

Proceedings

Workshop on CSR for Agricultural Development: CSR Interventions in Climate Smart Agriculture (CSA) and Natural Resource Management (NRM)

Jointly Organised by



Centre for Climate Change and Adaptation (CCA)

National Institute of Agricultural Extension Management (MANAGE) Hyderabad, India
(An Organisation under the Ministry of Agriculture and Farmers Welfare, GoI)

www.manage.gov.in

About the Publication

This publication is the outcome of the Workshop of CSR for Agricultural Development: CSR Interventions in Climate Smart Agriculture (CSA) and Natural Resource Management (NRM) conducted on 26.10.2021 jointly by MANAGE and BIMTECH.

Inside Publication

This publication has summarized the key points of the panellists who have presented in the Workshop. It highlights major interventions of the companies and research institutes in CSA and NRM. Further, the success criteria of some of the interventions of CSR in CSA and NRM is elucidated to facilitate other companies, public institutions, departments, NGOs, CSOs, FPOs, entrepreneurs etc. emulate and implement them at scale.

Workshop Organisers

Dr N Balasubramani

Director, Centre for Climate Change and Adaptation (CCA), MANAGE

Prof. K K Upadhyay

Centre for Sustainability and CSR, BIMTECH

Mr Arif

Program Executive, BIMTECH

Mr Vincent A

Consultant, Centre for Climate Change and Adaptation (CCA), MANAGE

Editorial Team

Dr N Balasubramani

Director, Centre for Climate Change and Adaptation (CCA), MANAGE

Mr Vincent A

Consultant, Centre for Climate Change and Adaptation (CCA)

Acknowledgements

We acknowledge all the renowned panellists for sparing their valuable time and sharing their experiences in the implementation of CSR projects in CSA and NRM.

©2021 MANAGE

Citation:

Balasubramani, N., Vincent A., (2021). Workshop Proceedings on CSR: “CSR Interventions in Climate Smart Agriculture (CSA) and Natural Resource Management (NRM)”. Proceedings-3. Centre for Climate Change and Adaptation (CCA), National Institute of Agricultural Extension Management (MANAGE), Hyderabad, India.

Workshop on CSR for Agricultural Development: CSR interventions in Climate Smart Agriculture (CSA) and Natural Resource Management (NRM)



BACKGROUND

MANAGE in collaboration with BIMTECH is organizing the Annual Workshop on CSR for Agricultural Development since 2017. During the year 2021, the workshop was organised through online platform on 26.10.2021. The objective of the workshop is to sensitise the corporates to invest CSR funds for agricultural development. It is evident from the past data that most of the CSR funds are spent for health, sanitation, education and other livelihood activities. Also, the distribution of the funds for agricultural development within the country is highly skewed towards richer states, for example, the states like Maharashtra get higher CSR fund flow and poorer states get lesser CSR funds. However, some of the corporates have invested in agriculture and developed good models which are addressing various problems faced by the agricultural sector. Hence, the Workshop was organised to identify the game-changing innovations, agricultural projects, ideas etc in CSA and NRM, which may help the policymakers to understand the success criteria of the different agricultural projects implemented by corporates. The learnings may help other stakeholders to replicate and upscale similar projects.



Speakers and presenters

A total of eight (08) panellists with rich experiences in the implementation of successful agricultural projects and CSR activities in CSA and NRM have presented in the workshop and provided an insight into various initiatives undertaken by companies and academia relating to CSA and NRM.



Who has participated?

Around 80 have participated in the Workshop belonging to different fields such as Scientists, Extension Officials, Development Functionaries, Research Scholars and other officials from government and non-government organisations who are associated with projects related to agriculture and allied sectors.



Moderator

The workshop was moderated by N. Balasubramani, Director, CCA, MANAGE

The highlights of the presentation are as follows



Highlights

As agriculture plays a major role in employment generation, economic growth, poverty reduction and ensuring food security. The public system is spending a huge amount in promoting agriculture and ensuring food and nutrition security. However, agriculture still faces challenges such as less productivity, price fluctuation, marketing issues etc.

Farmers are facing further challenges due to climate change induced risks such as flood, drought, heatwaves etc., These extreme events further aggravate the existing problems faced by farmers. To address these challenges, there is a need for a huge investment, which can be complemented from CSR funds, besides investment from government programmes and schemes.

