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## Studies on the Tasar silk park (TSP), Bhagamunda silk value chain and its impact on stakeholders

**Biresmita Behera, Hasansab A Nadaf, Vishal Mittal, Sangeeta Minz, Chowdary NB, Sathyanarayana K and Venugopal A**

### Abstract

The Bhagamunda Tasar Silk Park (BTSP), a first-of-its-kind initiative in India launched by the Textile and Handloom department and the Keonjhar administration with the concept of "farm to fibre to fabric," has marked a significant milestone in tribal women's lives in terms of skill development and financial independence. Tasar Rearing Cooperative Society (TRCS) Bhagamunda established in the year 1978 was elevated as Tasar Silk Park in 2019. TRCS has a total of 1565 beneficiaries that are active participants in tasar culture activities. The growth of the tasar silk value chain at Bhagamunda TRCS, as well as the impact of TSP Bhagamunda on the standard of living of various beneficiaries such as rearers, seed rearers, private grainers, and reelers, were studied. The data on the changes in the living standards of ten each of them were tabulated and graphically presented. Before participating in TSP activities, all forty people had a source of income from seasonal labour, a poor living situation, a kaccha own house, and agricultural land. However, by participating in TSP activities they improved their living conditions and most of them had pakka or semi-pakka own houses.

**Keywords:** Tasar silk park, Bhagamunda silk value chain, impact, stakeholders

### Introduction

In diverse regions of northwestern Odisha, specifically in the Kendujhar, Mayurbhanj, and Sundargarh districts, which account for 90% of the state's total tasar production, tasar raising has historically been a major traditional employment of indigenous populations. (Dash *et al.*, 2018) [3].

Since the 1970s, Tasar Rearing Cooperative Society (TRCS) has been the umbrella organization for all tasar on farm operations brought in by the Department of Textiles, Government of Odisha. When TRCS Bhagamunda was established in 1978, it had a minimal infrastructure, scattered availability of food plants and an unorganized marketing strategy. The region was characterized by poverty, unemployment, the presence of a ideal women labour force, and a lack of viable employment opportunities. Tasar production in the region, which had only about 885 tasar rearers, slowed down due to gradual deforestation, mining activities, a scarcity of tasar seed, the development of viral and bacterial diseases, the delayed payment system for the cocoons, seasonal migration because of the short tasar crop season, etc. Due to its recent push into the entire tasar silk value chain, TRCS Bhagamundahas distinguished itself from the other TRCSs in the state in a special way. Beginning in 2004-2005, it made the most of the available resources while focusing on the region's potential for tasar culture and took a number of steps toward the comprehensive development of the local tribal people through tasar culture (Satapathy and Sathyanarayana 2019) [12].

Among the steps taken by TRCS Bhagamunda to benefit from the government's push for tasar culture promotion and women's empowerment to boost tribal economies were the following: increasing the number of tasar host plants through block plantations (1280 ha) in convergence with the Mahatma Gandhi National Rural Employment Guarantee Act of 2005 (MGNREGS) and the Rashtriya Krishi Vikas Yojana (RKVY), sourcing of tasar silkworm seed from inside and outside of the state to improve and streamline silkworm seed augmentation locally to encourage local farmers to start tasar rearing at an economically viable scale, promoting farmer organisations and spreading awareness of various productivity-boosting strategies to have a demonstrable impact on the entire region, assuring prompt marketing of cocoons and procurement at the rearers' doorsteps at a fair price through village camps in order to prevent middlemen's exploitation, building confidence through the transfer of selling profits from cocoons to the bank accounts of rearers, building capacity through

exposure to best practises in neighbouring tasar-producing states for better and fuller adoption of package of practice, introduction of post-cocoon and processing activities in the production cluster, such as yarn production, fabric weaving, embroidery, calendaring, etc., to provide year-round employment locally and internally and income to prevent seasonal migration. Since 2014–2015, the command area of TRCS Bhagamunda has undergone a major and noticeable transformation as a result of these initiatives including women from farming families, along with widows, orphans, and youth in need (Satapathy and Sathyanarayana 2019) [12].

Further, Tasar Silk Park (TSP) was established in 2019 under TRCS Bhagamunda to build the infrastructure for a value chain model by utilising the raw materials, i.e., tasar cocoons produced by the tribal farmers and unemployed women workforce of Harichandanpur block and adjacent rearers, to provide livelihood for the women through post cocoon value chain activities covering tasar yarn manufacturing through reeling, yarn spinning, primary weaving, colouring, dyeing, etc. (Odisha Economic Survey 2021-22). Hence, the study was planned to study its impacts with the following objectives:

### Objective

To study the development of tasar silk value chain and its impact on living standards of stakeholders at TSP Bhagamunda.

### Review of literature

This chapter reviews and presents the literature on Kendujhar, including information on its climate, significant statistics, agriculture, tasar sericulture, and Tasar Silk Park.

### About Kendujhar

The name Kendujhar comes from the words "Kendu," which means East Indian Ebony (a tree that grows in great abundance in the district) and "Jhar" which means water spring (Bhushan *et al.*, 2008) [2]. One of Odisha's main mineral-producing regions is Kendujhar. The principal minerals discovered in this District include iron ore, manganese ore, chromite, quartzite, bauxite, gold, pyrophyllite, and lime stone (Anonymous n.d.).

### Climate of Kendujhar district

An oppressively hot summer and high humidity are the defining characteristics of the Kendujhar (Keonjhar) district's climate. The start of summer often occurs in March. The temperature starts to increase quickly and reaches its peak in May. The highest temperature recorded throughout the summertime is about 38 °C. With the arrival of the monsoon in June, the weather improves and stays that way through the end of October. The hottest month is December, when the average temperature is roughly 11 °C. Even 7 °C has been recorded on occasion. Around 1534.5 mm of rain falls on average each year.

