

**Solidaridad**

**ANNUAL  
REPORT**

Solidaridad Regional Expertise Centre

**2022-23**



# CONTENTS

**1**

FOREWORD

**2**

VISION AND MISSION

**3**

IMPACT CREATED

**09**

IMPACT AREAS

**19**

THEMATIC AREAS

**27**

COMMODITY PROFILES

**38**

PARTNERS AND DONORS

**39**

HUMAN RESOURCES

**41**

FINANCIAL STATEMENTS



# FOREWORD

Dear Friends,

I am pleased to present Solidaridad India's Annual Report for 2022-23. This year has been marked by significant progress in our mission to empower farmers and workers.

The Indian agricultural landscape continues to evolve, presenting both opportunities and challenges. While the country is one of the largest producers of agriculture and food products in the world, economic indicators do not show equal growth in income of the farmers. Moreover, with the changing climatic conditions, extreme weather events like droughts, floods, and heatwaves became more frequent and severe, impacting crop yields and disrupting planting cycles. These complex challenges highlight the need for long-term solutions to ensure sustainability and resilience of Indian agriculture.

During the year 2022-23, building on to the approach of adoption of regenerative agriculture, this year Solidaridad in India, focused on deepening our work on sustaining agriculture and ecosystems (promoting the adoption of advanced technologies, climate-smart agricultural practices, and focused approach on soil health). Solidaridad empowered farmers to bring sustainable practices to over seven hundred thousand hectares, boosting yields and building resilience against climate change. To diversify the incomes at farm level, Solidaridad goes beyond just training farmers. We connect them with essential services, information, and technology and create a cadre of service providers. These service providers facilitated advisory services, information dissemination, availability of quality seed and other agricultural inputs, farm machinery. Particularly, in Madhya Pradesh region, we worked with women extension workers "Nutri Sakhis" to educate women farmers on good agriculture practices and nutrition. We also work with key stakeholders across the agricultural sector to create lasting change. In 2022, there was focus on bringing key Indian sector stakeholders on sectoral regional platforms in Tea, Palm Oil and Cotton.

In addition to our work in agriculture, this report also highlights our commitment to work with the micro small and medium enterprises (MSMEs), second largest employment provider on pollution abatement agenda. Although MSMEs individually may not be large carbon emitters, the collective size of this business segment, is critical to achieving decarbonization targets. This year's report captures our work with tanneries on building consensus on effluent water discharge, creating strategic plans for individual tanneries, capacitating owners on innovative low-cost technologies and overall institutionalizing an accountability system. Moreover, I am happy to share that along with our presence in leather clusters, this year Solidaridad also expanded its footprints to textiles in Panipat, Haryana.

Solidaridad India remains steadfast in its commitment to envision a world in which the economy works for all: where all we produce, and all we consume, can sustain us while respecting the planet, each other, and the generations to come.

With this, I encourage you to explore the report and discover the stories of change we are creating together. In the report, you will read about our farmers rejoicing about their yields flourish after adopting sustainable practices. You will also discover, how women farmers are transforming their harvests through digital tools and weather advisories. Additionally, the report showcases the entrepreneurial journey of some farmers and the success of a women-led producer organization selling soy products.

Looking ahead, we plan to focus on enabling smallholder farmers to adopt sustainable agricultural practices that improve yields, reduce environmental impact, and increase resilience to climate change; develop innovative and sustainable models on employment generation and adoption of cleaner technologies and foster innovation in the MSME portfolio.

This report would not be possible without the dedication of our staff, the unwavering support of our partners and collaborators, and the trust placed in us by our esteemed donors. I extend my heartfelt gratitude to each one of you. I am confident that by working together with our stakeholders, we can create a more inclusive and sustainable future for the next generation.

With this, I encourage you to explore this report and learn how you can be a part of the solution and join us in creating a more sustainable future for generations to come.

Sincerely,

**Monika Khanna**  
Country Manager – India



**Monika Khanna**  
Country Manager - India  
Solidaridad Regional Expertise Centre

## **VISION**

Sustainable production in agriculture and industry, combined with sustainable trade will make a significant contribution to combat poverty and preserving people's environment, in the context of a global economy.