The introduction of Section 135 of Companies Act, 2013, made it mandatory for a company (having a net worth of Rupees 500 crore or more, or turnover exceeding Rupees 1,000 crore or a net profit of Rupees 5 crore or more), to spend at least 2% of its average net profit made during preceding three financial years. This workshop serves as a platform for sensitizing the CSR heads and professionals on the need for CSR funds for agricultural development. In this context, the present Workshop on CSR for Agricultural Development in the theme of CSR interventions Climate Smart Agriculture (CSA) and Natural Resource Management (NRM) will enable the panellists who are representing the research institutes, companies and other organisations to share their experiences of CSR projects in CSA and NRM, also to learn the impact of these projects on social and economic development.



Dr P. Chandra Shekara

Director General,
MANAGE



Highlights

Realising the importance of corporates in agricultural development, MANAGE has initiated a MANAGE CSR forum. It is a PPP platform. Many companies are expected to benefit from the CSR forum of MANAGE. India is fortunate to have food sufficiency due to several extension activities, research and development, the involvement of other stakeholders. However, on the other side, India ranks less in the hunger index. There are three important issues faced

by the country. One is that the access to food, second availability of plenty of food with less nutrition and third, 14% of the population is malnourished.

However, most of the farmers are not happy to continue farming due to less income. Therefore, ensuring income security to farmers is important and enable them to stay in agriculture. According to Times Report, the monthly income of farmers is only Rs.10,329, If a farm family has five members, it works out to Rs. 344 / member /month. If this prevails, farmers cannot continue agriculture and a larger number of farmers will quit agriculture due to less income from farming. In addition, climate change risks are causing extra burden to farmers as it affects the crop yield and the induced income loss due to climate change is estimated to be 4.5 to 9%.

Climate change is a very important issue, hence, the latest technological and institutional innovations need to be harnessed for the benefit of agriculture. This workshop will facilitate the panellists to share interesting practical experiences and innovations in agriculture.



Dr S Bhaskar

Assistant Director General (ADG-AAF&CC),
Indian Council of Agricultural Research (ICAR)



Highlights

Indian Council of Agricultural Research (ICAR) is the premier institute in agricultural research in India. Available reports and research states that Indian agriculture is prone to risks of climate change due to an increase in temperature, the occurrence of frequent heatwaves and an increase/decrease in rainfall. Agriculture contributes only 14% to the GHG and within the agricultural sector, enteric fermentation emission is 54.60%, rice cultivation emits 17.49% GHGs, N₂O emission (15.88%), manure management (6.68%), burning of agricultural residues (2.17%) etc. Impact of climate change results in 6% yield loss in rice, 10% in wheat, 18% in Maize and 2% in Mustard. However, to overcome the yield loss, ICAR institutes have already developed leaf colour chat, Direct Seeded Rice, resilient varieties in rice, zero tillage, better irrigation techniques, fertiliser and heat-tolerant varieties in wheat; raised bed planting, resilient hybrids in Maize and short-duration varieties in Mustard.

The major research works of ICAR on CSA is National Innovations on Climate Resilient Agriculture (NICRA), which helps in addressing the risks of climate change in the agricultural sector. The research on CSA is essential as 51 % of the cultivated area is rainfed. Further, improper use of irrigation and fertiliser is predominant in India. This further exaggerates the situation by adding to the emission of Green House Gases (GHGs). Through the NICRA project, the risk and vulnerability of 573 agriculture dominant districts were assessed. Out of which, a total of 310 rural districts is declared as highly prone to the risks of climate change in India. The assessment of the vulnerability of districts helps the researchers and policymakers to take up need based research and policy measures, respectively to address the risks of climate change. This will help various departments such as agriculture, animal husbandry and horticulture etc to prioritise their extension activities. Further, through NICRA, resilient technologies were demonstrated in 446 villages in 151 districts. The major

focus of NICRA includes minimising the impact of climate stresses such as drought, flood, cyclones, heatwaves and cold waves on agriculture and allied sector. The most important impact of NICRA is that carbon sink has increased with a range from 6 to 96% in 151 Climate Resilient Villages(CRV) clusters; yield and income gains were 12 to 36 % due to the adoption of CSA technologies.

Further, the National Action Plan on Climate Change (NAPCC) is India's most important policy mechanism to respond to climate change risks. The plan was introduced following the Kyoto Protocol in 2007. Initially, the policy had only 8 missions and is now planning to expand to 12 missions. This will be known only after the COP26. The National Mission for Sustainable Agriculture (NMSA) of NAPCC aims at promoting sustainable agriculture through a series of climate change mitigation and adaptation measures.