Important statistics in the Kendujhar district			
Particulars	Odisha	Kendujhar	
	Number	Number	Per cent of Odisha
Number of villages	51,311	2,123	4
Number of normal households	96,05,629	4,03,869	4
Total population	4,19,74,218	18,01,733	4
Rural total population	3,49,70,562	15,48,674	4
Rural female population	1,73,84,359	7,74,007	4
SC total population	71,88,463	2,09,357	3
SC female population	35,70,655	1,04,673	3
ST total population	95,90,756	8,18,878	9
ST female population	48,63,024	4,12,951	8
Literate persons	2,67,42,595	10,52,518	4
Literate females	1,16,52,914	4,47,399	4
Total cultivators	41,03,989	1,98,044	5
Female cultivators	7,28,639	32,563	4
Total agricultural labourers	67,39,993	3,10,075	5
Female agricultural labourers	32,58,157	1,77,459	5

Source: District Census Handbook Kendujhar 2011

Kendujhar district Agriculture at a glance		
Particular	Unit	Statistics
Geographical Area	lakh ha	8.31
Net Sown Area		2.63
Area Under Forest		4.03680
Irrigated Land		31.06
Fallow Land		35000
Waste Land	ha	26000
Area under Kharif crops		63308
Area under Rabi crops		31897
Cultivable Area		302000
Cultivated Area		2,97,873
Barren and uncultivable land		27000
Cropping Intensity		%

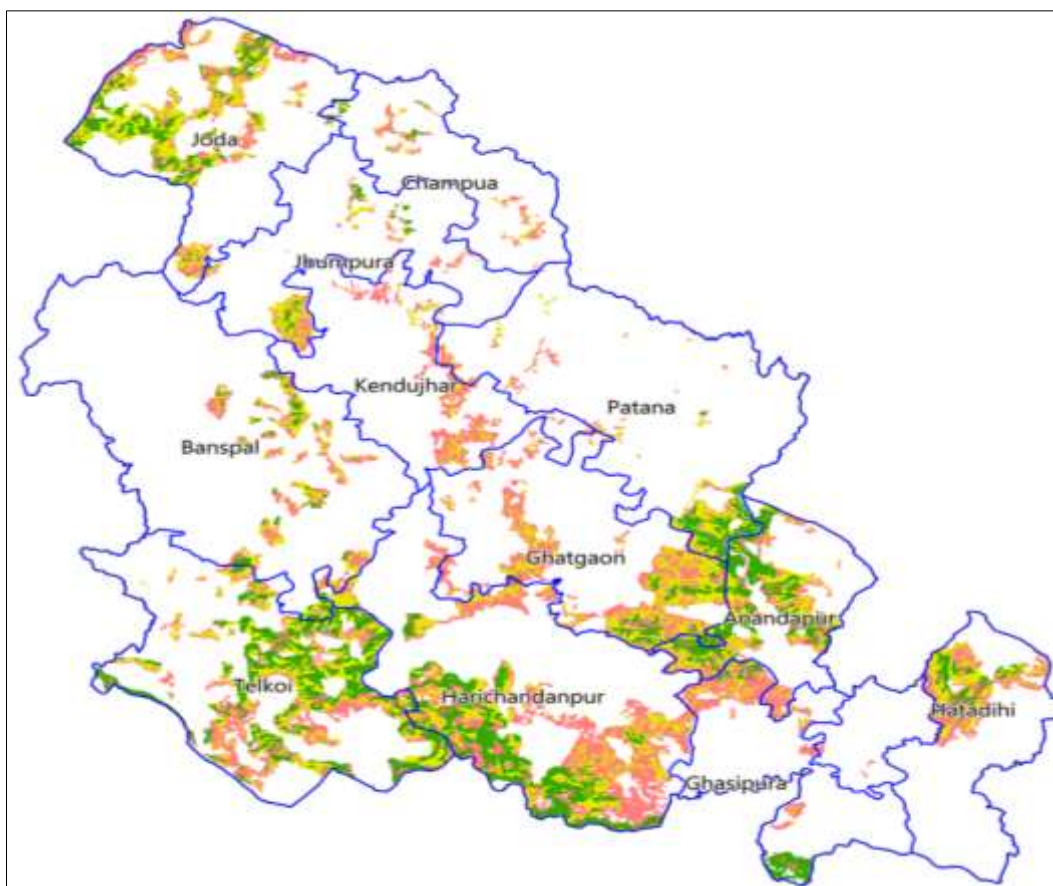
Source: Keonjhar District profile (n. d., accessed 2022)

Kendujhar district information on tasar sericulture	
Particular	Details
TRCS (No.)	13
Farmers (No.)	5462
New plantation (Ha.)	320
Plantation maintenance (Ha.)	850
DFIs utilised (Lakh No.)	8.92
Cocoon produced (Kahan)	27411

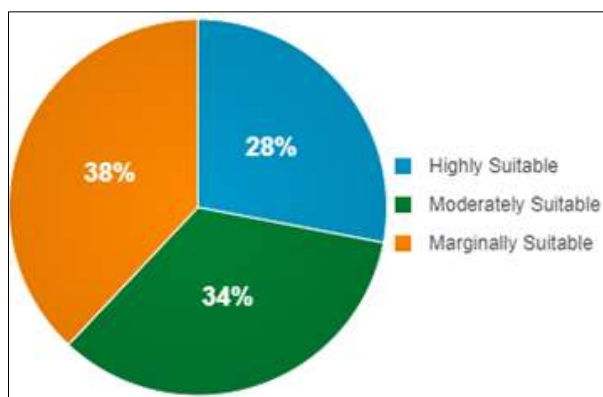
Source: Disaster Management Plan 2018-19, Department of Handlooms, Textiles and Handicrafts Odisha

### Potential Sites for tasar silkworm Food Plants

The map and pie chart below illustrate the potential locations for tasar silkworm food plants in the Kendujhar district, with green, yellow, and pink in the map indicating the regions with highly, moderately, and marginally suitable possible locations for tasar host plants, respectively (SILKS n. d., accessed 2022).