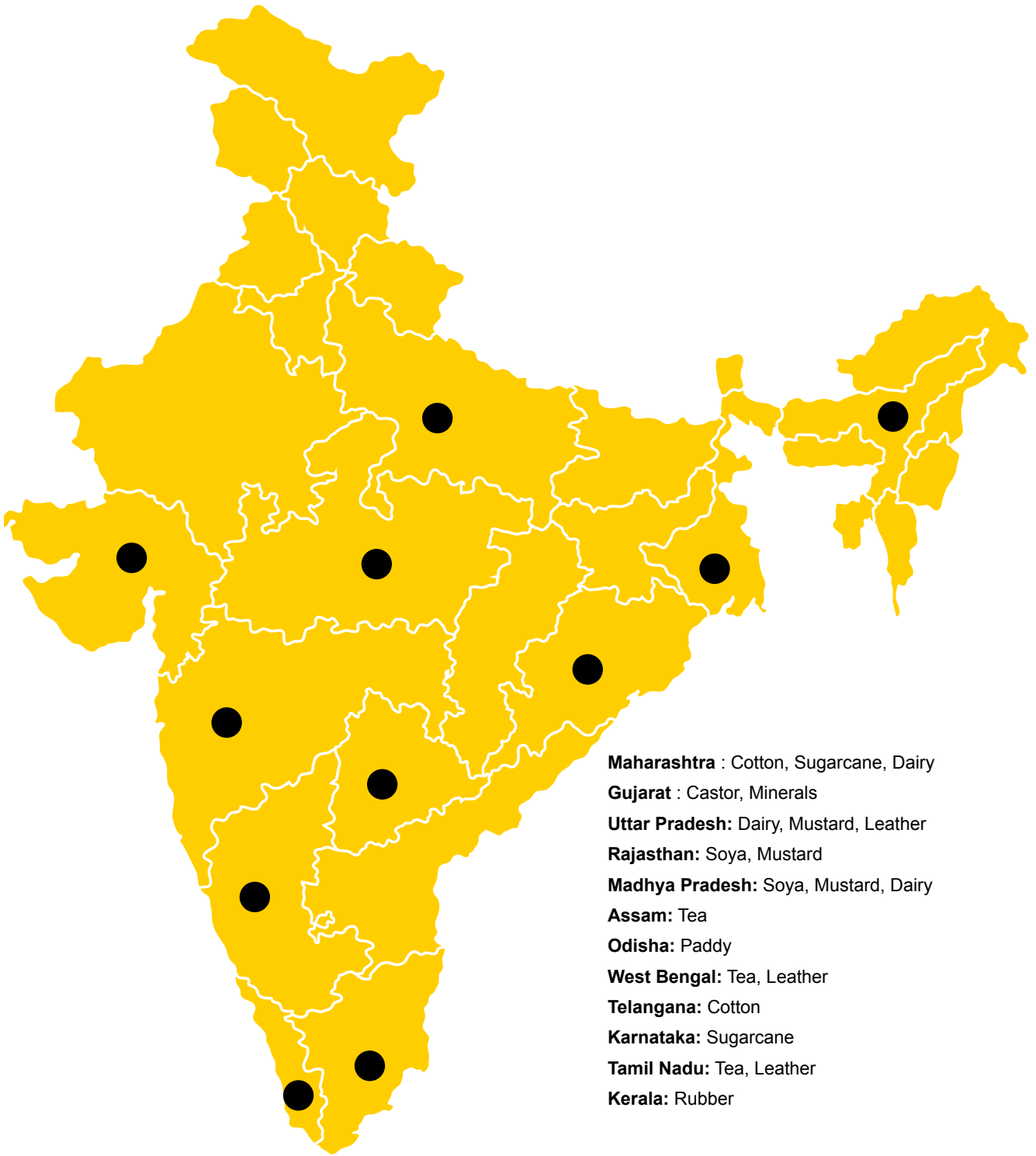
## **MISSION**

SREC seeks to combat structural poverty through sustainable agriculture and trade. SREC's mission is based on the following convictions:

- There is only one Earth, and it is our task to look after it for our future generations.
- Poverty is degrading and should be eradicated from India.
- The balance between 'growth' and 'distribution' can only be preserved if the poor themselves are the agents of development.



# IMPACT CREATED



# MAIN RESULTS IN INTERVENTION AREAS

## Good Practices

- In 2022, 7,42,628 Farmers were trained in good agricultural practices and regenerative farming. This has helped in creating a mindset shift among farmers towards making regenerative farming the new norm across various commodities including Cotton, Soy and Sugarcane.
- In 2022, through our support to farmers to produce in balance with nature, 7,38,034 hectares of land was bought under sustainable management
- 8,93,686 workers are under improved working conditions through our interventions in industrial minerals, leather, and agricultural sectors.
- 656 billion litres of water use avoided in farming and industry through optimum use of water by using good agricultural practices, supporting water conservation measures at farm and community level and use of technologies in leather tanneries which reduce water consumption.

## Supportive Business Ecosystem

- In 2022, more than 239264 farmers were organised in farmer groups and 2188 service providers and processors were trained/supported in India. The FPOs and rural entrepreneurs played various roles across commodity value chains including facilitation of advisory services, information dissemination, availability of quality seed and other agricultural inputs, farm machinery. FPOs are also setting up post-harvest processing infrastructure which lead to better prices for the yield. The supporting business ecosystem like better connectivity to markets and direct procurement from FPOs has resulted in income increase for more than 3,16,010 farmers in India.
- FPOs have also been a critical space to promote gender representation. Engagement of women in FPOs and its governance has increased their representation in decision making on sustainable produce. As a result of our capacity building, women farmers across commodities are exploring income diversification activities
- 1571 Service providers with increased turnover as a result of our training and support activities



## Enabling Policy Environment

- Under Reclaim Sustainability, regional and national sustainability frameworks and multi-stakeholder platforms have been driving fair value distribution in the chain and sustainable trade and consumption across the Asian countries including India. In 2022, there was focus on bringing key Indian sector stakeholders on sectoral regional platforms in Tea, Edible Oil and Cotton.
- To make India the largest producer of certified regenerative cotton, Solidaridad Asia, Centre for Responsible Business and Regenagri came together to build the Alliance of Cotton and Textile Stakeholders on Regenerative Agriculture (ACRE). The alliance will collaborate with partners to develop standards and guidelines for sustainable cotton production which can address the structural challenges posed by fragmented supply chains and climate change.
- The Sustainable Castor Association has created the Sustainable Castor Caring Environment and Social Standards code (SuCESS) in accordance with globally accepted principles and local stakeholder involvement with clear social, economic, and environmental objectives. Over 6200 castor farmers covering 6000 hectares have been certified under the code. These farms have shown 22 percent higher yield and the profits have motivated farmers to increase their land under castor farming.
- SREC continues to engage with various public and private stakeholders like Government Ministries and Departments, Industry Associations, Agribusiness consortiums, premier research institutes among others to promote sustainability across various commodities. We are partnering with the Government of India to kickstart the textile project on pollution abatement and water conservation. 6 key policy recommendations were submitted to key government and private sector stakeholders. 26 civil society organisations trained and supported in decision making and dialogue. 11 dialogues organised with civil society, public and private decision makers

## Market Uptake

- In 2022, we focused on connecting brands and retailers to sustainable supply chains, promoting sustainable sourcing and consequently creating a demand for sustainable products in the market.
- Traceability feature has also been adopted in the dairy sector under the Trust Dairy initiative to build transparency and assurance on quality among consumers. Apart from tea, other commodities like Soy and Leather are also developing digital traceability solutions for a transparent and sustainable supply chain.
- With the growing demand from brands for compliance with sustainability standards, SREC is also supporting smallholder farmers get certified against relevant sustainability frameworks to easily access domestic and international markets through regenerative and organic certification in cotton, dairy and sugarcane in India. Over 17000 cotton farmers in India covering 25000 hectares and 1000 sugarcane farmers covering 605 hectares have been certified for regenerative practices in India.



# IMPROVING FARMER'S LIFE WITH REGENERATIVE AGRICULTURE



Gopal Patidar, a 32-year-old farmer in Shajapur district of Madhya Pradesh, swears by straw mulching. A lead farmer in the Smart Agri Project implemented by Solidaridad across 10 states of India, Gopal owns a five-hectare land in Tilawad Govind village. He grows soybean during the Kharif season and wheat during Rabi besides some seasonal vegetables.

Organic straw mulching is a farming technique where straw is spread over the soil surface to protect it from erosion, conserve moisture, and check weed growth. A follower of sustainable agricultural practices, Gopal was not aware of straw mulching and its benefits. He first heard about it at a three-day training programme on agribusiness at Jawaharlal Nehru Krishi Vishwavidyalaya in Jabalpur, Madhya Pradesh.

“Availability of water for vegetable crop has always been a big challenge for the farmers in my area as this region receives little rainfall. It is difficult and cost-intensive to improve yield when your soil is dry,” says Gopal. *“During the training programme I learnt that straw mulching is a potential solution as it helps with moisture retention, which in turn can reduce water consumption by the crop.”*

Gopal shared his interest in straw mulching with the Solidaridad team who then helped him prepare his land. He started the practice on one-acre land where he grows tomato.

