



About Tata Steel Foundation

Tata Steel Foundation (the Foundation), a wholly owned subsidiary of Tata Steel Limited, was incorporated on August 16, 2016. With over 600 members spread across eleven units and two states of Jharkhand and Odisha, the Foundation is a CSR implementing organisation focused upon co-creating solutions, with tribal and excluded communities, to address their development challenges reaching more than 1.5 million lives annually across 4,500 villages. The Foundation endeavours to implement change models that are replicable at a national scale, enabling significant and lasting betterment of communities proximate to Tata Steel's operating locations while embedding a societal perspective in key business decisions. The Foundation strives for excellence by ensuring that all programmes are aligned with community needs and focused upon national priority areas enabling communities to access and control resources to improve the quality of their lives with dignity.

TATA STEEL FOUNDATION

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TATA STEEL FOUNDATION



MASTER Stroke

INTEGRATED FARMING



Call to action

- Poverty eradication is the first Sustainable Development Goal (SDG) set out by the United Nations Development Programme (UNDP).
- In 2016, an analysis by the World Bank found that 65% of poor working adults made a living through agriculture. Growth in the sector is critical to raising the income of the poorest.
- Also in 2016, the Indian government called for farmer income to be doubled by 2022.

The hard truth

- The Indian farmer earned, on average, about Rs. 1,07,000 annually in 2016-17, according to NABARD, All India Rural Financial Inclusion Survey (NAFIS). India is already low on the global list for per capita income.
- In Jharkhand, a farmer subsists on earnings of an abysmal Rs. 15,000 to Rs. 20,000 annually. It is among the states with the most number of farm households below poverty line.

A ripple of hope

- Over 2,500 farmers in the agriculturally distressed state have found a surprise solution in a place they weren't looking at, ponds.
- With the organic, climate-first idea of integrated farms around small water bodies, nearly all of them have more than doubled their income.
- Before they adopted this model, about 70% of them were earning less than Rs. 10,000 annually. Now, many of them make over a lakh per annum.

Small pond, big idea

For many families in Jharkhand, a pond is not merely a pond any more. It is an oasis of possibilities.

It is a simple yet elegant idea that addresses many of their struggles – income, risk, water scarcity, nutrition, and community welfare. Tata Steel Foundation's pond-based livelihood initiative combines fishery, duckery and horticulture while helping farmers meet their regular irrigation needs. It has helped farmers fan out from traditional and under-utilised farms to aquaculture and multi-cropping. It does all of this while enabling the ecological restoration in the region. This model has set off a ripple in the tribal agricultural population of the area. A pond has become the special resource – a one stop solution – farmers will never see in the same way again.

In 2017, when the programme started in East Singhbhum and West Singhbhum, it supported **375 ponds**.
 Now it covers over **2,580**.



Sourav Roy

Chief CSR, Tata Steel Foundation

This is an initiative in which we can say, hand on our heart, that cutting edge ideas combine with contextually and culturally appropriate implementation. It has the potential to be transformative and that too in a Gandhian way—from the ground up. It has been a booster shot in our mission to co-create lasting and effective solutions with excluded and tribal communities.

During the recent lockdown, we learned what a resilient programme this is. If you have an option for stability and prosperity in your own village, why would you migrate?

One of the most important outcomes of the project is that it has given farmers a sense of possibility, aspiration and ambition. People don't look only for money. They have motivations and convictions of

their own. With their pond enterprise, farmers are discovering their passion. The idea is also catching on because it has cultural resonance and taps into latent opportunities within the community. Farmers are putting their faith in the model.

Ideas work when a larger goal aligns with an immediate goal. Most of the farmers don't even realize they are restoring water balance in the region. We can help save the planet if we see that it connects with saving our individual selves.

The project runs on its own steam because it derives its energy from the community. The farmers and the community resource persons are the change makers in this instance. It is an example of collaboration between us, local trusts and individuals.

In the end, we want farmers to sleep well. If the programme is able to take away their core tensions and they are able to watch their achievement and feel happy, we have succeeded.