Kendujhar district map showing potential sites for tasar silkworm food plants



Pie chart showing per cent of potential sites for tasar food plants in Kendujhar

Kendujhar zone sericulture-unit wise information						
Name of TRCS	Establishment Year	Name of Block	Total Membership (No.)	DFLs Utilization (No.)	Yearly Cocoon Production (No.)	Host Plant (Ha.)
Dhenkikote	1957	Ghatgaon	552	55200	2263200	620
Pandapada	1979	Ghatgaon	1047	64700	2652700	210
Jhumpura	1962	Jhumpura	805	40500	1660500	130
Kuldiha	1980	Anandpur	462	25000	1025000	310
Dumuria	1962	Patna	481	35000	1435000	200
Keonjhar	1962	Patna	597	15000	615000	610
Jiranga	1978	Harichandanpur	324	32400	1328400	218
R.Palaspal	1978	Harichandanpur	460	38000	1558000	315
Bhagamunda	1978	Harichandanpur	1565	110000	4510000	580
Tangiriapal	1981	Harichandanpur	419	180000	7380000	610
Bansapal	1978	Banspal	1640	130000	5330000	660
Telkoi	1957	Telkoi	1305	115000	4715000	490
Benamunda	1978	Telkoi	936	20000	820000	180
Total			10593	860800	35292800	5133

### Tasar Silk Park Bhagamunda

According to Sahu2020, the Bhagamunda Tasar Silk Park (BTSP), a first-of-its-kind initiative in India launched by the Textile and Handloom department and Keonjhar administration with the concept of "farm to fibre to fabric," has marked a turning point in the lives of tribal women in terms of skill development and financial independence. The BTSP was established in 2019 costing Rs 70 crore. Silk cocoons are produced by farmers in the district under seven TRCS, and they are supplied to the park. The women produce 20 to 30 metres of tasar thana (Fabric) and 12 to 15 kg of silk thread on average per day.

District Administration Keonjhar reports in 2020 that Bhagamunda TRCS, which has more than 1500 tasar growers and is located in the Harichandanpur block, was founded in the late 1970s when there were limited opportunities for generating income and a means of livelihood in the region. The economic potential of tasar, however, was fully understood in the 2000s, and since then, the block has added 4 more TRCSs. These TRCSs have trained about 300 rural/tribal women who work in reeling, spinning, fabric printing, and embroidery in addition to helping 3000 tasar growers. The value addition has improved the lives of individuals involved in tasar sericulture. The TSP, funded by the Odisha government, was inaugurated in 2019 at TRCS Bhagamunda. As a result of this, the institution now boasts 100 solar powered reeling machines, 10 re-reeling machines, 5 de-flossing machines, 2 book making machines and 1 digital textile printing machine.

According to PNS 2020, Flipkart would sell attractive and durable tasar silk products from Keonjhar online. TRCS Bhagamunda and Flipkart had signed a Memorandum of Understanding in this regard.

According to Sarkar and Chaudhary in 2022, on October 30 during his "Mann Ki Baat" programme, Prime Minister (PM) of India praised KuniDehury of Odisha, a master silk reeler and weaver in the Bhagamunda Silk Park. She opened a

centre in her village a few months ago where she trains 50 local women produce silkworm eggs and yarn from cocoons. Kuni has previously trained over a thousand women using the solar-powered Unnatti machines in the park (Sarkar and Chaudhary 2022).

In their article from 2019 titled "Bhagamunda TRCS: Women Empowerment through Tasar Sericulture," Satapathy and Satyanarayana state that the success of Bhagamunda TRCS has encouraged other TRCS to adopt the best practices and strategies followed in this society. They also reported that the coordinated efforts and concerted work of numerous development partners culminated in the tasar scenario under TRCS changing significantly. Other partners, including the District Rural Development Agency (DRDA), ITDA, Central Silk Board, Odisha Livelihood Mission (OLM), Odisha Modernizing Economy Governance Administration (OMEGA), District Mineral Foundation (DMF), and NGOs like TATA Steel Rural Development Society (TSRDS), Society for Harmonious Renaissance of Ideas through Simple Technological Initiatives (SHRISTI), Tasar Development Foundation (TDF), among others, contributed to support the TRCS in order to further the efforts of the Department of Textiles, Government of Odisha. The Government of India's Ministry of Textiles awarded TRCS with a special recognition award during the Surging Silk-A Mega Event held in New Delhi on February 9, 2019, in honour of all the aforementioned efforts on a national level. They also emphasised the way TRCS membership expanded in 2019, from 885 families to 3062, showing a large number of youngsters participating in tasar activities that prevented migration. According to their reports, 4 lakh DFLs were utilised in 2019 while 200.448 lakh cocoons were produced, up from 0.71 lakh DFLs utilised and 20.216 lakh cocoons produced earlier. In addition, they stated that 427 people were covered under the Central Silk Board's Village Cluster Promotion Programme (VCP) and Tribal Sub Plan (TSP).