Over time, Gopal noticed several positive outcomes. With the mulching improving the moisture levels of the soil, the irrigation cycles for the crop reduced, thereby bringing down the irrigation cost. Unlike plastic mulching, which would have cost Gopal Rs 7000-Rs 8000, straw mulching cost him nothing. Further, the decomposed straw added to the nutrient profile of the soil. There was a marked improvement in the quality of tomatoes (in size and taste), fetching Gopal a better price in the market. He had a bumper crop and sold tomatoes worth Rs 1.75 lakh during the tomato season, with a net profit of Rs 1.50 lakh. After tasting success with regenerative agriculture in tomato, Gopal has decided to follow the practice for his chilli crop this season. “This time I could save around 60 per cent water (consumption) because of straw mulching. At the same time, I didn’t have to spend much on weed control and micronutrient supplements, and I got an unexpected harvest this year. My family is very happy to see us thrive in agriculture,” says a beaming Gopal.

# DEALING WITH WATER SCARCITY



Solidaridad took a significant step in Dabhada, Dhamangaon block, Amravati, by deepening and rejuvenating the community farm pond. The pond's capacity to retain water had diminished over time, posing a challenge to its intended purpose. The primary objective of the rejuvenation project was to enhance the pond's water storage capacity, creating an additional water source to benefit the ecosystem and the local community. Prior to the rejuvenation, the community pond was unable to hold sufficient water, limiting its potential to support the needs of the 1,500 villagers for household and agricultural use. The rejuvenation process successfully increased the pond's water storage capacity to an impressive 10,000 cubic meters, unlocking its full potential and providing a valuable water resource for the villagers.

By bolstering the pond's capacity, the rejuvenation initiative has positively impacted the local ecosystem, contributing to enhanced water availability for irrigation, nourishing crops like cotton, soybean, pigeon pea, Bengal gram, orange, and wheat. As a result, farmers have witnessed an increase in income, highlighting the vital role the pond plays in supporting agricultural productivity and economic well-being. Moreover, continuous capacity-building sessions are conducted by the Solidaridad team for the water user group, which includes both male and female members. This inclusive approach fosters community involvement and ownership of the water resources, promoting sustainability and equitable water usage. This initiative contributes to a more resilient and prosperous community, showcasing the potential of sustainable practices to support both agricultural needs and environmental conservation.



## CASTOR: CLIMATE-RESILIENT AGRICULTURE



Castor is considered one of the most remunerative crops in the world with a naturally high seed oil content. In India, the drought- and pest-resistant castor crop finds favorable conditions for cultivation in Gujarat. The country is the largest seed producer of castor in the world. Yet, castor farmers in India are often distraught as climate change threatens to disrupt the productivity of this important industrial oilseed. The rising frequency of droughts, due to climate change and erratic rainfall, is a major factor that impacts the yield and productivity of castor across the country.

“My traditional castor cultivation was affected by the dual problems of rising temperature and unpredictable rainfall patterns. In addition, practicing drilling method for sowing of research variety seed and broadcasting fertilizers, especially doses of DAP and urea, without any soil testing affected the health of my crop as well as my land further,” says Hirabhai Devabhai Zaverbhai Kotadiya from Sundha village in Banaskantha district, Gujarat, India.

Solidaridad introduced the farmers to furrow and skip furrow irrigation methods and insisted upon timely irrigation of the fields to avoid deficiency or excess. Besides training sessions on water usage and efficient irrigation, the farmers were also encouraged for regular soil testing. The soil health cards issued after the test helped farmers understand nutrient requirements and accordingly feed the soil with the required quantity of inputs and fertilizers. The entire process helped farmers maintain optimum soil temperature, even during hot summer, and better soil health.



# IMPACT AREAS





## Income

Increasing income of smallholder farmers and minor and medium processors is an important goal of Solidaridad. In agricultural commodities, the focus of our work is on enabling farmers to sustainably increase yield and production for higher incomes and focus on reducing costs of cultivation through implementation of good agricultural practices. In case of processors, we support them to increase their incomes by adopting technological innovation that reduce their resource consumption and enable increased market access to lucrative markets.

### Approach

- Support farmers in optimising farm operations through capacity building on good/regenerative practices
- Conduct training farmers on digital tools and technologies and create enabling conditions for adoption of these tools and technologies
- Providing support on crop diversification
- Supporting appropriate input use to save on costs of inputs
- Creating farmer collectives for better bargaining with corporates and market access
- Improving incomes for processors by adoption of clean technology leading to lesser water, chemical consumption

**6,94,750**

farmers applied good practices

**5,17,624**

farmers reported improved yield

**6,34,073**

farmers reported improved farm income



## SUGARCANE FARMERS FINDS NEW AVENUES FOR INCOME IN INDIA



**Swati Sanjay Pavale** is a small-scale sugarcane farmer in the Maharashtra region of India. Recently, she joined a programme that is helping her find new ways to produce more sugarcane in an environmentally-friendly way, while also boosting her income.

Swati Sanjay Pavale proudly digs into a pile of compost to show the big worms that crawl out of the soil. It is the special recipe that makes this compost excellent quality, such good quality that she has plenty of customers who are happy to buy it from her for a good price. Since the “Reducing Water Usage and Carbon Emissions in Maharashtra through Regenerative and Sustainable Sugarcane Farming” programme began a year ago, Swati has already sold 500 kg of compost.

For many of her customers, Swati’s homemade compost replaces the conventional fertilizers they used to buy. This allows them to save on production costs, while providing Swati with extra income. But nature also benefits: the compost is much better for the soil, and because it is made from waste that they used to burn, it saves carbon and reduces air pollution.

Swati and her husband have a small farm in a village in the Sangli district where she grows sugarcane. She also owns six cows that produce milk. Like many women farmers in the area, her husband is the formal owner of the farm, while she is the one doing most of the work. And like other women, the income from sugarcane usually ends up in the pockets of the men. But the composting project is fully her own business; the revenue goes directly to her own bank account. It is the first money that she can really spend in the way she wants.

What she spends it on? Mostly on the daily needs for her and her family. But her dreams are big. She has managed to save some money to invest in more land and more cows. She likes to expand with more compost production bags and she has already used part of the money to create a new space for extra cows.

And the best thing about it? These are now her own decisions to make.



# DECENT WORK

The focus of Solidaridad is to enable safe and decent working conditions for farm workers and informal workers in processing units. Decent work is an essential condition of sustainability in any sector. The focus is on raising awareness of farmers, workers and processors on decent and safe working conditions in their sector through customized training by experts.



## Approach

- Training workers on good practices for safe working conditions
- Promoting decent working conditions for agricultural workers on farms by improving access to sanitation facilities, drinking water and safety kits
- Raising awareness of farmers of minimum wages and no gender discrimination
- Occupational health and safety training for tanneries and mines

**8,93,686**

workers under improved  
working conditions

**1988**

persons new employed as result of  
Solidaridad's support



## POLLUTION ABATEMENT



Pollution is a major issue in India with significant impact on land, water, soil and air. We consider that farmers and processors can play a role in reducing pollution through reducing use of harmful inputs that cause pollution and adopting green and clean technologies that can potentially eliminate pollutants and waste.

