systems for this report.



[2] Sustainable and Regenerative Agriculture Project (IKEA)

RRA Network as part of FOLU - Phase 1, helped in designing a project on sustainable and regenerative agriculture, to be implemented in three rainfed states – Maharashtra, Telangana and Andhra Pradesh. IKEA Foundation extended funding support for this initiative. RRA partner *Amhi Amchi Arogyasathi* is implementing this project in Gadchiroli in Maharashtra. WASSAN has taken up the implementation role in Vikarabad in Telangana and Anantapuramu in Andhra Pradesh. However, the implementation of this project was delayed due to Corona pandemic and some other field level reasons. Nevertheless, relevant data on agriculture in each block of selected district has been gathered. Based on this data and pre-determined parameters, 1 block and 2 GPs will be selected in each district. Appropriate agricultural interventions will be promoted in these places in next 2 years.

[3] NICFI Project (Phase 2)

NICFI, the Government of Norway is a core supporter of FOLU since its inception. In Phase 2 of FOLU activities, RRA Network received core funding for scaling up rainfed agriculture initiatives in Odisha. It is in the form of Secretarial support for ORAM and explore similar state-level interventions in 3-5 other states, until 2025.





Supporting Andhra Pradesh Drought Mitigation Project (APDMP)

Drought mitigation and climate resilience can only happen with the farming systems and natural resources use and management are aligned to meet the climate variability and contingencies; it is not just a question of recharging groundwater.

Building on this perspective, WASSAN worked with the Department of Agriculture, Andhra Pradesh in evolving a program – AP Drought Mitigation Project. The project is designed to comprehensively address drought risks implemented by the FPOs. 105 FPOs were formed in 5 Rayalaseema Districts supported by 9 lead facilitating agencies involving over 35 CSOs. Over 100 Bio Resource Centres were established to provide inputs for nutrition, pest and disease management prepared from locally available material. The FPOs are into business lines scoping markets for the diverse crop systems. WASSAN provided the design, policy, capacity building and synthesising learning support to the project. The project promotes adaptation in crop and livestock production systems with protective irrigation as a core element.

WASSAN served as the Lead Technical Agency in AP Drought Mitigation Project in FY 20-21 for a duration of 5 months, April-August, 2020. The team at WASSAN supported the project in following ways:

- Worked on the Project Annual Report together with the SPMU team
- Worked with the SPMU and partner agency to restructure FPO training modules post lockdown.
- Workshop with BRC entrepreneurs and KVK to understand their performance, farmer response, challenges etc.
- Facilitating the withdrawal of LFAs and FAs and evolved strategy for project restructuring to be implemented by the Department of Agriculture.
- Revised estimations as per SOR 2019-20 of Farm pond and Soil fertility improvement program activities, submitted groundwater collectivization proposals, groundwater recharge structure final estimation, shared farm pond sub activity wise monitoring sheet.
- Field Support to LFAs and FAs for groundwater collectivization activities.
- Submitted proposal for introduction of 5-layer integrated intensive farms in APDMP GPs.



Watershed Development and MGNREGS

Watershed development is the core mandate and expertise with WASSAN. Two watershed development projects are in the implementation stage supported by NABARD in Telangana state.

WASSAN has initiated a partnership with Rural Development, Department of Jharkhand Government to support it as a Project Management Unit (PMU) in implementing a collaborative program supported by BRLF. The program envisages developing participatory watershed development plans for 695 watersheds (over 3.0 lakh ha area) under MGNREGS to make its investments effective. 12 CSOs are involved each taking up two Blocks. WASSAN will also implement this program in Anandpur and Gudri Blocks of West Singhbhum district – an interior tribal area in the Saranda forest. The program has just started and initial capacity building programs are ongoing.

Supporting Baseline Study Heifer Inter-national Poultry Project

WASSAN provided consultancy services to Catalyst Management Services (CMS) Pvt. Ltd., Bangalore (20th October 2020- 28th February, 2021) for Baseline Study in the Heifer Project International Poultry Project. This was a collaboration with CMS, the primary agency involved in the baseline. CMS had approached WASSAN for its domain expertise in Backyard Poultry Systems (BYP).

The main activities and deliverables under the contract included:

- Customization of the qualitative and quantitative tools such as FGD and interview questionnaire for FPOs, Households and MSMEs developed by Heifer and CMS to include appropriate questions on BYP.
- Field visit by WASSAN BYP team members to Anantapur and East Godavari to facilitate the FGDs and other baseline related tasks.
- Support in data analysis, provide insights on the analysis and document the same.