The some of the convergence of schemes implemented in TRCS are as follows.

Scheme		Implementing Unit	No. of Beneficiaries Included	objective
State Sponsored	ITDA	TRCS Bhagamunda	1135	Providing all beneficiaries, the DFLs at subsidised price as well as additional utilities for sericulture activities
	DMF	SRISTI	300	Establishing 300 hectares of Asan/Arjun plantations on revenue-wasteland in mining-affected villages in the Harichandanpur block and providing 300 households with a livelihood through Tasar silkworm rearing. DMF Trust works with SERIFED and NGOs to carry out its projects.
	OMBADC	TRCS Bhagamunda	1135	To make the districts self-sufficient in producing Tasar seeds, assistance is provided for the development of quality basic seeds (DFLs). Additionally, TRCS is improved for more effective management of procurement and marketing.
CDP	85		Increasing sericulture production, community engagement, and integrated development in new scientific knowledge cooperative organisation	
TSP	232		Encouraging a functional activity group of tribal people who rear silkworm and reel tasar silk worm cocoons in a remote place.	
Central Sponsored	RKVY		65	It is for further implementing the programme in the state according to its requirements in areas that call for specialised attention to boost production and productivity. In essence, it aids in providing beneficiaries with host plant areas through new plantation programmes.
	NGO Sponsored	OLM	SRISTI	84
	TATA	TATA	42	Providing utility and prophylactic materials to the beneficiaries.

**Material and Methods**

The materials and methods employed in the current studies are detailed here.

as Tasar Silk Park in 2019. It is located at Bhagamunda of Block Harichandanpur District Keonjhar. It is at 50 km away from district Head Quarter (HQ) and the nearest railway station is Sagadapata at around 3.5 km.

**Tasar Silk Park (TSP), Bhagamunda**

TRCS Bhagamunda established in the year 1978 was elevated

## Infrastructure

Building	Number	Sq. ft.	Sponsored by
Tasar Silk Park (G+2)	1	18000	Govt. of Odisha
Weaving & Stitching Unit	1	2000+2000=4000	Govt. of Odisha
Basic Tassar Seed Production Unit	1	6592	Govt. of Odisha
Seed Multiplication Centre	1	2357	RKVY 2016-17
Tasar Storage/ Godown	1	2000	Govt. of Odisha
	1	2212	RKVY 2014-15
	1	2000	Govt. of Odisha
	1	2000	TSRDS, Brahmanipal at Tangiriapal
Ushnakothi	1	215	
Women's Hostel & Training centre	1	2000	DRDA, Keonjhar
Women's Toilet Crutch	1	350	Govt. of Odisha
Basic Tasar Seed Production Unit	1	4356	DMF, Keonjhar at PPC, Harichandanpur
Construction composite infrastructure for Rearers, Reelers & Spinners Collective and BSPU	1	2665	Central Silk Board
Display-cum-Sale Centre	1	1141+985=2126	Govt. of Odisha

## Machines

Name	Number
Solar Unnati Machine- 2 spindle	50
Solar Unnati Machine- 4 spindle	50
Re-reeling Charkha- 8 ends	10
Spinning/Deflossing-With pedal	5
Book Machine- Yarn	2
Digital Textile Printer	1
Padding Machine	1
Oil fired steam generator	1
Steam Ager	1
Calendar Machine	1
Air Compressor- 2HP	1
Motor Phase with starter- 5HP	1
Silent DG Set- 62.5 KVA	1
Single needle Lockstitch Machine (With Servo motor, Direct Drive)	30
Electronic Eyelet Button Hole machine Completeset	1
2-Needle Feed off the arm with racing puller machine Complete set	1
2-Needle, Five Thread Overlock Machine Completeset with DD motor	1
2-Needle, Four Thread Overlock Machine Complete set with DD motor	1
Button Sewing Lockstitch Machine Complete set	1
Lockstitch Button Hole machine Complete set (Mechanical)	1
High-speed Lockstitch, Button Hole Machine Complete set	1
Single Thread Blind Stitch Machine with Skip Stitch 1:2	1
Elastic attaching Machine Complete set - 4 Needle	1
Bartacking sewing system Complete set	1
Front placket making machine- 4 Needle	1
Belt attaching Machine Complete set - 4 Needle	1
Fusing Machine Complete set - 450 mm Belt	1
Straight knife cutting Machine - 8" Knife	1
Round Blade Cutting Machine - 125 mm Blade	1
Boiler with Steam Press Complete Set - Capacity 9 Liter Steam Press Iron & Boiler	1
Flat Embroidery Machine, 9 needles, 20 heads	1
Flat Embroidery Machine, 9 needles, 4 head with Sequin attachment (2 Heads of thread embroidery +2 Heads Chenille) embroidery	1

**Beneficiary members and plantation**

According to the information gathered below, TRCS has a total of 1565 beneficiaries that are active participants in tasar culture activities. Plantation activities offer certain options for the involved members to improve their financial situation

through field work like digging pits and creating basins, among other things. According to the information below, the TRCS has 250 ha of natural and 50 ha of block Asan plantations, 240 ha of natural and 100 ha of Arjun plantations besides 50 ha of Sal-dominant wild plantation, totaling 690

Ha. This is encouraging the use of tasar culture among farmers. Additionally, TRCS is carrying out plantation work

to expand the host plantation's area by 30 Ha in 2017–18, 10 Ha in 2018–19, and 125 Ha in 2021–22.