Integrated Fish Farming: Striking a Fine Balance



Mukkadar Banra, from Gadarajabasa village, Khutpani, sits in the lush green around his pond, 100 feet-by-100 feet. Every part of this eco-system is connected with the other in a symbiotic relationship. The water is used for paddy and horticulture. It also hosts the fish he farms. Ducks provide manure and eggs for the fish. As they paddle, they add oxygen to the water and keep it healthy. In turn, the ducks eat dried fish, insects and crop leftovers. On the sloped bank of the pond, pigeon pea (arhar) keeps the soil from eroding. On the bund, there is an abundance of coriander, drumstick, kidney bean and guava, among other vegetables and fruit. Along the border, Banra grows papaya. After this crop is harvested, its residue is used as compost to fertilise the farm and the pond. It is a self-contained world.

"This model is the best utilization of space. Every single part of the farm is being used. It results in optimum, maximum output," says Parth Sarthi, who has worked on the initiative since its inception.

Integrated fish farming, which combines livestock and crops around scientific fisheries, has been used with some success in states such as Andhra Pradesh and West Bengal. However, this is the first time the model has been customized at this scale in Jharkhand. It has become a coveted venture that more and more farmers are adopting. Traditionally, in Kolhan, only a few farmers owned ponds. The Foundation has enabled many with the suitable land to dig new ones. To those who already had ponds, the Foundation has introduced their use for commercial farming and fishing. To those who had tried fishing with traditional methods, it has brought state-of-the-art know-how and unprecedented productivity.

Jaisingh Murmu Tudu, in Gorabanda, can barely believe how his life has turned around. "I had never heard about this kind of farming, where a pond can be used for so many activities. In the second year itself, I was amazed at the result. Fishery requires less labour and brings more earning. I have earned Rs 73,000 since January this year."

The idea was born as a means to harvest water. It has since evolved and found a life of its own. Most farmers in the area conventionally rely only on paddy. Now, they are practicing horticulture, which enables crop rotation and better use of their time and space. When the Foundation recommended that farmers start using pigeon peas for soil stabilization, they started earning Rs 20,000 from that alone. Gradually, the model grew towards more and more integration. There are now different models and stages but the more farmers rotate their crops and diversify their livestock, the more they earn.

Papaya, for instance, is easy to grow and is lucrative. In the past year, Radhakrishna Birua earned more than a lakh by selling papaya planted on his pond bund. Some farmers have tried broccoli and realized how profitable it is. However, it is the concept of nurseries that has been a runaway success. Earlier, the few farmers engaged in fishery were dependent on



Ecological shift

Raising the water table

The ponds project was conceived with an environmental objective. As a stakeholder in the community, Tata Steel has long pledged commitment to ecological balance in its areas of operation. It has pursued the increase in green cover and protection and restoration of groundwater. Chief, CSR, Mr Roy points out, "Climate change is a reality, and a visible impact is that the seasons have stopped aligning with the Gregorian calendar. The net amount of rainfall may be the same but it is getting bunched up and shifting in time. Over the next decade, there will be a resultant shift in the discourse from general crop failure to a season-resilient form of farming.

"Even if there were no physical scarcity of water in Kolhan, there would still be an economic scarcity. There is enough rainfall but farmers are unable to harness it for agriculture owing to the existing topographical conditions. By most estimates, irrigation covers only 10 percent of farming. This over-dependence on rain, the small farm sizes and the extremes of temperature and precipitation will have an increasing impact on farm incomes. An integrated farming around a pond is just the right approach for such a situation because the model doesn't rely solely on external circumstances," opines Mr Debdoot Mohanty, Head, CSR, Jharkhand, Tata Steel, who has extensive experience on watershed practices in some of the most difficult terrains across India.

Jaisingh Murmu Tudu says, "The rain is not on time and sometimes it rains too much. Fortunately, because of the pond, this does not affect me anymore." His sister Akali Tudu says there has, in fact, been an improvement in groundwater since the ponds were set up. "In our basti, the borewell had stopped yielding water. But after we created ponds, it has water again," she says.