Easy Drudgery in Farm Operations with Innovative "Farm Easy" Equipment

Making farm operations easier is a great challenge in rainfed areas due to undulating terrain, low rates of return and high seasonality in crops. Any new machinery displaces women and labour resulting in high underemployment. **'Farm Easy'** as a team was established in WASSAN in 2019 to work towards innovations in improving labour productivity and income i.e. making the work turnover efficient.

Such innovations are focusing on standardizing and commercializing "mobile energy" using renewable forms for protective irrigation, aiding in various agronomic and post-harvest operations in rainfed areas; particularly for small holders. During the year, Farm Easy' came up with several innovations using solar energy; few prototypes were newly developed; some earlier technology was standardized. Mobile Energy Cart & Combo sprayer were developed in association with Mr. Peter, MMT; further improvements were done to Cycle Weeder, Mandava Weeder; Mini Millet De-huller, Cart sprayer were standardized by the Farm easy team themselves. Financial support for such R&D came from few projects like Sustain+, CRZBNF, etc.

Newly developed prototypes were demonstrated and field-tested with the help of the WASSAN field team, in places like Kadiri, Paderu, Srikakulam, East Godavari and also to some extent in Odisha. Training workshops were conducted for entrepreneurs covering aspects like operating and assembly of these prototypes. Printed and video manuals were developed and used in these trainings. The details of prototypes developed, field tested and standardized are as below;

Prototypes standardized and in regular production:

- Mini Millet De-huller (Mixers)** – AC model standardization done and deployed in the field. There were some issues with DC model, in terms of costs due to imports and lack of warranty. There component failures in very short time. So team focused on AC model only. These AC prototype Millet Mixers are being used for processing Foxtail & Little millet grains into Millet rice (de-hulling). Assembly procedure and operating process was standardized. Manuals were prepared for operating & maintenance of these models. Trainings were conducted to local youth and women in Kadiri, Paderu, R. Chodavaram, Vizag, etc. it is happy to see that few women entrepreneurs have emerged and started to earn from these activities.



- Cycle Weeder** – Existing model was further improved to address reported issues; added new features like height adjustment (6 levels), double row tines (as a set), and angle adjustment for blade etc. Few specific changes were made to suit the soils in Kadiri. These include – replacement of adjustable blade with a fixed forged blade, arrow heads for tines and each row of detachable tines. Vendors identified in Kadiri & Hyderabad in addition to the Parvathipuram vendor.



- Mandava Weeder** – Existing model modified to improve durability by going for hot dip galvanizing of the portion coming in contact with wet soil; laser cutting for the vanes for standardization and ease of fabrication; introduced nylon bushes to replace the bearings to reduce the maintenance cost & effort. Identifying new vendors for fabrication.



with wet soil; laser cutting for the vanes for standardization and ease of fabrication; introduced nylon bushes to replace the bearings to reduce the maintenance cost & effort. Identifying new vendors for fabrication.

Prototypes under field trials, model to be standardized for scaling-up:

- Energy Cart** – Many combinations were tried for mounting the solar panels (flexible / rigid, mono / poly crystalline) on the cart (bullock / tractor drawn), folding & unfolding mechanism (hinge / sliding methods) and pumps (DC / AC powered with & without drive). Finally, two models with different set of features were developed and are under field trials.
- Inverter & batteries** were integrated to the Energy Cart to operate other farm equipment like pulverisers, threshers, pumps, etc., using < 1.5hp, AC motors. As irrigation is not throughout the year, this will be another revenue stream for the entrepreneur.



- **Multi-row Sprayers** – Combo sprayer & Cart (Bike-Hitched) sprayer prototypes for organic growth promoters / pesticides (Jeevamrutham) completed and deployed on field. They can operate with battery / solar power.
- **Combo Sprayer** – Lot of iterations done to suit the local requirements – row spacing, boom height, ground clearance (wheel diameter, assembly modified), span between wheels, drum mounting, handle (to suit push & pull) and spray nozzles (4nos for line sowing and hand gun with 25m pipe for sowing done by broadcasting method). This model is being field tested in Kadiri, Paderu, Chinnarama & Malkangiri areas.
- **Cart Sprayer** – Modifications done to improve the bike-hitching mechanism, boom adjustment, mounting the battery pack, etc. This model is being field tested in Kadiri, Paderu & Chinnarama.



Prototypes under development

- **Brush Cutter** – The initial model had some issues – motor heating, stalling and twines getting entangled to the motor shaft. Later identified different motor and some modifications to overcome the above issues. Motor heating issue reduced to some extent. Looking at alternatives of gear / timing pulley power transmission instead of directly mounting blade on motor shaft and integrating a cooling fan to dissipate motor heat.



- **Groundnut Pod stripper**– During the horizontal model field trials, farmers were satisfied with opening but trash mixed in output was not acceptable as it is difficult to separate. So, a vertical model with a grading mechanism was developed. After trial with different types of stripping points, results not to the desired level, still needs lot of fine tuning.