Year	Nos Of Beneficiaries						Existing area of Host Plant (Ha)						Area of New Plantation Taken (Ha)
	SC		ST		OBC		Asan		Arjun		Wild		
	Male	Female	Male	Female	Male	Female	Natural	Block	Natural	Block	Sal/others	MGNREGA	RKVY
2017-18	13	24	742	322	220	244	250	50	240	100	50	30	0
2018-19	13	24	742	322	220	244	250	50	240	100	50	10	0
2019-20	13	24	742	322	220	244	250	50	240	100	50	0	10
2020-21	13	24	742	322	220	244	250	50	240	100	50	0	0
2021-22	13	24	742	322	220	244	250	50	240	100	50	125	0

### Data collection

For working out the impact in terms of tasar value chain, data like source of DFLs, seed cocoon production, commercial seed production and its utilization for reelable cocoon production, weight of reel and gicha yarn produced and number of reelers and weavers were collected. Further, details of ten rearer, seed rearer, private graineur and reelers in terms of changes in their living standards was also collected. The collected data was tabulated besides presenting in the graphical form.

### Result and Discussion

The results in terms of development of tasar silk value chain at Bhagamunda TRCS and its impacts are discussed hereunder.

### Tasar Silk Value Chain from Soil to Silk

The journey of Soil to Cocoon is very challenging but through the repeated entrepreneurship to the beneficiary with the help of various sericulture awareness activities helps in the development of livelihood due to adoption of new and easy technology and applying it in the farm for better production of tasar crop. Production of basic DFLs, rearing basic seed, harvesting seed cocoons for processing them to produce commercial DFLs through private graineurs ensures consistency in cocoon production. Traditionally, it is the prime auxiliary source of income for tribals for fulfilling their desires. But now days all the stakeholders practicing tasar culture as lucrative crop for their enhancement of financial condition with minimum seed cost.

In case of off-farm sector (Cocoon to fabric) giving vast opportunity to the women members of tribal families. It partly checks the rural migration due to involving in BTSP for working according to their skills like reeling, weaving, printing and designing. Tables 1 and 2 and Figures 1 and 2 shows the production of tasar reel yarn gradually increased from 2017 to 2020 from 733.41 kg to 2432.84 kg. But in the year 2021 its production is reduced due to the covid restriction. However, with the efforts made by the TSP, the increasing trend was noticed for the year 2021-22.

During the last five year from 2017-18 to 2021-22, the TSP Bhagamunda reared around 0.67 lakh basic DFLs with an average of 0.13 lakh DFLs (Table 1&2 and Figure 1&2). From these reared basic DFLs, around 23.45 lakh basic seed cocoons were produced at the rate of 35 cocoons/DFL. The produced seed cocoons were valued of Rs. 70.35 lakh @ 3 Rs/seed cocoon. These produced basic seed cocoons were further processed at private graineurs level, who during the last five years produced 3.52 lakh commercial DFLs with an average cocoon: DFL of 7:1. The own produced 3.52 lakh commercial DFLs were reared along with 0.67 lakh DFLs sourced from other sources, thus totaling 4.19 lakh DFLs.

From 4.19 lakh DFLs, around 138.1 lakh reeling and 17.85 lakh non-reeling cocoons were produced. Out of these 17.85 lakh non-reeling cocoons, around 8 lakh cocoons were pierced basic seed cocoons. As a result, during the last five years, the produced reeling (138.1 lakh) and non-reeling cocoons (17.85 lakh) were valued at Rs. 552.45 lakh and 26.7 lakh respectively. However, for off the farm activities, out of the 155.95 lakh cocoons (138.1 lakh and 17.85 lakh), only 85.12 lakh cocoons were utilized by TSP Bhagamunda for the production of around 7422 kg of silk yarn made up of 5607.32 kg reel and 1815.29 kg gicha yarns. On an average 1147 cocoons were utilized to produce 1 kg of yarn. The on-farm produced (155.95 lakh) but not utilized for yarn cocoons of around 70.83 lakh cocoons were sold whose value also indicated in the cocoon value. Thus during 2017-18 to 2021-22, TSP Bhagamunda produced tasar yarn of 7422 kg valued at Rs 332.82 lakh with an average value of 64.76 lakh Rs. per year. During this yarn production, only women were employed as reeler and weaver and they were total of 475 and 25, respectively. Altogether, TSP Bhagamunda generated cumulative value of Rs 1015.56 lakh from seed cocoon, commercial DFLs, commercial cocoon, pierced and non-reelable cocoons and reel and gicha yarns from 201-18 to 2021-22.

Among the different years, 2019-20 recorded the maximum basic DFLs utilization (0.18 lakh) and correspondingly, it registered the maximum seed cocoon production (6.30 lakh), value of seed cocoon (18.90 lakh Rs.), commercial DFL production (0.91 lakh), value of commercial DFL (10.89 lakh Rs) and utilization of commercial DFL (1.09 lakh) where 0.18 lakh DFLs were sourced from outside TSP. However, the maximum cocoon production was in the year 2017-18 with 40 lakh cocoons (excluding 1.60 lakh pierced seed cocoons) @ 43 cocoon/ DFL followed by 33 cocoon/DFL during 2019-20. The highest commercial DFL utilization (1.09 lakh) and second highest cocoon production (38.11) might be due to the abiotic factors of extreme cold causing silkworms longer feeding making it unable to manage by the rearers during that year. However, for off the farm activities to produce silk yarn, the year 2019-20 utilized maximum of 30.57 lakh cocoons @ 1083 cocoon/kg yarn to produce a total of 2823.09 kg of silk yarn valued at Rs 129.87 lakh. Interestingly, the reelers involved were only 80 persons compared to 190 and 100 reelers during 2021-22 and 2018-19, respectively while the weavers were five persons for all the years. As a result, the year 2019-20 recorded the total cumulative value of 303.03 lakh from seed cocoon (18.9 lakh), commercial DFL (10.89 lakh), reelable and non-reelable cocoons (143.37 lakh) and silk yarn (129.87 lakh). Thus, the percent increase in value at yarn compared to seed cocoon value was around 687%.