Truly organic

A visual of the integrated microcosm has a detail that appears small but is significant. At most of the farms supported by the Foundation, there is a pit for the cultivation of Azolla on the embankment. At all of them, there are pots of Jeevamrut. Both items keep these farms organic.

Farmers have taken to this bit of know-how like ducks take to water. This is because the ingredients are readily available to them and cost next to nothing. Also, farmers are quick to recognise the degradation of their soil due to chemicals.

Jogeshwar Singh from Govindpur won a prize at a fair for organic farming. "I don't use fertilizers. They ruin the soil in the long run. I had to work on my soil before it started yielding again. Earlier, I did not know about Azolla and Jeevamrut," he says. He is so proud that his work is entirely organic that when visitors at the fair asked him how he achieved such good produce organically, he told them he would share his secret only if they visited his farm and not at the haat.

Azolla, the fern that floats on water, is an ecological trail blazer. It cleans water, adds nitrogen to the system and encourages plankton, which is fish food. Also known as Duckweed Fern, it has been used as a bio-fertiliser and weed suppressant in aquatic agriculture for thousands of years.

Liquid organic manure Jeevamrut has also long been popular among organic farmers. It is a good source of natural carbon, nitrogen, phosphorous, potassium and other micro nutrients needed for the crops. It also acts as an anti-bacteria spray. When crops have a disease, farmers also use a Neem based spray as a medicine.



Innovation



Know-how

The programme brings to farmers the one thing they need more than any other – technical know-how.

Paras Gope from Magarkela says he was always passionate about agriculture and had the land for it too. "But I needed technical support and direction. I couldn't have done it on my own," he says. His life has transformed in less than a year. He has learned about how to use jeevamrut and azolla, the best mix of crops, how to maintain the pH balance of his pond and which breed of fish grows fastest.

Hablu Dhibar from Surgi comes from a fishing community. "I have been a fisherman before. I used to fish in the river but in the traditional way. I had no technical knowledge and earned only Rs 10,000 or Rs 20,000 with my method," he says. Now he earns in lakhs.

Even farmers engaged in paddy cultivation for many years now have more scientific tools in their kitty. For instance, the Foundation has shared with them knowledge about the System of Rice Intensification (SRI), which allows paddy to grow even without waterlogged fields.

Farmers have been trained in integrated farming as well as nursery and grow-out fishery management. Tata Steel Foundation provides workshops, learning kits and even wall paintings to spread awareness and knowledge. It organises farmers' fairs for meaningful exchanges between participants.



Technology

Early in the project, Tata Steel Foundation realized that not all ponds remain filled through the year. The programme used technology-based interventions to change this. "While digging a pond it's imperative that the site falls on the drainage line – a geological necessity – which we have ascertained in our operational locations through Tata Steel's Natural Resource Division, GPS and CII's Watscan Study report," says Mr Satya Nandi, Head, Water & Civil Infrastructure, CSR, Tata Steel.

Forging the Right Relations

In order to put actual benefit to the community before anything else, Tata Steel Foundation has believed in public-private partnerships for many years. Tie-ups with those who know best help all parties avoid duplication. They also increase outreach.

For technical expertise on fisheries, the Foundation tied up with Tata Trusts. For better implementation at the local level, it partnered with existing trusts working at the grass roots level. It helped them get registered and enlisted them for selecting prospective pond owners and sites, hiring contractors to dig ponds and helping set up the enterprise. They recruit our network of community resource persons (CRP) who address on-field challenges, spread awareness and aid opportunistic learning. Having a person from the same community is helpful in both better understanding farmers and explaining ourselves to them.

By encouraging women to be CRPs, we have also been a means for their empowerment. Renuka Rani Mahato from Gurma has a job for the first time in her life. "It takes some time to convince the farmers. But four of them have had such success that everyone can see the benefit." She helped Jogeshwar Singh realise that leaves from the Sonajhari trees around his pond were impeding their growth.

Improved nutrition

Jharkhand has some notoriety for malnutrition, particularly for protein deficiency. The Foundation's pond-based model makes the intake of proteins through fish and pulses possible for the farmers who grow it. Krishna Sardar from Marangmali says his family now eats pulses, fish and vegetables regularly. "My children have become used to eating vegetables every day," he says. Bholanath Sardar's family also eats fish and vegetables with rice, now that they don't have to buy it from the market.