Product Promotion and Sales

- Farm easy website development in process. Brochures prepared for Cycle Weeder & Mandava Weeder, Mini Millet De-huller and Combo Sprayer. Others will be initiated once model is finalized. Turnover during the year was Rs.20,72,830 and team has set a target of 4 fold increase in next year. Efforts are on to have few stock points to hold buffer stock & spares and to strengthen the team with additional resources for operations and business development activities.

Process Protocols for scaling-up

- Prototype to Product –CAD drawings, BOM, Product specs, Manuals (docs, videos), data collection / feedback forms. Most of them ready for Mini Millet De-huller, Cycle Weeder, Mandava Weeder
- Customer Order to Execution – Process flow, documents required, way bill/invoice for dispatch, acknowledgements for receipt, serial number plates to track, stock register, etc.
- Entrepreneur training – Conducted workshops to train the entrepreneurs (rural women & youth) in operating, assembly & maintenance of Mini Millet De-hullers.



Audited 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

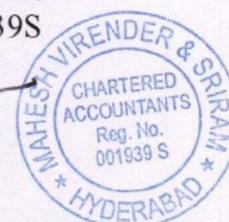
We have audited the accounts of **WATERSHED SUPPORT SERVICES AND ACTIVITIES NETWORK**, a registered Trust having its office at **Plot No.685 & 686, Road No.12, Narasimha Swamy Colony, Nagole, Hyderabad - 500 068** for year ended 31.03.2021. These financial statements are the responsibility of the Management. 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.

for Mahesh, Virender & Sriram
Chartered Accountants
Firm Reg. No.001939S

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



Place : Hyderabad
Date : 08.10.2021.

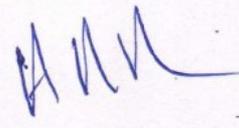
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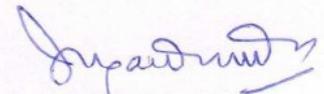
Watershed Support Services And Activities Network (WASSAN)			
Plot No. 685 & 686, Road.no.12, Narasimha Swamy Colony, Nagole, Hyderabad 500 068 - Telangana			
CONSOLIDATED			
BALANCE SHEET AS ON 31-03-2021			
PARTICULARS	Annex	2020-2021	2019-2020
CORPUS FUND	1	5,008	5,008
GENERAL RESERVE	2	58,85,998	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)

for Watershed Support Services and Activities Network(WASSAN)


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

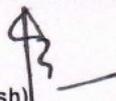

(A.Ravindra Babu)
Executive Secretary


(Jagadananda)
Chairperson



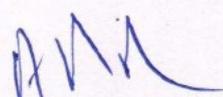
Watershed Support Services And Activities Network (WASSAN)			
Plot No. 685 & 686, Road.no.12, Narasimha Swamy Colony, Nagole, Hyderabad 500 068 - Telangana			
CONSOLIDATED			
INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDING 31.03.2021			
PARTICULARS	Annex	2020-2021	2019-2020
		Amount Rs	Amount Rs
INCOME:			
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

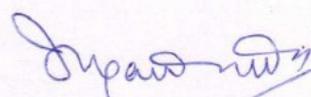
Vide our report of even date
for Mahesh Virender & Sriram
Chartered Accountants(Reg.No 001939 S)


(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


(Jagadananda)
Chairperson



B/f	11,82,55,974	3,65,71,684
To Biharat Rural Livelihoods Foundation-Jharkhand (HIMW)	21,45,000	81,956
To NCDS & Directorate of Agriculture & Food Production Odisha(Dept of Agriculture and farmers Empowerment, Govt. of Odisha	8,16,000	4,77,015
To NCDS & Directorate of Agriculture & Food Production Odisha(Dept of Agriculture and farmers Empowerment, Govt. of Odisha	54,95,000	2,07,451
To NCDS & Directorate of Agriculture & Food Production Odisha(Dept of District Mineral Foundation (DMF), NCDS & Agriculture Technology Management Agency (ATMA)(Sundargarh)	2,04,95,000	27,508
To NCDS & District Mineral Foundation,Keonjhar, PD Agriculture Technology Management Agency(ATMA)	37,12,000	81,289
To General Receipts-NFC	1,32,83,000	19,12,099
To Interest Received - NFC	10,87,941	26,37,887
Interest Received - FC	7,05,696	5,49,256
Interest Received - NFC	19,62,786	58,78,951
To Fixed Deposits Released-Annex-4	2,70,42,277	63,62,378
Fixed Deposits Released FC	7,02,97,880	2,21,34,467
Fixed Deposits Released-NFC		14,27,737
To Rent Deposit refund	13,200	2,09,997
To Tds Refunds -Annex-49	9,01,075	1,10,22,357
To Interest on TDS Refunds	1,18,926	8,72,388
		8,09,07,749
		21,09,089
		13,68,99,576
		89,113
		2,49,57,881
		6,39,33,684
		645
		38,79,170
	26,63,31,754	26,63,31,754

for Watershed Support Services and Activities Network(WASSAN)