However, the highest total cumulative value was recorded for the year 2021-22 (152.75 lakh) followed by 2021-21 (152.73)

although the year 2021-22 recorded lowest basic DFL utilization (0.08 lakh), lowest seed cocoon (2.80 lakh), commercial DFL production (0.34 lakh) and cocoon production of 14.21 lakh (12.86 lakh and 1.35 lakh). Though these respective on the farm values for the year 2021-22 were recorded to be lowest but the cumulative value for the year was highest (152.75 lakh) because of the increased cocoon utilization (23.95 lakh) than the production of 14.21 (12.86

lakh and 1.35 lakh) i.e., around 9.74 lakh cocoons were procured from other TRCS.

The percent value addition i.e., increase in value at yarn compared to seed cocoon value was found to be 216, 340, 687 and 184 for the years 2017-18, 2018-19, 2019-20 and 2020-21, respectively where during these years additional DFLs for commercial crop amounting to 0.15, 0.14, 0.18, and 0.12 lakhs were sourced from outside TSP.

**Table 1:** Tasar Silk Value Chain of Tasar Silk Park Bhagamunda from Soil to Silk

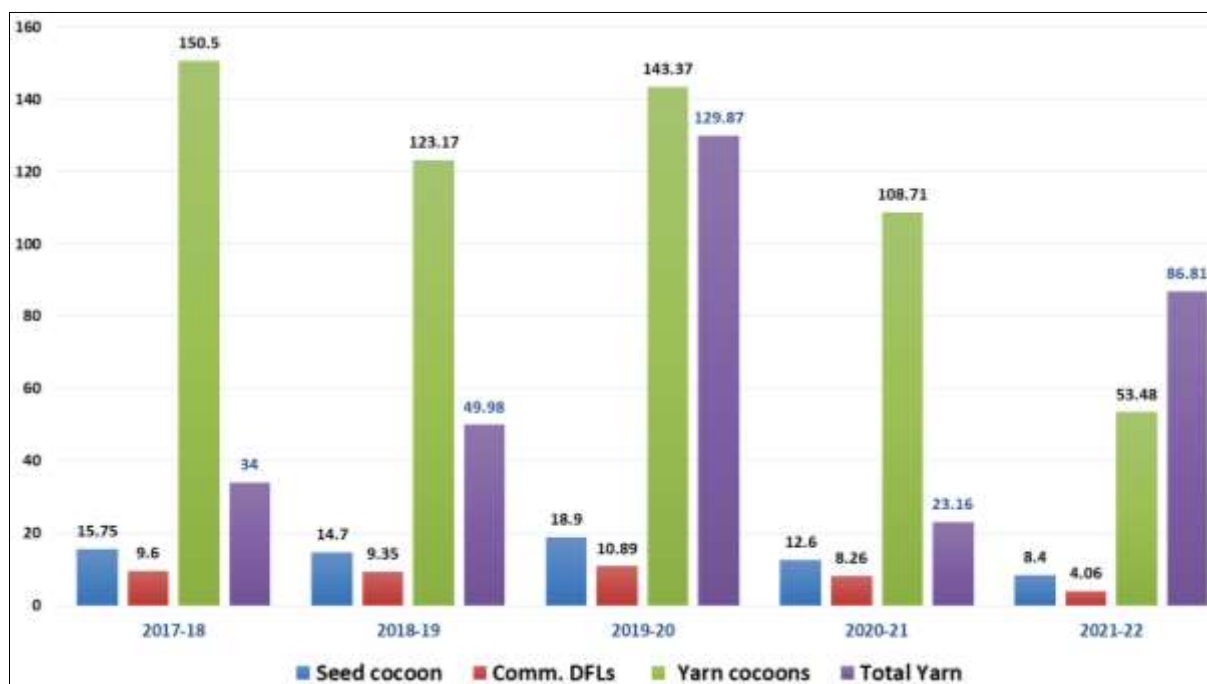
Year	On farm (Soil to Cocoon) #										Offfarm (Cocoon to Silk)					
	Basic DFL Util. (No.) *	Seed Cocoon Prod. (No.)	Value of seed cocoon (Rs.)	Com. DFL Prod. (No.)\$	Value of com. DFL (Rs.)	Util. of Com. DFLs (No.)**	Cocoon Prod. (No.)		Cocoon Value (Rs.)		Cocoon util. for yarn (lakh No.) α	Weight of Reel Yarn Prod. (Kg)	Weight of Ghicha Yarn Prod. (Kg)	Value of Total Yarn (Rs in lakh)	Females worked (No.)	
							Ree.	Non ree. ^	Ree.	Non ree. ^					Reelers	Weavers
2017-18	0.15	5.25	15.75	0.80	9.60	0.95	35.00	7.00	140.00	10.50	8.50	733.41	72.7	34.00	70	5
2018-19	0.14	4.90	14.70	0.78	9.35	0.92	29.62	3.12	118.49	4.68	12.90	985.67	190.2	49.98	100	5
2019-20	0.18	6.30	18.90	0.91	10.89	1.09	34.48	3.63	137.93	5.44	30.57	2432.84	390.25	129.87	80	5
2020-21	0.12	4.20	12.60	0.69	8.26	0.81	26.14	2.75	104.58	4.13	9.19	290.4	393.13	23.16	35	5
2021-22	0.08	2.80	8.40	0.34	4.06	0.42	12.86	1.35	51.45	2.03	23.95	1165	769	86.81	190	5
Total/Avg.	0.67/ 0.13	23.45/ 4.69	70.35/ 14.07	3.52/ 0.70	42.16/ 8.43	4.19/ 0.84	138.1/ 27.62	17.85/ 3.57	552.45/ 110.49	26.7/ 5.36	85.12/ 17.02	5607.32/ 1121.46	1815.2/ 363.06	323.82/ 64.76	475/ 95.0	25/5

