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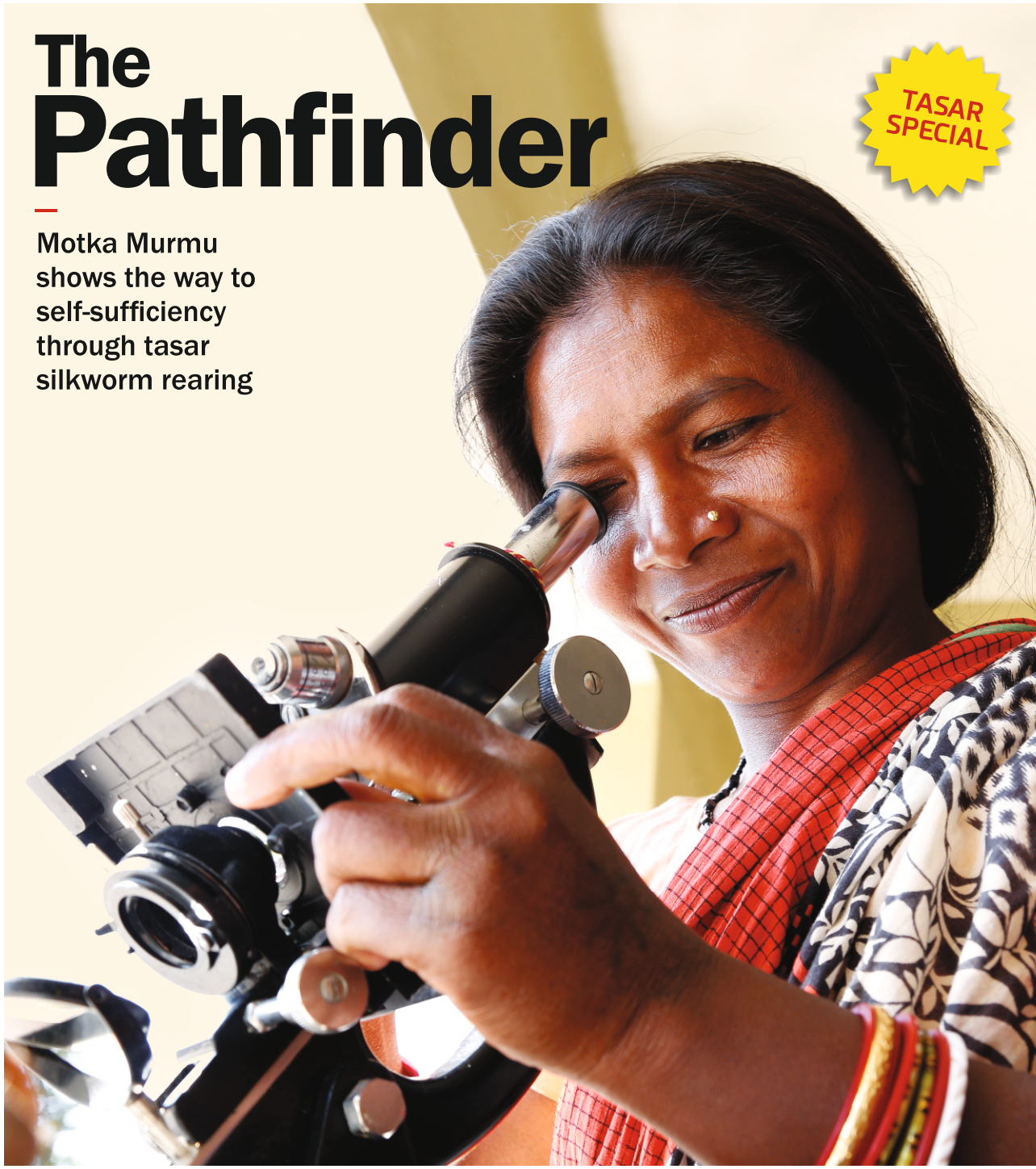
The Pathfinder

TASAR SPECIAL

Motka Murmu shows the way to self-sufficiency through tasar silkworm rearing



CASE STUDY
Sadalpur Village: A Journey from Poverty to Prosperity

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Godda Tasar Project: Where All the Action Began

Mature *tasar* silkworms feed on the leaves of a host plant before cocoon formation (pg 6)

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IN THIS ISSUE

Newsreach, a bimonthly journal, is a forum for sharing the thoughts and experiences of PRADAN professionals working in remote and far-flung areas. *Newsreach* helps them reach out and connect with each other, the development fraternity and the outside world.

OVERVIEW

This is a special issue of *Newsreach*, to commemorate three decades of PRADAN's initiative of creating robust livelihoods for marginalized communities through tasar sericulture. Such a long and avid involvement of any agency with an idea, a theme or a sector is rare and extraordinary, given that the motive has all along been altruistic. The key question here is: What were the drivers behind such a long-standing involvement? Is it the vision of an organization to reconfigure a traditional sector and unlock its potential for poor producers? Is this unwavering focus an attempt to support some of the most marginalized communities by preserving their livelihoods in a sector that was in sharp decline? Is the core belief of PRADAN 'individuals are central', and should PRADAN continue to engage with ideas as long as individuals within the organization see purpose in them and remain motivated to learn, innovate and expand ideas for the cause of the rural poor? Or could it be a combination of all of the above? Perhaps, the time has come to do a deeper analysis around the key question.

Entirely legitimate/justified here, therefore, is the question, "What has PRADAN done in the *tasar* sector over the years? And what are the outcomes of the initiative?" After all it required, at the very least, significant public resources to support the project. PRADAN has played the most significant role, over the years, to craft a major revival of the *tasar* sector. Can we then say that, because of PRADAN, the *tasar* sector has been 'saved'? The case studies presented in this journal narrate the journeys of individual producers toward economic stability and prosperity. Ashis and Shamshad explore the scale and impact of PRADAN's interventions on different facets: individual producers, the sector, markets, relevant institutions, and policies and programmes of the mainstream.

Thirty years is a long period. Before things become 'history' and consigned to oblivion, it is important to know how and where it all started, the origin of the idea, how a project was conceived. How were these taken to the ground? How did we land up in Godda? What motivated our professionals to come to Godda, a place considered the 'back of beyond' even today! Deep, Jha ji (Mithilesh), Biswajit and Uday provide eloquent accounts of the very initial days, the excitement in PRADAN and the areas of struggle when launching the initiative. Perhaps, the first major success was achieved when the village community accepted the idea of deploying their private lands to raise *tasar* host tree plantations. It was, indeed, a tough challenge, requiring two years for Jha ji to sort it out! By the time I joined Godda project in 1990, the idea had already struck root.

Thirty years back, the practice of *tasar* silkworm rearing and livelihood aspirations of the producers were very different. I am tempted to reproduce an article I wrote as part of my village study in 1990. Shamshad's article portrays the long haul of the PRADAN team in unlocking the potential of the tasar sector for sustainable livelihoods. Years of struggle, many failed ventures and immense perseverance and hard work have gone into building a whole body of work around *tasar* and livelihoods.

In this long journey, we have been very lucky to get ICCO as our co-traveller. ICCO's, and more specifically Nelleke's, unflinching support helped shape the project and inspired many innovations. The latter half of this 30-year journey has seen a great partnership with the Central Silk Board, in charting a continuing expansion.

PRADAN's initiatives gave birth, in 2013, to a new institution, namely, Tasar Development Foundation (TDF). The idea was to create a dedicated institution, other than the government, to nurture the tasar sector and expand the scope of livelihoods for marginalized families. TDF is now working with vigour, bringing in talent and new ideas in the sector.

Satyabrata Acharyya

RAJENDRA KHANDAI

SADALPUR VILLAGE: A Journey From Poverty To Prosperity

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Using the fallow uplands in the village for tasar plantations has been instrumental in not only taking the villagers out of abject poverty but in also freeing them from the clutches of moneylenders

IN JHARKHAND AND BIHAR, THERE ARE large tracts of uplands lying fallow. The non-availability of irrigation facilities makes the land unfit for any high-value crop. This is considered one of the major reasons of persistent poverty in the area. The arable land-holding of families is less than a hectare; they use this land for cultivating paddy in the *kharif* season. The output from these lands is also not up to the mark, mostly due to rudimentary agricultural practices. If a regular income could be generated from the unutilized uplands, it would give a great boost to families that struggle in the vicious cycle of poverty. The additional means of income will free them from their practice of subsistence agriculture and help them pay back their long-pending debts. PRADAN's intervention of planting host trees for *tasar* silkworms on privately owned barren uplands where poor families could take up silkworm rearing after three years of gestation period played just that role.

A village that has witnessed change in the lives of its families through *tasar* plantation is Sadalpur. It is 11 km from the block headquarters of Saraiyahat in Dumka district and on the way from Saraiyahat to Deoghar district of Jharkhand. The village comprises 20 households, of which 19 belong to the backward Ghatwal community. Only one household belongs to the upper caste landlord community. The

PRADAN motivated the villagers and proposed that they start a plantation for silkworms, explaining to them its long-term benefits. At first the villagers were skeptical of the proposal; some of the community members with vested interests, who feared they would lose their hold over the people, discouraged the villagers from venturing into this activity.

average land-holding of these Ghatwal families is around 2.5 acres, of which only 40 per cent is lowlands and medium uplands suitable for paddy cultivation, and the rest are uplands.

Prior to PRADAN's intervention in the village, abject poverty prevailed because many of the families had mortgaged their lands to the moneylenders in the nearby Dighi village to meet urgent cash requirements, or had lands under share-cropping because of the lack of the livestock and capital required for agriculture.

The food grains produced from their land barely lasted three to four months. The families were forced to work as agriculture labour in the moneylenders' fields. The other option was for male members to migrate to nearby cities to work as rickshaw pullers or labour in rice mills, brick kilns, construction works, welding shops, etc. Some youth migrated to Delhi and Surat for six to eight months a year and returned only during the paddy transplantation season, to work in the fields of the moneylenders and pay off debts. The women of the family were engaged in shepherding cattle and other ruminants of the moneylenders and in doing other domestic work in the moneylender's house. During the day, no adults can be found in their houses. Only one house in the village had a mud wall and tile roofing; this belonged to the Choudhary family. The other houses had paddy straw thatched roofs and walls of leaves and twigs covered with mud. None of these houses had wooden doors because they could not afford them.

Often, families had to do without a meal and, in such cases, the women suffered the most. Tears rolled out from Sonia Devi's eyes as she shared how she had to subsist on only rice water and salt on many nights because there was hardly any rice left after her three children and husband had eaten. In the palm fruiting season, her children and she survived on palm nut and juice.

Children were deprived of primary education because they were busy guarding cattle from a very early age; they migrated for wage labour once they were 10 to 12 years old. Nakul Ray (35 years) told us that he left his studies when he was in the 5th standard and went to Deoghar to work as a labourer at the age of 12.

PRADAN began work in the village in 2004 under the Special Swarnajayanti Gram Swarozgar Yojana (SGSY) *tasar* project. One of the team members, Binay Kumar Tiwary, noticed a barren stretch of land near the village while searching for a suitable place for taking up Arjuna plantation. The land had been lying idle for a long period because it was highly undulating in nature and the soil had a rocky texture, unsuitable for agriculture.

PRADAN motivated the villagers and proposed that they start a plantation for silkworms, explaining to them its long-term benefits. At first the villagers were skeptical of the proposal; some of the community members with vested interests, who feared they would lose their hold over the people, discouraged the villagers from venturing into this activity.

To convince the people, PRADAN organized an exposure visit for the families to an already established plantation in the nearby Chandubathan village in the same block, where the villagers were already reaping the fruit of the plantation. The families of Sadalpur interacted with them and understood the nitty-gritties of the process for plantation and the arrangements of the project in detail. This

TVS selected five nursery farmers to prepare the nursery for raising the seedlings required for transplantation. They were trained on the techno-managerial aspect of nursery preparation. Quality seedlings were raised and transplanted in time. Protecting the plantation from grazing was a major challenge for TVS

exposure visit helped people clarify their doubts. The villagers feared that PRADAN would take away their land when the plantation was complete. Those fears were allayed when they saw the work already in progress in the other village. There was, however, another challenge. Of the 65 acres available, around 50 per cent belonged to families of nearby Dighi village. The people there were not so poor. The plots in Sadalpur were interspersed with those owned by families in Dighi. The idea of the plantation, therefore, did not take off.

On the suggestion of the villagers, Binay contacted Tribhuban Choudhary, in Dighi village. Binay took him to Chandubathan (exposure site) to explain the idea of the plantations, the work that PRADAN did, and how the suggested project would have long-term benefits for the poor families of Sadalpur as well as for the land-owners of Dighi village. Vinay persuaded him to share this information with the fellow land-owners of his village and motivate them to take up plantation on their lands.

Tribhuban, then, arranged a meeting with the other land-owners of Dighi village where he joined Binay in sharing the scheme and motivating them to allow the plantation on their lands so that the poor families of Sadalpur could take up rearing on their plots and the villagers of Dighi could get rent from those families. Such an arrangement already existed in the Chandubathan plantation, wherein 30 per cent of the land belonged to the upper caste Brahmins, who had rented their plants to the Santhal community of the village to rear silkworms. The moneylender land-owners agreed to the proposal of the plantation, realizing that they would get something out of that barren land without investing anything.

The land-owners of Dighi came to Sadalpur for a joint meeting and discussed the modalities of the plantation. The villagers of Sadalpur worried about finding labour for all the earth-work activities such as pit-digging, cattle-proof trench-digging, inter-cultural operations in the plot, etc., that needed to be conducted under the project.

PRADAN formed a Tasar Vikash Samity (TVS), initially including all the land-owners, after finalizing the family-wise, land-holding details in the plot. Later, only the villagers of Sadalpur attended TVS meetings and took forward the activities of the plantation. TVS selected five nursery farmers to prepare the nursery for raising the seedlings required for transplantation. They were trained on the techno-managerial aspect of nursery preparation. Quality seedlings were raised and transplanted in time. Protecting the plantation from grazing was a major challenge for TVS; the families, however, guarded their plants and at times even fought with those Yadav families of nearby villages whose cattle strayed into the plantations because there was no controlled grazing practised in the area. PRADAN also assisted them in conducting all the inter-cultural operations on time (as per the project provisions), resulting in the maturing of the plantation within the stipulated three years' time, by 2007.

Before taking up rearing, the land-owners of both the villages finalized the modalities of the activity in a meeting held in the Sadalpur. They decided that the land-owners of Dighi would not take up rearing in the plot, leaving it only to the families of Sadalpur to rear silkworms in the plantation. The plants were then distributed equally among the 12 interested families for taking up the rearing activity. Each family got around 6,000 plants (16 rows

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each). During the first year, the land-owners of Dighi refused to take any rent for the plants; from the second year onwards, the rent was fixed as Rs 0.50 per plant. After undergoing training in *tasar* silkworm rearing from PRADAN, these 12 willing families took up rearing for the first time in 2007 with the 750 quality disease-free layings (DFLs) PRADAN arranged for them, earning them an average income of Rs 6,000. In subsequent years, the rearing capacity of the plot increased. At present, 20 families are involved in rearing in the plantation plot with more than 4,500 DFLs; the average income of the families from rearing is around Rs 15,000 to Rs 25,000 per year. With the increase in income, the rent of the plant increased to Rs 1 and, subsequently, to Rs 1.50 by 2015 when it was decided to raise it to Rs 2.5 per tree, which is the currently prevailing rent. The income realized in last four years is given in Table 1.

PRADAN imparted technical training and provided hand-holding support to families. In 2007, the families were very apprehensive about taking up silk-worm rearing because they had never touched silk-worms. PRADAN, therefore, arranged for an expert rearer from the traditional rearing patches to be placed in Sadalpur. The expert taught the families the techniques of *chawki* rearing, site preparation, nylon net erection in *chawki* sites, DFL hatching and brushing techniques, silkworm transfer techniques, prophylactic measures in rearing, etc. By the second year, the villagers became confident about rearing silk-worms on their own. PRADAN supplied them good quality DFLs and helped them in rearing and selling their cocoon produce for four years from 2007 to 2011 and their earnings were in the range of Rs 20,000 to 25,000 per family. The average net earnings from rearing in 2007 were Rs 12,000 per family. Binay distributed the money earned from sale of the cocoons in a meeting. The villagers were reluctant to take the cash to their homes because they feared that the money might be stolen because they did not have doors in their homes. They requested PRADAN to arrange for depositing the money in the bank. PRADAN then helped the villagers to open bank accounts and deposit the amount in their accounts.

In 2011, there was a shortage of DFLs and some poor quality DFLs from Basic Seed Multiplication and Training Centres (BSM&TCs) were reared in the plantation, resulting in an infestation of diseases. There was crop loss

Table 1: Income raised over four years through *tasar* silkworm rearing

Year	No. of Families Rearing Silk-worms	No. of DFLs Reared	Total No. of Cocoons Produced	Total Income Realized (Rs)	Rent Paid for the Plants by the Families (Rs)	Average Net Income Per Family (Rs)
2012–13	16	3,050	2,72,182	4,91,111	56,308	25,174
2013–14	18	3,250	2,57,959	4,55,263	60,000	19,207
2014–15	0	0	0	0		0
2015–16	20	4,707	1,94,160	4,51,530	75,000	15,767
2016–17	20	4,869	2,92,140	6,47,090	75,000	24,824

The earnings from tasar changed the lives of the families as is evident if we visit the village now. They have released their mortgaged land from the moneylenders, constructed houses, and purchased productive assets such as bullocks and pump sets.

that year and the rearers got a very low return of Rs 6,000 each. To prevent any loss in the subsequent years due to the residual effect of disease, the families undertook all possible inter-cultural operations such as pollarding and controlled firing of the ground, under the supervision of PRADAN, and revived their income in 2012–13. In 2014–15, there was again a shortage of DFLs from PRADAN-promoted cooperatives and the rearers opted for not taking up rearing for one year rather than taking poor quality DFLs from elsewhere.

In the meantime, two SHGs with 22 women were formed in 2005. They began having regular savings and credit. By taking loans from their own savings, the women were able to escape getting into the clutches of the moneylenders for their immediate petty cash requirements by taking loans from their own savings. The present saving per member is around Rs 10,000, from which they take loans for different activities. Several trainings were imparted to the community on new developments in vegetable cultivation such as the *machan* system for bitter gourd cultivation, mushroom cultivation and improved practices of paddy cultivation, thereby increasing the income of the families.

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Upendra Ray told us that he had not been aware of how much land his family had. They had never cultivated that land but when they got the money from *tasar*, his mother told him that they had half an acre of land mortgaged with the moneylender, which he could now pay off and have the land released. He used his earnings of Rs 10,000 to repay the debt and now he cultivates his own land as well and produces 8–10 quintals of paddy from it. In his childhood, he had been forced to give up his studies and work as a labourer crushing stone due to abject poverty. Nowadays, he has taken up round-the-year vegetable cultivation in his own field. He shares how moneylenders are now requesting the villagers to take their land for share-cropping because they do not have the required manpower to cultivate their land and they do not want it to remain fallow. Families are now bargaining with the land-owners on the proportionate share of production. They are taking half of the produce and the landlords are also bearing half of the production costs. He himself is cultivating around two acres of land on a shared cropping basis, along with half an acre of his own land.

Nakul Ray, another youth, who takes up the *rabi* tomato cultivation on a large scale, remembers how shopkeepers used to refuse to supply them the required agricultural input on credit saying the villagers did not have any credibility. This year, when cultivating five acres of land for a tomato crop, he took seeds and fertilizer worth around Rs 20,000 on credit from the trader in Saraiyahat block for more than one month. This is only because of the sustained income from the tasar cultivation; this year, he will repay the money once the tasar cocoons are sold in one week because there is time for the tomato to come for sale.

Significantly, there is no longer any distress migration from the village; the youth are mostly engaged in agricultural activities,

The village is now food sufficient and the women are happy that they have plenty of clothes and are even investing in gold ornaments. Currently, the income from commercial *tasar* rearing, in an average year, comprises over 60 per cent of the annual family cash income in the village.

producing vegetables such as okra, spinach and chilli round the year. Seeing the interest that the youth show in agriculture, water bodies have been developed under MGNREGS and watershed schemes are being implemented to facilitate their cultivation.

Nakul shares how he learned large-scale tomato cultivation on the uplands in the *rabi* season. In 2010, two Yadav youths came from the nearby Matha village (6 km away from Sadalpur) and took a five-acre plot adjacent to the plantation on lease from the moneylenders of Dighi and started doing tomato cultivation in the *rabi* season. The youth and the women of Sadalpur worked there as hired labourers. During this period, the youth of Sadalpur learned the Package of Practices of tomato cultivation. In 2012, when there was a failure of the tomato crop, they left the village. Next year, four youth from Sadalpur village grouped together and gathered the courage to take up tomato cultivation on the large uplands, taking the land on lease from the moneylenders. In the first year, they invested around Rs 25,000 per person from the savings from *tasar* and earned a profit of more than Rs 50,000 per person. After that they became confident to take up this cultivation individually. Every year, there is more than 20 acres of land under the *rabi* tomato crop in the village. The village is well-known in the *mandis* of nearby Deoghar town or Dumka town. At times, purchasers from Bhagalpur also come down to Sadalpur to procure tomatoes. The villagers not only learned about improved practices of tomato cultivation, they also became very aware of the cultivation practices for different crops; every family is now taking up the hybrid variety of paddy and most of the families are engaged in producing some vegetable through the year, to sell in the local market.

The people have now begun sending their children to schools and some are even spending Rs 1,000 per month per child toward private tuitions in the nearby village. Godo Ray, one of the rearers, shared that his daughter's children are staying with him. Both the grandson and the granddaughter are in the 10th standard and he spends Rs 8,000 a year for their education. Upon completion of their matriculation, he is planning to send them back to their mother and concentrate on the education of his sons' four children. They are too small to get enrolled in school yet.

The village is now food sufficient and the women are happy that they have plenty of clothes and are even investing in gold ornaments. Currently, the income from commercial *tasar* rearing, in an average year, comprises over 60 per cent of the annual family cash income in the village. Apart from the productive assets and the realized cash income, the families also enhanced their intangible assets in terms of gaining skills, increasing their capacity and developing a confident attitude to life, which had hitherto been missing.

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RAJENDRA KHANDAI

MOTKA MURMU: The Pathfinder

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Inspiring the villagers of Ghailapathar with his successful engagement in *tasar* silkworm cultivation, Motka shows his people the way to self-sufficiency and independence

PRADAN'S *TASAR* INTERVENTION has changed the lives of many young people in the tribal areas of Jharkhand and Bihar. It has instilled in them an entrepreneurial attitude and they are able to take up many other activities besides *tasar* with eagerness and dedication. They have not only made their own lives better but have also contributed to the socio-economic improvement of their society. One such young man is Motka Murmu of Ghailapathar village in Shikaripara block of Dumka district, Jharkhand.

Motka Murmu, a Santhal, never imagined how his life was going to change when he attended a community meeting organized by PRADAN in Dharampur village, Shikaripara block, in 2002. He was a 17-year-old boy then. The meeting was organized to select grainage entrepreneurs, who would use scientific methods to 'rear *tasar* eggs'.

Motka, the elder son of Jhumri Baskey and Lubin Murmu, is one of eight siblings (four brothers and four sisters). His childhood was spent in deprivation and impoverishment, a situation his family had endured for generations. His father was forced to

During 1999–2000, PRADAN initiated work in Shikaripara block with the formation of an SHG. Motka's mother joined the SHG promoted by PRADAN in 2001 and started saving five rupees each month.

work as a domestic help ever since he was a child because he had lost his father (Motka's grandfather). He lived in a teacher's house near his ancestral village, doing domestic work till he got married at the age of 27, which was quite late compared to his contemporaries. After his marriage, Motka's father returned to Ghailapathar; his elder brother left their one-room parental house and went to stay with his in-laws as *ghar-jamai*. To begin with Motka's parents did not have their own bullocks to cultivate their field and so ploughed others' fields and, in lieu of their services, borrowed bullocks to plough their own field. All the family members stayed in that single room.

The total landholding of the family was three *bighas*, of which only eight *katthas* was paddy field and the rest were uplands. The paddy produced from their marginal arable land supplied food for only two to three months for the family. For rest of the year, they used the maize they grew on their uplands to eat one meal a day. Motka's father used to migrate to Murshidabad district in West Bengal four to five times a year for a span of 10-15 days each, to work as agricultural labour. He brought back some cash and the rice he saved from whatever he was served by the landlords during his stay. In the agricultural season, both his mother and father used to work as labour in others' fields in their own village as well as in nearby villages. Motka and his younger brother could not get a good education due to the fragile economic condition of the family. His younger brother left school after the 7th and started work as a stone crusher; Motka could not complete 10th standard because he was not able to submit his examination fee in time.

During 1999–2000, PRADAN initiated work in Shikaripara block with the formation of an SHG. Motka's mother joined the SHG promoted by PRADAN in 2001 and started saving five rupees each month. For her, the SHG was a place from where she could borrow money in times of need without mortgaging anything. Motka, being a little educated (by that time he had appeared for his 10th exam), helped PRADAN professionals organize the village women for the weekly SHG meetings and, when the book-keeper was absent, he kept a record of the weekly transactions in the SHG.

PRADAN, in its attempt to eliminate poverty and improve the lives of the families, explored other livelihood options for the people in the area. It explored the potential of *tasar* host plants, that is, Asan and Arjuna plants, in the forests near the villages. The idea of intervention in *tasar* sericulture with improved scientific practices was being considered as an option for enhancing the income level of families.

Since 1990, Motka's family had been rearing the traditional variety of *tasar* "sarihan" in the adjoining village forest and had started getting an additional income. They collected seed cocoons, or worms, from nearby village forests and the forests of nearby blocks such as Masaliya, Nalha and Kundahit in the month of May; for this Motka's father roamed the forests for 10 to 15 days. Being the elder son of the family, Motka also was engaged in *tasar* rearing with his father. Due to the rudimentary rearing practices, however, production was not consistent.

Motka's family and the other rearers of his village had once been approached by the state sericulture department and were given male and female moths for the production of layings for the first crop in July. However, that year too, production was no better. In 2001, when PRADAN imparted training on the best

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practices of *tasar* in his village, the people were skeptical and did not believe that the new process would help them in any way. By that time, PRADAN had demonstrated silkworm rearing in a nearby village with a few families taking quality DFLs from the Basic Seed Multiplication and Training Centers (BSM&TCs), which had produced a good number of cocoons @ 40–50 cocoons per DFL. The families of Ghailapathar, therefore, were interested more in the DFLs that PRADAN was supplying than in the new technologies.