### **Approach**

- Through good agricultural practices, reduce use of chemical fertilisers
- By supporting adoption of clean technologies and conversion of solid waste in tanneries into value added products to reduce water, air pollution and reduce waste generation
- 198 processors supported to reduce pollution



## FARMER PRODUCER ORGANISATION AND RURAL ENTREPRENEURSHIP



“Rakshika Mahila Kisan Producer Company Limited” is an Farmer Producers Organisation created with Support of Solidaridad. The FPO has approximately 500 members. The members or shareholders of this company are women members of Self-Help Groups (SHG) formed under Madhya Pradesh State Rural Livelihoods Mission (MPSRLM). These members have come together for value addition collective marketing and realizing good prices for their produce under the farmer producer company. The FPO has established a small scale semi-automatic soy food processing machines to prepare soy milk, tofu etc. They sell these soy products in the local markets, schools and restaurants. The FPO has developed value addition in processed soy food products and successfully enabling greater market access.

## DECENT WORKING CONDITIONS



Tannery workers have been provided training in Occupational Health and Safety (OHS) The OHS lessons focus on different aspects of workplace safety and workers' well-being: risk assessment, fire safety, safe handling of hydrogen sulphide gas and volatile organic compounds, proper handling/storing of chemicals, safety in machinery operations and electrical installations, first aid, among other aspects. Demonstrations on the appropriate use of personal protective equipment (PPE) are also provided, followed by distribution of these kits among the workers. This is important for protecting health of tannery workers and ensure safe operations in tannery.

# ENVIRONMENT



Environmental degradation is a critical issue due to its impact on smallholder farmers in form of ecological poverty leading to living crisis in form of climate change, land degradation, decline in soil fertility, depletion of water resources and deforestation.

- Restoration of ecological health especially soil fertility through supporting adoption of regenerative farming by farmers
- Ensuring circularity in agricultural and tannery processes through generation of bio-energy and reuse of waste material for value added products
- Reduction in GHG emissions
- 7,38,034 hectares of land was bought under sustainable management



## **ENVIRONMENT-FRIENDLY FARMING THROUGH VERMICOMPOST**

Mr. Darbar Singh is a 36-year-old farmer living in the village Kumhari of Malhargarh block, district Mand-saur. He is educated up to the 8th standard. He has 5 family members in his family including two children who used to go to school in the village. For his family's survival, he is dependent on labor work and 0.5 acres of agricultural land where he usually grows Soyabean, Wheat, Gram, etc. Like other farmers in the village, he was also doing farming with heavy use of chemical fertilizer and pesticides without knowing the long-term impact on the health and environment.

Village Kumhari is a cluster village of Solidaridad development programs. Sustainable and Eco-friendly agriculture as a part of the project theme supported many farmers for adopting the use of organic manure instead of chemical fertilizer through the installation of the Vermicompost Unit. In the farmer's meeting, Mr. Darbar Singh requested the team of Solidaridad for support in this initiative. Seeking his interest to do something new Solidaridad provided him with one bag and verms for starting the unit in Feb 2022. The grassroot level team of Solidaridad given complete information on the preparation of the vermicompost unit and its proper management.

After installation of the unit, he prepared approx. 70 kg vermicompost from the first cycle from February 2022 to April 2022 and used it in his agricultural land for the growth of the standing crop. As his interest developed in increasing its production, he purchased one more bag with its own money from the market to fulfill the need of his entire piece of land as he understood the importance of it.

By observing the initiative of Mr. Darbar Singh, other farmers in the village are also planning to start a vermicompost unit because he also building awareness in the village for adopting the use of organic fertilizer to save the land, soil, and environment and improving the health status of the family. He also became a shareholder of Retam Farmer Producer Company Ltd. Which was formed and registered by Solidaridad with an aim to solve farming issues and increase the income of shareholders farmers.



# THEMATIC AREAS



### **Farmer Producer Organisation and Rural Entrepreneurship:**

Solidaridad focus is on empowering farmers to play a larger role in the agricultural supply chain, by supporting and strengthening farmer producer organisations (FPOs) and cooperatives. Across agricultural commodities, Solidaridad is supporting farmer collectives, farmer producer organisations and rural entrepreneurs through training and capacity building on financial management, value added production, enhancing market access and connecting with corporates to develop greater market linkages.

- 2,39,264 farmers organised in groups or cooperatives
- 2,188 service providers trained and supported to become financially viable





**Women in Supply Chain:** Women play a critical and transformative role in the agricultural growth of developing nations like India. Gender inequality is a social as well as an economic issue. Solidaridad work focus on greater inclusion of women in supply chain, enhancing their role in decision making at home and in agriculture and work and improving their economic conditions through increased own income.

- Outreach to women farmers for training and capacity building on good agricultural and cattle rearing practices
- Exclusive field-based training for women through farmer field schools and exposure visits
- Enhancing digital literacy through training on using of mobile phones and digital tools to enhance knowledge and improving practices
- Women supported to become shareholders and Board of Directors of Farmer Producer Organisations
- Women self-help groups trained in developing kitchen gardens and seed nurseries to improve sources of additional income
- Women workers trained on safe working conditions and financial literacy



## A DAIRY WOMAN DREAMS BIG

Thirty-nine-year-old Sapna hails from a progressive family in Kanpur Nagar district. In a district where only 58.5 percent of women complete 10 or more years of education, Sapna was able to achieve the rare distinction of earning a postgraduate degree, and, in the process, learning the importance of technology in running a business.



Sapna was trained by Solidaridad experts in good dairy farming practices, and financial and digital literacy (including topics such as loans, savings, investments, budgeting, household planning, government schemes, and how to use on-line payment methods and digital systems). Under the Reliance Foundation and USAID-funded WomenConnect Challenge India Project, implemented by Solidaridad in 230 villages across the districts of Kanpur Nagar, Kanpur Dehat, Fatehpur, Auraiya and Unnao in Uttar Pradesh, the aim was to bridge the gender digital divide.

In Sapna's case, it added yet another dimension to her untiring efforts. Even though she was adept at using a smartphone, she soon realised that motivating the village community, especially the women, posed a significant challenge. "Women in my village are often hesitant to access mobile technology as they feel that it cannot further their lives, given the roles that they are expected to play daily — raising cattle, looking after the family and tending to the field," she says ruefully. Now working as a community mobiliser, Sapna works with Solidaridad to train women associated with her dairy on how to make online transactions, hoping to improve their digital literacy. She devotes time in explaining every aspect — from downloading the apps to using QR codes for transferring money. "To provide more hands-on experience, I often make them transfer through the payment apps so that they become more confident with the UPI transactions," Sapna elaborates.