\*DFLs sourced from PPC Harichandanpur; \*\*Additional DFLs sourced from other source; # All figures are in lakhs; \$ DFLs production by Private Graineurs (PGs); ^including pierced seed cocoons; α non-utilised cocoons were sold whose value is included in cocoon value

**Table 2:** Value of Different Products in the Production Chain from Soil to Silk at TSP Bhagamunda

Year	Total value of seed cocoon (Lakh Rs.)	Unit value of seed cocoon (Rs.)	Total value of comm. DFLs (Lakh Rs.)	Unit value of comm. DFL (Rs.)	Total value of * cocoons (Lakh Rs.)	Unit value of cocoons (Rs.)	Total value of yarn** (Lakh Rs.)	Unit value of yarn (Rs.)	Increase in value at yarn compared to seed cocoon value\$ (%)	Total cumulative value (Lakh Rs.)
2017-18	15.75	3	9.6	12	150.5	4	34	4218	216	209.85
2018-19	14.7	3	9.35	12	123.17	4	49.98	4250	340	197.2
2019-20	18.9	3	10.89	12	143.37	4	129.87	4600	687	303.03
2020-21	12.6	3	8.26	12	108.71	4	23.16	3388	184	152.73
2021-22	8.4	3	4.06	12	53.48	4	86.81	4489	1033	152.75

\* Reelable and non reelable cocoons; \*\* Reel and ghicha yarn; \$ including additional commercial DFLs utilised were sourced from others



**Fig 1:** Value (Rs. In lakh) of different Products in the Production Chain from Soil to Silk at TSP Bhagamunda

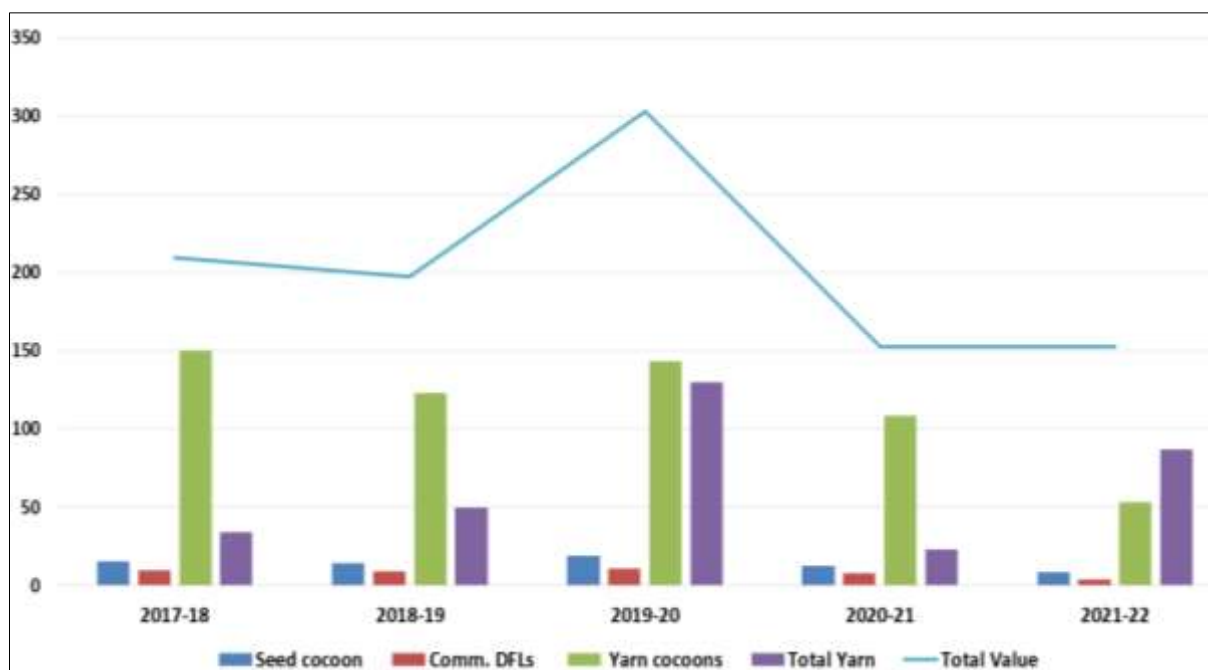


Fig 2: Value (Rs. In lakh) of different Products in the Production Chain from Soil to Silk at TSP along with total cumulative value

**Impact of TSP Bhagamunda on the standard of living**

The impact of TSP Bhagamunda on the standard of living of different beneficiaries like rearers, seed rearers, private graineurs and reelers was studied. The data on the changes in the living standards of ten each of them were tabulated and graphically presented (Tables and figures 3 to 6).

All the forty persons were having source of income from seasonal labour with poor living status, kaccha own house and agricultural land before involving in the TSP activities. However, with the involvement in TSP activities as rearer, seed rearer, private graineur and reeler with their source of income from sericulture practices, they increased their living status to standard and most of them had a pakka and some semi pakka own houses.