PRADAN started to venture into in-situ DFL production by initiating grainage (preservation of cocoons for producing quality *tasar* seed in a scientific way) with the help of village youth in a United Nations Development Programme (UNDP) project. Promising youth from *tasar* rearing villages were identified in community meetings so that they could be trained for preparing *tasar* silkworm seeds in their village as an enterprise. In 2002, in a meeting held in Dharampur with rearers from Ghailapathar, Banskhendri and Dharampur villages, Motka and Keshab were nominated from Ghailapathar to undergo the training so that they could conduct grainage operations in their village.

In July–August 2002, Motka and Keshab went with the other selected persons of Dumka district to the BSM&TC Lakha and BSM&TC Boerdadar of the then Madhya Pradesh for a ten-day training on grainage entrepreneurship. They were trained in the different diseases in *tasar* silkworms, the technologies of *tasar* silkworm DFL production and improved practices in *tasar* rearing.

The boys started the grainage jointly that year to minimize the risk and to use each other's learning and knowledge. They were each supplied with two microscopes, one table, one wooden egg-incubation cabinet, 10 sets of mortar-pestle, two stools, three buckets (15 litres), three basins (20 litres), three basins (5 litres) one drum (70 litres), 3,000 egg laying nylon bags and chemicals such as potassium hydroxide and formalin, as per the UNDP project provisions for operating a grainage.

They arranged one room in an old school building in Ghailapathar after taking permission from the teacher and the villagers for processing seed cocoons. They had no seed cocoons of their own; therefore, they had to buy 12,000 tri-voltine seed cocoons from Dhaniapahari village in the adjacent Kathikund block where rearers had taken up the seed crop with DFLs arranged by PRADAN. Both the boys were new to the activity; they were not aware of the proper process for transportation of seed cocoons and the losses, if not transported correctly, that could occur to the grainage due to the long distance hauling of seed cocoons. And due to the seed cocoons not being transported correctly, some of the cocoons were damaged. That year, they incurred a loss in the grainage activity and produced only 300 DFLs from 12,000 cocoons. PRADAN, seeing this, provided some relief to the young men by arranging the cost of seed cocoons.

The next year (2003), Motka and Keshab decided to operate two separate grainages. Motka took 600 seed DFLs (arranged by PRADAN), which he distributed among two seed rearers of his village and himself reared 200 DFLs—in all producing 13,000 seed cocoons. He did not have any separate room for processing seed cocoons; he therefore prepared a temporary grainage room in the verandah of his own house covering the side walls with a mosquito net and processed the seed cocoons. To purchase

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the seed cocoons from the seed rearers, he took a loan, arranged by PRADAN, of Rs 6,000 from a micro-credit institution called Basix. However, due to the low production of DFLs, he incurred a loss and had to repay some part of the loan from his earnings from the 200 DFLs commercial silkworm rearing. That year, he prepared a total of 1,200 DFLs, of which he supplied 1,000 to seven other rearers in his village and himself reared 200 DFLs.

He recalls how he suffered a loss for the first two consecutive years due to his lack of understanding of the management of a grainage. However, DFLs from his grainage did well in commercial rearing, resulting in a good cocoon harvest; thereafter, the demand of his DFLs increased the next year.

In 2004, PRADAN organized a ten-day refresher training for grainage owners at BSM&TC, Kathikund under the Special Swarna Jayanti Gram Swarozgar Yojana (SGSY) *Tasar* Project. Motka attended the training. Motka realized where he was getting stuck and how he could improve the DFL production. He received a grant from the Special SGSY *Tasar* Project of Rs 22,500 for the construction of a grainage building on his own land in 2004. He constructed a building 25 ft long and 12 ft wide. He invested Rs 10,000 of his own to purchase country tiles and a wooden frame for the grainage roof because the grant was insufficient. He arranged the money by selling his only bullock (Two years earlier, his uncle had given them a bullock and four cows to look after, on the condition that they would retain the first calf of each cow and all other cattle would be returned to the uncle).

It was only in the third year of his grainage that Motka realized a good amount of profit. His family produced 18,200 seed cocoons from 200 seed DFLs in the first crop and he did not have to take the cocoons of other seed rearers. Motka used the newly constructed building and produced 3,000 DFLs from 18,000 cocoons. Rearers from the village and other villages like Dharampur and Chatupara also took Motka's DFLs.

In 2004, the yield from the DFLs supplied from his grainage was very good and the rearers were satisfied with the performance. His reputation as a good grainage owner became established. He did not just limit himself to DFL production and supply; instead, he matured as an entrepreneur and extended all possible services to other rearers, including in their fields. For this, he received help from PRADAN and together they ensured a good harvest of cocoons to the rearers in the area. Motka's helpful nature made him a familiar figure amongst the rearers and he came into contact with more and more rearers, increasing his customer base. Sometimes, when he found the rate offered by the local traders was low as compared to that being offered in other blocks, he along with PRADAN, arranged for traders from nearby blocks of Raneswar and Kathikund to help in the sale of cocoons produced by the rearers and to provide a fair price to the rearers.

Motka has never looked back after this; every year, he preserved the cocoons and tried to strengthen his customer base. The period from 2007 to 2011 has been the most successful in Motka's life because he conducted two cycles of grainage—Bi-Voltine (having two broods of offspring per year) and Tri-Voltine (having three broods of offspring per year)—to meet the DFL requirement of his block and supply DFLs to PRADAN to support other project areas. For this, he reared the seed crops and commercial crops of both the races and that meant that he was effectively conducting

Motka is a well-known in his society now for his loyalty and sincerity. His views and opinions are also considered as valuable by the village pradhan in the village meetings.

four cycles of rearing and two cycles of grainage per year. His average earning from the *tasar* activity exceeded Rs 1 lakh per annum in those days. After 2011, however, after the Department of Sericulture (DoS), Jharkhand banned tri-voltine *tasar* rearing in the state, he stopped the tri-voltine grainage and conducted only bi-voltine grainage with increased capacity. On an average, Motka supplied DFLs to 50–60 rearers of his area, his net income reduced from more than Rs 1 lakh to around Rs 50,000 in 2012. He later recouped the loss in income by preserving more bi-voltine cocoons and concentrated on commercial rearing.

Motka's father and mother are involved in silkworm rearing; his younger brother and sisters helped him in grainage operations and in maintaining hygienic conditions. He had taught his younger brother and one sister how to do microscopic examinations and they help Motka in moth examination in the grainage to produce quality seeds. Motka told us that his family works in such a regimented manner during the grainage period that his little daughter also knows what is to be kept where and how sanitation is to be maintained.

From his *tasar* earnings, Motka prepared a five-bigha paddy land near the banks of the stream in his village forest; he now produces sufficient paddy for year-round consumption requirements of his family. He purchased water pump sets worth Rs 12,000 for irrigating the vegetables he grows on their uplands. He now rents out his pump set to other villagers. He constructed additional rooms in his ancestral home for his family. His ancestral house now has nine rooms; in addition, he constructed a separate house near the main road. He saves Rs 10,000 annually in Life Insurance Corporation. His family members no longer migrate to West Bengal for work.

In 2010, Motka purchased a paddy threshing machine worth Rs 1,50,000. Earlier, either his brother or he had to take the paddy at least twice a week to the threshing mill, 4 km away from his house, arranging for a bullock cart, which entailed recurring costs. Moreover, it required at least two persons to be engaged in the activity; there would usually be a queue at the threshing mill, and they had to wait for long hours because of which they could not do anything else. Considering all these, Motka thought it wiser to invest in a threshing machine, which has made them freer to invest more time in agriculture.

These days, 27 families of his village are involved in *tasar* rearing and do not feel the need to migrate to West Bengal. With the help of PRADAN, he shares the techniques of improved vegetable and paddy cultivation to the villagers; now many families are involved in cultivating a post-*rabi* vegetable crop.

Earlier, the houses in the village were made of mud walls with paddy straw or grass thatching. In the rainy season, rain water would leak into the homes. Owing to the increased income from *tasar* rearing, all the houses in the village now have tiled roofs. Motka is a well-known in his society now for his loyalty and sincerity. His views and opinions are also considered as valuable by the village pradhan in the village meetings.

Motka's dream is to provide a better education to his younger brother and sisters and to the next generation…the education he was denied because of the fragile financial condition of the family. He, therefore, prohibits

Table: An overview of Motka's journey in *tasar* rearing

Year	Grainage Cycle Per Year	No. of Cocoons Preserved Reared	No. of DFLs Produced	No. of Rearers Catered	Net Profit	Rearing Cycle Per Year	Net Profit from Rearing	Total Income from Tasar	Use of the Profit
2001									
2002		12,000	300	3					
2003		13,000	1,200	8					
2004	1	18,000	3,000	24	5,400	2	38,400	43,800	Purchased 2,000 country tiles for roofing of the old house, prepared one bigha land on the acquired plot.
2005	1	17,500	4,591	24	11,864	2	36,600	48,464	Prepared one *bigha* land on the acquired plot and bought one water pump set.
2006	1	16,000	4,000	17	9,800	2	32,000	41,800	Prepared 1.5 *bigha* land on the acquired plot, constructed two rooms for the family members.
2007	2	31,500	10,346	60	25,934	4	56,600	82,534	Prepared 1.5 *bigha* land on the acquired plot and incurred expenses in the marriage of sister, savings in LIC.
2008	2	51,100	14,400	55	35,270	4	52,000	87,270	Constructed an extra room for grainage, savings in LIC.
2009	2	55,000	14,104	55	31,916	4	65,000	96916	Purchased paddy thresher and installed it in the separate house, savings in LIC.

Table: An overview of Motka's journey in *tasar* rearing (contd.)

Year	Grainage Cycle Per Year	No. of Cocoons Preserved Reared	No. of DFLs Produced	No. of Rearers Catered	Net Profit	Rearing Cycle Per Year	Net Profit from Rearing	Total Income from Tasar	Use of the Profit
2010	2	57,000	14,632	60	42,360	4	70,000	1,12,360	Purchased motor bike, admitted younger brother and sisters in the private school, savings in LIC.
2011	2	1,33,000	31,049	65	12,1094	4	6,000	1,27,094	Purchased gold earrings for wife, savings in LIC, education.
2012	1	30,000	7,156	20	25,936	2	30,000	55,936	Constructed machine house on the roadside, savings in LIC, education.
2013	1	27,000	7,459	21	27,954	2	70,000	97,954	Purchased five tractor loads of bricks for construction of grainage building, savings in LIC, education.
2014	1	36,200	5,064	30	20,032	2	25,344	45,376	Education, savings in LIC
2015	1	46,200	11,296	27	53,240	2	55,000	1,08,240	Grainage building construction, savings in LIC, education
2016	1	50,000	16,000	120	45,290	2	50,112	95,362	Grainage building construction, savings in LIC, education

He says one should dream of something and aspire to get that and only then can one realize a dream.

his younger brother and sisters from going to the rearing fields, asking them instead to concentrate on their studies. Motka has put two of his younger sisters, one younger brother and his own daughter in a private mission school in Shikaripara. It costs him an admission fee of Rs 1,500 per child every year as well as Rs 200 monthly fee. Even though the expenditure on education is high, he is happy that his family members are getting quality education. One of his sisters is in the 10th standard, another sister and brother are in the 7th whereas his daughter is in Upper Kindergarten.

Sadly, nowadays, there are several other grainage entrepreneurs, promoted by the state government, in the business of *tasar* seed production; they barely adhere to the quality parameters of DFL production. Motka's concern now is to continue to prepare good quality DFLs so that his reputation does not get compromised as it did in 2011. That year, his DFLs did not do well because of the heavy infestation of virosis, a deadly disease, for which he faced a problem in the supply of DFLs produced. However, he has managed to re-establish his reputation following the good production of cocoons from his DFLs since then.

Motka is fearful of the rearing field getting contaminated because it will affect his seed rearing fields and his commercial rearing fields. He aspires to have a plantation so that he can maintain sanctity in the seed rearing and produce good quality DFLs from those cocoons. He does not have large piece of barren land, however, to raise such a plantation on his own. He is in negotiations with the plantation owners of the nearby Sonadhab village, where the villagers have raised a plantation under the Tribal Development Fund of NABARD, promoted by PRADAN. He is very inspired by the double-storey basic seed production buildings constructed at Kathikund and wants to construct a miniature form of that building where he can preserve 50,000 cocoons. He says one should dream of something and aspire to get that and only then can one realize a dream. He says he will continue with *tasar* farming till his death. Truly, his commitment, dedication and willingness to extend to others inspire many of us.

Like Motka, PRADAN has trained and prepared many other grainage entrepreneurs under different projects, now engaged in the production of good quality *tasar* seed for their fellow villagers and in realizing a good income from the *tasar* rearing activity.

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SACHIN PATHANIA

JAALO YADAV: Weaving A Different Fabric

Making use of the fallow land to rear *tasar* cocoons and working hard to make this livelihood option a viable one proves to be one of the best decisions that Jaalo Yadav ever took, increasing the family income, steadily inching him forward to self-sufficiency and earning him the reputation of a successful and well-informed farmer

JAALO YADAV LIVES IN SMALL VILLAGE NAMED Bhorsar in the forest area of Katoria block, Banka district, Bihar. He lives in a joint family with his parents, four brothers, three sisters and their families. His elder brother studied up to matriculation and was the only sibling who had had access to education. The rest of them, including Jaalo, were illiterate because the family could not afford to educate the children. Despite this, Jaalo has acquired the reputation of being one of the best farmers of *tasar* in the region and this activity has brought many changes in his social and economic life. His story was documented in 2014, towards the end of the Special Swarnajayanti Gram Swarozgar Yojana (SGSY) Project on Tasar, implemented by PRADAN, in collaboration with the Central Silk Board (CSB).

Tasar rearing was practised in the traditional way. Due to the lack resources and knowledge, the income was very low. Jaalo went all the way to Giridhi to purchase cocoons from which he prepared seeds on his own. However, because of the limited facilities, he was not able to produce Disease Free Layings (DFLs) so he had to rear unchecked seeds.

THE STRUGGLE TO MAKE TWO ENDS MEET

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About 15 years ago, Jaalo and his family lived in a very small house. The family had 15 acres of land, of which only 1.5 *bighas* was fertile. The lack of irrigation facilities was the main reason for the limited productivity. They had only one well, the water of which was used for drinking and, to some extent, for irrigation. The crops they grew were dependent on rain. The productive land was used to cultivate paddy, *kurthi*, and potato crops, providing food for the family for five months of the year. For the remaining seven months, the main sources of income of the family were rearing of *tasar* cocoons in the forest and migration to the cities for work. The rearing of cattle, and the harvesting and sale of *mahua* flowers and seeds provided some additional income.

Tasar rearing was practised in the traditional way. Due to the lack resources and knowledge, the income was very low. Jaalo went all the way to Giridhi to purchase cocoons from which he prepared seeds on his own. However, because of the limited facilities, he was not able to produce Disease Free Layings (DFLs) so he had to rear unchecked seeds. His income, therefore, was not very stable. Being entirely dependent on the quality of cocoons that he could get, his income fluctuated greatly. On an average, he could earn an income of Rs 6,000 to 7,000 per year from this activity.

He also used to migrate for some time to Kolkata in search of work. He worked in the railway lines, and also as a daily wage worker. His family had 10 cows, five calves, a pair of oxen and eight goats. The sale of milk provided some income, though much of the milk was consumed by the family members. In the summer season, when water and fodder were in short supply, the family had to send their cows and calves away to some other region to tide over the stress period. Hence, during those four months even the little income from the sale of milk was also not available to them.

His family also owned 500 *mahua* trees. The harvest from these trees helped in the struggle for subsistence. In those days, market facilities had not developed adequately and they had to sell the product in the village itself, where the price was rather low.

Due to their poor economic condition, many times the family had to skip one meal a day and the quality of life was very poor. They often fell prey to diseases such as malaria and diarrhoea and were compelled to borrow money for medical purposes at a high interest rate of 10 per cent from the local *zamindar*. (The interest rate could be brought down to 3 per cent if they were willing to mortgage some property). When Jaalo's younger brothers became older, they also started migrating to urban centres for work, which helped supplement the income of the family. In spite of the additional income, the family continued to struggle and could barely manage food security.

DAWN OF A NEW ERA

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In 2002, a representative of an NGO called PRADAN visited Bhorsar village and that proved to be the turning point for Jaloo and his family. The man held a meeting in the village and convinced Jaalo Yadav and some others to take up *tasar* rearing in a more scientific way under the guidance of their agency. Jaalo received two packets of seed material and two nets from PRADAN. He was also given training in the scientific rearing of cocoons. In the first season itself, he produced 12,000 cocoons and earned Rs 5,000.

Jaalo found this activity far more profitable than the other economic opportunities available in the village. Not only could he earn a decent amount within a short span of time, he could also gainfully employ other family members for at least six months of the year.

The following year, he underwent training in grainage (seed) production at Raigarh and prepared one in his own house. That year, he earned Rs 15,000. In the next two years, he made his own grainage with the help of PRADAN. In 2013, he learned to prepare his own nucleus seed from which he produced 10,000 cocoons. To this, he added 19,000 cocoons purchased from outside for his grainage. In that grainage, he made 80 packets of seed and sold it at Rs 600 per packet, resulting in an income of Rs 48,000. He began his own commercial farming in which he produced 32,000 cocoons and his total earnings during that year added up to around Rs 1,35,000.

During this period, he had the benefit of attending many specialized training camps, covering topics such as the use of microscopes to check bacteria in the seed, maintaining cleanliness of the grainage, employing the correct techniques for washing, ensuring correct measuring and improved packaging of DFLs, improving the rearing of nucleus and commercial seed, and taking measures to increase productivity. PRADAN also provided *tasar* rearers some assets such as 3,000 small plastic boxes for the laying of eggs, two microscopes, one cupboard for placing DFLs, a small drum, two buckets, two mugs, 10 pieces of slides and small pots. During the first four years, Jaalo had to bear only the cost of the seeds. Other inputs such as Roger (insecticide), bleaching powder and lime, were given as a grant from PRADAN, under the SGSY Programme of the government. Monetary help was also provided under this programme for preparing a building for the grainage.

The price of cocoons improved. Earlier, cocoons were sold to the local merchant at Rs 600 per *khaari* (set of 1,300 cocoons); with the intervention of PRADAN, the prices improved. In 2007 and 2008, Jaalo got Rs 1,600 and Rs 1,700 per *khaari*, respectively.

Jaalo found this activity far more profitable than the other economic opportunities available in the village. Not only could he earn a decent amount within a short span of time, he could also gainfully employ other family members for at least six months of the year. It led to greater involvement of the women in the family in productive work. In the past, the woman's role was restricted to arranging food for the men; now the women could also participate in rearing and grainage work.

According to Jaalo, there were some risks associated with this activity—the main one being the preservation of eggs. If the eggs were not placed in an airy and smoke-less place, they can be eaten by insects. Also, if the seeds get infected, the entire cycle of rearing will be spoiled. It is important, therefore, to check the seeds thoroughly when taking them. There is also some risk of birds and insects attacking and eating the moths during the copulation stage; therefore, the moths have to be protected with nets—in what is known as a *chowkie* garden.

A *chowkie* garden has to be prepared with special care. It needs to be cleaned properly and sprayed with a mixture of bleaching powder and lime. The leaves of the Asan bushes have to be soft and free from disease. And care has to be taken that the moths never remain hungry, otherwise they die. Cocoons have to be separated from the tree, only after they are dry, otherwise it affects yarn productivity.

Once his income started increasing, Jaalo no longer went to the city in search of work. In a year, he was engaged in sericulture for six to seven months, and with agricultural activities and cattle rearing in

Jaalo and his family do not skip any meals and celebrate festivals without taking any loans. They also spend money on buying new clothes and recently they purchased a motorbike for easier transportation.

the remaining months. His three younger brothers worked with him only during rearing. They continued to migrate to Kolkata and/or Bengaluru, which helped to add to the family income.

TASTE OF A BETTER LIFE

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With the income from *tasar* sericulture, Jaalo began using high-quality seed, fertilizers and insecticides to raise better agricultural crops. He purchased one *bigha* of land and a water pumping machine. Now he and his family enjoy food sufficiency the whole year. Their food habits have also improved. Earlier, rice, maize and millets were the main food items and, sometimes, they even had to skip a meal; now, they can afford to eat various types of vegetables, pulses and wheat along with the regular cereals. Jaalo and his family do not skip any meals and celebrate festivals without taking any loans. They also spend money on buying new clothes and recently they purchased a motorbike for easier transportation.

Jaalo has five children, and he wants all of them to study. Two

Tasar silkworm rearing under a nylon net in a chowkie garden

In addition to the improvement in their economic condition, their social status has also improved. Jaalo Yadav's family is a one of the more respected and prosperous families in the village. With increased prosperity, there has also been a change in Jaalo's confidence.

of his children are studying in private schools, one in Kolkata, and another in the village itself. The family is also healthier as the frequency of illness due to diseases has decreased. They can afford to use mosquito nets to prevent malaria and are conscious about the drinking water. Hence, now the overall quality of their life has improved significantly.

His father has a savings account in the Post Office, in which he keeps all the savings of the family. At present, these are estimated to be around Rs 1.5 lakhs. Jaalo has a separate savings account in the bank. With the increased income, his family has built a *pukka* house made of bricks and they have also bought another house at a cost of Rs 4.80 lakhs. One of his sisters lives in that new house with her family. Jaalo and his brothers have taken the responsibility of caring for their sisters. The expenses for the marriage of their three sisters were Rs 80,000 for the eldest sister, and Rs 2 and 2.5 lakhs for the other sisters, respectively. They have also helped in the marriage of their two nieces, when they spent Rs 3 lakhs for one and Rs 70,000 for the other. They bought land for their elder sister for Rs 2.80 lakhs.

However, life is not always easy and, in 2012, in a major setback, the Yadav family got robbed by dacoits. The dacoits took whatever they could find– utensils, ornaments, land deeds, etc. They also took away cash of around Rs 2.80 lakhs that was in the house. On account of the fact that they had reached a stable economic condition, they could survive this shock. There were no changes in the food habits or the standard of living because of the robbery. That year, they were planning to buy a tractor, which they had to defer to a future date.

In addition to the improvement in their economic condition, their social status has also improved. Jaalo Yadav's family is a one of the more respected and prosperous families in the village. With increased prosperity, there has also been a change in Jaalo's confidence. Earlier, he was afraid of the police, the *mukhiya*, the forest officers and other government officials. Now all that has changed. In fact, if the forest officers have any queries or issues, they come directly to the Yadav family to get them resolved. In 2013, the villagers had a meeting with the forest rangers, where Jaalo asked the officers to cultivate trees of Asan, the host tree for tasar.

Jaalo is very optimistic about his future. Apart from this activity, he is also trying to make improvements in his agricultural practice. In the coming year, he is planning to improve the water harvesting structures for improved irrigation. He is saving money to buy the tractor. He is also planning to diversify and open a general store in the village for someone in the family to manage.

Jaalo is keen on expanding his sericulture as well, but the lack of available host trees is a major constraint. To this end, he is coordinating with the forest officers so that more and more Asan trees can be cultivated in the forest. Because he is very experienced in *tasar* rearing, he helps the villagers with this activity. Last year, he went to a place named Suiya to orient new farmers for *tasar* rearing.

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Sachin Pathania is based in Samnapur, Madhya Pradesh

ASTAD PASTAKIA

LIVELIHOOD ANALYSIS: The Case of Jaalo Yadav

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The analysis presented in this article is based on the information provided by Sachin Pathania in his documentation of the prosperity brought about in an impoverished family in southern Bihar through the introduction of *tasar* rearing activity in the village.

INTRODUCTION

WE HAVE USED THE 'RISK-RETURNS MATRIX', frequently used by investors to balance their portfolio of investments. Poor households follow a similar behaviour when trying to balance their livelihoods portfolio. An assessment of the portfolio, over different points in time, makes it possible to see the movement, if any, over time. The effort of the household would be to move from a less desirable position on the matrix to a more desirable one (Figure 1). The movement can also be understood in terms of the efforts made to improve the net returns of various livelihood activities by trying to reduce the costs and/or increase the price realized or to improve productivity. Similarly, efforts to mitigate

The family largely depended on dry-land farming for subsistence. They owned 15 acres of land, of which only 1.5 *bighas* was productive; water was available only from the family well, that too in limited quantities, for critical support irrigation.

either production or the market risks would be reflected on the matrix.

This analysis is complemented by corresponding changes in the asset base of the family. This is because the perception of risk is also affected by the strength of the asset base. A mix of assets is drawn upon for various livelihood activities, which in turn yield streams of returns. Whereas these returns serve to meet consumption needs, the surplus, if invested in strengthening the asset base, makes the livelihood financially and environmentally more sustainable. This, in turn, makes the household feel less vulnerable because its ability to take shocks and stresses improves considerably.

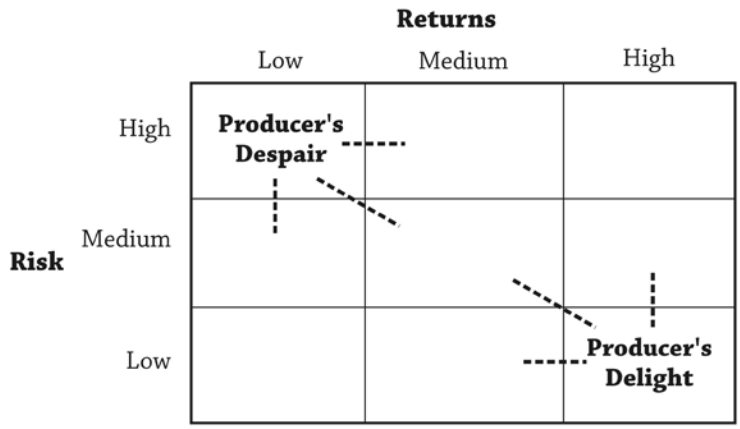

Figure 1: **Risk-Returns Framework as Applicable to Livelihood Analysis**

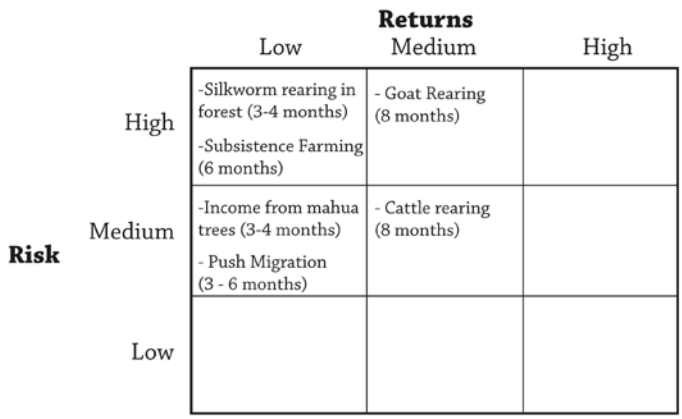

Figure 2: Jaalo Yadav's Livelihood Portfolio in 2001

SITUATION BEFORE THE INTERVENTION

In 2001, the family relied on a cluster of six livelihood activities that mostly fell within the undesirable side of the Risk-Returns Matrix (Figure 2).