Moreover, NICRA brings all the sectors of agriculture into one stream i.e. crop production, Livestock, fisheries, NRM etc. The main target of the CSA is to reduce the GHS emission while maintaining productivity, resilience and ensuring food security. There is a need for strengthening the capacity of scientists and other stakeholders on CSA related technologies and good practices. As of now, 55 ICAR institutes and 49 universities are involved in research on CSA.

Integrated simulation models are followed under NICRA through ICAR. Many climate smart varieties of food crops and vegetables; technologies in fisheries and livestock are developed to address the risks of climate change.

Further, sea surface temperature is changing, therefore, there is a need for understanding the fishing and fish catches. To address the risks of climate change in the fisheries sector, ICAR research institutes have developed research vessels for marine fisheries to understand the kind of fish, and nature and density at a given area of sea. Some of the other research outcomes include the development of a Climate Resilient Pen System in five wetlands from 3 states, climate resilient fish species for riverine and wetland system, re-circulatory Aquaculture System for Cold Water Fisheries (less water and faster growth); Monoline sea Weed culture and development of climate smart fisheries villages and restoration of wetlands. As the increasing temperature has a detrimental effect on livestock, ICAR has developed thermal imaging chambers to know the temperature of livestock.

Further, some of the good practices developed through livestock research are supplementation of mustard oil, vitamin E and area-specific mineral mixture (Cu, Zn, Ca and Mg) and Na and K @ 30 g / week, for sustained milk yield during heat stress; improved shelter management (portable lamb incubators, felt jackets etc.,) and web-based forewarning for cattle disease outbreaks (e.g blue tongue disease). Also, the researches being undertaken in the Horticulture sector include interspecific grafting of brinjal rootstock with tomato against the flood; varieties and hybrids tolerant to waterlogging and drought; agri Horti forestry system for high C sequestration potential and induction of synchronized flowering in Mango.

Real time monitoring of crop residue burning was developed by ICAR research institutes to monitor the crop residue burning in the state of Punjab and Haryana. Through this, burning events are monitored daily. Further, the importance of Zero Tillage was demonstrated to farmers of the Punjab and Haryana regions to enable them to adopt zero tillage and other stubble management practices to minimise the emission of GHGs. ICAR has also developed around 26 model villages on crop residue burning management in Punjab and Haryana. These villages serve as the best models for other villages to replicate.

Dealing with drought – A case of Bundelkhand Region

Various intervention introduced by ICAR has resulted in the following benefits. The introduction of Murrah breed of buffalo with Hybrid Napier and berseem (IGFRI-7) in the village kharag, Datia district in the Bundelkhand region has increased the milk yield by 450 litres per year /animal with additional net income of Rs.18000 even during the stress year. In Bambam Purwa village of Gonda district, Uttar Pradesh; ICAR has introduced the Bina Dhan variety which resulted in enhanced income by Rs. 10890/ha.

The intervention of Zero Tillage planting under delayed sowing increased the yield by Rs.13475 per ha, late sown wheat cultivars K – 9533 and k – 9162 has benefited farmers by Rs. 11550 per ha, short-duration Toria variety Uttara as catch crop resulted in income earnings of Rs. 26550 per ha by farmers. Green fodder berseem has augmented the milk production by 400 litres per animal and increased the income upto Rs. 16000.

To deal with the cold wave, in Lagga village of Chamba district of Himachal Pradesh state, ICAR has introduced protected cultivation of coloured capsicum (40m² and 105m² size poly house) which has fetched 70% higher returns i.e. Rs. 40000 – 45000 per polyhouse; supplemental irrigation to high value vegetables from check dams has achieved a high return of Rs. 45000 /ha; crop diversification from Maize to Cauliflower and cabbage has resulted in additional income gain by Rs. 25000 to 30 000 / ha; spur type apple cultivars have early maturing (3 years) has resulted in 25% higher yield with net income of Rs. 1.0 lakh /ha.



Dr Sheethal Sharma

Senior Scientist,
International Rice Research Institute (IRRI)



Highlights

Climate change is real and is happening across the globe. Studies show that there would be an increase in extreme climate events both in frequency and intensity. Also, there is an increase in temperature, rise in sea level and occurrence of weather hazards etc. which results in the occurrence of new pests and diseases in crops. India is highly vulnerable to the risks of climate change.

In this context, International Rice Research Institute (IRRI) is involved in generating scalable evidence for CSA interventions in India and Bangladesh. IRRI is implementing Climate Smart Agricultural Practices (CSAPs) through Climate Smart Villages (CSV) in Odisha. The major challenges of agriculture in Odisha are erratic rainfall, cyclones and floods. These challenges are being overcome by the introduction of Swarna Sub – 1, AWD, Real time fertiliser management through Rice Crop Manager (RCM), residue management, mechanized farming, weather forecasting and advisories.