She spares no effort, either, in explaining the other benefits of mobile technology and digital literacy — from taking part in online classes and finding cooking recipes on YouTube to comparing market prices of various commodities online. Even more inspiring is the fact she often speaks to the elders in the village, asking them to provide mobile phones to their daughters so that they can be financially aware and independent, and use them to advance their careers

# DIGITAL AND TECHNOLOGICAL INNOVATIONS

Innovations and Technology are key areas of action for Solidaridad. Digitalisation of supply chains has potential to unlock tremendous value for smallholder farmers, service providers and processors by increasing efficiency of existing practices, provision of information at scale, connecting with consumers and buyers thereby reducing costs and checking excess use of inputs thereby improving income.

The focus of digital tools is to ensure farmers are provided with decision-support systems for implementation of good practices in agriculture. The use of IoT based tools enables farmers to use inputs such as water and fertilisers efficiently for precision-based agriculture. Solidaridad is also supporting efforts in developing transparent supply chains by digital enabling product tracking and auditing through traceability systems. Solidaridad also supporting farmers and processors in using innovative technologies that reduce consumption of key resources, helps in waste management and controls environment pollution.

## Digital Tools in Agriculture

The key digital tools in agriculture that Solidaridad has developed leveraging AI and IoT for farmers for implementing



### SoliMet

a hyper-local weather station for weather advisory and for early warning on infestation of pest and disease.



### Ballotronix

an instant tea leaf reader.

### SoliProbe

an instant soil analyzer for assessing the soil nutrient status



### Solitrace

for traceability of product from farm to cup



### AI chatbot

on agriculture, plantation and tea related queries.



## **Smart Agriculture Platform**

To support learning and decision making of farmers on good agricultural practices, Solidaridad has partnered with Vodafone Idea to introduce “Soli Smart Agri Platform” Different e-learning modules, animated videos, audio clips, literatures as well as suitable interactive learning process are introduced through the app. The farmers are benefitted with the accurate and advance information on weather and climatic conditions. The advance information on rainfall predictions helped farmers to plan the irrigation as well as safe storage of harvest crops IOT based advisories for farmers to improve their agriculture related decision-making such as irrigation, fertiliser use.

## **Digital Traceability Systems**

- The Trinitea App enabled digital assessment of every farmer and vouched for assurance and traceability of every farmer.
- Leather Trade Intelligence Portal Sustainability Scorecard Matrix, bring focus on sustainable supply chain within the leather sector in India.
- QR code based digital traceability system in dairy sector for virtual platform of connecting farmers and consumers.

## **Innovative Technologies**

- Supporting use of post harvest technologies in various commodities for top create opportunities for value addition for farmers
- Piloting drone-based technologies for better crop management through trained entrepreneurs connected with Solidaridad promoted farmer producer organisations (FPOs)
- Supporting adoption of Clean technologies for controlling generation of effluents and toxic gases, reducing water consumption and conversion of waste into value added products

## SMARTAGRI GIVES WINGS TO SONA BAI



“I am not going to stop until I do my best for my family.” Sona Bai, 50, does not believe in giving up.

Sona owns 1.5-acre land in Bamaniya Khedi village of Agar Malwa district, Madhya Pradesh. For a small soy farmer, running a family of six, including her grandson who goes to school, with meagre farm income is daunting, to say the least. “Years of mono-cropping had destroyed my farm. The village shopkeeper would tell me which fertilizers to use and I would buy them without knowing or understanding if my crop really needed these.” she says.

“SmartAgri became my pillar of support,” says Sona, one of the 6,500 active farmers in the district who are part of the SmartAgri Project, a CSR initiative of Vodafone Idea and Indus Towers, implemented by Solidaridad.

### **The Smart Route to Farming**

Farmers like Sona - who make up for more than 80% of the total farmers in India - struggle with various challenges such as lack of access to vital agriculture-related information, to water shortage and dependence on erratic monsoons, to rise in input costs and low yield, a farmer is fighting on many fronts.

SmartAgri uses technology innovatively and has been helping farmers like her by Sustainable and climate-resilient farming approaches and use of smart devices/solutions based on Artificial Intelligence and IoT. The project has also built her capacity, reducing input costs while enhancing her farm yield and income. The project is also helping in establishing promoting farmer(s)-owned producer companies and rural enterprises to facilitate farmer’s access to input and markets. Farmers are also informed by general well-being, health and nutrition.

### **How is Technology Working for the Farmers?**

“I never knew this phone could change my life,” says Sona, proudly displaying her phone on which she receives regular weather and agriculture-related advisories. These advisories are a result of the information collected by the hyper-local weather station installed next to her farm. “I listen to the advisories using the missed call facility,” she says.

“The project team has trained me to give a missed call to the SmartAgri helpline. The helpline calls me back and gives



me information on the weather forecast for the next week, any pests common in our area, best time to irrigate and good agricultural practices,” says Sona. This, she says, has helped farmers like her take informed decisions about agricultural activities on their farm. Along with Sona, around 100 families of her village are following the advisories received on their mobile phones.

In October 2022, Sona received an advisory on heavy rainfall on her phone. Harvesting was just over and the soybean crop was kept out for drying. Sona and other nearby villagers followed the advisory, shifted the harvested crop to a safer place and covered it. As a result, Sona’s soy crop was saved.

### **The Smart Solutions**

Helping Sona farm efficiently are smart devices like automated hyper-local weather stations, crop view cameras, insect traps and soil moisture sensors. The data collected by these devices is also analyzed and reviewed by agricultural experts and shared with the farmers through localized mobile advisories. Farmers can access these advisories in their local language through push call, mobile application and through the missed call facility, and in some cases, through WhatsApp groups too.

### **Support from the Field Team**

In addition to modern technology-based solution, the team also helped Sona with time-tested traditional process of vermicomposting which has benefitted millions of farmers across the world.

Of her 1.5-acre land, she decided to turn an acre into a demonstration plot for good agricultural practices. Besides using the vermicompost on her soy crop, the practices included pre-sowing seed treatment, which helps improve seed germination, protects the seed from fungus, thereby contributing to improved yield during harvest. She monitored pest populations through yellow sticky traps and pheromone traps. In the harvest season, her crop yield increased to eight quintals compared to four-five quintals in previous years, helping her earn an additional income of Rs 22,000.

In the Rabi season, which came after that, Sona was given a wheat demonstration plot in around 0.75 acre of land where the SmartAgri team gave their constant support and applied good agriculture. As compared to previous years, Sona harvested an increasing production of 05 quintals in Wheat crop. “With the advice of SmartAgri team this time I did seed treatment prior to sowing, also followed a proper irrigation schedule, use of vermi compost and vermi wash in place of chemical fertilizer, pest control management are some of the practices that helped me to get better results this year,” says Sona.

“By using vermicompost, I saved nearly Rs 14,000 in a year, an amount I was earlier spending on buying fertilizers from the market, which made my soil hard,” says Sona, who also earns some extra money through the vegetables she grows on her field during summers.