The family largely depended on dry-land farming for subsistence. They owned 15 acres of land, of which only 1.5 bighas was productive; water was available only from the family well, that too in limited quantities, for critical support irrigation. The food produced was barely enough to feed the entire family of four sons, three daughters and aged parents. Productivity was low because the family did not have access to credit to spend on quality inputs. Risk was moderately high. Agriculture activity lasted for only six months in a year because only the *kharif* crop was cultivated.

The family owned cattle, which included 15 cows, eight goats and a pair of oxen. The cattle provided milk, a good source of nutrition, and some milk was sold in the market. However, this benefit was there only for about eight months because during the summer the animals had to be sent away to a distant place owing to a shortage of drinking water and fodder in

By this time, his income, with six months of *tasar* activity in a year, increased to more than Rs one lakh. The risk had also gone down significantly because of the reliable seed produced at home.

the village. Goats provided a good source of income but the risk of rearing them was very high on account of unknown diseases that struck at frequent intervals. Jaalo did not have access to modern veterinary services; the animals were, therefore, reared with traditional know-how. The family owned about 500 *mahua* trees, which was a blessing. These trees produced seasonal flowers and its seeds were collected and sold in the village. However, the price realized was very low. Jaalo also dabbled in silkworm rearing in the forest for three to four months of the year. The price paid by the traders for the cocoons was, however, very low, and once in four years the crop was more often than not, affected by disease. Yet, it was a source of income close to home. When no other source of earning was available, Jaalo and his brothers had to migrate to the nearby cities/villages in search of wage employment.

The quality of life was poor; often they could not afford even two square meals a day. They fell prey to vector-borne diseases such as malaria and dengue and bacterial diseases owing to lack of sanitation. There were times when they had to borrow money from the local moneylender at exorbitant rates of interest to meet their health-related expenses. Poor health also affected their ability to earn for the family.

THE TRANSITION YEARS: 2002–12

A major transition took place in the livelihood of Jaalo Yadav and his family, as depicted in Figure 3. The starting point was Jaalo's involvement in scientific cocoon rearing under the guidance of PRADAN's field staff. Within three to four years, he had started rearing seeds, moving the tasar activity into the medium-medium category of the RR matrix. Within four to five years, he had backward integrated by producing the nucleus seed as well. By this time, his income, with six months of *tasar* activity in a year, increased to more than Rs one lakh. The risk had also gone down significantly because of the reliable seed produced at home. However, a certain amount of risk was still involved in raising the cocoons in the forest because the larvae and the cocoons had to be protected from predators all the time. By the end of the decade, he had moved into the high returns-medium risk category.

The income from this anchor activity was used not only to improve the quality and quantity of food consumption and, therefore, the health of the family members but also to invest in agriculture and allied activities. Investment in a water pump, for instance, helped provide critical support irrigation to crops and drinking water to cattle so that they could stay home rather than migrate during the summer months. Jaalo was also able to purchase a *bigha* of productive land, which greatly contributed to their food security.

In the meantime, his three brothers, who earlier resorted to distress migration, now helped in the *tasar* activity for some of the time and only went out to earn better income (pull migration) in cities. With better social and negotiation skills, we presume, Jaalo was able to procure better prices from traders outside for his *mahua* products as well. All these factors resulted in the entire livelihood portfolio moving towards the more favourable position on the RR matrix.

This improved position of livelihoods translated into a higher quality of life for the entire family; gainful employment, not only for the men but also for the women in the family; reduced vulnerability in livelihood activities and a stronger asset base. The family could move into a *pukka* (brick-walled) house from the earlier *kuccha* (mud-walled) house. In addition, they were able to purchase a flat for one of the sisters. Three sisters and

His self-esteem, as well as social standing, in the village has gone up. His expertise is recognized by others and he was invited by PRADAN to offer training in neighbouring villages. He also began investing in his children's education.

two nieces could be married with considerable social expenditure. A motorbike was procured, which served as a useful asset to facilitate transport for livelihood and social occasions. After all the expenditure, they still had a reasonable saving of over Rs 1.7 lakhs in the post office and bank accounts.

More interestingly, when a major theft took place, the livelihood of the family was not affected much. Jaalo only had to defer the purchase of a tractor that he had been planning to buy for some time, to improve his agriculture practice further.

A now confident Jaalo initiated a dialogue with the Forest Department officials, who agreed to plant host trees in nearby forests. His self-esteem, as well as social standing, in the village has gone up. His expertise is recognized by others and he was invited by PRADAN to offer training in neighbouring villages. He also began investing in his children's education.

PLANS FOR THE NEXT FIVE YEARS

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The above transition was made possible because of Jaalo's wisdom in making the right investments in strengthening agriculture and other livelihoods, leveraging the income gained from the anchor activity.

Eager to improve his position, he has drawn up plans for the next five years. These plans included expansion of the *tasar* cocoon further once the Asan trees planted by the Forest Department mature, and investing in water harvesting structures as well as a tractor to strengthen his agriculture. With improved social skills and social capital and awareness, he now also plans to

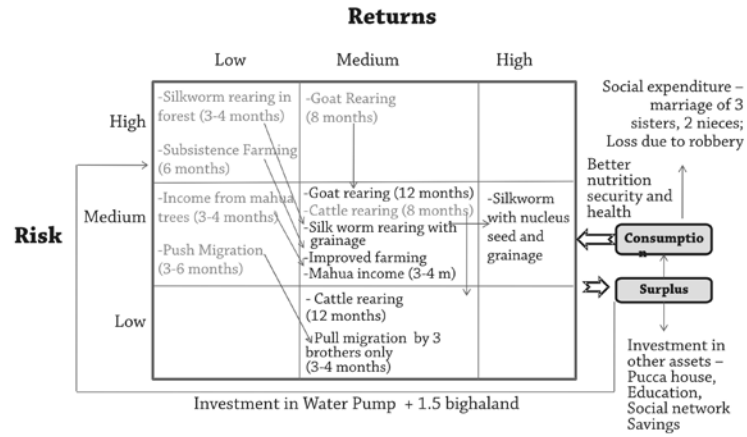

Figure 3: Transition in the Livelihood Portfolio during the Intervention Years

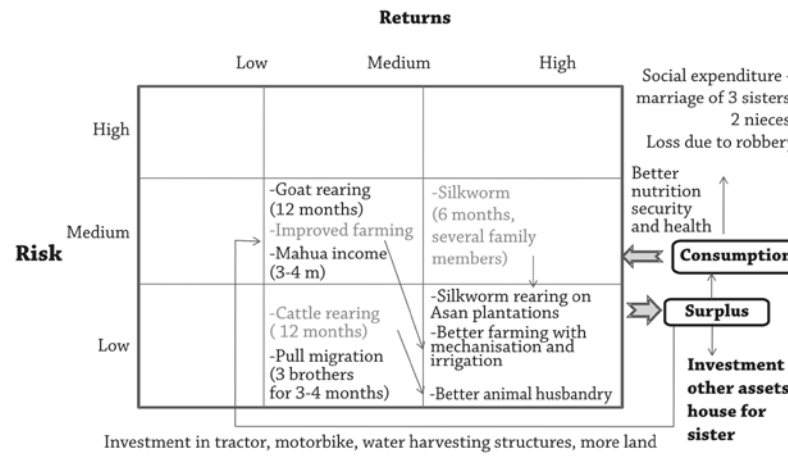

Figure 4: Expected Movement in Jaalo's Livelihood Portfolio over the Next Five Years

Eager to improve his position, he has drawn up plans for the next five years. These plans included expansion of the tasar cocoon further once the Asan trees planted by the Forest Department mature, and investing in water harvesting structures as well as a tractor to strengthen his agriculture.

get his animals vaccinated and invest in their sanitation and care so that they become more productive. The cumulative effect of all these measures, hopefully, will move many of his activities into the most desirable cell in the RR matrix. Figure 4 shows what the matrix could look like after another round of investments over the next five years.

CHANGES IN ASSET BASE REPRESENTING REDUCED VULNERABILITY

The above analysis deals mainly with the income flow, although changes in the physical and natural asset base are indicated. The analysis can be complemented by a more thorough assessment of changes taking place in the asset base, using the DFID formulation of five types of assets (Table 1).

The above analysis can be shown graphically by plotting the changes in each asset type on a five point scale using the DFID Polygon (Figure 5).

Table 1: Changes in the Asset Base Using the DFID formulation

No.	Asset type	Before	After
1	Natural	• Cattle: 10 plus five calves, two oxen • Goats: 8 • 500 *mahua* trees (2.0 rating)	• Same as before except for productive land, which is also a type of natural capital (2.5 rating)
2	Physical	• 15 acres of land of which only 1.5 *bighas* productive • Family well for drinking water and some support irrigation • *Kuccha* house (2.0 rating)	• Purchase of water pump for irrigation • Purchase of one *bigha* of productive land • *Pukka* house • Additional flat for sister • Purchase of motorbike (4.0 rating)
3	Human	• All except elder brother illiterate • Farming skills (2.0 rating)	• Became expert in *tasar* rearing and grainage (seed) production • Started investing in children's education (4.0 rating)
4	Social	• Was scared of government officials including police and forest guards (1.0 rating)	• Overcame fear of officials and actually became socially influential in the village • Convinced forest officials to plant Asan trees in the forest area of the village (4.0 rating)
5	Financial	• Often had to borrow from the local moneylender at high interest rate of 10% for consumption loans (0.5 rating)	• Savings gone up to more than Rs 1.7 lakhs • Asset base expanded as shown above • Credit-worthiness gone up significantly • Social expenditure for marriages of sisters, nieces of around Rs 8 lakhs (4.5 rating)

The question then arises, what happens when a family reaches the most desirable position on the matrix over a period of time? Does it imply that there are no further risks to deal with, no further improvements in returns possible? Certainly not!

USING THE RR FRAMEWORK FOR CONTINUOUS IMPROVEMENT

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The RR framework captures changes in risks and returns in relative terms. The reference point of returns for a particular family in a particular context will be the average returns of families surviving in that context. The reference point for risks of a particular livelihood will be the risks in similar livelihoods in the area. When improvements are assessed and documented, there are relative improvements over the starting point or the average for the region.

The question then arises, what happens when a family reaches the most desirable position on the matrix over a period of time? Does it imply that there are no further risks to deal with, no further improvements in returns possible? Certainly not! In the case of industry, the norm is continuous improvement through new technology, more efficient processes and systems, etc.The same is true for livelihoods of the poor. To assess continuous improvement, one can visualize cycles of improvement captured through consecutive RR matrices wherein the end point of the first cycle becomes the beginning of the second and so on (Figure 6).

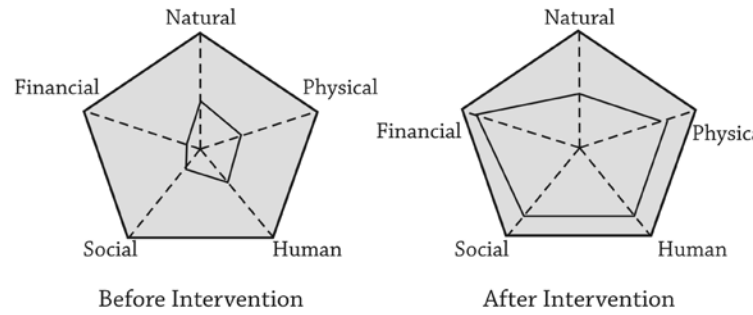

Figure 5: Changes in Asset Base: Before and After Intervention

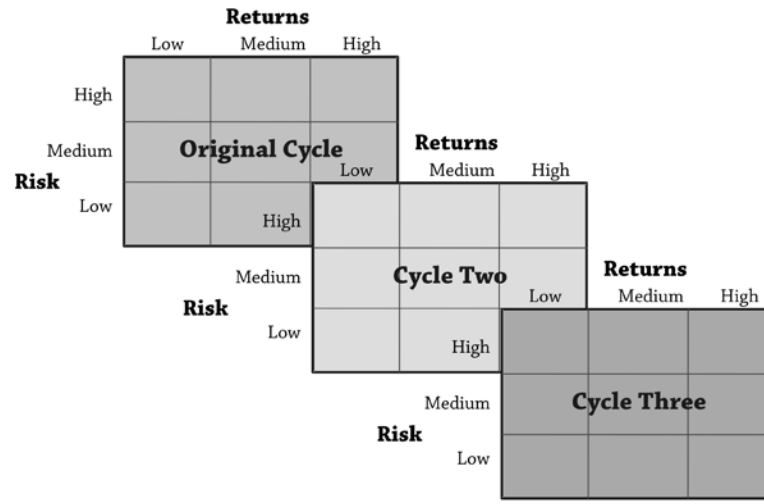

Figure 6: Capturing Cycles of Continuous Improvement

While the matrix is the most useful to analyze the progress made by specific households for whom reliable information, over time, is available or accessible, the use of the matrix can also be extended to capture the changes of a typical household in the project area. This is helpful in assessing if the intervention has been successful in bringing about the desired changes at the household level.

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DEEP JOSHI

GODDA TASAR PROJECT: Where All the Action Began!

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Looking back at the early days of exploring new avenues for sustainable livelihood options such as rearing *tasar* cocoons is an opportunity to relive the highs of the first breakthroughs and the lows of the time

LIKE MUCH OF WHAT PRADAN has done over the years to develop opportunities for rural livelihoods, its work in the *tasar* sub-sector is worthy of a book that I hope someone will write someday. So much has been done by so many people to develop the sub-sector as a livelihood source for poor people.

I recall cocoons used to sell for 16 to 20 paise, and 10 cocoons per DFL (eggs of one *titli,* or moth, as the rearers used to call it) was considered okay. Then Godda, where all the action began in January 1987, itself changed so much. *Dahi-chewda* was all one got for breakfast then, with some *pakoras* thrown in, if one liked, at the crossing near Carmel School. There was no hotel to spend a night in and one had to literally wade through mud inside the *khapda*-clad *dhaba* to get a *daal-bhaat-chokha* lunch, with people rinsing their mouths just a few feet away.

Godda, today, has a three-star hotel! There were ups and downs, dead-ends, serendipity, brilliant breakthroughs and all manner of drama—the hallmarks of a PRADAN initiative—for example, Godda was not even on our radar screen when it all began. As with poultry, the work in *tasar* also grew out of the Teams for Rural Industries and Artisan Development (TRIAD)—Vijay Mahajan's idea to get PRADAN to promote rural enterprises as a means of

We travelled to the 'tasar belt' in Jharkhand (then in Bihar) and Chhattisgarh (then in MP), to places such as Chaibasa, Champua and Bilaspur and saw the work being done by CSB and the Inter-state Tasar Project. We met people from CSB and visited the tasar fabric markets. Those journeys themselves were quite an experience

rural livelihoods. No one can beat Vijay at coining acronyms!

We were looking around for sub-sectors besides the three we had already chosen for Kesla. During my years at the Ford Foundation, I had managed the forestry programme for a while and had had some exposure to *tasar*, as had my colleague Viji Srinivasan—such a remarkable woman she was—who had supported work on *tasar* spinning as a source of livelihood for women. So I suggested that we take up *tasar*. As was the practice, we began with a study of the sub-sector before deciding whether to take up *tasar* as part of the TRIAD initiative. Biswajit Sen anchored the study with Vijay, Rakesh Kaushik, Sankar Datta, Mithilesh Jha and me chipping in.

We sub-contracted the marketing part to a Kolkata-based market research firm. Mithilesh, who eventually anchored the programme, had not yet joined PRADAN. Vijay, Sankar and I had met him when he responded to PRADAN's advertisement to recruit early-mid-career professionals to head new PRADAN teams—yes, PRADAN seriously explored getting senior people from the 'market' long before the HR systems were put in place. Mithilesh was keen to leave his job as a Senior Scientist at the Central Silk Board (CSB) to take up grass-roots work, and was particular about working in *tasar*. We did not have anything that suited to his interest, and we parted with the understanding that we would call upon him if and when we could match his interests.

In the course of the study, we travelled to the *'tasar* belt' in Jharkhand (then in Bihar) and Chhattisgarh (then in MP), to places such as Chaibasa, Champua and Bilaspur and saw the work being done by CSB and the Inter-state *Tasar* Project. We met people from CSB and visited the *tasar* fabric markets. Those journeys themselves were quite an experience—including Rakesh pulling the chain at one place so that the rest of us could board the train—but we will leave that story for another day!

The received wisdom in the sericulture establishment then was that 'lack of feeding material' (Terminalia trees) was the main constraint that the sector faced. And that is what we too concluded! There was, at least on paper, an elaborate set-up of the CSB and the state sericulture departments to supply free DFLs to rearers. So, the focus of the *tasar* project was on raising plantations of Terminalia Arjuna.

Another received wisdom was that you had to have at least 25 ha blocks of plantations. We knew individual farmers would not have 25 ha of land to raise the Arjuna plantations and decided to source government wastelands for plantations. The initial goal was to get about 100 ha. So the '*tasar* model' we settled on was to lease 25 ha blocks of Arjuna plantations on government wastelands to farmers to rear *tasar* cocoons and support them with inputs and marketing. Because PRADAN was already working in Kesla, we decided to locate the project in the same area. We invited Mithilesh to join us by taking a sabbatical from CSB and set up office in Betul, next door to Kesla, where we were told there was plenty of government wasteland. The state government was willing to lease out the wasteland if we could locate a suitable patch with the help of the district administration. Meanwhile, the wasteland we had been eyeing got assigned for the rehabilitation of people displaced from the Narmada Sagar project and we were back to square one! Having come this far, having dislocated Mithilesh, we were not going to drop the idea…*kuchh karengey!*

About that time, during the Makar Sankranti festival in January 1987 to be precise, Mithilesh went home

In one Santhal village, the farmers who had agreed to take up plantations did a U-turn when their relatives from another village came over for some festivities and convinced them that this was a "clever scheme to take away their land!"

to visit his parents in Bhagalpur. In a casual conversation, he explained to his father what he was trying to do and how we were stuck as we could not find enough wasteland. His father said, "But there are miles upon miles of wasteland next door in Godda and Dumka." Mithilesh phoned me and told me excitedly about his discovery! And Godda became the new site of the *tasar* project. Barring Mithilesh, none of us had heard of the place!

Mithilesh shifted his office to Godda, recruited a team of field workers (the concept of CSP/CRP had not yet been born) and began building local networks—*Mamuji*, a local Good Samaritan and Madhavanji (Anand Shankar Madhavan), a widely respected Gandhian, who had come all the way from Travancore Cochin in 1945 to set up an educational institution near Bounsi called Mandar Vidyapeeth, turned out to be particularly valuable contacts. With the help of *Mamuji*, Mithilesh and the team went to villages in Godda to identify the wasteland, talk with the farmers and ask them if they would be willing to take up plantation.

The concept itself underwent changes in the face of ground realities—from compact blocks of 25 ha leased public land, we came down to 5 ha of 'contiguous plots' owned by several farmers. It turned out that the notion of 25 ha (or even 5 ha) was arbitrary. An area large enough for *tasar* scientists to monitor and support was enough. All that really mattered was that there should be a sufficient number of trees close by for a rearer to keep watch on the worms and move the worms around as the leaves become exhausted in one patch or cluster of trees!

In the course of our interactions with the villagers, we realized that the idea of a *tasar* plantation was alien to them; however, because of *Mamuji*, we still had their cooperation. In fact, in one Santhal village, the farmers who had agreed to take up plantations did a U-turn when their relatives from another village came over for some festivities and convinced them that this was a "clever scheme to take away their land!"

We realized that we needed to set up a small demo plot to show the villagers what it would be like, but we had no land to do so. That is when Madhavanji came to our rescue. He leased us some land (I vividly remember wading through the ramshackle, sweaty, jam-packed *tehsildar's* court in Bounsi to sign the lease, and Madhavanji hugging me afterwards as a *samdhi* 'because we had entered into a relationship'). With the little bit of money left from the funds we had received for the *tasar* study, we set up a demo plantation in August 1987. I wonder if the plantation is still around and is being used for rearing. Maybe there's a Mall there now!

While the preparations for raising the plantations were going on, Mithilesh discovered, in the course of his travel to villages in Godda, Dumka and Banka districts, that there were already huge groves of Asan trees in the forests near the villages. Locally called *Pahi*, these traditional *tasar* rearing groves were hardly being used for rearing because DFLs were not available and the people had given up rearing because of persistent crop failure due to diseases. So, we decided to also get into rearing right away without waiting for plantations to mature.

The fundraising for *tasar* is a story in itself with its own twists and turns. We mobilized a grant from ICCO for plantations on 100 ha and for setting up a grainage with a capacity of 25,000 DFLs to service the plantations. As 'enterprise people', we had our own ideas about financing…farmers should borrow money to raise plantations and buy DFLs; enterprises, after all,

> As 'enterprise people', we had our own ideas about financing...farmers should borrow money to raise plantations and buy DFLs; enterprises, after all, had to survive in the market place!

had to survive in the market place! Accordingly, we decided that we would extend loans to farmers to raise plantations (seedlings were to be given free) out of the grant, to be repaid once rearing began!

Surprisingly, people came forward; Mithilesh convinced the farmers to take as little loan as necessary to minimize their repayment burden and contribute their own labour to dig pits. The contribution of labour had not been budgeted in the grant; we ended up covering a much larger area and a one-year project went on for three years, causing some tension with ICCO. This was resolved when their team (Fons van der Velden and Indrani Sigamani) visited the project and were bowled over by the scale and quality of work on the ground and the kind of people we were working with. Whereas the idea of loans for plantations was soon forgotten, the notion that people had to contribute labour remained as long as the plantations were being raised with grants.

To support rearing in the *Pahis,* a 'centralized grainage' was set up in Godda in a rented, *khapda* covered house. I am sure Tom will forever remember the audit headaches that the grainage caused us in accounting for cocoons bought for the grainage—we bought whole cocoons for (then) at 25 paise each, some got eaten by rats (how do we know the storekeeper did not quietly sell them, our auditor Nagarajan *sahib* would ask); some are rendered useless due to 'premature emergence' (try explaining that to a Chartered Accountant!) and have to be sold as *faunki* cocoons (then) at 10 paise each (how should the loss be accounted for?); some eventually get converted into DFLs and produce more *faunki* cocoons, and then you buy more *faunki* cocoons because you are also running a spinning enterprise; the truth is the totals of *faunki* cocoons never tallied!

What a nightmare it was in the absence of the fancy Accounting Software PRADAN subsequently developed! Anyway, DFLs were produced and given to rearers on credit—produce cocoons from the DFLs and give us back five cocoons for every DFL from your harvest! It did not work fully: some faithfully paid back the cocoons, others (the 'wilful defaulters' as bankers would call them) said the crop had failed. But the idea took root: rearers would buy DFLs just as farmers buy seeds rather than getting them free from the sericulture department; this establishes the accountability of the DFL supplier and the seriousness of the rearer.

The centralized grainage created its own logistical challenges. How do you send DFLs to far-flung villages? As we were discussing the logistics, an idea emerged, "Why not set up smaller grainages in or near the villages where the rearers live?" It transpired that making DFLs is not quite rocket science: anyone, who can use a 10x optical microscope to spot a pretty conspicuous pattern if the sample comes from a diseased moth and maintain a degree of hygiene, can make DFLs.

Much of the work, even in CSB establishments, is done by labourers hired on daily wages. And the idea of a 'grainage entrepreneur' was born! Private Arjuna plantations, the idea of selling DFLs and the grainage entrepreneur, I think, are the seeds of transformation in the sector. These were huge breakthroughs, invented in the first couple of years of the programme, without much *show-sha!* All the later breakthroughs–and there have been many and I hope someone will write about these–would not have been possible without these first breakthroughs.

—

Deep Joshi is the founder of PRADAN and is based in Gurugram, Haryana

BISWAJIT SEN

EARLY INTERVENTIONS IN TASAR: Down Memory Lane/ Dumbledore's Memories

•••

MY TIME IN PRADAN (1986–91) is linked to the early years of PRADAN's intervention in *tasar*. The eastern regions of India—Uttar Pradesh, Bihar, West Bengal and, at that time, the not-yet-created Jharkhand—that PRADAN was working were the field areas where I was very deeply involved. We first began exploring *tasar* as an intervention to help tribal populations of the Chota-Nagpur plateau increase their options of livelihood.

After some initial explorations, some of us (Deep, Vijay, Ravi, on behalf of the Ford Foundation, and me) took this grand trip in a tempo traveller across the whole region. We visited all the important locations where *tasar* played a role, starting from Ranchi and eventually reaching Gaya, after travelling through Chaibasa, Bhagalpur, Deogarh and other smaller destinations. We also met Mithilesh Jha, who was then working with the Central Tasar Research Institute, under the Central Silk Board, in Ranchi.

Thirty years ago, a tempo traveller was definitely not the right vehicle to take such a trip in, through the region, and I remember every day we would plan for a six-hour travel time but it would always extend to ten. Our youth, all the lively discussions about 'rural development' and the motivation of creating new vistas for PRADAN carried us through. The report that we generated after our trip was that PRADAN should start a development project by directly intervening in the *tasar* sector in the region (circa 1987).

The next six-to-nine months were spent in all the standard preliminary work that goes into project preparation—PRADAN style.

The next six-to-nine months were spent in all the standard preliminary work that goes into project preparation—PRADAN style. First, we had to convince the team; at that time, the total number of people in PRADAN was around 50. We then convinced Mithilesh to leave his job with the government and lead the project, which he did after giving it some thought. On the basis of need and remoteness, Deogarh district was chosen as the location for the project. After several field trips and strategy discussions in the back of the jeep, it was decided to go in for interventions that would help the tribals—to promote *tasar* cultivation on the plantations on the wastelands owned by them. At that time, *tasar* was only grown wild and collected by the tribals directly from the forest when the cocoons were ready. It was decided that no intervention would be made in the weaving-spinning area because that was urban-based in Bhagalpur.

An extended team was chosen to build the project; Uday (Kagal), who worked with me in Barabanki, volunteered to join the team. A local team was also created. I am sure both Mithilesh and Uday will also be writing about their experiences. My role involved visiting the project every month.