These CSA measures led to an increase in large scale non puddled rice, varietal substitution by stress tolerant paddy, adoption of water-saving irrigation practices, sustainable production practices through improved fertiliser application, green manuring, residue management, farm mechanisation, etc. Further, IRRI has partnered with multiple organizations to promote these CSAPs at the grassroots level. This has resulted in large scale adoption.

The major findings of the project were Alternative Wetting Drying (AWD) practices have reduced the Global Warming Potential (GWP) by 39 % than conventional practices. However, there is a need for more investment to ensure the scale and also for developing technology to suit the changing climate. For example, improved varieties, Zero Tillage, AWD, RCM, need based agro advisory services, ensuring better insurance coverage, application of ICTs, usage of remote sensing, adoption of cropping calendar, developing business models, organising training and capacity building programmes, creating market linkages, encouraging participation by the community and facilitate policy support etc.

Public-Private Partnership (PPP) is also essential for CSA promotion. There are four essential factors for a successful PPP in CSA such as (i) transparent and aligned objectives, (ii) unified legal and regulatory framework, (iii) effective governance and monitoring mechanism and (iv) clear communication. Besides, these factors, building evidence, systematic learning, partnership with R&D, Knowledge generation on CSA practices, technologies and services, developing CSVs, appropriate incentive mechanisms, presence of CSA enablers such as national policies and donor agendas are also required for the promotion of CSA. Further, PPP in CSA has to simultaneously address generic vulnerability issues such as poverty, literacy, governance, etc.



Mr Deepak Chamola

Technical Expert,
Natural Resource Management & Agroecology of GiZ



Highlights

Portfolio of Deutsche Gesellschaft für Internationale Zusammenarbeit (GiZ)

GiZ is working in 120 countries. The major focus of GiZ is on energy, environment, climate change and substantial urban and industrial development. A total of 18 projects are implemented by GiZ under different themes and sub-themes. NRM and Agro-Ecology are implemented by GiZ to enhance the adaptive capacity of food systems to climate change risks. Some of the important projects of GiZ in India include DevPPP Mint and peanut value chains, Sustainable and Value Added in the Cotton Economy; Water Security and Climate Adaptation in Rural India (WASCA), Soil Protection and Rehabilitation for Food Security (ProSoil), Sustainable Agriculture and Sustainable Aquaculture, Support to Agro ecological Transformation in India (SuATI) etc.

GiZ is promoting three important models on CSA in India. To implement the models, GiZ is working with various departments and NABARD.

Model 1.

Integrated Fish Farming Model (IFFM) promoted by GiZ. It is implemented in partnership with KFW and NABARD. KFW provides the soft loans and GiZ provides technical support for capacity building to both NABARD and channel partners (FPOs and NGOs), the loans are given to channel partners and in turn, the loans are given to farmers to enable them to adopt IFFM or sometimes, the fund is utilized by the NGOs for promoting IFFM through training capacity building programmes, demonstration etc. The fund is also utilized by NGOs for the

renovation of ponds where integrated fish farming is promoted. The IFF model includes duckery, fish farming and vegetable and fruit cultivation. Many farmers have adopted this model and the loan repayment capacity of farmers who have adopted the model has significantly increased.

In Odisha, NGO-MFI was given loan of Rs. 2.55 crores. With the loan, NGO has promoted 431 acres of ponds. The principals of IFF are commercial pond based fish farming integrated with horticulture and vegetable cultivation through the renovation of existing ponds, waste products of one biological system serves as the nutrient, water is reused and local food production is ensured.

Table 2. Cost economics and Impact

S.No.	Cost per acre	Amount (Rs)
1.	Fish Culture	180240
2.	Horticulture cultivation	18000
3.	Manpower cost	75000
4.	Total cost	273240
5.	Total benefit	400000
6.	Benefit Cost Ratio	1.46
7.	IRR	>50

This IFF can be scaled up effectively as India has 2.6 million ha of ponds. The project has created measurable impacts e.g. average fish productivity has increased by 150%, income increased by 125% and organic content of the soil increased by 2%, use of chemical fertiliser reduced by 30%, water quality and pH level are balanced, naturally grown vegetable consumption of households increased by 20%. This model was adopted by 700 farmers in Odisha and 300 farmers in Assam. Moreover, support is extended to FPOs. Around four FPOs comprising of 25 women per FPO were promoted. Assistance is provided to FPOs to set up a fish hatchery and fish nursery. Further, the capacity-building programmes for FPO members are organised regularly in the areas of governance, management and technical aspect of IFF. Turnover of these four FPOs is 12 to 75 lakh. This model has motivated the state government of Odisha to launch Fish Pond Yojana in 2017 and the Government of Assam has included IFF in its RKVY.