(Signature)
(Jagadananda)
Chairperson



(Signature)
(A.Ravindra Babu)
Executive Secretary



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

(Signature)
(B.R.Mahesh)
Partner
(M. No. 18628)
Place: Hyderabad
Date: 08.10.2021

WATERSHED SUPPORT SERVICES AND ACTIVITIES NETWORK
(WASSAN)

Plot No. 685 & 686 Rd.no.12 Narasimha Swamy Colony Nagole Hyderabad-500 068
Telangana

SIGNIFICANT ACCOUNTING POLICIES FOR THE YEAR ENDED 31.03.2021.

- 1) The accounts are drawn up on historical cost basis and have been prepared in accordance with generally accepted accounting practices, on cash basis other than interest income and audit fees.
- 2) The Trust is following the accounting policies and procedures as laid out in financial manual.
- 3) Depreciation on Fixed Assets, owned by the Trust is provided under w.d.v method at rates prescribed under Income Tax Act, 1961.
- 4) Project Fixed Assets are charged off to respective project, since they are funded out of budget of donors.
- 5) Depreciation on books and publications are provided for at full cost and the publications including research material is not for sale but distributed at free of cost or at cost to the constituents.
- 6) Foreign Exchange transactions in relation to receipt of donations/contributions accounted for at the exchange rates prevalent on the date of transaction.
- 7) Grants & Interest thereon are treated as Restricted or Unrestricted based on MOU with Donors.
- 8) Specific Foreign Contribution Grants in the nature of Endowments are funded separately and the matching Endowment funds from the Trust is built as per balance available in Non Foreign Contribution funds.

WATERSHED SUPPORT SERVICES AND ACTIVITIES NETWORK
(WASSAN)

Plot No. 685 & 686 Rd.no.12 Narasimha Swamy Colony Nagole Hyderabad-500 068
Telangana

NOTES TO ACCOUNTS for year ended 31.03.2021 :

- 1) Building fund is created from General Reserve to create Capital Assets for the Trust.
- 2) The Trust received Grants from different Donors during the year as follows - As per receipts & payments A/c

Sl. No.	Particulars	Grants Receipts (Rs.)	Grant Expenditure(Rs.)
1.	Foreign Donors	1,96,73,781	2,30,67,269
2.	Interest -Foreign Contribution	7,05,696	
3.	NGO's (Indian)	72,32,089	15,04,03,991
4.	Government Grant (Indian)	4,74,34,094	
5.	CSR Organization (Indian)	8,19,83,846	
6.	Interest during the year (Indian)	19,62,786	
7.	Donations	18,80,024	
8.	NABARD	6,77,240	
9.	Others	10,87,940	

- | | | |
|--|---------------|---------------|
| | Current Year | Previous Year |
| 3) Remuneration to Secretary/Directors : | NIL | NIL |
| 4) Amounts paid to Statutory Auditors : | | |
| Statutory Audit | Rs.1,00,000/- | Rs.1,00,000/- |
| Others | NIL | NIL |
- 5) Balances of Sundry parties and loans and advances are subject to confirmation.
 - 6) Previous year's figures have been regrouped/reclassified whenever necessary to correspond with the current year classification/disclosure.

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

(Jagadananda)
Chairperson



Our Donors

- World Resource Institute (WRI)
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- SWISSAID
- Welthungerhilfe India (WHH India)
- University of Cambridge
- Detroit Telugu Literary Club (DTLC)
- TRAIDCRAFT (original fair trade pioneer in the United Kingdom)
- Azim Premji Philanthropic Initiatives (APPI)
- Imperial Tobacco Company of India Limited (ITC Ltd.)
- Integrated Tribal Development Agency (ITDA)
- Sahajeevan Trust
- Sahaja Samruddha
- Government of Odisha (Sundargarh district)
- ATE Chandra Foundation
- The Duleep Matthai Nature Conservation Trust
- Bharat Rural Livelihoods Foundation (BRLF) - Jharkhand
- Centre for Pastoralism





WATERSHED SUPPORT SERVICES AND ACTIVITIES (WASSAN)
Plot Nos. 685 and 686, Narasimha Swamy Colony, Street No. 12
Nagole, Hyderabad—500 068
Telangana, India

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Twitter: <https://twitter.com/wassanindia>