Being based in Lucknow, I still remember the standardized itinerary of the Amristar-Howrah Mail from Lucknow to Jasidih, followed by an interesting minibus ride (where the decision was whether to go standing neck bent inside the bus or sit on the roof at my own risk) to the project office because no project jeep had been procured.

Like any other project in its early stages, there were challenges galore. The first and the biggest challenge, of course, was to convince the local tribal community that developing systematic plantations for *tasar* cultivation was worth it, especially because the returns were not going to be immediate and would only be visible after three years. There was also the widespread belief among the tribals that the *tasar* worm would only grow in the wild. Moreover, there was no clarity among the team members about how the communities were meant to be mobilized. One of the innovations we came up with at that time (which is now standard practice) was to identify and recruit local cadres at the village level to work with us. Several trips for the local community were also organized to expose them to government *tasar* plantations and how these were being managed.

Over the next three years, while the plantations took root, the primary investment was on how to prepare the community to take up the entire activity in a more systematic manner. For both us and our younger colleagues, the experience of organizing communities was new. Many of the earlier batches of development apprentices were frustrated that, in spite of their efforts, the community was not ready to get organized even though what was being suggested to them was for their own benefit.

However, we now know that, in community-based development work, the initial investments of time are high and the greater the investment made in organizing the communities and in building leadership amongst them, the stronger the roots of the project and the more beneficial it is for work in the future.

I am proud that the seeds that we sowed in the early years have emerged as one of the key large-scale integrated interventions of PRADAN over the years. Persisting with an idea, over a long period of time, stretching over several years, has always been the strength of PRADAN.

—

Biswajit Sen is a development professional based in Jaipur, Rajasthan

MITHILESH K JHA

MEMORIES OF THE TASAR PROJECT

•••

Scouting for locations across states to launch the *Tasar* Project, motivating farmer families to develop plantations, garnering funds from agencies, training farmers in scientific methods of *tasar* rearing, and marketing the collective produce were some of the slow and steady steps in the creation of an alternative livelihood for the villagers of Bihar, Jharkhand and Madhya Pradesh.

अधिष्ठानं तथा कर्ता करणं च पृथ्गिव्ध्म |
विविधास्छ पृथ्क्चेश्था देवं चैवात्र पंचमं | |
(श्रीमद्भागवद्गीता - XVIII/14)

The above verse says that following are the requirements for a successful implementation of any project:

1. अधिष्ठान (Objective)
2. कर्त्ता (Doer or nodal person)
3. साधन (Resources)
4. चेष्टा (Method and inclination to do) and
5. देव (The unforeseen or blessings from God, The Supreme)

The younger generation, even in tribal communities living in and around forest patches, was reluctant to pursue tasar rearing as a part-time occupation. I volunteered to work on these objectives.

Fortunately, the Tasar Project was in alignment with all of these. Being a part of the organization and the implementation of the project, and its nodal person, was an enriching experience and journey for me. I learned about the different dimensions that contribute to the success of any project. The dimensions of learning included technical innovations, managerial tactics, understanding the importance of social and inter-personal relations, as well as dealing with the local bureaucracy and politicians.

The project dovetailed from a study on the *tasar* sector, which was financially sponsored by Ford Foundation and conducted by a multi-disciplinary team of professionals from PRADAN. I joined the team to provide the technical inputs because I had experience in working in the *tasar* sector under the aegis of the Central Silk Board (CSB), Government of India.

Once the findings of the study were presented, there appeared an opportunity to take it further towards implementation. It was seen as being implemented as a 'Direct Action Project' of PRADAN, with the objectives of economic development of poor households in North India, conservation of the environment and up-gradation of wastelands. In the long run, the proposed project was intended for the revival of the endangered *tasar* sector.

In view of the growing economy in the country and the so-called modern aspirations, the younger generation, even in tribal communities living in and around forest patches, was reluctant to pursue *tasar* rearing as a part-time occupation. I volunteered to work on these objectives.

The immediate task was to find a location for the project. My first choice was Madhya Pradesh (M.P.), where wasteland is available in plenty and the climate is suitable for rearing. Also, there was already a tradition and practice of *tasar* rearing and weaving in the state, which was popularly known as the *kosa* rearing and *kosa* industry. Fortunately, PRADAN also had an establishment at Sukhtawa in Hoshangabad district of the state. We started our search for grounding the project in and around the district of Hoshangabad.

Many chunks of barren land were explored for the purpose. We made intensive visits to the communities living in the hinterlands of Hoshangabad and the nearby Betul district. Ultimately, we saw a possibility of launching the project in the Shahpur *tehsil* of Betul district. Shahpur is 68 km from Hoshangabad and some 36 km from Betul on NH 69. Betul district lies somewhere in the centre of the country between Bhopal (M.P.) and Nagpur (Maharashtra) and is well connected by road and rail. The tentatively selected locations had plenty of wastelands and a sizeable population of refugees from Bangladesh, who were spread out in a number of hamlets. The state government was looking for some sort of occupation or economic activity for their resettlement. We were able to negotiate for 5,000 acres of land for plantation for the purpose of our project.

The project model was designed to promote plantation on revenue land, taken on a long-term lease from the government. This land would then be distributed among the refugee families to undertake *tasar* rearing, with support and guidance from the project. The negotiation for land was in its final stages when we came to know that the land that we had selected was being earmarked

"You cannot be a success in any business without believing that it is the greatest business in the world. You have to put your heart in the business and the business in your heart."

for allocation as compensation to families whose agricultural land was likely to be submerged in construction of the dam under the Narmada Valley Development Project.

The District Collector of Betul assured us that even if this happened, we would get compensation for the plantation already raised by us. We did not agree because that would be moving away from our objectives and a loss of our efforts. Simultaneously, we started thinking of options and looking for other probable locations. When God closes one door, He opens nine other doors. It all happened within a period of four to six months. Perhaps, it was 1987. We packed up from Betul and started a new search. This time, it was in Bihar, which at that time comprised present-day Jharkhand as well.

The potential area, with my limited knowledge, was the Santhal Pargana, now a part of Jharkhand and South Bhagalpur (Banka district, Bihar). Lateritic sandy uncultivable wastelands were available in this region. We saw a ray of hope and examined the sites to check whether they were suitable for the plantation of *tasar* food plants, that is, Terminalia Arjuna and T. Tomentosa. *Tasar* rearing was already being practised here in patches of naturally growing T. Tomentosa plants as well as on the bunds of the paddy fields. Land was easily available although many of the patches were owned by the villagers, including small and marginal farmers. Our pre-conceived model, therefore, of raising plantations on government-owned revenue land was not feasible.

However, we did not lose hope and discussed ways to develop alternative options. We decided to explore the option of motivating farmer families to develop plantations of T. Arjuna on lands that were lying unused so far, and to undertake *tasar* rearing as an additional source of income for their families. Thus, it was necessary to hold, one-on-one negotiations with the owner families about the objectives and the benefits of the project. This was a herculean task. We just wished that we did not have to implement our project differently. Finally, I moved to Bihar with the belief: "You cannot be a success in any business without believing that it is the greatest business in the world. You have to put your heart in the business and the business in your heart."

I started from Baunsi block in Bhagalpur (now in Banka) as well as Mohanpur and Saraiyahat in Deoghar and Dumka districts, respectively. Banka is a district in Bihar, whereas Deoghar and Dumka are now part of Jharkhand. On the one hand, we collected the inventory of available wastelands from the revenue officials and, on the other, we developed contact with some villagers in these blocks, who knew about the available land in their villages, and also had some influence in the local community. The only physical resource I had to move from village to village was my Rajdoot motorcycle. With the help of local contacts, we first conducted door-to-door visits, talked to the people in a few potential villages and held informal meetings.

There were doubts, suspicions and questions about the genuineness of the project. They had had experiences of being cheated by some land development agencies promoting the sale of irrigation pumps, and of under-cuttings, and incidents of harassments when getting benefits from state projects. The underlying questions everywhere were: "What is your benefit? Why are you interested in this? There must be some personal benefit to you

In those initial years, Shivdham became the focal point where we organized training events, held meetings and demonstrations.

(PRADAN) by doing this." There was skepticism that this project would bring any benefits to the people of the villages.

In order to convince the people, we decided that we needed to have an office establishment and a demonstration site. Establishing the office was not a big issue except for the fact that it would require one person to be available there at all times. Promoting a demo site would, on the other hand, require a suitable chunk of land accessible by road. We pursued the proposition of a demo-site with all seriousness but had no intention, or the money, to buy land for the purpose. Our hunt for the acquisition of land ended when we met the Anand Shankar Madhavan of Mandar Vidyapeeth (Bounsi).

He was a renowned Gandhian and a disciple of Dr. Zakir Hussain, the third President of India. He was the founder of an autonomous institute for education known as Mandar Vidyapeeth. He had written a number of books in Hindi and was a Rajbhasa awardee. He had 50 *bighas* of barren land in his custody near Bounsi. The land had been donated to him by the local community and he had set up a primary school with a boarding facility there. The place was known as Shivdham. Convinced of the objectives of our project, he agreed to give us five *bighas* of land to establish a demonstration site. A lease agreement, for a period of 15 years on an annual rent of Re 1 (Rupee one only), was signed to this effect. Deep Joshi, the then Executive Director of PRADAN, came from Delhi for the registration of the deed.

Following the registration, we developed a nursery of Terminalia Arjuna at Shivdham and developed a plantation, as per the specifications of the Central Tasar Research and Training Institute (CTR&TI). The site was developed using the internal financial resources of PRADAN. In those initial years, Shivdham became the focal point where we organized training events, held meetings and demonstrations. By the end of the second year, we had a number of nursery growers and plantation sites in the region, which then served the purposes of showcasing plantations and convincing people. Gradually, Shivdham lost its importance as a demonstration site.

The next challenge was to garner funds for the plantation in the following year, 1988. The cost of raising a plantation, as per the norms of CTR&TI, was high and it was expected to give returns only after four years. The plantation cost was treated as a risky proposition (or investment) in financial terms by the people. There were also some 'ifs' and 'buts' related to the survival of the plantation and the success of the rearing activity.

The plantation cost was high because the spacing between the plants and the rows was close, that is, 4 ft x 4 ft. Each hectare of land was expected to lodge more than 6,700 plants. In order to reduce the costs, we considered a proposition of the spacing being 6 ft x 6 ft. This would accommodate 3,000 plants in a hectare. We were guided by the hypothesis that the total leaf yield per unit area increases although the leaf yield per plant decreases in case of a plantation with close spacing. It also meant that the leaf-yield per plant increases when the spacing between the plants is increased. Moreover, considering the available land-holding and the economic condition of the target community, a unit size was agreed at one *bigha* for one family, that is, 1,200 plants.

We were fortunate to have some energetic volunteers in the many clusters of plantations. They were

A small team of local workers was assembled and trained to gear up plantation activities, including the selection of sites, the digging of pits, the supervision of nurseries, the distribution of saplings and their transplantation.

of great help in the project. With their endeavour, they came up with a list of farmers with details for probable plantations that was ready for follow-up. However, we had no source of assured funds to undertake the plantation. The key persons in PRADAN, especially Deep and Vijay, were working to organize funds for the project. A silver lining appeared when the National Wasteland Development Board (NWDB) agreed to provide financial support for the nursery activities.

With the help of the local boys in potential villages, we started collecting Arjuna seeds and holding meetings in villages to organize a *kisan* nursery and finalize the list of plantations. Besides Shivdham, we arranged one-day orientation camps at Haathi-Hariyali village in Poraiya block of Godda district and at Dhobarna in Saraiyahat block of Dumka district. The camps were intended to select farmers, who would be guided to become entrepreneurs of *kisan* nurseries and who would also be motivators-cum-guides for those who want to develop *tasar* plantations in the catchment of their nursery. Our friend Soumen, who was working in Purulia, came to help organize one of the camps.

Godda, being almost equidistant from Baunsi, Saraiya and Sunderpahari (a traditional rearing zone), was selected as the place to establish an office, with some minimum facilities. Saplings grew in the nursery beds and the time for their transplantation was fast approaching. Efforts to generate financial support to raise plantations were underway; however, any sanction to this effect was yet to come. The NWDB declined support beyond the nursery stage because it was a proposition of mono-species plantation. Finally, the efforts of Deep and Vijay resulted in a sanction for the project from Council for Advancement of People's Action and Rural Technology (CAPART) and Inter Church Organization for Development Cooperation, Netherlands (ICCO).

A small team of local workers was assembled and trained to gear up plantation activities, including the selection of sites, the digging of pits, the supervision of nurseries, the distribution of saplings and their transplantation. Later, the task of cultural operation, and maintenance and protection were also included. Gradually, committed youngsters with managerial qualifications and professional orientation joined the team at different points of time. Some who stayed with the project with commitment for a significant period of time and contributed to its growth and development included Malika, Manish, Uday, Narendra, Nijjar, Satya and Madhu. They made a qualitative difference and contributed to the quantitative growth of the project.

I remember the role played by Uday in the promotion of decentralized grainages. Similarly, the contribution of Malika was outstanding in community mobilization and women's participation. Nijjar was pro-active in the promotion of lift irrigation schemes and Satya in the plantation and the introduction of soil-water conservation models. Madhu was very involved in the quality maintenance and the organization of plantations as well as in spearheading the post-cocoon processing and the strengthening of women Self Help Groups (SHGs). Manish and Narendra were very effective in providing supportive supervision as well as in developing the systems of monitoring and control for streamlining the project activities. The para-professionals and the support

Semi-literate village youths with entrepreneurial ability were trained for this. They moved about carrying their microscopes on their bicycles to examine the moths, in return for a small share in the harvest of cocoons, as their charges.

staff, especially Hazarijee, Prabhakar, Avadhesh, Arun, Richard, Nalini, Latif and so many others also deserve mention for their unconditional support and commitment.

Besides working hard in the field, they were helpful in documenting the progress, listing the constraints and also making an analysis of facts, so as to discuss and arrive at a further course of action. This provided progressive directions and approaches to the project. They were effective in putting the systems in place and working on them. Their hard work and dedication also provided motivation for para-professionals and volunteers working in the project villages. By 1988, our work spread to a number of villages in three districts, namely, Banka, Godda and Dumka.

In due course, inter-cropping, dry-land farming with soil and moisture conservation, community owned small lift-irrigation schemes and organization of SHGs of women also became a part of our activities. We then realized that the efforts and achievements of the project were no more than islands in isolation. If we wished to reach and benefit the community on a large scale, we needed to make use of government schemes and partner with other like-minded NGOs. So, we started working with a few select NGOs in Deoghar, Dumka and Godda districts on the theme of *tasar* and for the development of uncultivated land.

At the same time, we started participating in poverty alleviation forums of the District Rural Development Agency (DRDA) in the districts of Dumka, Banka and Godda. This helped us to mobilize financial support from DRDA for the installation of lift-irrigation schemes and also to raise plantations. The offices at Saraiyahat (Dumka) and Bounsi (Banka) were also established to facilitate intense liaison with community members and district officials.

Meanwhile, we discovered that *tasar* rearing in the traditional way was in practice on a sizeable scale in the forest batches and paddy bunds in a number of stretches (pockets) at Sunderpahari (Godda), Kothidinda (Banka) and Bhaljor (Dumka). However, production was constrained due to the paucity of quality disease-free layings (DFLs) to rear *tasar* worms. Support was needed to market the cocoon harvest for a fair return. In order, therefore, to support traditional rearers and intensify project activities, we started a captive grainage to produce and supply DFLs.

We realized that the microscopic examination of a smear taken from the mother moths was a scientific necessity to ensure the production of quality seeds in the form of DFLs. *Tasar* farmers either keep the cocoons at their household for production of laying (not necessarily disease-free) or procure them from state farms, which were scanty. State farms maintain centralized grainage to preserve cocoons and produce DFLs.

We, on the contrary, decided to promote the concept of decentralized grainages in the rearing dens. They were helped by the microscopic examination of mother moths. Semi-literate village youths with entrepreneurial ability were trained for this. They moved about carrying their microscopes on their bicycles to examine the moths, in return for a small share in the harvest of cocoons, as their charges. Besides the examination of the mother moths for disease freeness, they also provided guidance on the rearing of worms along scientific lines and for

Earlier, cocoons were sold by the individual farmers to private traders, who used to move into the rearers' house to procure cocoons, most of the time on unfair terms of trade. We arranged for the pooling of cocoons through master rearers and grainage entrepreneurs.

pooling the harvest of cocoons for better financial returns.

The *tasar* industry has two distinct sub-sectors. One is plantation and rearing, which is land-based and is an occupation in agro-forestry. The other is the reeling and spinning of yarn from the cocoons and the preparation of fabric, which is artisanal in nature and is a part of the handloom and power-loom industry. At the close of the grainage every season, we had a sizeable quantity of pierced cocoons. This provided an opportunity for skill development of SHG women in post-cocoon processing. Consequent to this, the women were provided support in the form of appliances and business acumen. In the first step, only *ghicha* and spun yarn were produced. Later, this was diversified to the production of reeled yarn, which soon opened up entry into fabric-making.

The plantations needed to be protected, to ensure their survival and fitness for rearing. According to the project proposal, there was a provision for trench-fencing. However, this was not found to be so effective. Hence, social fencing was emphasized. Every family owning a part of the plantation was made responsible for protecting the plantation from animal grazing, by rotation. The money available for trench fencing was distributed proportionately among the farmers in the ratio of the surviving plants. Timely cultural operation also contributed to the growth and protection of

A farmer transfers worms onto a fresh plant ensuring constant supply of feed to worms, Dumka district, Jharkhand

We requested CSB to send a team of experts to examine and testify the facts by observing our project fields. Accordingly, a team of experts visited the site and were impressed with our achievements and contributions to the project. They praised our efforts and said that it was an eye-opener for them.

the plantation sites, which were numbered and the progress of which was monitored on a regular basis.

Earlier, cocoons were sold by the individual farmers to private traders, who used to move into the rearers' house to procure cocoons, most of the time on unfair terms of trade. We arranged for the pooling of cocoons through master rearers and grainage entrepreneurs. Then, we negotiated with the Raw Material Bank (RMB) of the Central Silk Board (CSB) for the sale of cocoons. RMB is the designated government agency to declare the minimum support price for the purchase of cocoons. It also buys cocoons based on the silk content and not arbitrarily on the basis of visual considerations and negotiation. This resulted in a higher return of cocoon produce to the rearers.

We encountered a challenging period when we approached CSB for financial support to up-scale project activities. The Member Secretary of CSB indicated that the proposal would be examined for financial projections and, thereafter, sanction would be given. Our financial propositions were much lower than those prescribed in the Package of Practices by the CTR&TI. However, when the proposal was sent to the then Director of CTR&TI, we received untoward comments on our model of operation and projections. Although shocked by the comments, we stood firm on our models of plantation, soil-moisture conservation and DFL production.

We requested CSB to send a team of experts to examine and testify the facts by observing our project fields. Accordingly, a team of experts visited the site and were impressed with our achievements and contributions to the project. They praised our efforts and said that it was an eye-opener for them. Later, the project was evaluated by a joint team of the Economic Development Associates (EDA), New Delhi, and CTR&TI. Based on the findings of the evaluation team, a memorandum of understanding (MOU) came into force for developing *tasar* in Jharkhand by CSB. The rest, as they say, is history.

In my understanding, the project was successful on the following parameters.

- Development of *kisan* nurseries as a village based social enterprise
- Promotion of *tasar* plantation on privately owned uncultivable land
- Introduction of decentralized *tasar* grainages as a micro-enterprise
- Demystification of research findings for easy adoption
- Nurturing a relationship with the development donors and the government agencies

I am personally grateful to PRADAN for providing me the opportunity to serve the community through promoting an additional source of income generation in favour of otherwise economically disadvantaged households. Needless to mention, I feel happy when I find that the project has met its objectives of community development and environmental amelioration over the last 30 years. I remember that the presence of PRADAN was categorically emphasized as one of the most important assets when we undertook a participatory exercise of drawing up a plan of development in a village near Bhaljore.

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Mithilesh K Jha is based in Lucknow, Uttar Pradesh

Different Stages in Tasar Rearing

Women tasar rearers making garlands of seed cocoons to be hung in the grainage, Suakati district, Odisha

A tasar rearer harvests cocoons in village Bhitwa district Banka, Bihar

Coupling of moths for fertilization of eggs.

Examining samples of mother moths to identify disease

A Tasar *rearer dusts mixture of lime and bleaching powder on the worms at the time of transfer to fresh plants. Village Salaiyabaran , Banka district, Bihar.*

SHG members produce reeled yarn on a machine from the whole cocoons in Bhusitari Reeling Center, Banka district, Bihar.

Trainees learn to maintain the temperature and humidity inside grainage in Lilabaran grainage in Banka district, Bihar.

SHG member spins yarn from the pierced cocoons on the spinning machine in village Rajdah, Banka district, Bihar

UDAY KAGAL

THE BEST TWO YEARS OF MY LIFE!

...

Cherishing memories of initiating the *Tasar* Project and remembering the people instrumental in the promotion of tasar as a livelihood among the poor tribals and other villagers of Godda takes us back almost three decades...

The nearly two years I spent in Godda on the Tasar Project during 1989–90 were definitely the very best years of my life; they are, till date, certainly the most memorable. And that is why I took it upon myself to write this immediately after I received Narendra's email. The first draft took not more than two hours which means it is all still very fresh in my mind even after all these years. And I had so much to share as is evident from how long this story has turned out to be! Those years changed my view of the world, helped me gain confidence in myself, and brought me in touch with so many wonderful people—Jha *ji* and family, the team, and the tribal people. So this is a personal memoir about these beautiful people rather than a description of the project itself.

Being in my first job, I was a bit lost during those years; but the weavers in Behta and the flayers at Haddiganj accepted me with open arms and without judgement. They were beautiful people. I still remember all the many wonderful conversations over *beedis* and *chai*

My background

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I would like to start with how I got there in the first place and the contextual lens I carried with me. I started out life as a typical middle class, urban, big city boy (from Mumbai) but became fascinated with rural India when I went to Xavier's College and I participated in rural camps through the Social Service League. In that sense, it was the turning point in my life. I chose IRMA over a regular MBA, and then joined PRADAN at Barabanki.

Being in my first job, I was a bit lost during those years; but the weavers in Behta and the flayers at Haddiganj accepted me with open arms and without judgement. They were beautiful people. I still remember all the many wonderful conversations over *beedis* and *chai* in the Haddiganj office and the pride with which they had banned any drunken member from entering it. I took satisfaction in introducing 'frame looms' in Behta, and personally designing the tannery in Haddiganj. They proudly showed it to me when I returned from Godda to take my things (after I had decided to stay on in Godda). As life progressed, however, I found that the work being done on the ground was too little compared to the flow of funds and I actually became a bit disillusioned with rural development.

Getting to Godda

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Deep asked me to move to Godda for six months to gain more exposure and when I reached there, I fell in love with the place and decided to stay on. I was impressed by the massive outcomes Jha *ji* had created in such a short time. We were already working in 70 villages and had planted nearly seven lakh trees in just three years (the exact facts may be a little hazy since it has been a very long time now). The enthusiasm, passion, and motivation of the villagers touched me immediately. Here is something that stood out for me then, and has stayed with me over the years—the power of social transformation.

Jha *ji* had been running awareness camps since the inception of the project, in which tea and snacks would be served to encourage participation. In the third year, Shreeprasad Choudhary and others of Andhrisot village, early adopters of the programme, insisted that they would conduct and sponsor the event in their area. They were Yadavs from the upper caste, and they cooked and served a full meal in their homes (at their cost) for nearly 150 people, which included the Santhals (tribals) who are otherwise ostracized and forced to live on the fringes of the village. The Yadavs cooking and serving a meal to Santhals in their home was a pretty powerful transformation. I was transformed too.

The Jha Family

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I will forever be indebted to Jha *ji*, for reinstating my belief in development with the right combination of know-how, drive, contextual familiarity, passion and conviction. I am also grateful to *Bhabhiji* who supported him and us, always smiling, as we went about zealously pursuing our dreams of doing some social good, and for feeding us healthy meals, occasionally, so we would not become malnourished. But I am especially thankful to both of them for teaching me the power of compassion as I tried to recover from a personal storm.

Jha *ji* and I argued nearly every day on developmental and philosophical issues. Whereas these arguments sometimes became very heated, they never

Jha *ji* and I argued nearly every day on developmental and philosophical issues. Whereas these arguments sometimes became very heated, they never carried malice.

carried malice. We would be friends through it and after it also and I am grateful, in hindsight, that he treated me as one; and with such respect. One particular argument was around whether we should give the decentralized grainage to the Yadavs or the tribals. I favoured the latter 'putting the last first', and Jha *ji* preferred the former because he thought that this would ensure a higher probability of success and, therefore, benefit everyone in the long-term. I wasn't convinced then but I yielded to Jha *ji*; in hindsight, though, I believe he was right.

I also remember playing carom in the evenings with his sons Rohit and Mohit on the first floor of their house (the office was on the ground floor), adorable little boys just 13 and 10 then. And I also remember *Jha* ji's moral dilemma about whether he was compromising their future in the pursuit of his passion. I also coached basketball at their school, and the school won the boys and girls events, in spite, of the competition being very robust. The Father at the school offered me an envelope with cash, which I refused; he then sent me pant and shirt material. I doubt I ever got them stitched, but the memory of it all is pleasant.

Trying to shoot arrows from a Santhali bow and arrow set, on the grounds next to the office is another memory. I practised every evening; I remember I would keep hurting my finger, and never quite mastered the sport. Jha *ji* remains till today, a friend, philosopher, and guide. I am still in touch with him and *Bhabhiji* off and on, and they continue to shower affection upon me. Although I must say that as I have got older and busier with my life, I have not been in contact much. It is unfortunate that time makes us take meaningful relationships for granted. But I spoke to them today (because I was writing this article) and I hope to visit them again soon. *Bhabhiji* was her usual exuberant and caring self.

The Godda Team

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The team I met there truly inspired me by its commitment, and indulged my ignorance. I was a novice and knew nothing about Bihar or *tasar* or afforestation or the tribal people. They taught me all that they knew, without holding back and, on hindsight, must have been pretty tolerant of the arrogance I must have carried about my IRMA degree.