Model – 2

Agrobiodiversity conservation through seed production

Most of the farmers lack awareness of indigenous crop varieties. There is also a lack of availability of indigenous seeds for crop production. Further, indigenous seeds are declining rapidly. Therefore, GiZ is aiming to promote indigenous rice varieties. There were one lakh different rice varieties available in Tamil Nadu during the 1960s. However, it has been reduced to a few 100 varieties. Out of them, only 10 varieties are available at markets. GiZ has intervened to conserve and multiply 40 traditional rice varieties over an area of 40 acres in the Kanchipuram district. The seed varieties are selected based on four important characters such as resilience to climate change, resistance to pests and diseases, nutritional and therapeutic properties and market demand from consumers. GiZ through this model has developed 40 traditional seed varieties sourcebook with their nutritional properties, 100 acres of the additional area was brought under traditional rice variety cultivation. Scaling up of cultivation through FPOs is underway and also, Hotels and Restaurants were motivated to add these indigenous rice varieties in their recipes.

Model – 3

Sustainable Farming Communities in the Mint Sector in India

To promote the Mint value chain, a partnership is made with private players such as Mars/Tanager/Symrise. GiZ is planning to cover 25,250 smallholder farmers (mint growers) in the Barabanki district of Uttar Pradesh state. These partners help in setting up of SHGs and FPOs. SO far, 450 SHGs and 5 FPOs were promoted in promoting mint cultivation. They further assist in the training of farmers on good agricultural practices, soil testing and procurement of mint oil. To make the Mint value chain resilient to climate change risks, GiZ conducts on-farm pilots of solar /electric pumps and micro irrigation systems, development and dissemination of training modules on climate smart practices. Innovative digital extension services in potato and mint cultivation are offered to 500 and 1500 farmers respectively and conducting training for FPOs on financial literacy and other business activities. However, there is a need for scaling up the models. Therefore, companies may invest their CSR funds in project-based intervention in agriculture, developing business models with grants and loans, providing seed capital and establishing convergence with rightly designed projects and potential stakeholders.



Mr CSR Murthy

Chief General Manager,
National Bank for Agriculture and Rural Development (NABARD)



Highlights

Interventions in water management

National Bank for Agriculture and Rural Development (NABARD) plays a major role in watershed development. It serves as an effective adaptation strategy for farmers against climate change risk. Around 3401 projects in watershed management were handled by NABARD. Of which, 1914 projects were completed, 334 were closed and 1153 are ongoing. Major components of these projects are soil water conservations, climate-proofing interventions, livelihood support for landless women and capacity building and knowledge management. The watershed projects have covered 23.4 lakh ha of area, 2390 crores were sanctioned and 1902 crores were released. NABARD has collaborated with companies and mobilized CSR funds also for watershed management. A total of 185 Watershed Development Fund (WDF) projects were supported under CSR. Also, Rs 67 crores were mobilised under CSR for the implementation of these projects and 99 crores were mobilized under WDF. The watershed development activities have increased the overall productivity of agriculture.

Interventions in Tribal Development

Also, some of the other projects implemented by NABARD include Tribal Development Fund. Around 843 projects were sanctioned under Tribal Development Fund. Major components of the project include setting up of small orchards, promotion of on and off farm activities, soil conservation, water resource development, training and capacity building, community health development and women empowerment. Most of the initiatives of

NABARD are aligned with SDGs. Agricultural programmes are being integrated with climate and disaster resilience measures, also credit and development interventions of NABARD are supporting CSA. So far, a total of 5.64 lakh families were covered under the project and 2.68 crores of trees were planted in the tribal belt and amount of Rs. 2401 crores were sanctioned and Rs. 1720 crores were disbursed.

Further, NABARD being the National Implementation Entity of Adaptation Fund (AF), it has implemented eight watershed projects, amounting to Rs. 60.94 crores. Around 30 projects are implemented under NAFCC with the cost of Rs. 847.47 crores and Direct Access Entity – Green Climate Fund. Two projects are implemented under GCF worth Rs. 913.58 crores.



Mr Kirit Mishra

CEO,
Associate



Highlights

Ecociate is working on developing climate resilient strategies and improving the value chain and marketing of agriculture. Ecociate has partnered with World Fish, GiZ, Tanager and FAO on research projects related to agriculture.