With the profits, Sona has now bought a buffalo. After keeping aside milk for her family, she is selling the extra milk to a nearby dairy centre, and earning around Rs 150 daily. With this money she also bought two goats and using their milk for home utilization.

Sona’s tireless efforts coupled with an innovative mobile-led technology solution and traditional methods have clearly worked wonders for her. But, she is not alone – the SmartAgri project benefits more than 5.5 lakh farmers today across ten states, with plans of taking to another 2 lakh farmers in two additional states.

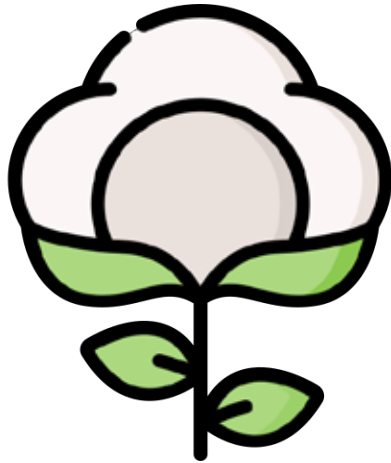
***More power to unstoppable Sona!***



# COMMODITY PROFILES







## Impact

**1,49,000**  
farmers trained

**1,00,927 ha**  
under sustainable management

**1,10,000**  
farmers with improved income

**5 billion litres**  
of water use avoided

**140**  
service providers with increased turnover

**572**  
FPOs and SHGs involved



## Strategy and Intervention

- Promotion of regenerative agriculture to enhance ecological health through nature-based solutions
- Promotion environment friendly cultivation practices through training farmers
- Enhancing water use efficiency through optimized water use in cultivation and creation of water conservation infrastructure
- Establishment of tech-enabled farms through use of IOT based advisories to support informed decision making by farmers on cultivation practices
- Capacity building and empowerment of men and women farmers and workers
- Facilitating Availability and use of quality non-GMO seeds

## Challenges

- Land degradation due to traditional tillage practices and use of synthetic fertilisers
- Increasing climate change related extreme weather events such as floods, droughts, and heatwaves
- Inefficient irrigation practices lead to water loss and groundwater depletion
- High production cost and risk of crop failure and market fluctuations
- Poor agricultural practices leading to high GHG emissions

# TEA

## Impact

**1,02,866**

farmers trained

**92,300 ha**

under sustainable management

**1,02,866**

farmers with improved income

**1,05,338**

workers under improved  
working conditions

**12**

service providers  
with increased turnover



## Strategy and Intervention

- Strengthening of small tea growers' and their associations for training and extension services support
- Implementation of Digital self-assurance mechanism through TRINITEA framework and traceability app as a beyond certification approach to support farmers in sourcing from sustainable sources
- Multi stakeholder management of TRINITEA framework under Indian Tea Association to promote sustainable tea from India
- Climate-smart farming practices
- Innovative use of technologies for resilient farming
- Capacity building of workers on safe working conditions

## Challenges

- Unscientific farming practices
- High use of chemical fertilisers and pesticides
- Unorganised smallholder sector
- Fragmented small holding size of farmers
- Motivating small tea growers to setup own collectives



# EDIBLE OILS

## Impact

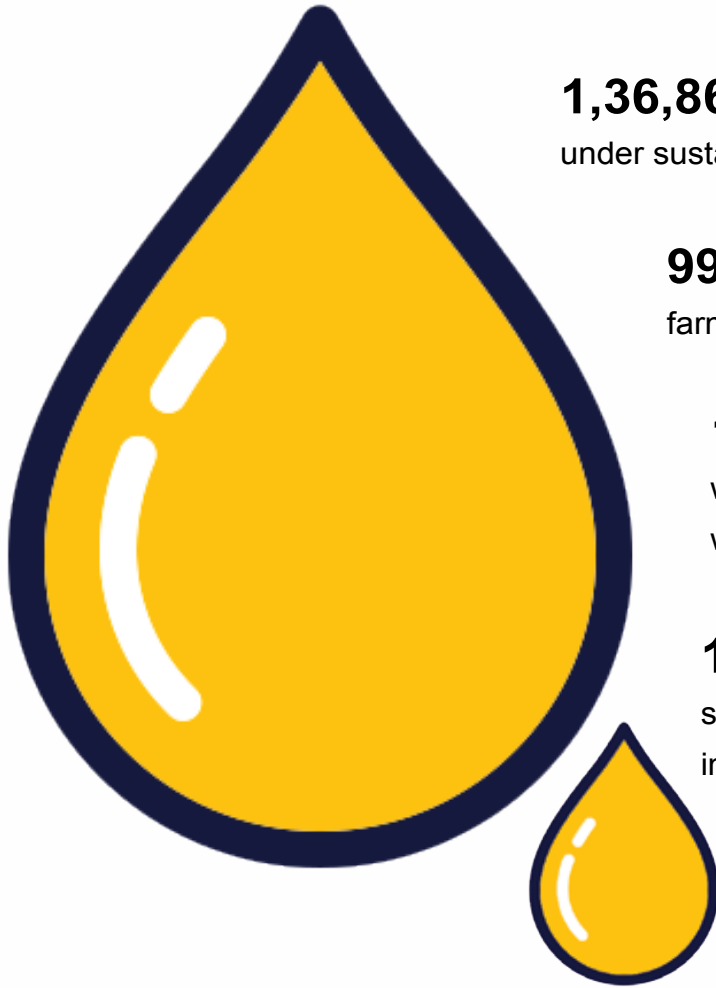
**1,07,416**  
farmers trained

**1,36,860 ha**  
under sustainable management

**99,507**  
farmers with improved income

**18,388**  
workers under improved  
working conditions

**189**  
service providers with  
increased turnover



## Strategy and Interventions

- Capacity Building of Farmers on climate-smart and resilient agricultural practices
- Enabling farmers to use digital tools for efficient resource use
- Supporting crop diversification among smallholder farmers
- Promotion of Farmer Producer Organisations (FPOs) and Rural Entrepreneurs
- Capacity Building of women self-help groups on agriculture, health and social awareness
- Improving access of farmers to quality inputs like seeds and organic fertilisers and pesticides

## Challenges

- Land degradation
- Lack of access of farmers to quality inputs
- Climate change related events affecting production
- Poor yield and income for farmers
- Excessive use of chemicals on farms affecting soil health
- Poor nutrition status of rural communities