Hazari *ji* was undoubtedly the stalwart amongst them all and everyone respected him. He refused to ride a motorcycle, and the stories were that he would walk 10 or 15 km each day (or was he on cycle, I don't remember now). But what still stays with me is his indulgent, maybe it was satirical, brusque manner of always speaking with a hint of a smile at the corners of his lips. He would not mince words, and he would not waste any either. But he got the job done like no one else could. He could rally the villagers together in vast numbers, especially the women. I wonder, till today, what his magic was, but as I have grown older and perhaps wiser, I believe it was just his plain downright honesty and simplicity; and his energy to do tremendous work that people found inspiring.

Ravi *ji* was in another league altogether. Sporting his French beard and tobacco-stained teeth, he was the guru to everyone else. Unlike Hazari *ji*, who was busy with getting the job done and was, therefore, less approachable, Ravi *ji* was patient and nurturing. He sacrificed his family time and gave completely of himself to the job for what, I learned, was a paltry (even in those days) Rs 700 or 800 a month. I earned Rs 1,675

Prabhakar and I started the Kothidinda Cluster together and, when I visited the project many years later, he took me there with great pride. I must say I feel proud of it too.

or something near-about and did not have any family to support. I remember countless rides with him on his blue Rajdoot, which he was so proud of and took such good care of; and the day we killed a chicken that was crossing the street and had to deal with the villagers (I think we paid Rs 50 for it).

Awadhesh appeared to be very hostile in his mannerisms but he had a very tender heart. I realized later that it was just his way of speaking that was rough and not his words. I remember eating *dahi chooda* at his house on innumerable occasions, that thick *dahi* that they would make at home from the milk from their cows.

Prabhakar and I started the Kothidinda Cluster together and, when I visited the project many years later, he took me there with great pride. I must say I feel proud of it too. Babulal Marandi of Baunsi village had been insisting we set up the project in his *sasural*. One day, it was pouring, and the *tasar* eggs had started hatching in the grainage. I asked Prabhakar if we should take the DFLs there. He agreed, and we loaded the Arjuna branches into the back of the jeep, took the DFL bags and set off for Baunsi. We picked up Babulal on the way. His *sasural* was very far in the interior and he lost the way (he knew the way by foot, of course). We took a local villager in, but he, too, got lost. We picked up a third one, who finally took us to the village. It was deep in the interiors!

We created a stunning impact when we reached the village because many, many eggs had hatched by then and the back of the jeep was crawling with worms. The people had never seen so many worms together before! The rest, as they say, is history, but it is still a matter of personal pride for me. In fact, when I revisited the village after many years, the *pradhan* reminded me of how my mother had taken a photograph under 'that Papaya tree'. I had forgotten I had taken my parents there, (it was so many years ago) and I was surprised that they not only remembered me but also my parents' visit.

I didn't interact much with Ramakant *ji* in those days; he had joined later; I remember him for his bottled glasses and the shy (or sly) smile. Richard Marandi, convent-educated and always ready to put in the effort, was a quiet and hard worker. Devender lived in his own world (and also at the office at nights to watch over it), but on occasion, for no reason that anyone could understand, he would 'lose it', although he would regain control very quickly after that. Arun Mandal was a dreamer and a philosopher, who took me home one day to his house high up in the hills; they specially fed me duck and I felt honoured! He told me about his philosophy of '+/-/0', which means that everything will even out in the end, and we will go back to where we started.

Abdul Latif joined us later and became a part of the family very quickly because of his ready smile and his willingness to take us wherever we pointed to, at any time of day or night. He was so tiny of frame that he looked ahead through the steering wheel of the jeep (that might be a little bit of an exaggeration, though). His most difficult challenge was to take us up a 7 km hill, which was very steep and completely muddy, to Cheo village; he took us up and brought us down safely.

Of course, last but not the least; there is Narendra, the 'Mahila Mandal man' who took over from Mallika after she left. I don't have many memories of Mallika though; I think she left soon after I joined there. Narendra joined us from IRMA, and his most endearing trait was his humility (that is perhaps why he got along with the women so well). And

Narendra joined us from IRMA, and his most endearing trait was his humility. And he wrote and received many letters every single day! We lived together in the same house, went to the movies and made *khichdi* every evening with whatever vegetable we found that day in the market.

he wrote and received many letters every single day! We lived together in the same house, went to the movies (a man was stabbed in the theatre on one such occasion!), and made *khichdi* every evening with whatever vegetable we found that day in the market. We prepared a different version every day because we randomly added spoonfuls of spices each time.

He played the *ghatam* on an inverted *matka* to liven up the evenings. But I'm sure he wouldn't have forgotten the time he confidently made banana chips at home with special bananas bought from the market and lots and lots of *ghee*. We couldn't eat them in the end, but I remember them (and him) fondly. Satya and Nijjar joined just before I left and I remember the latter's unfailing enthusiasm. Satya was very new in those days and roamed around in a daze.

The Santhals

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Most importantly, however, I remember the tribal people I met there who changed my life, for the better. The Santhals are beautiful people, who lived a simple life, what we might even call childlike. It made me question, then, what we 'development workers' were there to do—were we there to improve their lives or were we sucking them into ours? I have still not resolved that one and it is the topic of a book I am working on (a long and arduous venture) now after all these years '*Origins: A Satire on Human Civilization*'.

Its basic premise is borrowed from the starting line in the movie 'The Gods Must Be Crazy': "Uncivilized man adapts to his environment; civilized man adapts his environment to himself." I have modified that slightly as the core premise of my book: "Spiritual woman adapted to her environment; man changed his to suit himself when he found God." I still continue to be inspired by the Santhals. Incidentally, I also published a book called '*Philanthropy Sucks! It Only Perpetuates Dependencies*', which questions grants as the basis for sustainable development. I continue to be disturbed by such questions.

I have only just finished writing a book about the corporate sector, '*Dare to Care: One Possible Future for Corporations (and the World)*'. Its basic idea is that White Man once dominated the world through conquests and colonization and now corporations impose consumerism and fuel a plethora of wants in their pursuit of profit. This premise is very much related to my 'development dilemma' of whether we were doing any good (for them) or only drawing them in (for us). I owe much of all this verbosity to the Santhals I met in Godda. They made me question the very basis of how we lead our lives, very often without considered thought.

We had given the nursery to a certain Yadav in Dhobarna village one year, but he was negligent and didn't take it up seriously. The next year we gave it to Kayyum Sheikh. He did a good job and also planted his land with it, but Yadav didn't like that and started grazing his cattle on the nursery in the early mornings. Kayyum caught him at it one day; while he was taking the animals to the *adgadda* (the cattle pound); he was intercepted by the Yadav clan and assaulted with *lathis*. When Kayyum went to file an FIR, he was asked to pay Rs 500 to do so! But the important thing is he didn't fight back but came to us.

Nand Kishore Yadav of Kothidinda stands out (the Yadav in my argument with Jha *ji* on assigning the grainage) with his

We set up the pilots. What was incredible about the idea was that we were teaching tribal people to use microscopes and produce DFLs. This programme became a huge success;

bushy beard and professional air, who took up the challenge of setting up the decentralized grainage.

But my favourite memory is of Pran Baski near Angwali, a wizened and wrinkled old man of indeterminable age, who set out every morning with his rabbit traps, with whom I could not exchange a single word but communicated marvelously in sign language nevertheless. His wife berated me venomously one day, in a language I did not understand, for apparently, conning them (we had given him 50 DFLs and expected 80 cocoons which they were unable or unwilling to return to us), but Pran Baski promptly followed me up the hill asking for more. I used to have a picture of him (had written about him in one of my articles in *Newsreach*) but unfortunately don't have it anymore. A very cute old man!

My Departure

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Sadly, it was time for me to go. My reasons, in hindsight, are unclear. I know it had a little bit to do with looking after my parents, who were by then alone (both my sisters had got married and had left home), but I do not think it was only that. I was confused about life in general and my life in particular, and mostly I think with the question that had arisen in my mind, after my engagement with the Santhals. It continues to haunt me and even now I cannot say whether I made the right decision. I moved into the 'big, bad, corporate world,' shuttled between the two for a long time but this big question still disturbs me: is all progress development?

But as I prepared to leave, I promised Jha *ji* that I would help fulfill his dream. The grainage had been a huge success, but we were not able to produce as many DFLs as was the demand. Jha *ji* knew that the only way forward was to decentralize this. I think Vijay too had a hand in this thinking though, and/or Deep, but I know it was Jha *ji's* dream to realize it. I promised Jha *ji* that I would set up the first three pilots in our three project areas.

We organized a training camp; I think it was for ten days and nearly 15 people attended. We set up the pilots. What was incredible about the idea was that we were teaching tribal people to use microscopes and produce DFLs. This programme became a huge success; if I remember correctly, there were 230 such when I visited the project much later (more than 40 just in Kothidinda, my pet Cluster, which Prabhakar pointed out proudly). I like to keep that in mind as my little contribution in giving back something to what I had gained so much from.

But I end with some regret. In a later visit, I found that most of these wonderful people who had given so much to the Project and from whom I had learned so much had moved on, not all out of choice. I felt sad to see that the people who created the Project did not remain to see it grow. The reasons are unclear but the outcome is still the same. I guess that is life.

At the end, I must also say a big thank you to Vijay and Deep especially (although I know others, too, such as Achintya and Vasi, were involved but I had little interaction with them) for conceiving PRADAN and the Godda Project from which I received so much. Those two years remain the best two years of my life.

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SATYABRATA ACHARYYA

TASAR SILKWORM REARING IN RAJDAH

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Rearing *tasar* worms is a precarious and fragile practice that the Santhal tribals and other villagers engage in, both because this has been their traditional occupation and because a good harvest provides them a much-needed economic support

Introduction

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After spending about six months with a project, I realized that I seriously lacked a good understanding of the traditional tasar rearing practices. This ignorance became more pronounced when one of my colleagues Uday (Kagal) left the project; he was the only person, other than our team leader (Mithilesh Jha), who knew the subject well.

My six-month exposure (I joined in April 1990) in the development sector had altered my earlier belief that technology was the only thing that one should grasp in order to make a contribution to the process of development. Instead, I started seeing technology and its appropriateness in the backdrop of the socio-economic context of an area. Perhaps, this should be the approach to enhance the usefulness of technology and give a real impetus to development. Thus, I decided to learn the biological aspects of traditional rearing practices as well as to make a critical study of the socio-economic factors associated with it.

As far as accessibility is concerned, Rajdah is quite remote, at a distance of 6 km from the Dumka-Bhagalpur road. I chose this village for my learning because it was part of the largest *tasar* rearing clusters in Bounsi block.

I went to Rajdah, a village in the Bounsi block of Bhagalpur district, with one our field staff members, Arun Mandal. We stayed for two-and-a-half months in the house of Lakshmi Ray, a modest farmer of the village. Rajdah village comprised 49 families, all *tasar* rearers, of which 25 belonged to the Santhal community. The rest were a mix of the Pandit, Bhat, Gandharv and Yadav castes. As far as accessibility is concerned, Rajdah is quite remote, at a distance of 6 km from the Dumka-Bhagalpur road. I chose this village for my learning because it was part of the largest *tasar* rearing clusters in Bounsi block.

BIOLOGY OF TASAR AND THE MAIN VARIETIES

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Biologically, the *tasar* varieties grown in the area, Sarihan and Dhaba, are the 'tri-voltine' type (completing three life cycles in a year), in which the moth emerges fresh from the cocoons in the month of June, after a period of dormancy from January to June (six months). The emergence of the moth coincides with the onset of the monsoon and the sprouting of fresh leaves on host plants such as the Terminalia Tomentosa.

The male and female moths mate after emergence and their coupling lasts for six to ten hours, after which the females are free and start to lay eggs. The eggs hatch within eight to nine days and the larva start feeding on young leaves. Being a tri-voltine species, the insect is reared in the months of June-July (first crop), August-September (second crop) and October-December (third crop). The months from January to June are the diapausing period, when the insect remains inside the cocoon in its pupal form. The larval period lasts for 35 days in the first crop, 45 days in the second crop and 60-90 days in the third crop, depending upon the length of the day and the temperature. The larva undergoes four moultings (shedding of the body skin) before it becomes mature enough to form the cocoon, which takes about three to five days to spin.

TASAR CROP AND HOST TREE AVAILABILITY

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The third crop (October to December) is considered a commercial crop owing to the higher silk content in the cocoons, and, therefore, the cocoons fetch a higher price. Most farmers in the Rajdah area grow the commercial crop. The *tasar* silkworm is reared in the nearby natural forest of Asan (Terminalia Tomentosa), under the Banka Protected Forest Division. The natural forest covers an area of 8 sq km, with approximately six lakh *tasar* host plants (source: local villagers).

The non-rearers in the villages surrounding the forest have, in fact, thoroughly destroyed all plants species other than the Asan. They have not touched the Asan because these are protected by the rearers for the *tasar* silkworm. Each rearer has his own share of plants; the number ranges between 250 and 1600. The rearers, in turn, pay a token amount of Rs 10 to the forest guard, often without any document or receipt. Roughly, around 400 families, belonging to 14 villages surrounding the forest, rear *tasar* silkworms. The plants were sparsely located and often the spaces in between were sown with paddy or *arhar*.

SEED COCOON COLLECTION PROCESS

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Conventionally, the rearers of the area gather seed cocoons (from which moths emerge to couple and lay eggs that are then used

In the years of scarcity, however, the price shoots up beyond the reach of many rearers and they finally return to their villages empty handed, after spending a week or so, trying to coax and cajole the seed sellers.

as seeds for the *tasar* crop) from as far as Giridih (about 200 km away). This activity, usually, starts in the months of September and October. The seed cocoons are then sold in a *haat* (market) of a village named Burheit, Giridih district. The seed cocoons are brought to the *haat* from the surrounding villages. Many of the rearers purchase seed cocoons directly from the haat whereas the more experienced ones visit the rearing areas (the forests) in the villages, critically examine the mature larva, which are about to form cocoons and then select the cocoons made by healthy larva for seed purposes. However, this takes time, and one has to spend eight to ten days in the rearing areas. The person carries his ration from his house and cooks his own food during his visit to the forest area. Prospective customers are certainly treated more respectfully in the villages, and seed sellers even accommodate them in their houses.

The act of seed cocoon gathering requires money. That year, the Sarihan (native variety) seed cocoons were being sold at the rate of Rs 20 per *pon* (80 cocoons, means 25 paise per cocoon) and the price of the same number of Dhaba (considered a superior race) cocoons was Rs 25. In addition to this, the cost of travel to and from the village, as well as the cost of food for eight to ten days had to be considered.

Usually, the net expenses for the whole activity vary from Rs 180 to Rs 450, depending upon the quantity of seeds purchased and the number of days spent in the rearing areas. In the years of scarcity, however, the price shoots up beyond the reach of many rearers and they finally return to their villages empty handed, after spending a week or so, trying to coax and cajole the seed sellers.

The question is how do they bear such huge expenses? Rearers, usually, are poor farmers; by the time the act of seed gathering starts, a majority of them have completely exhausted their money because they invest their last rupee of their annual savings in cultivating paddy in the *kharif* season.

In the 1990s, the moneylender entered the scene, with all his insistent and persistent cajolery, very determined to extend financial help. Many of the poor rearers had no other way except to borrow money from these moneylender to meet their needs. I came across a sizeable number of rearers, who were unwilling to take loans from the moneylenders but had got trapped by them anyway, and were compelled to borrow money.

As time rolled by, the situation changed and many rearers flatly refused to take money from the moneylenders, instead taking loans from their wealthier neighbours or relatives on comparatively softer terms. Nevertheless, the role of the moneylender is indispensable in this area. He is the person, who provides money on every occasion, whether it is a daughter's marriage or a child's birth, whether it is during the cropping season or during the distress of crop failure, whether it is for the purchase of draught animals or for gathering seeds for *tasar*.

Whatever the circumstances, the moneylender remains indifferent, firmly sticking to his terms and conditions and charging 10 to 15 per cent interest a month. Quite a few of them, however, are reasonably honest, enterprising, well-trusted and respected in the villages. Recently, I heard of a moneylender, who often helps his poor clients by waiving the interest on their loans.

After buying the seed cocoons, the rearer returns to his village quickly and organizes the grainage room (room for egg gathering) inside his hut.

INDIGENOUS METHOD OF GATHERING *TASAR* EGGS FROM SEED COCOONS

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After buying the seed cocoons, the rearer returns to his village quickly and organizes the grainage room (room for egg gathering) inside his hut. The room is cleaned, its roof repaired and rat holes plugged. The refurbishing needs to be finished in a couple of days. The rearer then ties bunches of cocoons (each bunch comprising three to five cocoons) on thin threads. These bunches are then placed one above the other, with 15 to 25 of them tied to one thread. The whole arrangement is termed locally as a *mala* (a garland). Several *malas* are tied to horizontal bamboo poles across the roof and allowed to hang vertically.

Within eight to ten days, the moths start to emerge from the cocoons. During that period, the *malas* are taken outside in the night and kept inside the room in the day. At night, the male and female moths couple and their sexual act usually continues until the next afternoon. Very often, the male moths from the natural forests come and couple with their female counterparts on the *malas*, sometimes from as far away as 5 km. This is precisely how the rearers ensure high coupling rates among the moths. During the afternoon hours, the moths are decoupled manually.

There exists a crude method of testing for disease. Normally, after decoupling, the female moth urinates and the yellow colour of the urine means that the moth is free from disease, whereas red-coloured urine is believed to be due to the presence of disease inside the moth. The method may or may not have any scientific justification. The other fact is that the colour of the urine also varies with the variety.

Of course, many rearers don't perform any test; instead, they actually abstain from doing so because the detection of the disease results in the rejection of the moths. This often takes out a sizeable number of moths and causes considerable reduction in seed stocks, which the poor rearers are unable to afford. The female moths that remain free from sexual inception after a day are locally called *baasi* (unfresh). Their wings are usually affixed with thread (so that they cannot fly) and the moths are placed on a plant nearby, to try for a day or two for successful coupling. The unsuccessful female moths are discarded afterwards.

The most disturbing agents for the indigenous grainages are, perhaps, rats and bats. Rats usually come down from the thatched roofs along the horizontal bamboo poles (from which the *malas* are hung) and pierce the cocoons to eat the dormant insect inside. The rearers are constantly on guard about rats and try to prevent them from climbing down the poles by fixing a small earthen plate at the top of the *mala*, which acts as a barrier. Bats are active in the night and eat newly emerged moths or even devour the intact cocoons. Often, a group of rearers take turns to guard the cocoons against bats through the night. Bat attacks can be predicted by observing the air movement. These predictions are often quite effective in checking the menace.

Inseminated female moths, after decoupling, are placed in closed chambers, locally termed as *khonjas*, made up of non-host succulent leaves, and allowed to lay eggs. The *khonjas* are tied to a young twig of the host plant.

There are some interesting popular beliefs associated with the grainage activity. *Tasar* is considered to be a crop of Lord Shiva; hence rearers, before starting the grainage activity, usually worship the Lord for a

I was curious to see the process of egg gathering in the khonja because crop loss starts right at that point...either the larvae get infected or they are attacked by the predators.

good crop, and for protection against the theft of seed cocoons. There are some restrictions that people follow. The rearers do not eat fried food. Also, young women are not allowed to enter the room or even the rearing fields during their menstrual periods.

Incidentally, I met a Santhal rearer, who was extremely unhappy because the moths did not emerge in sufficient numbers from his lot of seed cocoons at home; he bitterly accused his 'blockhead' wife because she had fried food at home despite his repeatedly expressed disapproval. This superstition could have a valid scientific explanation: the huts are not spacious or well-aired; often, the kitchen and the room where the seed cocoons are hung are adjacent to each other; the acrid smoke being emitted from the frying pan will, in all probability, have a detrimental effect on the dormant insect inside the pupa.

The grainage activity usually continues for as long as a month. Initially, the rearers are very careful about each and every detail; later, they become a little lax in their actions.

Usually, the rearers open the *khonja* after eight days to throw out the female moth, which would have died and decomposed in the process; immediately after hatching, the young larvae crawl over the decomposed female moth. Quite possibly, the larva becomes diseased or contaminated from the decaying carcass of their mother. The smell of the decomposing mass also attracts swarms of red ants, which subsequently kill the young larva.

I was curious to see the process of egg gathering in the *khonja* because crop loss starts right at that point...either the larvae get infected or they are attacked by the predators. I started asking the rearers why they keep the moths in closed chambers for eight days. Many of them explained that the practice is a method of getting the maximum number of eggs because a female moth continues to lay eggs until her death (its life span being six to eight days); yet, sometimes, it fails to live beyond three days, causing all these problems. Some of the rearers said that they saw their fathers and grandfathers opening the *khonja* after eight days, hence they continue to follow the same practice.

In order to check red ants from coming up, the rearers usually, girdle the base of the plant with the sticky latex of the Banyan tree. Whatever might be the reasons for them following this age-old practice, I thought it was more related to reluctance and the lack of knowledge about the egg-laying behaviour because a moth lays 90 per cent of the eggs within 72 hours, and the eggs laid afterwards 72 hours are usually infertile. The number of eggs that a moth lays varies widely, usually between 10 and 250. Some of the female moths are totally sterile and produce no eggs, even after successful coupling.

EGG MOUNTING AND SILKWORM REARING

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After opening the *khonja*, a young twig is bent and inserted into it, so that the young larvae hatching out of the eggs get attached to it, feed and at the same time crawl out of the closed space and proceed to the other branches. Normally, newly-hatched larvae prefer young and tender leaves. As they mature, they start feeding on coarse older leaves. As a young larva proceeds from the tip to the base of the branches, it leaves behind the skeleton of the foliage along the way.

The rearers are usually more attentive and cautious during events such as egg mounting and the harvesting of cocoons.

Very often, small children, even those who can barely walk, are sent to the rearing fields. They protect the worms from the birds (mainly crows), transferring the worms from the exhausted host to a fresh plant, and collecting the fallen worms from the ground and mounting them on twigs.

The mounting continues from the beginning of October until the end of the month. During this period, the temperature in this area remains warm and the presence of a large number of pest predators are a threat. There are also chances of occasional showers or rainstorms, which pose the threat of scattering the young larvae to the ground.

To protect the crop from all these, the rearers come to their fields early in the morning and remain vigilant throughout the day, sometimes collecting the fallen worms from the ground and mounting them again on the host tree. Every rearer carries bamboo sticks dipped in glue, locally called *lattha*, to trap wasps and Sycanus bugs, the two most dreaded predators. Wasps pick up the young larvae while the bugs pierce the body of the tender worm with their sharp long proboscis to suck out the body fluids. In both cases, the worm dies. The *lattha* is prepared by boiling latex from Madhuca or Banyan trees, with mustard oil.

As the weather cools in the beginning of November and the worms enter their third instar stage in two weeks, the worries of the rearers ease up (pest-predator attacks are reduced in the winter). The rearers, then, spend a major part of their time and energy in their fields, where the paddy crop matures at this time. The harvesting and post-harvesting season of paddy continues for about a month.

During this period, a rearer hardly finds the time or seldom shows interest in visiting his rearing fields. Usually, the elderly members of the family or the idle youth remain there. Very often, small children, even those who can barely walk, are sent to the rearing fields. They protect the worms from the birds (mainly crows), transferring the worms from the exhausted host to a fresh plant, and collecting the fallen worms from the ground and mounting them on twigs. I was amazed to see how efficiently some of the small kids handled these odd jobs and how they drove away the birds.

One very interesting object attracted my attention. It was a two-metre long string made up of sun hemp fibres, meticulously intermingled to increase its elasticity. In the middle of the string, the fibres were spread into a flat holder to hold a stone. Before operating the device, two ends of the string are gathered and a stone is placed in the holder. Then the strings along with the stone are swung in circular motion with a whizzing sound, and the string is extended to its maximum elastic limit. One end of the string is suddenly set free and the stone is released at a fearful speed. Using this device, even a small child can throw a stone beyond 75 m. The whizzing sound made by the stone alerts the birds and they do not dare to come within 100 m of the rearing area, which is the maximum possible distance the stone reaches.

The most tedious task is, of course, transferring the worms from one plant to the other. As the plants become denuded of their leaves, the worms, for want of food, crawl down and wander on the ground. Also, because the leaves are now so sparse after the larval feeding, the worms become exposed and conspicuous and their dazzling appearance attracts predators. Thus, the worm requires a fresh plant both for food and a place to hide.

As the plants are sparsely located, it obviously requires human intervention in order to mount the worms on to fresh plants. When transferring them from one plant to the other, the rearers gather all the worms of a plant on a few twigs, and then cut the twigs along with the worms so as

Consequently, the process of transferring worms takes a heavy toll and is one of the prime reasons for a low yield. In many cases, the rearer lacks interest in minimizing the loss.

to place them on a fresh plant. Often, they use ladders to get access to the higher branches. The entire act requires skill and physical capacity and children often cannot do it. It is not an uncommon sight to find frail little kids standing helplessly after an abortive effort to transfer the entire lot of worms from four or five exhausted trees. A large number of worms come down and crawl over the ground for want of food. This is problematic even for the older people.

Consequently, the process of transferring worms takes a heavy toll and is one of the prime reasons for a low yield. In many cases, the rearer lacks interest in minimizing the loss. Once he mounts the eggs, he seems to consider that his duty is over for the next one-and-a-half months, until the time of harvest approaches.

Of course, there are some rearers who are not reluctant but they are helpless. Being the only young male members of their families, they have to look after agriculture and *tasar* rearing almost single-handedly. For obvious economic reasons, the paddy harvest draws much of their attention. In fact, there is some certainty in the paddy crop and they can expect an assured harvest in normal years whereas the prevailing practice of *tasar* rearing appears to be fragile with no assurance of a harvest. I rarely met a person who reared *tasar* worms with any confidence.

The single most important factor responsible for this uncertainty and dubiousness is perhaps disease. Diseases can be caused by many kinds of pathogens, by protozoa, by bacteria or even by viruses. The most serious of all is probably the protozoan kind (Nosema sp.) that is responsible for a disease known as the Pebrine. Occasionally, bacteria and viruses also become equally dreadful. All the pathogens are primarily transmitted through eggs and are expressed in the off-springs.

The ways of secondary dissemination is through body contact, feeding of leaves previously fed on by a diseased worm, or occasionally through air and rain splashes. In such cases, the diseases may not be expressed in the same generation. The worm may appear quite healthy, although it carries the deadly germ inside its system. Thus, even experienced rearers, who have chosen the seed cocoons from apparently healthy worms are very often overwhelmed by the heavy outbreak of disease in the rearing fields. The events appear so mysterious to them that they blame it all on their fate.

Whatever the symptoms of the disease, the obvious consequences are as follows: a sudden decline in health and vigour of the worms, a pale appearance, dropping of worms to the ground, and death. Diseases get often expressed in the later stages of growth, which is even more painful because the rearer (may be an old man, a kid or a youth) has already spent a couple of months, protecting his crop from a number of hostile forces.