Need for Corporates and CSR

There is an erratic rainfall and an increase in temperature due to climate change. Half of India's land is prone to climate change risks. Further, the risks of climate change have more burden on food systems. There is also a change in land use pattern, a decrease in groundwater and improve soil fertility. More often, the focus of the majority of the stakeholders on millets and leafy vegetables is less. More often, their focus is on rice and wheat cultivation. The market orientation has also changed and it is neglecting the local food systems and crops, coupled with less focus on processing. A larger chunk of food is being wasted and there is a need for infrastructure to minimise food wastage.

In this context, climate smart agriculture needs a comprehensive strategy. Involving various stakeholders including CSR players as they have required skillsets, better resources and the ability to innovate. They may add value and bring the right change to CSA.

Further, ensuring value chain is more important in crop production. The value chain must address the risks faced by the smallholders (35 % of the world's food is produced from just 12% of the land by smallholders). Therefore, it is more important to increase the capacity and capability of smallholder farmers. This will further help them to be a legitimate actor in the value chain system.

Climate change, food and the status of smallholder farmers are more important. Therefore, the production system should be climate-responsive, market-responsive and livelihood responsive. The CSR partners can improve the food production systems by enhancing the food value chain system.

Intervention on group formation

FPOs in India can be supported by CSR. For example, in Sambalpur, Odisha, Ecociate supports the FPOs to market the produce to urbanites.

Intervention on organic agriculture

To promote organic agriculture as a response to climate change risks, Ecociate enables the farmers to move from conventional agriculture to natural farming by converting their farms to natural farming. Initially, Ecociate creates awareness among farmers on rearing goats and sheep, therefore, when they shift to natural farming, the initial income loss of crops due to less yield is mitigated by goatery and sheep rearing. This serves as a risk aversion mechanism. However, these interventions require a huge capital. Therefore, CSR investment plays a critical role in the promotion of organic agriculture to adapt to climate change risks. Besides, CSR investment can create an island of success and the success models can be emulated elsewhere by other stakeholders.



Mr Chandrakanth Kumbhani

Head Community Development programs,
Ambuja Cement Foundation (ACF)



Highlights

Ambuja Cement has understood the need for climate smart agriculture and diverted a portion of its CSR funds for agricultural development. Though priority is being given to education and health, agriculture is also receiving substantial attention nowadays. Ambuja Cement Foundation is implementing a CSR program in 11 states. The program focuses on developing water resources, agriculture, health and education sectors, which in turn facilitate the overall development of farmers. The programmes are implemented by establishing a partnership with different stakeholders.

Intervention on water management

Water is a critical component of agriculture. However, there is a change in the water table and depletion of groundwater is rapid due to climate change. In early 1982, Ambuja Cement Foundation has assessed the over exploitation of water and salinity in the coastal Gujarat states as these two were the major issues related to water. Therefore, to overcome the water exploitation and salinity, Ambuja Cement has intervened to solve the problems by investing in rainwater harvesting structures in 10 sites of the coastal Gujarat state. Now, the intervention is expanded to 100 villages. This has led to good water availability for agriculture and livelihood. More than 4000 households are served by Ambuja. The success of Ambuja Cement in water management can be linked to Community participation. In each intervention, Ambuja cement ensures maximum community participation. This has resulted in the larger scale adoption of water harvesting structures and technologies by people. Further, water availability led to crop diversification, adoption of plantation and income diversification. Therefore, it is more important to promote technologies, work with farmers and demonstrate the use of water technologies. Also, work with local traditional

technologies to enable farmers to adopt them and create multiple sources of income for farmers. These technologies also enable farmers to adapt agriculture to changing climate and risks associated with it. Water-related interventions were promoted by Ambuja Cement Foundation in 20,000 acres of areas. Also, different water-saving interventions such as System of Rice Intensification (SRI), Direct Seeded Rice (DSR) etc., were demonstrated to farmers. This has enabled the agricultural sector to become more sustainable in terms of economy and environment. Therefore, the investment of more CSR funds in water-related issues will help in sustaining the food ecosystem and responding to climate change risks.

Interventions in FPOs

ACF is promoting Farmer Producer Organizations. Currently, 10,000 farmers were enrolled as members in 11 FPOs in different parts of the country. These FPOs play a major role in the Market interface.



Dr Lopamudra Priyadarshini

GM,
Aditya Birla Group



Highlights

CSR spent of 200 Bombay Stock Exchange (BSE) companies is mostly on livelihood and other sectors of development than agriculture. However, challenges in the agricultural sector such as soil deterioration, depletion of water, decrease in size of farm holding, costly agricultural labourers, stubble burning issues, drudgery in farm operations, information and skill gaps, poor access to investment and marketing, inadequate rural infrastructure, the occurrence of extreme events, etc., demand more CSR investment in the critical areas of CSA.