Amit Banra, who is the strategist behind uncle Mukkadar Banra's thriving operation, says their family is able to eat balanced meals because they grow most of what they need on the farm. "We eat fish, duck eggs, chicken, pulses and a variety of vegetables. I haven't been falling sick for the past two or three years," he says.

Less risk, more stability

A farmer's income is precarious because of inadequate irrigation and dependence on rainfall, which is getting increasingly unpredictable and untimely. Paddy farming yields a single earning a year. Farmers have to step out and look for labour and other jobs for the rest of the year. Now, instead of risking everything on one annual crop, farmers can capitalize on fishery, duckery and multiple crops throughout the year. The integrated approach diversifies and distributes their risk. If the monsoon fails, they can fall back on the pond for irrigation. They can earn through their other investments after that.

"You can't sit around and mope if you lose a crop," says Krishna Sardar. He used to be a migrant labourer even though he had land. He says he used to earn a mere Rs 30 daily at brick kilns and by driving tractors. With the help of his pond, he is now able to make nearly Rs 1,500 every day. This consistent income has stemmed his need to migrate seasonally for work. "Because of horticulture, duckery and fishery, I have money coming in throughout the year. My pocket is never empty," he says.

Mirza Mohan Tudu, Kanyaluku, says people didn't really understand money in his village until four years ago. "I have now realized that if you get paid once, you end up spending all the money at once. A steady income means that I can plan throughout the year and save more. I want to travel to Puri with my family next year and am saving for it," he says.

'No need to migrate. This is my rajdhani'

Dubai Tudu has lived and worked all over the country. The 55-year-old from Mohnadi trained and worked as a mechanic in Hata. "There's grease on your body all day. It affects your health," he says. He has also worked as a mason in Andhra Pradesh, Karnataka and Maharashtra. Tudu has fond memories of constructing movie sets at Aambi Valley City, Maharashtra, where he once made a signboard for the Bobby Deol film Badal. But he is clear that he wouldn't swap what he has now for any of that. "You can do that kind of work only as long as your body can take it. I did what I did because my family saw financial hardship when I was still a child. However, while I was travelling, I saw successful farmers in places such as Maharashtra and Andhra. I realised I had land worth crores but was unable to make anything from it. It was after I met people from the Tata Steel Foundation that I learned how to use that land to my benefit," he says. Pointing to the entrance to his pond and farm, he adds, "I want to call this Rajdhani, for the capital. This is my factory. Here, I am the entrepreneur, the doctor, the artist and the scientist." Tudu even sleeps in the shelter of the farm on most days.



Dreams do come true

Hablu Dhibar from Surgi struggled all his life until he signed up for a pond. "I lost my mother as a child. I have even grazed cattle for others to earn my livelihood. But I don't have to any more. Now I earn at least a lakh. When money starts coming in, everything falls into place," he says. Bholo Samad, 38, has bought a rickshaw to be able to transport his vegetables over distances. Bodra has bought two cows.

Looking to the future has had a distinct impact on the aspirations of women. Rajesh Sardar, for instance, has recently bought a treadmill for his daughters who are athletes. He wants them to be able to train even when it is raining. He beams while talking about his older daughter Rinku. "She won the race at school so I took her to the district level competition. She won that so I took her to the state level event. She won that too and so I took her to national level," he says. Rinku wants to join the army in the future. Singh says he has been able to support his daughters' athletic ambitions because of the income from his nursery.

Prafulla Mahato from Sukhlada says "I earn more than a lakh in a year. I have just bought a motorcycle. My daughter is very good at academics and I am going to send her to a private school." His daughter doesn't want to get married young and insists on graduating college.

The farmers who have tried this model have shifted from a subsistence existence to one with hopes and plans for their future. They have found not just livelihood but passion and dreams.

Life-altering impact



Until about two years ago, Mukkadar Banra was earning less than Rs 20,000 annually from paddy cultivation on his five acres. In the past year, his income has surpassed Rs 2 lakh. "We've been farmers for four to five generations. This is the first time we have had such a breakthrough," the 45-year-old says. They earn from fish, ducks, fruit and vegetables, arhar and paddy.