The rearers sometimes start dreaming of a good harvest, often considering a bright green vigorous worm to be equivalent to 50 paise (athanni—the price of a large cocoon) and subsequently calculating the expected yield. Suddenly, the dream is shattered. The worm turns pale, its body becoming flaccid and flimsy, it loses its hold on the plant and falls down. As disease breaks out, the falling of worms appears ceaseless. Initially, the rearers count the number of deaths but give up after a while.

Often, the wheel of fortune gives a favourable turn as well, and the rearer comes up with a bulky harvest, sometimes yielding ten or fifteen times more than the investment. This is a very powerful, motivating force for a rearer to take up *tasar* rearing again and again, despite repeated disasters.

The scene abruptly changes in a week or two. Often, heavy outbreaks of disease occur in the early stages and the rearers find it extremely difficult to recover even their financial investments. I remember a rearer telling me that he had not only given his entire harvest to the moneylender but was also compelled to hand over 10 kg of *arhar* from his field in order to compensate the deficit of the loan. What a pity!

Certainly, the situation is not always what I have described. Often, the wheel of fortune gives a favourable turn as well, and the rearer comes up with a bulky harvest, sometimes yielding ten or fifteen times more than the investment. This is a very powerful, motivating force for a rearer to take up *tasar* rearing again and again, despite repeated disasters.

When the mature worms start forming their cocoons, during the second half of December, the young rearers become quite enthusiastic. The paddy harvest is over, and the rearers now have enough time to pay attention to their rearing fields. Also, when the cloud of uncertainty dissipates in the face of a visible harvest, the enthusiasm of the rearers is obviously associated with the prospect of a good crop. For others, whose crops have suffered an early setback due to disease, they are now more concerned with the harvest, in order to pay off their loans.

The rearers usually arrive in the rearing fields early in the morning (at around 5 a.m. in winter), remain watchful through the day and drive away birds that are very keen to eat the newly formed cocoons. Often, rats climb up the branches and pierce the cocoons. To make the crop management intense and effective, the rearers gather all the worms of their fields to a few adjacent plants and spend days sitting underneath. The larval feeding ends before the cocooning.

Before spinning the cocoons, the worms evacuate their gut by passing a green semi-solid mass of last excreta, followed by a colourless slimy substance. They then begin to explore, looking for a suitable place for cocooning, after resting for a while (it could be ten minutes or one-and-a-half hours). A twig as thick as a pencil with a cluster of three or four leaves is the best place for cocooning. The worm settles down there and starts secreting silk threads around the twig to girdle it and then gradually pulls the leaves closer to the twig to form a confined space. Within this space, initially the worm makes a silk hammock that acts as a scaffold/frame of the cocoon; it then enters the hammock and starts spinning around its body to form a cocoon.

COCOON HARVESTING

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As more worms enter pupation, the rearers begin thinking of the harvest. Before the harvest starts, the rearers perform a ritual, worshipping Lord Shiva or the Goddess of the forest or some ghosts (for not creating disturbance) with some offerings to express their gratitude. Even those, most stricken by bad luck, offer things such as puffed rice, sweets and flowers. And others, the more fortunate, offer a pair of fowls.

The harvesting is done by hand. The branches are pruned almost to their bases and the cocoons are separated from the twig by using a sharp sickle. The branches are then gathered and brought to the house. These are later used as firewood for parboiling (*ushna*) freshly harvested paddy crop. On an average, a rearer collects nearly seven quintals of firewood through this process.

Meanwhile, the stage is all set for the traders to enter. The moneylender often turns into a trader. He arrives at the harvesting site to claim his dues as well as to purchase the excess.

The net harvest of the cocoons is counted. The smallest unit of count is *gonda* (four); 20 *gondas* make a *pon* (80); and 16 *pons* make a *kahan* or *khari* (1,280), the ultimate unit. Three to five *pons* of cocoons are harvested in a day, and the harvesting season continues for up to a month, depending upon the yield.

COCOON MARKETING

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Meanwhile, the stage is all set for the traders to enter. The moneylender often turns into a trader. He arrives at the harvesting site to claim his dues as well as to purchase the excess. I saw a few traders taking rounds in the rearing areas, meeting the rearers every day, and purchasing their daily harvests.

At first, the cocoons are graded on the basis of their shape, size, weight and toughness. Then the trader fixes the prices for the different grades. The general tendency of the traders is to send even the good quality cocoons to the lower grades to offer a lower price.

That year, when I was watching the process, the prices of Sarihan varied between Rs 15 to Rs 20 per *pon* (around 25 paise per cocoon) for all grades, whereas for Dhaba Tri-voltine, it was between Rs 20 to Rs 25 per *pon* (25 to 30 paise per cocoon).

The offer price was about 50 per cent to 60 per cent less than the prices offered at the terminal markets after one or two months. However, the poor rearers would not be able to hold on to their harvest for one or two months, to avoid the period of glut. The main problem is storage. Technically, storage needs a clean, well-aerated and spacious room. Arrangements are also needed to prevent the entry of light, since light facilitates the early emergence of moths by piercing the cocoons. The value of pierced cocoons is far less than that of intact cocoons.

The stifling (the act of killing the dormant insect inside the cocoons by exposing cocoons under the sun for two weeks continuously) is an easy way of checking the emergence of the moth from the cocoon, but most of the rearers consider stifling to be a sin.

Rats are very destructive; they pierce the cocoons and eat the dormant insect inside. This also drastically reduces the value of the harvest.

Yet another important reason for selling their harvest early is possibly economic; Bandhana, the main festival of the Santhals, begins within a couple of weeks of the harvest; from the 7th of January to the 14th of January. The Santhals are at that time desperately in need of some ready cash to perform their religious rituals, to buy various articles as offerings for their deities, to entertain their guests and relatives with good food and liquor (nowadays, very often country-made liquor that is sold in bottles is offered), to buy clothes for the whole family, to repair their huts, etc. The only option left for them, therefore, to meet their urgent need of money, is to sell the *tasar*, and no one really drives a hard bargain with the trader; everything is done in a hurry.

CONCLUSION

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Initially, in my two-and-a-half month stay in Rajdah, I used to cover a rather large area of natural forest (rearing field), meeting rearers of seven villages, of a total of 14. I used to walk 12 km a day and meet 20 to 25 rearers daily. I wanted to understand the society, their

From my interactions with the people, I gathered information that helped me to understand the socio-economic and cultural conditions of the rearers as well as their inter-linkages with the tasar practice.

beliefs, their perceptions and experiences with respect to the *tasar* practice. I also tried to learn why they were practising it and how they acquired silkworm-rearing skills. Along with this, it also became important to get to know their economic situation.

I chatted with them casually, deliberately maintaining an informal approach, and was in absolutely no hurry, often sharing cigarettes or *chutti* in the cold winter mornings and trying my level best to reach closer to their hearts. Most of the tribal rearers knew Hindi and the local dialect. Arun *ji* (who was with me for the initial two weeks in Rajdah) helped me understand the conversations in Santhali. From my interactions with the people, I gathered information that helped me understand the socio-economic and cultural conditions of the rearers as well as their inter-linkages with the *tasar* practice better.

Most of the rearers are Santhals; some are Ghatwars, Yadavs, Bhumihars and Harijans. All of them practice agriculture as their primary occupation. The majority of them are poor farmers, with arable landholdings, varying from a few *kathas* to four *bighas*. The poorer ones also do some share-cropping on the lands of the local zamindars. The agriculture that they practice here is primarily mono-cropping, with paddy as the sole crop, though a few of the farmers grow the low yielding autumn pulse *kurthi* on the up-lands or some winter vegetables in their small kitchen yards.

The land topography, in general, is highly undulating and the soil type varies from sandy loam in the lowlands to the coarse gravelly type in the uplands. Agriculture is entirely rain-fed and most of what is cultivated is native, with the average standard yield being only eight *maunds* (320 kg) per *bigha* (about 1.6 tonnes per ha). The output from agriculture barely feeds their families for two quarters of a year.

Hence, all of them have other subsidiary or seasonal occupations such as stone-crushing, rope-making, tiles or *khapra* manufacturing and running indigenous distilleries.

The *tasar* practice, likewise, is treated as a subsidiary occupation by which rearers can earn a good amount of money, provided everything remains favourable. A good harvest sometimes earns them twice the earning from agriculture. For the Santhals, who are the poorer people of the area, a good harvest of *tasar* means a bonanza during the Bandhana festival.

Besides economic reasons, sometimes many rearers, I believe were continuing the practice out of a feeling of obligation. They had a sizeable number of plants, which were being protected and shaped since the time of their fathers or grandfathers; the skill was inherited from their ancestors and was a part of their tradition. They cherished a long history with the practice and considered the crop to be a blessing of Lord Shiva; they, therefore, felt bound to continue with it. It hardly mattered to them whether it yielded a boom or a miserable collapse.

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SHAMSHAD ALAM

MY JOURNEY WITH TASAR SERICULTURE

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Recounting his initial engagement with *tasar* as a livelihoods option for the tribals of Chaibasa district, the author describes how over the last two decades this has become a meaningful though challenging involvement, requiring perseverance and optimism

SOON AFTER I COMPLETED MY B.Sc. (Forestry) from Birsa Agriculture University, Ranchi, in January 1996, I joined PRADAN as a Development Apprentice. I was in search of a job in the NGO sector that would allow me to continue to live in Ranchi to pursue my Masters. I considered it a transitory arrangement as my plan, in the long run, was to get a government job. I shared this plan with Achintya and Bismaya, who interviewed me in PRADAN's Ranchi office. They insisted that I visit a PRADAN project in Bihar before taking a decision to join the organization.

I visited PRADAN's Chaibasa project. The field visits, along with interactions with the members of PRADAN's Chaibasa team, completely changed my perception about NGOs. I was particularly impressed by the seriousness with which PRADAN members engaged with the community and worked to promote improved farming, supported by small irrigation schemes. Later on, Achintya asked me to join the Godda project because it was my home district and *tasar* was related to the subject I had studied in college.

Satya was the Team Leader of the Godda project. On the day I joined office, he briefed me about

During the initial months of Apprenticeship, there was no particular work assigned to me. I would interact freely with the villagers, observe and learn about the various aspects of village life and write reports and share them with my colleagues. Being a forestry man, I enjoyed exploring the forest.

PRADAN and the *tasar* project and arranged to drop me at Sunderpahadi, where I was to stay and work. I remained there for the next six years. Sunderpahadi was the block headquarters. Besides the block office, there were only four or five other *pucca* buildings in the area in those days. The place was very peaceful and full of greenery. Our office was located at one end of a village playground, with the forest cover starting from the other end of it. Sunderpahadi was sparsely populated with no electricity or telephone connection. Excepting for the members of the team, no one remained awake beyond 8:00 in the evening.

As a Development Apprentice, I chose to explore the *tasar* theme. In those days, PRADAN teams were thematically organized. My daily routine was to visit the villages along with Anish. We would spend the entire day talking with men and women in the villages, understanding their livelihood options, keeping a special focus on *tasar*. Those were my initial opportunities to interact with the tribal people and understand the socio-economic and cultural aspects of their lives. There was not much by way of entertainment in Sunderpahadi; therefore, the team members' discussions continued late into the evenings. I slowly started loving the place and my work.

During the initial months of Apprenticeship, there was no particular work assigned to me. I would interact freely with the villagers, observe and learn about the various aspects of village life and write reports and share them with my colleagues. Being a forestry man, I enjoyed exploring the forest. I realized the tremendous opportunity I had been given to learn, not only from my colleagues, but also from the villagers. I was so engrossed in my daily chores that my plans to do my Masters and get a government job faded away from my mind.

Spending six months with Anish gave me ample opportunity to learn about the community and sericulture. I also received training on seed production technology and processes from Central Silk Board (CSB). We were able to promote four grainages (seed production units of *tasar*) in Sunderpahadi, owned and operated by four tribal youths. Four additional grainages were coming up in the area. Anish was already involved in these initiatives. I joined him after my training. I got a photocopy of an outdated version of a *tasar* sericulture manual, compiled by the Food and Agriculture Organization. That was the only available printed material of some use for the practitioners of the sector!

In those days, the traditional silkworm rearers had two sources to procure *tasar* seeds. Either they gathered the seed cocoons from the forests, preserved these at home for some days, and allowed the male and female moths to emerge from the cocoons and copulate. The inseminated female moth would lay eggs that were, then, mounted on the host trees. Eggs would hatch to spawn a new generation and, hence, a new crop cycle.

The other source was the government sericulture establishments (such as CSB and State Sericulture Department), which supplied Disease Free Layings (DFLs) or the seeds of the *tasar* moth to the silkworm rearers.

The availability/collection of seed cocoons from the forests was, however, dwindling rapidly in the 1990s due to tree felling and disease contamination in the insects. Rearers were unable to prepare adequate quantities of *tasar*-layings at home. Thus, they

I took a few traditional rearers to the forest areas of Giridih in search of seed cocoons. I remember how tough it was to procure seed cocoons as an outsider. We had no clue as to where to stay in the night in the forest. Fortunately, we were able to locate a small campus set up by an NGO, deep inside the jungle.

were opting for the DFL supply from government-run grainages. Here also, there were serious supply constraints. Hardly 20 per cent of the demand was being met through the government grainages. Also, the DFLs were of questionable quality and resulted in regular outbreaks of disease in the silkworms and, consequently, crop failure. The situation was quite worrisome for the traditional rearers, who were gradually giving up the practice of silk rearing. In this backdrop, PRADAN promoted the concept of DFLs prepared locally by village-based entrepreneurs in small-scale grainages.

Tasar has two or three crop cycles in a year. The last cycle, from October to December, is considered a commercial cycle and the earlier cycles are seed cycles (seed crops); these, through successive cycles, build up the seed stock used in the commercial grainage cycle. Village-based grainages, promoted by PRADAN, produce DFLs for the commercial crops that are then sold to silkworm rearers in the neighbourhood. In the past several years, since we have been involved in grainage promotion and DFL supply, we saw repeated failure of seed crops, leading to near complete erosion of seed stock for commercial grainages.

Every year, seed crops were lost due to some reason or the other. We were unable to identify the exact reason for the setbacks. Neither could Central Silk Board (CSB) provide any plausible answers. Left with small seed stocks, PRADAN, along with the grainage owners, worked hard to produce DFLs that performed better than average. And that was how there was a gradual increase in the demand for DFLs from the grainages. However, we could not increase the number of grainages in our project areas due to an acute shortage of seed cocoons. The existing grainages produced about 20,000 DFLs annually to cater to about 180 silkworm rearers. We stagnated at this number for nearly three years.

Satya told us that we should find ways to break the stalemate. We decided that we would procure seed cocoons from outside the project area, and at the same time continue with our efforts to stabilize the seed crop cycles within our project area. In that way, we could have the additional seed stock to promote more grainages and augment the DFL supply to cater to a greater number of silkworm rearers. I took a few traditional rearers to the forest areas of Giridih in search of seed cocoons. I remember how tough it was to procure seed cocoons as an outsider. We had no clue as to where to stay in the night in the forest. Fortunately, we were able to locate a small campus set up by an NGO, deep inside the jungle. They were kind enough to offer us some food and a place to stay at night. Over the next two days, we spent from morning to dusk, visiting villages and rearing fields. We observed widespread crop losses across the jungle. Our hopes of getting seed cocoons in the Giridih jungles fast faded away.

On the third day morning, as we were preparing for our outing on the final day, Satya arrived. He had been to the forests of Purulia (in West Bengal) in search of seed cocoons and on his way back had come to Giridih to tell us that there were plenty of seed cocoons available in Purulia and that he had spoken with the Sericulture Department, which had agreed to help us with the procurement. We felt as if we had hit the jackpot! We hurriedly returned to Godda, arranged the money, and Satya and Anish and a few grainage owners left for Purulia the next day. I stayed

My experience in working with *Tasar* had, so far, been quite frustrating. One day, in 1998, sitting in the Sunderpahadi office, I started reflecting and questioning myself, and wondering what I was up to. I asked myself what kind of a job I was doing.

back at Sunderpahadi to help the grainage owners ready their grainages to receive the seed cocoons.

The team to Purulia took the help of the local Sericulture Office of the government to establish contact with the rearers and bought 2.40 lakh pieces of seed cocoons in three days! They spent two days tying bunches of seed cocoons to threads for making garlands. They, then, raised bamboo frameworks, hung the cocoon garlands on them and mounted them on trucks for transportation. All this was done to minimize cocoon damage during the long-distance drive back. Transporting live material (seed cocoons) across the state border required elaborate paperwork by the state department. After all the papers were in order, the team finally left Purulia on the sixth day and reached Sunderpahadi late in the night.

That same night, I took the trucks to distribute the cocoons to all the grainages. A total of 18 grainages were thus operating in the entire Godda project to produce 63,000 DFLs to serve 480 silkworm rearers. The commercial crop was very successful. A total of over 20 lakh pieces of cocoons were produced by the rearers, who were then supported to market the cocoons.

Over the next three years, we followed the same procedure and procured seed cocoons from Purulia. However, soon we hit a limit. There was no increase in the cocoon availability in Purulia. Moreover, disease infection was on the rise every year and, by 1999, several grainages failed and we were back to square one!

We, then, decided that instead of procuring seed cocoons from outside, we would work towards improving the local production. We developed training modules for grainage entrepreneurs and detailed out the processes of establishing grainage enterprise in the village. We were quite sure of the robustness of our grainage model and saw major challenges in arranging seed cocoons for the grainages.

In 1998, we approached CSB and sought support for our grainages. However, CSB was not convinced about our grainage model and said that our private grainages may be breeding diseases rather than eliminating them.

My experience in working with *tasar* had, so far, been quite frustrating. One day, in 1998, sitting in the Sunderpahadi office, I started reflecting and questioning myself, and wondering what I was up to. I asked myself what kind of a job I was doing. I knew that my parents did not really appreciate my job because they were keen to see me in a government job. I liked the idea of the work that I had committed to but was totally dissatisfied with the final outcome. I wondered how many years we would need to work to see the impact among the tribal rearers. What was the growth potential of our work? I also told myself that I should think differently or leave the activities.

I recalled Anish's words as he was leaving Godda in 1997, "Shamshad, leave DFL production and silkworm rearing to their traditional wisdom and focus on yarn processing." I had not replied but was not convinced either. After Anish left Godda, I remained holding fort alone in Sunderpahadi, with support from Satya.

TURNING POINT IN *TASAR* SERICULTURE: UNDP PROJECT

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Till the end of the 1999, our project could support only 550 silkworm rearers with DFL supply and cocoon marketing. Elsewhere,

Till the end of the 1999, our project could support only 550 silkworm rearers with DFL supply and cocoon marketing. Elsewhere, their numbers had drastically reduced with many rearers dropping out of the activity altogether.

their numbers had drastically reduced with many rearers dropping out of the activity altogether. There was rampant felling of host trees in the traditional forest areas. Neither DFL rearing, nor indigenously prepared layings, were yielding good results. The production of seed cocoons in Giridih also significantly declined, thus, curtailing seed cocoon supply in traditional rearing. None of the states (through the Department of Sericulture—DoS) took any serious steps to arrest the steady decline in the *tasar* sector.

In this backdrop of gloom, the Ministry of Textiles (and its subsidiary—CSB), the Government of India and UNDP jointly organized a meeting in 1999, to revitalize the *tasar* sericulture sector. PRADAN was invited to a meeting in Kolkata; our colleagues, Arijit Mukherjee and Ujjal Ganguly, presented our case, which was well received for the freshness of its ideas. It was decided that UNDP would finance a comprehensive pilot initiative, to be anchored by CSB, and it would collaborate with suitable partners, government departments or NGOs, to implement the project across major *tasar* producing states. CSB formed a committee to select suitable field implementing agencies.

At first, CSB shared the project concept with DoS, Government of Bihar. DoS-Bihar decided to opt out of the project, claiming lack of staff and other resources to implement such a 'time-bound and result-focussed' project. The department, instead, reluctantly proposed PRADAN's name for project implementation.

The committee then visited our project areas and had extensive interactions with the producers and PRADAN staff. Two days of hectic field visits ended in a meeting, in one of our field offices, with some of the grainage owners. CSB scientists wanted to assess the technical knowledge of the grainage owners. It was a chill December evening and there was no electricity. The interaction lasted for two hours in the light of a dim hurricane lamp; the grainage owners were able to respond to all the queries posed by the senior CSB scientists. They also supported their answers with data recorded meticulously in their grainage registers. The committee was thrilled by its findings and expressed the desire to introduce the model across all the states through the UNDP project. Subsequently, Satya and I engaged with the committee to develop a comprehensive plan, covering all the major aspects of the value chain with specific focus on expansion of the grainage model.

Collaboration with CSB under the UNDP project was, in many ways, a turning point for the *tasar* project. For the first time, we forged an institutional collaboration with CSB and received the support of mainstream finance. We decided to plan the activities in such a manner as to minimize the chances of any failure. Satya asked me to anchor the project. By this time, some of our plantations (about 500 acres altogether) had matured and we decided that we would use these plantations as well as some forest patches in Sunderpahadi exclusively for seed-crop rearing.

Meanwhile, I attended a three-week in-house training designed by CSB for implementing the UNDP project. I had an opportunity to share my experiences with the scientists of CSB. It was a mutual learning and reflection process. The training gave me the confidence to work with CSB in addressing the major challenges of the sector. I was to apply all the insights I had

Seed-stock multiplication became a grand success in the three years of the project. The entire lot of seed cocoons was processed in the grainages. The availability of seed cocoons created grounds for rapid scaling up of grainages.

gathered so far, to improve the performance of seed-crop rearing and the grainages.

Three key factors played a significant role in the success of the endeavour: (i) the quality of DFLs supplied by CSB (prepared with special care from select grainages), (ii) the rearing of early stage worms under the cover of nylon nets and (iii) the rigorous training of grainage owners and seed-crop rearers.

Seed-stock multiplication became a grand success in the three years of the project. The entire lot of seed cocoons was processed in the grainages. The availability of seed cocoons created grounds for rapid scaling up of grainages. From 21 private grainages, the number rose to 76, with an annual production of 2.75 lakh DFLs to cater to 1,100 rearers. We were most happy to see many (40 per cent of the total) rearers and grainage owners, earning in the range of Rs 15,000 and Rs 25,000—indeed, a huge earning in 2001! In the three years of the UNDP project, our field areas became a learning ground for state sericulture departments and CSB scientists. Every year, PRADAN received the award for the Best Field Implementation Agency. These successes paved the way for our project's entry into West Singhbhum (the southernmost district of Jharkhand) in 2002, which had a vast potential for expansion. We entered there on an invitation from CSB.

UP-SCALING THROUGH THE SPECIAL SGSY PROJECT

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The UNDP project was a success for CSB; it brought renewed focus on *tasar*. PRADAN produced spectacular results consistently during the project period and established its credibility as a significant actor in the *tasar* sector. In the concluding review meeting of the UNDP project in 2002, Satya expressed our eagerness to upscale the initiative. Shri P. Joy Oommen, Member Secretary of CSB, took note of it and decided to visit our project areas to see the impact on the ground and explore future possibilities with the PRADAN team.

The Member Secretary visited the project areas in August 2002 and spent three days with us, going to project villages, interacting with producers and meeting PRADAN team members. He was fully convinced of our work and was excited to interact with a young group of PRADAN professionals, who were dreaming of making it big. The next month, the Member Secretary sent a team of officials from the CSB's head office to work with Satya to formulate 'scaling-up' projects for Bihar and Jharkhand. They spent about a week to prepare the project proposal. Mr. Joy Oommen committed that CSB would bear a substantial part of the project cost and assured full technical support of CSB. The remaining part of the project had to come from some other sources.

Deep Joshi shared the project proposal with the Ministry of Rural Development (MoRD), Government of India, and requested for financial assistance. MoRD agreed to meet 75 per cent of the cost, the remaining came from CSB. For the first time in the history of *tasar* sericulture, the sector received such large-scale financial support (to the tune of Rs 28 crores). Two separate projects, one each for Bihar and Jharkhand, were considered for funding under the Swarnajayanti Gram Swarozgar Yojna (SGSY) Special Projects.

We were to reach out to 8,000 households in Bihar and Jharkhand. The major objective here was to enable households earn sustainable livelihoods in

Over the next three years, beginning 2003, we promoted 2,000 ha of plantations in private lands, owned by around 2,800 families. Using all our insights on farmer selection, nursery raising and plantation maintenance,

tasar sericulture and to be able to permanently move out of the poverty bracket. By all standards, it was a big project. CSB set up its nodal office in Ranchi, to support the projects. Two Basic Seed Multiplication Centres were set up by CSB to cater exclusively to the projects. Also, its Regional Research Stations were revamped to play an important role in training and extension. In 2003, I left Godda to join our Deoghar office. The partnership with CSB had reached great heights by then. For us, the project offered great opportunities to upscale all the interventions tried out so far in our project, the major ones being the plantations, grainage and rearing.

Over the next three years, beginning 2003, we promoted 2,000 ha of plantations in private lands, owned by around 2,800 families. Using all our insights on farmer selection, nursery raising and plantation maintenance, we established plantations in large patches successfully; these helped in generating robust livelihoods for rearer households subsequently. PRADAN set up 260 private grainages (over a three and a half-fold increase from the UNDP project), to prepare 7.80 lakh DFLs annually and cater to 5,000 rearers, producing 30 million cocoons annually.

Here, I would like to mention that everything did not always run smoothly in the SGSY Special Projects. As we embarked on a rapid expansion of grainages, our requirement for Foundation Seed DFLs also increased commensurately. The entire lot of DFLs was to come from CSB, which was the arrangement in the UNDP project. However, from the second year onwards, CSB's seed supply systems started to falter. Supply (in terms of quantity) commitments could not be met, the DFL supply did not follow the time schedule and, above all, the quality was poor. There were problems of germination everywhere and a large percentage of young worms perished quickly. Seed rearing in 2004 failed again! Only a third of the grainages could be operated. There was a serious shortage of DFLs in the commercial crops and many rearers did not get DFLs, leading to widespread livelihood losses.

At the apex level, in a project review meeting of CSB, we submitted all the data and evidence gathered from the field about the reasons for the crop failure; we also explained how the inability of CSB to supply Foundation Seeds could potentially jeopardize any expansion plans in the *tasar* sector.