Aditya Birla groups have 150 years of CSR legacy. Aditya believes in sustainable development goals. CSR vision of Aditya is to actively contribute to social and economic development. The focus of Aditya Birla Groups includes education, health and sanitation, infrastructure development, social issues, sustainable livelihood and are aligned with the Sustainable Development Goals of the UN.

Aditya Birla Group has designed Sustainable Agriculture Practices to assist small farmers to cope with challenges. It has also initiated “UNAT – UTKAL’S Action for Agriculture Transformation. Aditya Birla Group aims to double 15,000 farmers’ income through UNAT. The programme is implemented for a period of the four-year programme (2020 to 2024) in the Kashipur block of Rayagada and T.Rampur block of Kalahandi districts, both are aspirational districts of the Government of India and are rainfed. Aditya Birla Group is partnered with Bharat Rural Livelihood Mission and Centre for Youth and Social Development (CYCD). The most important component of UNAT includes the development of agricultural production clusters, water and land resource augmentation (land treatment, water harvesting, storage structures, lift irrigation) livestock development (backyard poultry and goat rearing) for landless farmers; value chain development (Aggregation and collective marketing), community institution building (formation and strengthening of producer groups and producer company), market facilitation and agri entrepreneurship. The intervention is implemented in convergence

with MGNREGS, line departments of agriculture, horticulture, livestock, Odisha Livelihood Mission, Tribal development and Animal Husbandry. The most important partners of Aditya Birla Group are discussed in the below table.

Table 1. Major partners of Aditya Birla group in implementation of CSR Agricultural projects

S.No.	Ares of partnership	Major partners
1.	Water Resource Development	Mahatma Gandhi National Rural Employment Guarantee Scheme (MGN-REGS), Utkal Alumina International Limited (UAIL), Odisha Lift Irrigation Corporation Ltd (OLIC), Integrated Tribal Development Project (ITDP)
2.	Agriculture Production Enhancement	Odisha Livelihood Mission (OLM), Agri & Horti Departments, Orissa Agro Industries Corporation Limited (OAIC), UAIL
3.	Promotion of livestock economy	UAIL, Veterinary department, MGN-REGS
4.	Value chain development	UAIL and ITDA
5.	Project Management cost and monitoring	UAIL and Bharat Rural Livelihoods Foundation (BRLF)

These components will help farmers to be self-reliant and enable them to overcome the challenges and will further help in better utilisation of funds, manpower and extension activities.

Impact of Aditya Birla group through CSR

Aditya Birla Group enabled 891 families to be organised into producer groups. An amount of Rs. 44.77 lakhs were mobilized under government schemes, 280 acres of vegetable cluster initiated, 06 units of nano WADI were developed, 40 farm ponds were created and 37 units of land development works were completed. However, companies need to develop a proper model of CSR in agriculture, to help farmers and all other agricultural stakeholders to become more climate-responsive.



Mr Ram Krishna

Reliance Foundation



Highlights

Bharat India Judo – Building Climate Resilient Communities.

Reliance Foundation was set up in 2010, works to improve the lives of the marginal section of society including women, children and youth. The seven major focus areas of Reliance Foundation are Rural Transformation, Health, Education, Sports for development, Disaster

Response, Arts, Culture and Heritage and urban renewal. So far, 51 million's lives were improved. Reliance Foundation has initiated two important rural transformation projects namely Bharat India Jodo (BIJ) and Reliance Foundation Information Services (RFIS). Under BIJ, RF focuses on creating livelihood opportunities for marginalized rural families and the sustainable development of villages. The major components of BIJ include institution building, water security, food and nutrition security, ecological security and development of Farmer Producer Companies (FPC). Under RFIS, the knowledge gaps are bridged by creating a partnership with research institutions, government departments, NGOs etc. These partners serve as knowledge and technology partners. The information is gathered from these partners and disseminated to the people who are in need.