# SUGARCANE

## Impact



**3,47,933**

farmers trained

**3,88,541 ha**

under sustainable management

**3,12,767**

farmers with improved income

**7,66,447**

workers under improved working conditions

**1,230**

service providers with increased turnover

**650 billion litres**

of water used avoided

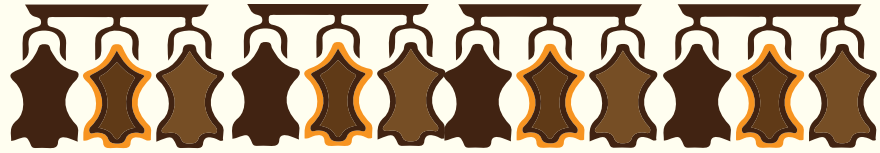
## Strategy and Interventions

- Promotion of water use efficiency through scientific and modern irrigation practices
- Capacity building of farmers on digital and IoT-based tools
- Supporting farm mechanisation and rural entrepreneurship
- Promotion of use of bio-fertilisers and trash mulching method to improve soil health and reduce crop residue
- Use of remote sensing tool to help farmers assess status of land degradation

## Challenges

- Excessive use of water in farms leading to water depletion
- Use of synthetic chemical fertilisers by farmers to increase production
- Ecological stress due to production pressure on farmers
- Burning of crop residue
- Low yield and income of farmers

# LEATHER



**291**  
tanneries  
reached

**1,450**  
trainers trained  
on better tanning  
practices and waste  
management

**3,513**  
workers trained  
on occupation  
health and safety

**510 million litres**  
of water saved

**1,715**  
carbon tonnes  
equivalent saved

## Strategy and Interventions

- Addressing challenges such as water and chemical consumption through green technologies and training
- Working with government for pollution abatement in MSMEs through adoption of clean technologies
- Introducing techno-economical green processes to minimise effluent load in tanning processes
- Demonstrating circular economy models through effective solid waste management
- Improving occupational health and safety conditions through technical and capacity building support by experts

## Challenges

- Excessive water consumption
- Highly polluted effluent water
- Poor solid waste management
- Poor occupational health and safety
- Resistance towards adoption of new technology
- Lack of low-cost customized solutions to reduce pollution in tanneries



## Impact



**25,000**  
farmers trained

**2**  
corporates who tested and  
implemented sustainability  
solutions

**Introduced QR code based** traceability system for dairy sector

## Strategy and Interventions

- Capacity building of farmers on managing livestock, improving milk productivity and climate-smart practices
- Promotion of integrated sustainable dairy system to improve biodiversity and reduce GHG emission in dairy sector
- Integrating women into dairy supply chain through training on sustainable dairy practices and financial management
- Promotion of loose housing system to improve productivity and animal welfare
- Enabling quality assurance through traceability for dairy sector

## Challenges

- Women not part of the formal supply chain and have limited access and control over finances
- Poor quality of milk resulting in rejection by formal buyers of milk collection centres
- Slow pace of genetic improvement
- Low Quality Artificial Insemination services
- Lack of digital usage in animal data management

# CASTOR

## Impact



**7,603**  
farmers trained

**19,406 ha**  
under sustainable  
management

**7,113**  
farmers with  
improved income

**0.53 billion litres**  
of water use avoided



## Strategy and Interventions

- Interventions to organize farmers for sustainable castor production
- Development and implementation of the first sustainability certification system, SuCESS, to evaluate social, economic, agronomic and environmental performance of castor farmers in India
- Intensive farmer capacity building and engagement for adoption of good agricultural practices
- Building a multi-stakeholder platform to create a pool of knowledge and expertise
- Promotion of effective waste management practices

## Challenges

- Climate change leading to droughts and erratic rainfall
- Non-availability of certified castor seeds and water resources
- Limited knowledge on use of fertilisers and pesticides
- Absence of standards for sustainable castor cultivation
- Lack of traceability mechanisms

# INDUSTRIAL MINERALS & SALT

## Impact

**10,315**  
workers under  
improved working  
conditions

**43**  
processors adopted  
improved social and  
environmental policies

**4 tools and models**  
that facilitate implementation  
of good practices developed and tested



### Strategy and Interventions

- Expanding programme to avoid multiple certifications and influencing to Tier 2 suppliers to get certified

### Challenges

- Poor occupational health, safety and working conditions of workers
- Low level of compliance with regulations in mines and lack of knowledge on responsible extraction
- Poor engagement with community and risk of losing operational license



# RUBBER

## Impact



**1,250**  
farmers trained

**25**  
rubber production  
societies outreach



**10**  
demo plots  
identified

package of sustainable  
practices developed

## Strategy and Interventions

- Better practices and diversification to increase farmers income

## Challenges

- Reduction in yield of rubber trees due to heat, pest attacks and diseases
- Climate change related weather changes affecting production
- Manual assessment of rubber sheets leading to reduced value for farmers



# DONORS



Ministry of Foreign Affairs of the Netherlands



Rijksdienst voor Ondernemend Nederland



Funded by the European Union



Small Farmers' Agribusiness Consortium



# HUMAN RESOURCES



## ORGANISATIONAL STRUCTURE & GOVERNANCE

Solidaridad Regional Expertise Centre (SREC) is an NGO registered under the Indian Registration Act, 1908. The certificate has been issued by the Sub Registrar of Janakpuri, New Delhi, under Section 60 of the act with the registration number 17474 in additional Book No.4 Volume No. 12384 on page 113 to 126 on 18 December 2008.

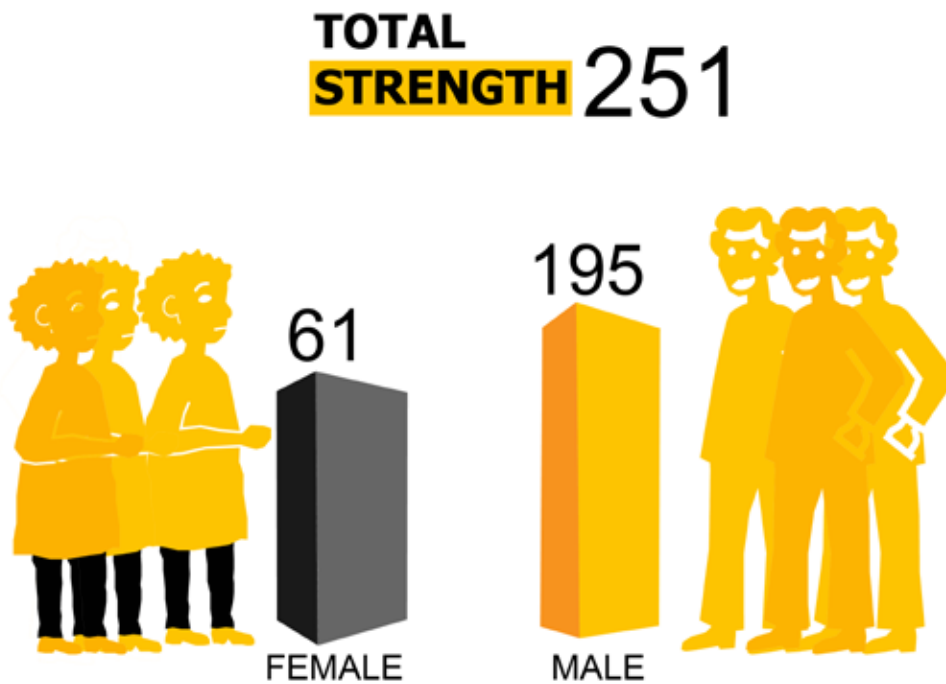
SREC satisfies the conditions of u/s 80G of the Income Tax Act of 1961 and is also registered under Section 12 A of the Income Tax Act of 1961.