Subsequently, Deep wrote a letter to the Member Secretary, CSB, to express concerns about the widespread crop failure and livelihood losses of tribal households. CSB convened a meeting at its head office, inviting PRADAN to discuss the matter. Besides the Member Secretary, the Secretary, Ministry of Textiles, and the Head of Tasar Seed Supply Organization of CSB attended the meeting. Deep and Satya proposed that PRADAN could join hands with CSB to augment the Foundation Seed supply in the sector.

First, the CSB's grainages lacked person power to carry out critical operations. We proposed that the expanded pool of grainage owners in our project villages could assist CSB to perform all the operations in their grainages, to maintain the quality of DFLs. Against this, CSB would need to assure Foundation Seed supply to grainage owners. This arrangement was adopted in CSB grainages and helped in the improvement of Foundation Seed supply and, thereby, the attainment of growth as planned for the projects.

I took charge of the entire initiative. We took utmost care in the rearing of the previous crop cycle and the selection of seed cocoons for the Foundation Seed grainage.

Second, PRADAN proposed to undertake the Foundation Seed preparation and requested CSB to hand over one of its Foundation Seed units. The proposal was, in some ways, a bit radical because CSB never thought that any other agency could take up this role. CSB hesitated about handing over this role to PRADAN. However, in the subsequent meetings with CSB over the next two months, we remained firm on our point. Here, I would specially mention the names of Shri J.V. Krishna Rao and Dr. K. Satyanarayana, senior scientists, who were integrating SGSY Projects on behalf of CSB. Shri Rao and Dr. Satyanarayana actively supported our entry into Foundation Seed production. I see this as a turning point in our journey.

EXPERIMENTING WITH BASIC SEED PRODUCTION

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We planned to initiate the Foundation Seed grainage in 2005. CSB offered us one of their Foundation Seed production units in Deoghar, Jharkhand. We refused to take it because the building was not customized to be used for seed preparation and was quite dilapidated. Instead, we decided to use one of the buildings set up for the rearers' collectives in a village. At that time, we were not really familiar with the nitty-gritty of the Foundation Seed grainage, which required six to seven months of engagement. The cocoons preserved in the grainage were the harvest from the previous crops. The presence of diseases in the cocoons (of the previous crops) could lead to the high eruption of disease in Foundation Seed grainages and cause a complete failure.

I took charge of the entire initiative. We took utmost care in the rearing of the previous crop cycle and the selection of seed cocoons for the Foundation Seed grainage. Whereas we were successful in ensuring ambience and cleanliness in our grainage, yet, soon after the start of the grainage cycle, the disease levels in emerging moths were found to be very high. This led to a complete failure of Foundation Seed grainages for the next two years.

We were totally frustrated by the repeated failures. Our requirement for Foundation Seeds was increasing every year. Depending fully on CSB for seed supply was not reassuring. Also, placing grainage workers in CSB grainages (for helping in grainage operations) across six states was very cumbersome.

I reflected hard on the series of events leading to the failure in the past two years. The previous seed crop cycle (leading to grainage) was the most crucial, for which I selected a completely new patch of plantation raised under the SGSY projects. Next, I went to one of CSB's seed supply stations, along with experienced grainage owners. We personally examined the moths, prepared 3,000 units of DFLs and conducted the rearing in the selected plantations. Needless to mention, I could not, at that time, attend to many other activities within our project. For the first time, we harvested 75 cocoons per DFL and, more importantly, these were absolutely free of infection!

Next month, in January 2007, we consigned the cocoon lot for preservation in three buildings closer to Deoghar (where our office was situated) for better monitoring and follow-up. We were excited at the prospect of cracking the problem this time and yet we were nervous about the possibility of something going wrong at the last moment. The subsequent six months of the cocoon preservation period were

In 2012, PRADAN embarked on a discussion to revisit its approach and strategy that necessitated an organization-wide restructuring. Sectoral initiatives such as the *tasar* project would not go into PRADAN's new approach was one of the conclusions.

literally nerve-racking for us. Our Foundation Seed grainage finally started in late July 2007. Incidents of infection were very negligible. It was such a relief! The grainage operation was a grand success! This was much beyond our expectations and it reinforced the point that Foundation Seeds could now be prepared in the villages by our grainage entrepreneurs; a new possibility to unleash growth in the sector.

In the next three consecutive years, we succeeded in Foundation Seed production, simultaneously expanding the activity in three more locations. In this journey, we kept the CSB in the loop by the joint monitoring of grainage functions. CSB was fully convinced about the progress and felt the need for supporting the work with better infrastructure. In 2010, funds were arranged from the SGSY Special Projects to set up a new building for the Foundation Seed grainage. In the next two years, we set up three such units additionally, taking support from CSB and NABARD. Our dependence on CSB for Foundation Seed supply came down to just about 10 per cent by 2012. Further, all our Foundation Seed grainages received ISO 9001: 2008 certificate, a pioneering feat in the tasar sector. The certification helped in developing the protocol of quality seed production right from silkworm rearing to the Foundation Seed production. It also improved the data recording system.

STRENGTHENING THE *TASAR* THEME

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Satya and I worked together for so many years with tasar. In 2007, Satya shifted to Ranchi to integrate PRADAN's operations in Jharkhand. His availability for the *tasar* project became less. The success of the Foundation Seed production raised our aspirations; we wanted to expand the *tasar* project to several states. Between 2010 and 2012, we had already made forays into Odisha. With my time increasingly getting drawn to building seed verticals, the remaining activities could not be fully attended to. By 2011-12, there were signs of deterioration observed on several fronts. It became too much for me to manage every aspect of the project.

In 2012, PRADAN embarked on a discussion to revisit its approach and strategy that necessitated an organization-wide restructuring. Sectoral initiatives such as the *tasar* project would not go into PRADAN's new approach was one of the conclusions. PRADAN would like to set up separate organizations to pursue these initiatives. I was disheartened, and not sure of getting PRADAN's support in the long run. Anish and Satya kept encouraging me to think big and lead the initiative. I was not confident about whether I would be able to set up a new organization. Also, getting excluded from the main body of PRADAN was a painful prospect.

In any case, in 2012, we decided to strengthen the *tasar* theme team. Rajendra Khandai, who was already a part of the *tasar* programme, being part of the PRADAN Dumka team, had joined the *tasar* project. He took responsibility for strengthening the seed vertical. I continued to anchor the overall operations, especially looking after ongoing projects with CSB and NABARD.

In the same year, we partnered with CSB to prepare a multi-state *tasar* project for consideration under MoRD. Things started looking up for the *tasar* team when Ashish Chakraborty and Binod Raj Dahal, two of our experienced colleagues, joined us.

There was no other organization in the state or in the private sector other than PRADAN (more specifically its *tasar* team), which had the commitment, expertise and ground presence to further the *tasar* sector development.

ESTABLISHMENT OF TASAR DEVELOPMENT FOUNDATION: BEGINNING OF A NEW CHAPTER

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Tasar Development Foundation (TDF) was incorporated on the 5 November 2013, at the National Capital Territory of Delhi, under Section-25 of the Companies Act. Four of us, Ashis, Rajendra, Binod and myself joined TDF. PRADAN intended to have influence over the governance and management of TDF. Satya became the Chairperson of the Board of TDF. Two other members; Anish and Khitish, our long-standing associates, also joined the TDF Board. PRADAN had deputed four of us (Ashis, Rajendra, Binod and myself) to TDF to set up the core management team. The Board asked me to take on the role of Managing Director.

There was no other organization in the state or in the private sector other than PRADAN (more specifically its *tasar* team), which had the commitment, expertise and ground presence to further the *tasar* sector development. TDF, in its vision document, mentioned that it would unleash a three to five-fold increase in livelihood coverage under *tasar* sericulture in the next 10 years. It would do so by way of

Women farmers from West Bengal undergo training on moth examination under the microscope for DFL

The MKSP projects are taking us to a new high. We have set up Foundation Seed grainages in each of the states, raised over 2,000 ha of tasar host-tree plantations and supported over 8,750 women and men to undertake seed production and silkworm rearing. In the past three years

building and retaining competent human resources within the sector to instill new ideas, raise standards of performance and manage frontiers of growth. One critical frontier for TDF would be to manage the seed vertical to promote growth in the sector and establish the concept of quality and service in the sector. The rationale for setting up a sectoral organization also existed in creating mechanisms for effective integration of pre- and post-cocoon segments that operated in different geographies and building an on-going concern for maximizing the gains of the producers in the value chain.

Meanwhile, our project proposal for a multi-state expansion initiative languished with MoRD, which had initially shown great interest in this project. Finally, Anish revived it and put it on a fast track at MoRD. Subsequently, I was invited to a workshop conducted by MoRD at National Institute of Rural Development (NIRD), Hyderabad, to identify/ explore the possibilities of livelihoods generation under Non Timber Forest Produce (NTFPs). I made a presentation on our *tasar* project. Most of the participants, including the experts, considered *tasar* a fit activity for expansion. MoRD finally decided to consider our project proposal under the Mahila Kisan Swashaktikaran Pariyojna (MKSP) to support *tasar* expansion in West Bengal, Odisha, Bihar, Jharkhand and Chhattisgarh. Five separate MKSP projects were sanctioned by MoRD in 2013. CSB chipped in as a co-financer and technical support agency. TDF became the Field Implementing Agency. The projects were to create sustainable livelihoods for an additional 12,000 poor households in three years.

The MKSP projects were very different from the earlier two state-sponsored projects because we were required to promote *tasar* among rural women. In tasar, so far, the participation of women in silkworm rearing was minimal because the activity was carried out in distant forests, often inaccessible to women. TDF took on the challenge and systematically involved women in all the major activities such as plantation, grainage and silkworm rearing. The period between 2013 and 2016 was full of action for TDF. Offices were set up in four locations, staff was to be recruited, trained and deployed for field operations. In many locations, TDF had to move alone beyond PRADAN's project areas, to reach out to silkworm rearers. In addition to these, the tasks around seed verticals gained primacy.

The MKSP projects are taking us to a new high. We have set up Foundation Seed grainages in each of the states, raised over 2,000 ha of *tasar* host-tree plantations and supported over 8,750 women and men to undertake seed production and silkworm rearing. In the past three years, TDF has supported seven Foundation Seed units, to consistently produce 2.75 lakh Foundation Seed DFLs per annum. As many as 300-private grainages were made operational to prepare over 15 lakh DFLs every year in the commercial crop cycles, to cater to over 8,500 silkworm rearers, who produced around 6.50 crore pieces of *tasar* cocoons annually. There are signs of revival of *tasar* sericulture in our project areas. This has been made possible through the efforts of a competent team of 24 staff members of TDF.

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Shamshad Alam is based in Ranchi, Jharkhand

KHITISH PANDYA

THE TASAR JOURNEY: My Experience

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"Sooner or later, those who win are those who think they can." Richard Bach

Before the Beginning

—

I WAS A MARKETING CONSULTANT TO SMALL AND MEDIUM ENTERPRISES (SMEs) (in those days, they were known as Small Scale Industries (SSIs) in the late nineties and the onset of the new millennium. I was not cut out for the job of a consultant because I am more of a doer; I was there for want of any other option (my earlier venture as an entrepreneur had failed and I had no money to start afresh). I had wound down my previous venture in which I was manufacturing pre-fab shelters about a year earlier. Smita Mohanty, who was my senior in Xavier Institute of Management, Bhubaneswar, from where I had done my MBA, mentioned to me one day that PRADAN was looking for a marketing person for its *tasar* silk project and she

I cannot guess why PRADAN offered the assignment to me but as far as I was concerned, I saw this as an opportunity to build a new enterprise from scratch and to get out of the tedium of the consulting work I was doing at that time.

could set up a meeting if I was interested in looking at it. I was, of course, interested and she fixed a meeting with Deep Joshi and Nivedita Narain for me sometime in the month of April/May of 2000.

It might sound a little clichéd but meeting Deep was an unforgettable experience and then the meetings with Nivedita and Satyabrata Acharyya were like the icing on the cake. The brief put in front of me was that they were looking for an entrepreneur type of person, who would build a market for their *tasar* yarn. There were about 182 women making yarn and at some point PRADAN had also got into weaving of textiles and selling it as a strategy to promote the project yarn. They were having some difficulty in marketing the yarn. After the usual discussion, Deep asked me if I would like to come on board. "Why not?" I replied. "On a variable pay, based on performance?" he asked and I said, "Sure, why not?" And that is how I came on board from June 1, 2000.

I often wonder what would have happened if I had known that based on the fabric weaving division's previous year's sales, even if I were to ensure a 100 per cent growth, my annual variable pay would amount to less than the BPL income limit! Or if Deep had come to know that I had never ever bought even a metre of fabric in my life and that pink to me was a shade of red!

I cannot guess why PRADAN offered the assignment to me but as far as I was concerned, I saw this as an opportunity to build a new enterprise from scratch and to get out of the tedium of the consulting work I was doing at that time.

The Beginning

I charged into the job with the confidence and arrogance of the ignorant. I had no clue about the attributes of fabric and its manufacturing, but I did know how to market. I used common sense to identify potential customers for the kind of fabric and other woven items that we were making and started doing the rounds. I was visiting clients with the sample bag and, from their queries, I learned the nuances of the fabric business.

I had a very able and enthusiastic team looking after production in Bhagalpur (Bihar) in Arijit and Sheshnath. Arijit was a PRADANite and was deputed to handle the yarn and fabric production. He was assisted by Sheshnath, who was a para-professional. Those were heady days. We were working hard and learning on the job. In the 10 months of the financial year of 2000–01, we posted a gross sale of Rs 27 lakhs and a net sale of Rs 18 lakhs (we had rejections of about Rs 9 lakhs due to manufacturing issues), still a net growth of more than 650%!

I realized early on that although the market was huge, *tasar* was not suitable for the fashion garment and the made-ups segments, due to its stiff texture and the problem with replicability. I also realized that we could not sell fabric by the yard and survive, because the local traders would have less overheads and hence lower prices for the buyers. So, I focused on woven off-the-loom items wherein better the design input, better was the price realization, in comparison to yardage.

Promoting yarn was another ball game altogether. Our yarn was different—in structure and in look—from the traditionally made thigh-reeled yarn. It was more expensive too because it had a labour component built into it whereas the traditional yarn is made by the weaver's wife and he does not have to pay

From such impromptu visits and with casual exposure to the realities of life of the people who were in our production chain, I imbibed the essence of the work which Satya and others in PRADAN were doing.

for it separately. Moreover, yarn is usually a derived demand. A weaver/trader will buy yarn when he gets an order for a fabric in which it has to be used. So, the traditional weaver segment was unwilling to use our yarn because of its cost and the trader community was not using it for two reasons:

- They would not sample it because the supply was not large and they thought it would be difficult if they could not get enough yarn when the orders came in. Most of them normally are order fillers for export houses and large domestic converters.
- Because the samples were not there, the orders received by them could not create the demand pull.

The Indoctrination

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Most of the time, during office hours, I would be visiting customers and the best time to do any paperwork was by getting into the office early in the morning. This was also the time when the few desktops we had would be available because most of the other staff were yet to come in. I usually went to office at least a couple of hours earlier than the opening time. Deep also used to come in early. So I got to speak to him almost every day, particularly during his cigarette/*bidi* breaks. From such casual conversations, I got a second-hand idea about how what I was doing was creating work for people who needed it most in the villages.

Every time I went to Bhagalpur to coordinate with the production team, I used to meet Satya, who was based in Deoghar. These were like informal reporting and planning sessions because Satya was the *tasar* project anchor. We would discuss what I was doing and how things were in general. During most such visits, Satya would make me tag along with him to some village where he was headed for work. From such impromptu visits and with casual exposure to the realities of life of the people who were in our production chain, I imbibed the essence of the work which Satya and others in PRADAN were doing.

Sometimes, I think that the casual conversations which I had with Deep and Satya and the impromptu field visits were not so casual and were probably a way of helping me understand the development perspective and build in me a sense of ownership in the project.

The Good, the Bad and the Ugly

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At the end of the first year, Deep asked me one day "*Chuna toh nahi lag raha*? (Hope you think this is not a hoax?) You are losing commission on sales returns because of the bad quality of merchandise, which is not your fault." I told him that it does not matter much because it will work out fine in the long run. This was a short-term issue. However, he renewed my contract for 2001–02 with a fixed retainer that factored in such losses.

Every exporter I contacted for business would have a look at our samples and select designs from them and ask for free swatches. I realized in due course that many of them have a business at the lower end of the market and they had never used silk! Their credo was that if you can get something for free why not take it, even if it is of no use to you.

We got a large order from a Rs 200 crore turnover export house. They started the negotiations at 25,000 m and finally placed an order for 16,000 m. They also gave us a small advance. We were

We wanted to promote *tasar* as a fibre and we ended up making whatever was possible with *tasar* yarn. We made scarves, sarees and fabric by the roll for homes and even neck ties...The whole idea was that the more you sell *tasar* fabric, the more yarn you consume, which helps generate more income for women in the villages who make the yarn.

really very excited and all of us worked round the clock to fill the order. We started delivering in batches and once about 8,000 m were supplied, they started complaining about the colour of the fabric (it was natural undyed fabric!) and cancelled the balance quantity. They were just not willing to discuss anything with me. I was totally devastated.

By the time we could stop production, we had another 3000 m in our godown. To make matters worse, the client sent back almost 2000 m of the 8 m delivered to them. Later, I heard from the market that this was their modus operandi. They would first negotiate for a very large quantity to beat the prices down, then order more than their actual requirement but less than the originally stated ordered quantity. So, when they would get as much as they actually needed, they would plead quality or some other problem and cancel the balance order. This would make the supplier completely at their mercy.

In our case, they held back the balance payment too. It was almost Rs 9 lakhs. I would go to their office practically every other day, but the receptionist or the secretary would stonewall my attempts to meet the bosses. This went on for four months. I just did not know what to do. One day, my daughter missed her school bus and I went to drop her to school. On my way back, I saw the owner of the export house coming out of a golf course but by the time I could make a U-turn and get to the other side of the road, his car had gone.

That day at 11 am, I called his secretary and as was his wont, he tried to fob me off saying that his boss was travelling and I should call again in a week's time. I just told him "Listen, I know that your boss is in town and where he played golf today. One of these days, I am going to accost him at the golf course in front of his golf buddies for payment." (Actually the language I used was much more colourful and would be inappropriate to reproduce here verbatim). We got the full balance payment within a week!

Fortunately, most of the so-called rejects were acceptable in the local market to customers who love the natural look of *tasar*; we were able to gradually, therefore, dispose it off without any loss through direct sales to consumers at sales exhibitions such as Dastkar Nature Bazar. It took us a while but, in the end, we sold everything at a profit.

Pro-poor Business Strategies

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Most textile businesses are end-use centric. Firms dealing in home furnishings are generally not in the fashion fabric and made-ups such as scarves and vice versa. However, we wanted to promote *tasar* as a fibre and we ended up making whatever was possible with *tasar* yarn. We made scarves, sarees and fabric by the roll for homes and even neck ties...The whole idea was that the more you sell *tasar* fabric, the more yarn you consume, which helps generate more income for women in the villages who make the yarn.

There is more glamour in textiles than yarn and, many a time, we in PRADAN are beholden to building a vertically integrated cocoon to yarn to textiles business. However, the more we do that, the more we are creating a structure, which has its locus of control not in the hands of the community of producers but in the hands of outside professionals, who create the most value through their involvement.

We had a simple mantra. For every 25 kg of yarn we used in fabric weaving or sold in the market, we could help create a year-round source of income for one yarn-maker. So, all our energy was focussed on creating more and more demand for the yarn.

Let's take the example of a very expensive *lehenga* selling for about Rs 40,000 each. It needs only 5 m of fabric in which about 400 gm of yarn produced by the village producer is used (value about Rs 1,600). The rest of the value is created by the weaver, the tailor, the embroiderer working for the designer along with the advertising agency, the media and the retailer. Each step of the value addition stage is complex and highly competitive. It would be utopian to presume that the producer of yarn can exercise control over the rest of the value chain players. Actually, the subsequent value-add can dispense with the yarn segment but not vice versa.

This business is not similar to poultry because, in the poultry business, the day-old chick, the feed, etc., processes are actually to aid the value creation at the hands of the producer and are subservient to him/her. The business cannot survive without the poultry farmer and hence a producer-centric business managed by hired help is possible.

This logic was very clear to some of the decision-makers in PRADAN and, hence, from day one, a model was sought to be built, which would be simple and manageable by the community, and all other engagements such as weaving would be a means to an end with the end being a self-sustaining market for the yarn being produced in the project.

Deep impressed upon me, from the beginning, why we had to build a more broad-based yarn market rather than creating a very profitable, vertically integrated textiles business. He would often tell me, "Khitish, your job is to make your job redundant. I would like the yarn-makers to have a broad-based market so that they are be able to sell their yarn from their doorstep and have no use for a weaving division. This would make their business really sustainable because they would be able to do it on their own and not have to depend on outsiders to manage their business."

We set targets of how much yarn to sell directly to the weavers and this target would be increased every year. The idea was to make sure that the yarn-makers were not solely dependent on our internal weaving division for their livelihood. More people buying our yarn would mean more stability and security to the yarn-makers. Converting yarn into fabric or made-ups and selling was obviously remunerative but was concentrating the fate of the business in the hands of professionals like me and not in the community.

We had a simple mantra. For every 25 kg of yarn we used in fabric weaving or sold in the market, we could help create a year-round source of income for one yarn-maker. So, all our energy was focussed on creating more and more demand for the yarn. Although wholesaling fetches a lower margin per unit, it is more amenable to moving larger volumes resulting in more yarn usage. And so, we made wholesaling key to our business strategy. We did stand at sales exhibitions aimed at retail customers but it was done with an eye to connect to the potential boutique and retail shop owners because we knew many of them frequent such exhibitions to look out for new suppliers or new designs.

The Umbilical Cord Is Cut

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By 2003, it was obvious that the volume of the *tasar* business was sufficient to hive it out to a producer-owned entity as the activity had stabilized and was self-sustaining. Discussions were

Creation of wage opportunities for a large number of producers of hand-made yarn, handloom weavers, and other producers in the value chain through a sustainable and fair business model is a mission of Ecotasar.

held, therefore, within PRADAN to chart the course and structure of the new entity. A producer company was registered and the entire business of yarn and fabric was transferred to it in 2004–05.

The sale of yarn and textiles in 2003–04 was about Rs 1.4 crores.

Incompatibilities and Insecurities

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From the very beginning, I had an impression (or I presumed/hoped) that, at some point in time, once the weaving department had outlived its purpose of creating a robust independent demand for yarn, it would be hived off and I would be part of the ownership. So when Masuta Producer Co. was incorporated and I got a sense that many in PRADAN were in favour of holding on to both the yarn-making and the weaving sides of the business, I felt quite insecure. This got compounded when I heard someone say that if one MBA can get the project to Rs 1.4 crores turnover, then 10 MBAs would be able to get it to Rs 14 crores!

I was on an annually renewable contract and I could see that the time was not too far when someone suggested that my variable pay was too expensive now that the company was out of the start-up phase and that I could be eased out or brought into the rolls. Neither option was palatable to me. And I decided either to find a co-owner space within the project or quit.

I discussed this with my colleagues in PRADAN and after much deliberation, we decided to hive off the textile weaving part out of Masuta into a joint venture (JV), in which the investments made under the project in fabric stock and receivables in the market would be partly capitalized in favour of Masuta and the rest shall be given to the JV as an interest bearing loan from Masuta.

Ecotasar Silk Pvt. Ltd. was incorporated in 2007 September and the business was transferred to it from October 1, 2007. Masuta had a 76 per cent stake in Ecotasar and I brought in cash for the balance 24 per cent. I took over as Managing Director of Ecotasar.

The team and infrastructure built to sell the yarn remained in Masuta and the rest of the team engaged in the fabric weaving side moved to Ecotasar.

Ecotasar

Mission

—

Creation of wage opportunities for a large number of producers of hand-made yarn, handloom weavers, and other producers in the value chain through a sustainable and fair business model.

From a turnover of Rs 1.79 crores in 2007, we have grown to Rs 14.9 crores in 2015. We continue to do our business with a focus on the use of hand-made yarn and handloom weaving so that our top line can generate wage opportunities for many small artisans and rural producers.

We sell wholesale and export to over nine countries but the bulk of our business is with the USA.

In 2008, a medium-sized retailer in the USA was eager to sell artisan-based products sourced directly from artisan bodies or social enterprises. They were introduced to over 19 NGOs and other artisan/social organizations working in the handloom textiles in India and we were one of them. They liked our products and placed a small order for

No trousseau of a Bihari/Bengali/Odia bride is complete without a *tasar* saree. Likewise, Assamese brides would definitely have a *mekhala chadder* made of *eri* and *muga*.

pillow cases with us. We had no expertise in the stitching side of the business but we took up the challenge and made arrangements to make and supply pillow cases to them.

Over the years, the business has blossomed from 800 pillow cases to over 1,60,000 in 2015. During this time, we have created a full-fledged stitching unit in Delhi, completely compliant with the stringent requirements of the client. Today, we are in a situation to supply to any client anywhere in the world because we have the requisite systems and compliances in place. By the way, of the 19 organizations introduced to this client, we are the only ones who could make the grade. In fact, we won an award of 'The Fastest Growing Vendor, in 2012 from the client, which sources from more than 600 vendors all over the world.

In the domestic market, we supply to over 135 stores, and more than 600 small boutiques and designers buy from us. Due to the unprecedented growth in the exports front, we have not been able to focus on the domestic market. Moreover, after the closure of Masuta, the supply of reeled yarn dried up, which made it difficult for us to grow our saree line, which is a large chunk of our domestic sales.

Tasar Market

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Most of Vanya (wild) silks such as *tasar*, *eri* and *muga* belong to the highly unorganized domestic cottage-scale operations. The industry has evolved organically over the centuries. Sericulture is done by tribals and the yarn is made by women from the households of the weavers in the same catchment area. The market has also been largely local and is culturally intertwined. No trousseau of a Bihari/Bengali/Odia bride is complete without a *tasar* saree. Likewise, Assamese brides would definitely have a *mekhala chadder* made of *eri* and *muga*.

Very little institutional and technical investment has been made and the sector continues to work with outdated technologies in yarn and fabric manufacturing, making it less competitive vis-a-vis mulberry silk. The potential remains untapped.

Manna for the Poor

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For every 100 m (8 kg of yarn) of *tasar* silk fabric sold in the market, almost Rs 32,000 worth of wage income is created for: the tribals rearing the cocoons (Rs 20,000), the women making the yarn (Rs 4,800), the handloom weaver (Rs 5,000) and the small processors (Rs 2,000). This is equivalent to 160 person days @ Rs 200 daily wages—a fair wage in the rural setting where tasar silk is produced.