Jaisingh Bodra, 30, invested Rs 6,700 in a nursery and made Rs 85,000. He is yet to sell all his fish and is already getting advance requests for his next lot of fingerlings. "I used to consider myself poor. Next year, I want to earn Rs 2 lakh. I have started investing nearly Rs 50,000 in LIC and other instruments, including the Pradhan Mantri Jan Dhan Yojana," he says.

Gangaram Purti's land was barren earlier. He tried his hand at a fish nursery for the first time. He says, "When I hauled 40 kg of fish from my small pond of 50 feet-by-50 feet, I couldn't believe it. I won't forget that day. I earned Rs 10,000 in three months."

Bholanath Sardar from Jojodi, Ramcharan Besra from Baridih, Gangaram Purti from Chayasal, and Rajesh Sardar from Matku are now lakhpatis. By 2023, we hope to bring this impact to 7,000 to 8,000 farmers with pond-based enterprises.



Together, We Stand

Many farmers have managed not only to become self-sufficient but also to extend opportunity to others in their community. Jaisingh Bodra wants to lease more ponds so he can employ others from his village. "I don't want to rise alone. I want others to rise out of poverty and earn and eat too. I will give work to poorer people. Why should they go outside for work?" he says.

Bodra believes his business benefits his peers in other ways too. He says vendors from outside bring seed for fisheries of lower quality and don't share the appropriate information on how to feed and grow fish. "They want to sell more and end up encouraging you to overstock, which is bad for the fish," he says.

Gangaram Purti has three ponds but wants one more. His idea is to keep the money within his community. "Other fish farmers in this area should buy their fingerlings from me. They usually buy from vendors from West Bengal, who bring them in pots on bicycle after monsoon. I plan to take over that entire business so that the money stays in our area," he says.

Successful farmers have also become role models in the community and ambassadors for the programme. Dubai Tudu says he sometimes has visitors from distant villages and strangers seeking to see how an integrated farm works. Anjali Singh, who keeps the books for her husband Bidyadhar Singh's successful farm, says other women in her village Bhutka are inspired after seeing her and want to follow suit.

Less drudgery for women

At most of the ponds there are groups of villagers. At Mohan Mirza Tudu's pond two women and a child are washing clothes and bathing. "Earlier, we had to walk to the nearest canal for a bath," one of them says, pointing to the horizon. Ponds have helped women reduce the drudgery in their lives. They don't need to carry water for bathing and washing purposes from distances. This impact has bolstered Tata Steel Foundation's vision for the empowerment of women. Many of the owners allow other farmers to use the water for their own fields. They are also able to use the water for their livestock. As a result, each pond supports a community around it.

'We used to live in fear'

It is in the district of Gorabanda, earlier notorious for Naxal disturbance, that the greatest transformation is evident. In the past three years, Tata Steel Foundation has helped 375 ponds to thrive here. The Foundation came in at a time when the government was seeking the surrender of Naxalites. By showing residents avenues to achieve financial security, the programme aided the area's metamorphosis.

Mirza Mohan Tudu from Kanyaluku vividly remembers the past. "We used to live in fear. If dogs barked at night, we would get scared wondering who was around. On the one hand, there were Naxalites. On the other, cops would stop and ask us many questions." Even though Mirza Mohan had land of his own, he wasn't using it. "No one here understood money back then. I stayed home and didn't do much. I would never have guessed a pond could mean so much. After seeing me, others are following in my footsteps," he says.

In Jiyan, a village in the barely-connected interiors, Rajen Munda remembers his days in jail. "I was in prison for two years in 2014-15 on false charges. Back then, we were constantly scared of visitors because we used to wonder if they were informers or cops." Now, he runs his nursery, fishery and tomato farm. Munda recently won a prize because of the large size of the fish in his pond. He attributes his welfare to his access to water. "Water shortage was my biggest struggle. The day I had water to grow vegetables, especially tomatoes, was my happiest day," he says.