## ISO 9001-2008 CERTIFIED

Solidaridad Regional Expertise Centre is certified under ISO 9001-2008 since 9 September 2009. The purpose of the certification is to follow a globally accepted quality management of the work in order to:

- Demonstrate our ability to consistently provide services that meet applicable statutory and regulatory requirements of donors and beneficiaries.
- Enhance donors' and beneficiaries' interest and satisfaction through effective application of the system, including processes for continual improvement of the system and the assurance of conformity to donor and applicable statutory and regulatory requirements.



# FINANCIAL STATEMENTS

## DHINGRA & JUNEJA

Chartered Accountants

13/82, LGF, Vikram Vihar  
Lajpat Nagar-IV, New Delhi-110024  
Tel. : 011-41729407, 46103248, 9811991182  
E-mail : [vdhingra1231@gmail.com](mailto:vdhingra1231@gmail.com)  
[Vikas.dhingra@dhingrajuneja.com](mailto:Vikas.dhingra@dhingrajuneja.com)

### Extract of Independent auditor's report of the trustees of the Solidaridad Regional Expertise Centre

In our opinion and to the best of our information and according to the explanations given to us, the financial statements give the information so required and give a true and fair view in conformity with the accounting principles generally accepted in India:

- a) In the case of Balance Sheet of the state of affairs of the Trust as at 31st March 2023, and
- b) In the case of Statement of Income and Expenditure, of the excess of expenditure over income for the period from 1 April, 2022 to 31st March 2023.

For Dhingra & Juneja

Chartered Accountants

Firm Registration Number: 018799N

  
Vikas Dhingra  
(Partner)  
Membership No: 099604  
UDIN: 23099604BGQMUU4957

Date: December 042023  
Place: New Delhi



Funding Agencies	Source of Fund	Purpose
Vippy Industries Limited	Local	To implement the Project on "India Sustainable Soy Program"
JR Agro India Private Limited	Local	Promoting Education/Vocational Skill/Wellbeing Enhancement of Farmers
Indian Institute of Soybean Research	Local	Front line demonstrations of Soybean
Jayant Agro Organics Limited	Local	Sustainable Castor Initiative "Pragati"
Vocalone Foundation	Local	Smart Agri : Leveraging technology for self subsistence to enterprise farming
The Solvent Extractors Association of India	Local	SEA - Self-aided Sustainable Ripened-Mustard Mission
Small Farmers Agribusiness Consortium (SFAC)	Local	Formation and Promotion of Farmer Producer Organizations (FPOs) under Central Sector Scheme
Bridgstone India Private Limited	Local	Unnati Sustainable Natural Rubber Initiative
Reliance Foundation	Local	Through the "Inclusion through Integration - Women in Formal Dairy Supply chains"
Laudes Foundation	Foreign	Establishing an Organic Cotton Hotspot in Maharashtra, India
European Union	Foreign	Effective waste management and Promoting circularity (Kolhata & Chennai)
Solidaridad Network Asia Limited	Foreign	To support farmer in Sustainable production in agriculture & industry, combined with sustainable trade and significant contribution to
Boyer AG	Foreign	To Promoting the implementation of good Agricultural Practices to Ensure high production in a safe working conditions
Australian High Commission	Foreign	Promotion of irrigation efficiency and enhancing water
Sustainable Agriculture Initiative Platform	Foreign	Sustainable Dairy Partnership - India (SDP - India)
Coca-cola Foundation	Foreign	Regenerative and Resilient (Climate, Water & Workers) Sugarcane Supply Chain in Maharashtra

#### Statements of Financial Position

	As at 31st March 2021	As at 31st March 2022	As at 31st March 2023
<b>Funds &amp; Liabilities</b>			
- Trust Fund	10,000	10,000	10,000
- Capital Fund	12,756,782	29,809,704	55,301,020
(Represented by Fixed Assets)			
- Restricted Fund	159,420,504	184,180,454	106,002,534
- General Fund	10,943,463	(1,743,964)	2,778,529
Towards general objectives of the Trust	9,626,000	9,626,000	9,626,000
Towards specific objectives of the Trust	7,954,851	41,026,441	25,301,727
- Current Liabilities & Provisions	<b>200,721,600</b>	<b>262,908,635</b>	<b>199,019,811</b>

#### Property & Assets

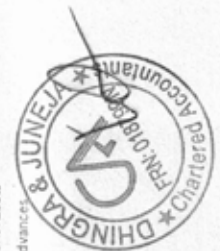
- Fixed Assets			
Gross Block	34,537,248	48,036,478	87,799,627
Less: Accumulated Depreciation	10,485,419	16,764,788	26,146,623
Net Block	14,051,829	31,271,690	56,653,004
- Current Assets and Loans & Advances	173,294,173	210,837,092	120,647,317
Cash & Bank Balances	8,073,407	6,046,519	6,505,302
Other Current Assets	5,302,191	14,753,334	15,214,186
Loans & Advances	<b>200,721,600</b>	<b>262,908,635</b>	<b>199,019,811</b>

#### Statements of Activities

Particulars	Financial Year 2020-21	Financial Year 2021-22	Financial Year 2022-23
<b>Revenues</b>			
Restricted Income (Grants & Donations)	123,056,679	31,789,534	458,741,126
Unrestricted Income			
Overhead Support	6,488,118	13,179,275	15,988,722
Interest from Bank	1,713,901	4,034,646	1,156,800
Voluntary Contribution (Donation)	492,000	897,600	5,290,444
Other Income	760,877		
	<b>132,551,575</b>	<b>336,001,055</b>	<b>481,177,092</b>

#### Expenses

Programme Related Expenses	123,056,679	319,791,345	459,433,560
Management & General Expenses	4,810,489	28,897,137	17,221,098
<b>Total Expenses</b>	<b>127,907,168</b>	<b>348,688,482</b>	<b>476,654,658</b>
Surplus/(Deficit) for the year	4,644,407	(12,687,427)	4,522,433
<b>Changes in Net Assets</b>	<b>4,644,407</b>	<b>(12,687,427)</b>	<b>4,522,433</b>





A photograph of a nursery with many young trees in black plastic pots, arranged on a metal rack. The trees have green, pinnate leaves. The background is blurred, showing more of the nursery.

# Solidaridad

A-5, Shankar Garden, Main Najafgarh Road, Vikas Puri,  
New Delhi 110018 Tel: +91 (11) 4513 4500