Even if we were to just continue with the existing technology and production efficiency and systems and build up the demand by another 500 metric tonnes for *tasar* silk items, it would create Rs 39,000 round-the-year wage opportunities at the village level for communities that need the opportunity.

The Current Scenario and Way Forward

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There is much speculation about the size of the market for *tasar* silk. Most reasonable and knowledgeable persons in the sector agree that the current production is in the range of 250 to 300 metric tonnes. Many ask me, "How much is the market potential for tasar silk... 500 metric tonnes? 1,000 metric tonnes?"

What we in the *tasar* sector need to do is to invest in technologies that will help create a large variety of *tasar* yarn with superior and acceptable quality and technically robust features so that it can be used in all formats of weaving.

I tell them that people do not buy *tasar*, they buy a design, a look and a feel. Theoretically, *tasar* can easily grow up to 28,000 metric tonnes, which is the size of the current silk market in India, as long as it can be used to make different kinds of designs, looks and textures, acceptable to the buyers of silk textiles.

What we in the *tasar* sector need to do is to invest in technologies that will help create a large variety of *tasar* yarn with superior and acceptable quality and technically robust features so that it can be used in all formats of weaving. Right now, our home-grown yarn is only suitable for the handloom weaving sector, which restricts the size of its market. Moreover, the look and feel of *tasar* is not universally acceptable due to its stiff texture and its uneven look. This precludes it from most of the export market, which is very sensitive to texture and uniform replicability.

As a company, we are trying to revive reeling and spinning activity in the villages where PRADAN has trained women to make yarn. Right now, we are working with less than 150 women but there are more than 2,700 yarn makers, who were part of Masuta. The biggest challenge is to invest in raw material because the *tasar* crop comes in once a year and must be bought and stockpiled. This requires large sums of money and is fraught with risk of devaluation due to storage problems. These are challenges and risks that are difficult to take for a commercial company such as ours because the returns from yarn-making do not justify the risk involved. Yet, we are exploring all options and collaborations so that we can reach out to at least 500–600 more women yarn makers.

We are making a big push in the domestic market and hope to grow volumes without compromising on the production processes and the corporate mission so that the growth in our top line will continue to provide wage opportunities for a large number of small producers and artisans.

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Khitish Pandya is the Chief Executive Officer of Ecotasar and is based in New Delhi

ASHIS CHAKRABORTY

TASAR DEVELOPMENT FOUNDATION: Generating Sustainable Livelihood

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TASAR DEVELOPMENT FOUNDATION (TDF) WAS registered on November 5, 2013, in the National Capital Territory of Delhi, under Section 25 of the Companies Act 1956 (No. 1 of 1956) without any capital; the company is a private limited entity. TDF is a sector support organization and brings in its unique experience and knowledge on *tasar* sericulture to support the implementation of the various *tasar* sericulture-based programmes. TDF is, at present, engaged in the implementation of *tasar* sericulture-related activities across five States: Bihar, Chhattisgarh, Jharkhand, Odisha and West Bengal.

The rationale for setting up a sectoral organization is also to create mechanisms for an effective integration of the pre- and post-cocoon segments that operate in different geographies and to work towards maximizing the gains of the producers in the value chain thereby promoting overall growth in the sector.

GENESIS

PRADAN has been involved in *tasar* sericulture for over two-and-a-half decades, with the objective of creating sustainable livelihoods for marginalized communities. The initiative began in Godda district of Jharkhand and subsequently expanded to other parts of the state, and the adjoining states of Bihar and Odisha.

Through this period, PRADAN has worked on all the components of the *tasar* silk value chain—the establishment of host tree plantations, the setting up of the entire seed vertical, the promotion of improved practices for silkworm rearing, the processing of cocoons into yarns, the weaving of fabric and the creation of alternative marketing channels for *tasar* commodities.

In 2013, the idea of a Tasar Development Foundation (TDF) germinated, to launch a scale-up plan for generating livelihoods in the sector, owing to the favourable macro-context high demand in the market, the assurance of large-scale public finance for the *tasar* sector and the demands for sustainable livelihoods among the rural communities, among other things.

Therefore, in order to spearhead major initiatives in the sector and push the frontiers, PRADAN set up TDF, akin to a fully-owned subsidiary of PRADAN.

TDF is a public purpose sectoral organization with a focus on expanding the scope of livelihoods in *tasar* sericulture for the poorer communities. The rationale for setting up a sectoral organization is also to create mechanisms for an effective integration of the pre- and post-cocoon segments that operate in different geographies and to work towards maximizing the gains of the producers in the value chain thereby promoting overall growth in the sector.

OBJECTIVES

The main objectives of TDF are to:

1) Expand the scope of livelihoods for primary producers in the *tasar* sector through innovation, adaptation and creation of a value chain, to integrate production, processing and marketing functions

2) Build and retain competent human resources within the sector to instil new ideas, raise standards and open new frontiers of growth

3) Strengthen critical factors of production, such as the production and supply of high-quality seed, in order to raise cocoon productivity and ensure the availability of raw material for the sector

4) Build and strengthen institutions of producers to organize production systems, facilitate the attainment of the scale of economy in production clusters, attract capital and services of markets in remote rural areas

5) Broad-base and align stakeholders to foster an environment of growth in the sector

INSTITUTIONAL FRAMEWORK

TDF has been set up to unleash the potential of the *tasar* sector and create sustainable livelihoods for marginalized communities in a manner that builds their stake and gives them an effective say in the overall sector. TDF is working on all fronts to emerge as a strong

Our main focus has been to improve the quality of the seeds available to the producers. We were also able to enhance the price of basic and commercial-seed DFLs to almost double the CSB rate.

institution. The priorities of TDF are:

- Strengthening the governance functions in order to put in place a strong internal guidance mechanism to stay focussed on the purpose of the institution and nurture a culture of collegiality and openness for learning
- Setting systems for monitoring and evaluation through articulation of goals, pathways and tracking progress against salient milestones
- Developing a perspective plan to articulate a vision of success for the medium term, and define approaches and strategies for operations, including geography, scale, technology/processes and finance
- Raising resources for sustainability of the institution, including project financing as also building a corpus of support for carrying out institutional tasks
- Building linkages with key stakeholders relevant for the sector, in order to draw knowledge support, facilitate innovation, bring in investments to the sector, influence policies and norms and build a strong institutional identity for TDF

ACHIEVEMENTS OF TDF: 2014–16

TDF has promoted *tasar* sericulture-based livelihoods in Jharkhand, Bihar, Odisha, West Bengal and Chhattisgarh in nine production clusters. Our main focus has been to improve the quality of the seeds available to the producers. We were also able to enhance the price of basic and commercial-seed DFLs to almost double the CSB rate. We also advocated for the enhancement of the price of DFLs in various forums and, with CSB principally, succeeded in having the price raised from Rs 6 to Rs 12. Table 1 shows some key achievements of TDF in the last two years.

Table 2 gives the category-wise income generation of the families.

PROGRESS OF SEED VERTICAL

For the last three years, TDF has placed special focus on streamlining the seed vertical and setting the norms and disease

Table 1: Key Achievements of TDF in 2014 and 2015

No.	Particulars	Achievement	
		2014	2015
1	No. of families in livelihood activities	5,019	10,028
2	No. of basic seed produced	1 ,73,000	1,65,919
3	No. of nucleus seed produced	26,964	67,295
4	No. of commercial seed produced	4,83,036	10,99,000
5	No. of cocoons produced	1,33,00,000	5,97,24,650
6	Disease %age		
	Basic grainage	27% to 54%	5% to 19%
	Nucleus grainage	18% to 20%	2% to 6%

For the last three years, TDF has placed special focus on streamlining the seed vertical and setting the norms and disease surveillance protocol in seed production.

Table 2: Income Generated by Families in Each Category

No.	Category	No. of Families	Average Income/Family	Total Income
1	Basic seed crop rearing	1358	14,000	1,90,12,000
2	Commercial seed crop rearing	8,037	18,425	14,80,81,725
3	Tasar seed production	198	28,000	55,44,000
4	Nucleus crop rearing	355	29,400	1,04,37,000
5	Arjuna nursery activities	80	12,000	9,60,000
	Total	10,028		18,40,34,725

surveillance protocol in seed production. For ensuring quality standards of seed production, we have developed our quality system manual. Of the 11 existing basic seed preservation centres, six of them are ISO 9001:2008 certified till date; ISO certification of the remaining centres is on the anvil. There has been a continual improvement in the quality and quantity of seed production across the basic seed grainages in the last two years.

As many as 12.94 lakh nucleus cocoons have been grown in 10 basic seed preservation centres this year and all the seed cocoons were from the nucleus DFLs produced in the nucleus grainage. Disease surveillance protocol for the preservation of the seed cocoons has been followed, starting from seed DFL rearing to grainage operation.

This has resulted in the production of more than three lakhs basic seed DFLs, which helped rearers become self-reliant; they do not have to procure any basic seed DFLs from outside. The cocoon to DFL production ratio of this year (2016) is 3.45:1, better than last year's ratio of 3.63:1 in basic seed DFL production.

Around 500 ha of block plantation required for seed cocoon production are being maintained for basic seed production centres in Bihar and Jharkhand whereas in West Bengal, Odisha and Chhattisgarh, the plantations raised by the Department of Sericulture (DoS) are being used. In Jharkhand and Bihar, the new plantations that are being readied are only for nucleus rearing, supplying good quality DFLs so that these do not get contaminated and to have two- to three-fold of plantations available for nucleus rearing than the actual requirement.

To meet the nucleus DFL requirement in all five states, 14,178 nucleus first-crop DFLs have been brushed in Godda, Dumka and Banka districts. Twenty lakh seed cocoons are being preserved in 11 Basic Seed Production Units (BSPUs) available at present. Along with that, three new BSPUs will be built by the end of March 2017. This will not only fulfill the DFL requirements of TDF's own operational area, but also the demand for DFLs from outside.

Customer satisfaction is being tracked and customer feedback taken, to further improve service delivery of BSPUs. Focus on improving the skills of the human resources has been increased in these BSPUs through regular

In recent years, the central government, particularly the Ministries of Textiles and of Rural Development, have been highly supportive of the intervention in *tasar* sericulture.

orientation on the process of grainage operation for better quality assurance. The quality control checking system of seed cocoons before preservation has also been improved across BSPUs.

RESEARCH AND DEVELOPMENT

Pebrine is one of the deadliest diseases in *tasar* culture. Every year, a large number of *tasar* rearers are forced to give up the activity due to pebrine. A pebrine spore is usually identified by a trained microscopist, who uses a microscope with 600x magnification; yet problems may arise in the manual system.

Keeping this issue in mind, Centre for Development of Advanced Computing (C-DAC) has developed an instrument called the 'Pebrine-o-Scope' after three years of research. The Pebrine-o-Scope is a microscope-mounted instrument with supported software, which analyses the photo-micrographic image of the smear of a tissue sample from the female silk moth and detects the presence of the pebrine spore, with a high degree of accuracy. It has two functions; first it collects the data through the microscopic image of the slides prepared and then the supported software compiles the data in a computer in a prescribed format for further analysis. To get a better view, a reagent, developed by the renowned institution People's Education Society Institute of Technology, Bangalore (PESIT) is applied in the smear to dissolve the bacteria, virus and fats; it exposes the deadly virus to facilitate a clear picture of the pebrine spores.

The technology was formally transferred to TDF on July 27, 2016, at a function organized by the C-DAC Kolkata, in the presence of the Secretary, Department of Information Technology, Government of India. C-DAC has given TDF the rights to manufacture and sell the Pebrine-o-Scope.

Table 3: Capacity of the Available Infrastructure

Infrastructure Available	No.	Installed Capacity
BSPCs	11	3 lakh DFL
Small grainage	381	19.05 lakh DFL
Plantation (Ha.) (nucleus rearing)	350	70,000 DFL

Table 4: Progress of the Seed Sector in 2015–16

Particulars	No. of DFLs	No. of Families
No. of nucleus seed produced	67,295	355
No. of basic seed DFLs produced	2,45,919	1,358
No. of commercial seed produced	14,99,235	8,037
Total	18,12,449	9,750

POLICY ISSUES AND OUR INTERVENTION

In recent years, the central government, particularly the Ministries of Textiles and of Rural Development, has been highly supportive of the intervention in *tasar* sericulture. However, there are some issues that need to be tackled pro-actively so as to smoothen engagement in this direction. These are:

- Easy access to forests for sericulture: About 90 per cent of silk-worm rearing is carried out in the natural forests, access to which is not easy in most states. The Forest

Creating seed zones is one of the primary policies of CSB, which is derived from the experience of Special Swarnajayanti Gramin Swarojgar Yojana (SGSY) projects. Conducting rearing in isolated patches, away from the commercial field has drastically reduced the disease percentage in the grainage during special SGSY.

Departments in most states are reluctant to allow access to forests.

We have made several attempts and have also involved the State Rural Livelihood Missions (SRLMs) and CSB to negotiate with the Forest Department to resolve the issue. We have discussed the issue at length with the Principal Chief Conservator of Forests in Bihar and the Chief Conservator of Forests of West Bengal. In both the States, the Forest Department has agreed to provide all possible support and has advised us to involve the Forest Protection Committee for the promotion of sericulture to resolve forest-related issues.

All the states included the *tasar* host species in their regular plantation programme and also promoted the raising of *tasar* host flora under MGNREGA.

We have also commissioned one study to document the State Forest Policy in relation to sericulture and to understand the environmental impact of sericulture. This will help us further negotiate with the Forest Department on a pro-sericulture policy.

- Need for creating seed zones: The absence of well-defined and well-managed 'seed zones' creates a difficulty in limiting the disease load in successive grainage cycles.

Creating seed zones is one of the primary policies of CSB, which is derived from the experience of Special Swarnajayanti Gramin Swarojgar Yojana (SGSY) projects. Conducting rearing in isolated patches, away from the commercial field has drastically reduced the disease percentage in the grainage during special SGSY. The issue was regularly raised by us in several meetings with CSB and DoS. We are hoping that the demarcated seed zones can be witnessed very soon.

- Incentivizing private seed entrepreneurs: The private entrepreneurs, promoted under the special SGSY projects, sell DFLs without subsidy. However, in the same geography, DoS supplies DFLs with 75 per cent subsidy, which undercuts the efforts of private seed entrepreneurs.

The issue was raised in every possible forum starting from the Joint Coordination Committee to the State-level Sericulture Coordination Committee to make the cost equal and to have a fair playing ground to encourage entrepreneurs. At present, the DoS of WB and Jharkhand are processing it for consideration.

- Policy for pricing of seed cocoons: Seed cocoons are very critical for building the stock for the commercial crop. However, the price of seed cocoons is comparatively very low. Moreover, production risk is relatively high due to the weather conditions, and pest and predator attacks between June and August. Most of the states declare the price of seed cocoons as per the state policy whereas the price of DFLs (product of the seed cocoons) is decided by a Joint Coordination Committee (JCC).

To make the price uniform across states, we raised the issue in the JCC, of which all state sericulture heads are members. The JCC agreed and revised the prices of both seed cocoons and DFLs. The current price fixed by JCC is Rs 2 per cocoon, whereas the price of DFLs is Rs 12 per DFL. The prices are fixed keeping in mind the private entrepreneurs involved in the basic and commercial seed production, and to enhance the income of seed cocoon producers. This price is applicable for all states.

The partners together reached out to over 1,300 families in Jharkhand, Odisha and Chhattisgarh. A much bigger outreach is being planned by the partners for the coming years. This will open new frontiers of growth.

OTHERS

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A. For the first time, PRADAN's *tasar* initiative spread to new geographies, spearheaded by TDF, and has entered remote (and Left Wing Extremism LWE-affected) areas such as Bastar, Balrampur and Kanker (in Chhattisgarh), Banspal, Harichandanpur (in Kendujhar District of Odisha) and Jangal Mahal (forest areas in the tri-junction of Medinipore, Bankura and Purulia districts of West Bengal). A total of 1,750 marginalized households in these districts were supported in earning their livelihood from *tasar* silkworm rearing. TDF offered a comprehensive package of support to individual producers, resulting in phenomenal increase in cocoon production and, subsequently, income gain. This initiative drew the attention of the state sericulture organizations and CSB, which are now keen to see the up-scaling of TDF's initiatives in the states.

B. In the past three years, TDF has focussed on drawing university educated youth into the *tasar* sector and grooming them as sector professionals. TDF has designed a detailed training curriculum to impart the required techno-managerial skills among these youth. In the past three years (2014-16), 17 people have undergone training, and all of them are currently on board and are placed in project locations. They are now able to handle the major task of *tasar* expansion independently.

C. During the same period, TDF built partnership with eight NGOs—new entrants to this sector. The partners have undertaken significant initiatives to expand *tasar* to non-traditional areas. TDF's support included joint exploration of the sector in the project areas of the partners, training of their staff, supporting the planning, implementation and setting up systems for ongoing monitoring. The partners together reached out to over 1,300 families in Jharkhand, Odisha and Chhattisgarh. A much bigger outreach is being planned by the partners for the coming years. This will open new frontiers of growth.

D. TDF, in collaboration with CSB, has developed a comprehensive training module to cover all groups of producers in the *tasar* sericulture sector, including seed producers, plantation farmers, silkworm rearers and yarn producers. This has been a unique initiative to standardize training protocol for the sector, covering technical, management and institutional aspects.

FUTURE PLANS, APPROACHES/ STRATEGIES

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Since its inception, TDF attained a measure of success in furthering sectoral tasks. It is now time for TDF to envisage a bigger role to assume significance in the sector. TDF foresees covering 13,500 families in 10 districts of five states this year (2017) in select traditional *tasar* production clusters in India. In these clusters, the producers will be organized into collectives to set up systems of seed supply, access improved technologies for silkworm rearing and achieve capacities to deal with markets on mutual terms. Each collective will comprise 1,000 to 1,200 families in a cluster. All the producers (13,500 in number) will be organized in 12 collectives. TDF hopes to achieve the following milestones in the coming years.

In order to create an alternate marketing system, Production Clusters will have Sorting, Grading and Aggregation Centres for tasar cocoons, operated by Producers' Collectives. These will encourage members to bring their harvest to a common place.

Setting up viable *tasar* production clusters

A production cluster is conceived as a self-contained unit with provisions for all key inputs and services built around Producers' Collectives to support individual silkworm rearers to carry out silkworm rearing efficiently, with the assurance of fair prices from the markets. As discussed, TDF will set up viable *tasar* production clusters by organizing Producers' Collectives, and production and marketing services. Traditionally, *tasar* is reared in host plants available in forest revenue areas. Rearers possess certain usufructuary rights to use the host plants for *tasar* silkworm rearing. Host flora and human resources are available abundantly in traditional rearing clusters. The key constraints at the level of the producers are:

i. Acute shortage of quality seeds (called DFLs/eggs of silk moth),

ii. Absence of production support services (technology, disease-prevention, input supply, etc.)

iii.Non-availability of fair markets

Support for strengthening production systems: Each production cluster will have complete seed vertical from the Centralized Production Foundation seed grainages to decentralized small-scale grainages for commercial crop to cater to the seed requirement of the rearers in the production cluster.

Support for cocoon marketing: Open markets do not exist for primary producers of cocoons. Traditionally, much of the cocoons were sold through a closed system of credit lending and forward purchase by a nexus of moneylenders/petty traders. Cocoons reach the terminal markets (in the weaving clusters) through a series of middlemen. The producers receive just about 50 per cent of the terminal market rates.

In order to create an alternate marketing system, Production Clusters will have Sorting, Grading and Aggregation Centres for tasar cocoons, operated by Producers' Collectives. These will encourage members to bring their harvest to a common place. A large volume of the produce will attract big traders from the market, who will then directly negotiate with the Collectives to buy the lot. This ensures a much higher price realization for cocoons.

Capacity building of producers and CSPs: In order to facilitate the smooth adoption of technology among different groups of producers, there is focus on creating the required technical skills thereby building self-reliance in the community to manage technologies and management systems in the long run. TDF will also support and impart entrepreneurial skills in order to help the beneficiaries embark on new ventures, wherever necessary. TDF will actively take part in imparting knowledge and skills among producers. Silkworm rearers will receive hands-on technical training to achieve high quality and productivity standards. Grainage entrepreneurs, in addition to technical trainings for DFL production, will attend entrepreneurship development training. This will help them understand finance and inventory management, optimize production, and understand the market and the need for improved client servicing.

Under TDF, a substantial number of Community Resource Persons (CRPs) will be trained to provide on-field, hand-holding support to producers for a minimum of two years, to ensure proper adoption of technology.

TDF is also planning to collaborate with several State Rural Livelihood Missions and DoS, to supply nucleus and basic seeds to them. TDF, thus, will try to develop as the largest *tasar* quality seed provider in the country.

Strengthen Seed Verticals

This is the most critical upstream activity in the value chain. There are three tiers of seed produced in the sector—nucleus seed, foundation seed and commercial seed. The first two categories of seed are most critical to build and maintain the seed stock, which is subsequently multiplied in the commercial grainage cycle.

- *Nucleus and basic seed production:* The operations entail technology sophistication and strict adherence to bio-security protocol and scale in order to commercially break even. The infrastructure includes a large *pukka* building (a two-storey building on a plinth area of 1800 sq. ft.) to accommodate 1.50 lakh seed cocoons and adequate operating space. Additionally, a set of instruments and accessories and power back-up is required to ensure quality seed production. The cost of establishing a grainage of this scale requires approximately Rs 40 lakhs. PRADAN has, so far, set up 11 such grainages in Bihar, Odisha, Jharkhand and West Bengal. The entire fund for setting up the grainages is sourced from specific government programmes such as SSGSY and Mahila Kisan Sashaktikaran Pariyojana (MKSP). Whereas the current collective model is successful in producing high quality of foundation seeds, there is, as yet, no revenue model at this level to attract private players. Thus, for some foreseeable future, these are to be run by TDF, in terms of providing expert technical support, oversight and capital management. TDF is also planning to collaborate with several State Rural Livelihood Missions and DoS, to supply nucleus and basic seeds to them. TDF, thus, will try to develop as the largest *tasar* quality seed provider in the country.
- Isolated patches of plantations (size: 75 acres per grainage) are to be maintained for each unit of grainage in order to create ideal (sanitized) conditions for seed crop multiplication. TDF has already demarcated seed zones and sanitized the patches to prepare the plantation for hosting seed crops. The plantations are promoted with support from special SGSY, MKSP and Mahatma Gandhi National Rural Employment Gurantee Act (MGNREGA). Already, 500 acres of plantations are available for seed-crop rearing. In the next couple of years, an additional 200 acres of plantations will mature for seed rearing.
- A special group of expert rearers are to be trained to undertake seed-crop multiplication in plantation patches by rigorously following scientific practices. The best lot of harvest is selected for DFL production. TDF will select and train seed rearers to build their expertise for seed-crop rearing. A pool of 950 seed rearers is already involved in seed-stock multiplication. This pool will be further expanded to include 200 rearers by 2018.
- *Production of commercial seed DFLs*: The production of commercial seed is fully decentralized. Rural youth are selected from among the rearers' community to operate commercial grainages. The scale here is small (processing of 25 to 30 thousand seed cocoons) and the duration of grainage cycle is just about a month. There are 300 such grainages already established and operational in project areas. By 2018, an additional 125 such grainages will be established with support from MKSP and CSB. TDF will select and train grainage entrepreneurs, support infrastructure creation

TDF has been set up to unleash the potential of the *tasar* sector thereby creating sustainable livelihoods for marginalized communities in a manner that builds their stake and gives them an effective say in the overall sector.

and provide linkages for the working capital. The plan here is to support the production of 20-25 lakh units of DFLs annually, to fully cater to 13,500 silkworm rearers in commercial crops. This will result in a harvest of 1,000 lakh pieces of cocoons; this at today's prices will amount to over Rs 2,500 lakhs. About 85 per cent of the amount will directly reach primary producers.

Build a Cadre of Competent Professionals

There is complete absence of trained professionals in the *tasar* sector. This poses a serious constraint in any initiative taken for up-scaling. A significant task of TDF will be to train and support young professionals gain domain expertise—expert knowledge and skills to manage the tiers of seed verticals, promote scientific practices for silk-worm rearing, build producers' collectives, manage yarn production and establish linkages with market. Further, good domain knowledge will facilitate process/product innovations, opening up new frontiers of growth. TDF will induct young professionals, who will be trained to become experts. The core group of PRADAN professionals in TDF will be sparing significant time to train and guide young professionals. Simultaneously, efforts will be made to set standards of professional performance for the sector, in terms of family coverage, productivity and cost-effectiveness. By 2019, in addition to the existing 17 professionals, TDF will next recruit and induct 8–10 professionals, to meet the requirements of two-fold increase in the scale of coverage.

System setting and institution building of TDF: TDF will strive to become an institution of significance in the *tasar* sector. TDF has been set up to unleash the potential of the *tasar* sector thereby creating sustainable livelihoods for marginalized communities in a manner that builds their stake and gives them an effective say in the overall sector. At this initial stage, TDF will require to work on all fronts to emerge as a strong institution. The priorities of TDF need to be:

- Strengthening governance functions in order to put in place a strong internal guidance mechanism to stay focussed on the purpose of the institution and nurture a culture of collegiality and openness for learning
- Setting systems for monitoring and evaluation through articulation of goals, pathways and tracking progress against salient milestones
- Developing perspective plan to articulate a vision of success for the medium term, and define approaches and strategies for operation, including geography, scale, technology/processes and finance
- Raising resources for sustainability of the institution, including project financing as also building a corpus to support the carrying out of institutional tasks

Building linkages with key stakeholders relevant for the sector in order to draw knowledge support, facilitate innovation, bring in investments to the sector, influence policies and norms, and build a strong institutional identity for TDF.

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Ashis Chakraborty is based in Jamshedpur, Jharkand

Women rearers assess dead and live cocoons in garlands in a grainage, Dumka district, Jharkahand (pg 62)

PRADAN is a non-governmental organization registered in Delhi under the Societies Registration Act. Working with small teams of professionals in several poverty clusters in seven states across central and eastern India, PRADAN builds and strengthens collectives of rural women, in order to stimulate their sense of agency and help them occupy space as equals in society. PRADAN professionals work through these collectives, to enhance the livelihoods and overall well-being of women, thereby striving for a just and equitable society.

Newsreach is an endeavour by PRADAN to reach out to the world by sharing stories of the struggles and the hopes of the rural poor, and inspiring friends and well-wishers to get involved and participate in bettering the lives of marginalized and vulnerable village women.

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