Moreover, through BIJ, several climate smart interventions are promoted by RF. The locations for implementing the interventions are selected based on the following criteria such as topography, agro-climatic conditions, ranking based on Human Development Index, poverty dependence on agriculture. The majority of the beneficiary farmers selected were either landless or marginal and small farmers with a scattered and small holding of less than 2 ha. The projects are implemented in 12 states, 26 clusters. They are located in Sawai Madhopur in Rajasthan, Rudraprayag and Uttarkashi, in Uttarakhand state Kammareddy and Adoni in the Ralyaseema region of Telangana state. The programme was started in 2011. Key interventions are end to end in nature, it starts with the community (e.g. establish and strengthen Gram Panchayat, village association, women groups); livelihood promotion activities (e.g. creating accessibility to markets, exposing the village communities to various livelihood opportunities); ensuring food and nutrition security (e.g. promotion of sustainable farming – 10,000 plus nutrition gardens were promoted), intake of nutritious food, RNGs); ensuring water availability (e.g. construction of rainwater harvesting structures, water budgeting etc.); establishing market linkages (e.g. creation of Farmer Producer Companies). As of 2021, 3000 plus villages were benefited, covering 3 million individuals and 30 FPOs. FPOs mentored by Reliance Foundation made Rs.100 plus crore transactions every year, has about 4.84 crores of Equity Capital, 38 different commodities and 1.4 crores of grants and subsidies from the Government.

The success of the BIJ is linked to the partnership established between Reliance Foundation and government departments, NGOs and Community Groups. Among all, community institutions play a major role. These community institutions directly participate in the programme intervention of the Reliance Foundation. They are further involved in participatory situation analysis, participatory village development plans, strengthening women SHGs (2500 SHGs mentored on leadership development), 10,000 plus women were trained on different enterprises to gain additional income (Out of which, 8000 plus women are engaged in economic activities); community leadership development, bringing convergence, resource mobilization from government programmes etc.

Besides, BIJ aims at strengthening the Gram Panchayats (GP) and their capacity as it plays a major role in rural development at the grassroots level. Reliance Foundation has strengthened around more than 900 GPs and over 10,000 GP representatives were trained on leadership development and improved development planning. Moreover, BIJ has trained around 9500 community volunteers on development issues and contributed to the enhancement of livelihood. To ensure climate smart agriculture, BIJ aims at improving water resources. The interventions include participatory planning and water budgeting, the introduction of low-cost technological intervention (i.e. Ferro cement), promotion of in-situ soil and water conservation, community led initiatives (e.g. Bori Bandhan and Halma), demonstration of Holiya system and micro irrigation have enabled farmers to effectively respond to risks of climate change. For

example, the water interventions in Sawai Madhapur in Rajasthan state have improved the water table (The average water level of 61 wells improved by 7.29 m in October compared to a 2.23 m rise in June 2021), there is an improvement in water quality due to reduced fluoride content, increased cropping intensity (121 to 210%). Moreover, farmers were cultivating only Bajra in Kharif and Mustard in Rabi before the interventions and in summer no crops were cultivated. However, after the interventions, farmers diversified their cropping patterns. As of now, farmers cultivate more than two crops both in Kharif and Rabi, also they are cultivating vegetables in summer due to the availability of water. Moreover, assured water availability has created several on and off farm-based activities such as the adoption of food and cash crops in the agro-based farming system, integrating crops with poultry, goatary, diary and fisheries and venturing into tailoring, grocery and trading (non-farm activities).

Impact of better water resource management

S.No.	Particulars	Accomplishment
1.	Additional water harvesting capacity created	1100 plus lakh CUM
2.	Land brought under assured irrigation	51,900 ha
3.	Land under efficient irrigation with micro irrigation	13,300 ha
4.	Improved access to drinking water to ease the burden of women	1462 villages

The BIJ has created a notable impact on resolving climate change issues through the improvement of water availability, better resource utilisation and improved soil and productivity. The Social Return on Investment (SROI) of the programme is calculated to be 1:10.66. For example, for every one rupee invested, there is a return of Rs. 10.66.

Conclusion

The outcome of the presentation shows that companies and research institutes through their CSR funds have innovated and implemented several interventions related to Climate Smart Agriculture and Natural Resource Management. These projects and interventions are supporting the farmers to adopt suitable CSA technologies, increase productivity, enhance the sustainability of the farm ecosystem against risks of climate change and ensure regular income to farmers even during the challenging period of climate change. In this context, the other companies, research institutes, agricultural organisations, departments of agriculture, livestock, horticulture, NGOs, CSOs, FPOs, and Entrepreneurs may emulate and promote the proven CSA interventions implemented by the companies in their project areas. However, most of these interventions are implemented on a limited scale, mostly around the locations where the companies/ factories are situated. Therefore, there is a need for enabling policy environment to upscale these innovative projects and interventions on CSA and NRM. Further, the CSR forum promoted by MANAGE may be utilized to share their innovative models, resources, technologies, etc. for the benefit of the farming community.



Jointly Organised by