Among the ten tasar rearers, the number of cattle ranged from minimum of one to maximum of 3. All the rearers had one

television set (TV), a minimum of one mobile phone and four individuals were having motor cycles. Their yearly income was ranging from 0.5 to 2 lakh. Similarly, ten seed rearers of villages Dhurudiamba and Chandaposi had cattle ranging from minimum of two to maximum of four while six seed rearers were having TV. Though all seed rearers had mobile phones but the motor cycle was bought by only seed rearer. The minimum yearly income of 0.4 lakh to maximum 0.6 lakh was informed. The ten private graineurs had their income ranging from one to one and half lakh every year. Only three & eight of them had motor cycle and TV, respectively. However, each of ten private graineurs had at least one mobile phone. The reeler of TSP were having their yearly income of Rs. one lakh every year. Among these ten reelers, one, nine and three reelers had cattle, TV and motor cycles, respectively.

Table 3: Impact of TSP Bhagamunda on the standard of living of tasar rearers

Name	Village	Family Member	Number				Current status of income /Annun (up to Rs. in lakhs)
			Cattle (Cow, Goat, Sheep etc.)	TV	Mobile	Motor Cycle	
Hambhira Majhi	Nuagaon	4	3	1	1	0	1
Champey Munda	Jamuposi	4	2	1	1	0	0.5
Babulal Munda	Jamuda	3	1	1	1	0	0.5
Khageswar Munda	Dhurudiamba	5	3	1	2	1	2
Gouranga Naik	Nuagaon	2	2	1	1	0	1
Dasarath Munda	Maniabindha	3	2	1	1	1	1
Abhimanyu Dehury	Karadapal	4	3	1	2	0	1
Bhagyadhar Munda	Dhurudiamba	4	3	1	1	1	1
Harekrushna Mahanta	Maniabindha	5	2	1	1	1	0.5
Panchu Singh	Nuagaon	3	2	1	1	0	1



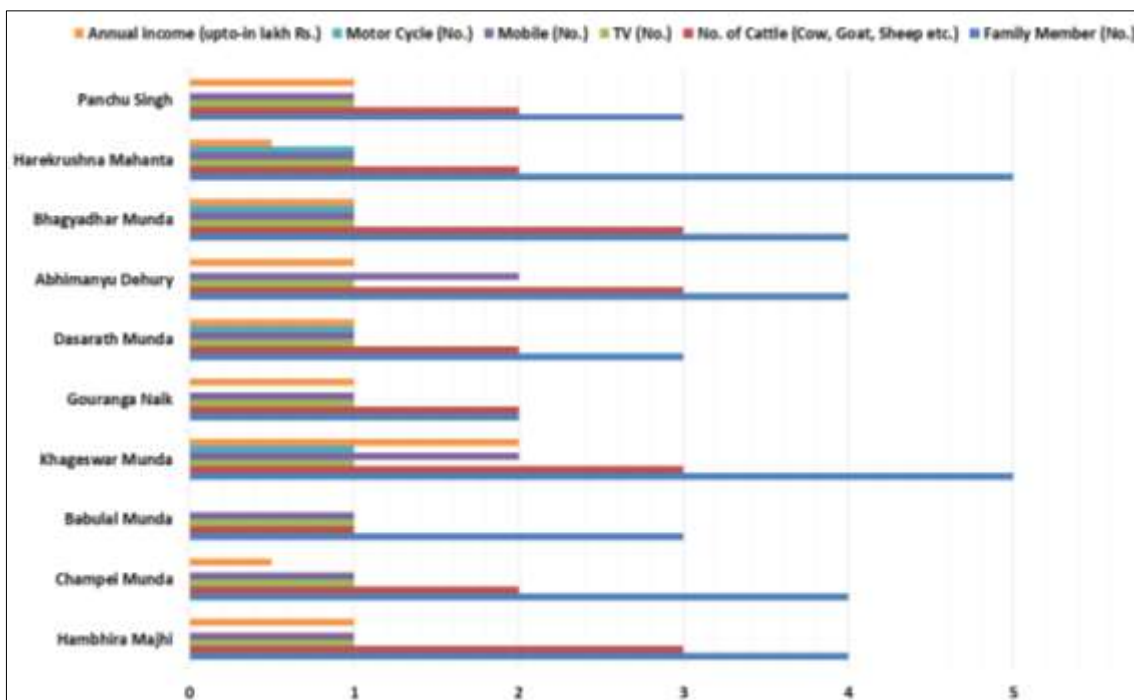


Fig 3: Impact of TSP Bhagamunda on the standard of living of tasar rearers

Table 4: Impact of TSP Bhagamunda on the standard of living of tasar seed rearers

Name	Village	Family Member	Number				Current status of income /Annum (up to Rs. in lakhs)
			Cattle (Cow, Goat, Sheep etc.)	TV	Mobile	Motor Cycle	
Jura Munda	Dhurudiamba	4	3	0	1	0	0.5
Tika Munda	Dhurudiamba	5	2	1	2	0	0.6
Jatindra Munda	Dhurudiamba	3	3	0	1	0	0.4
Tika Munda	Dhurudiamba	2	4	1	1	0	0.4
Tui Munda	Dhurudiamba	4	4	0	2	0	0.5
Mahendra Munda	Chandaposi	5	2	1	1	0	0.6
Birang Munda	Dhurudiamba	6	4	0	2	0	0.4
Bijaya Munda	Dhurudiamba	5	2	1	1	0	0.4
Lebeyakishor Munda	Dhurudiamba	4	2	1	2	0	0.5
ButuKissan	Dhurudiamba	2	3	1	1	1	0.5

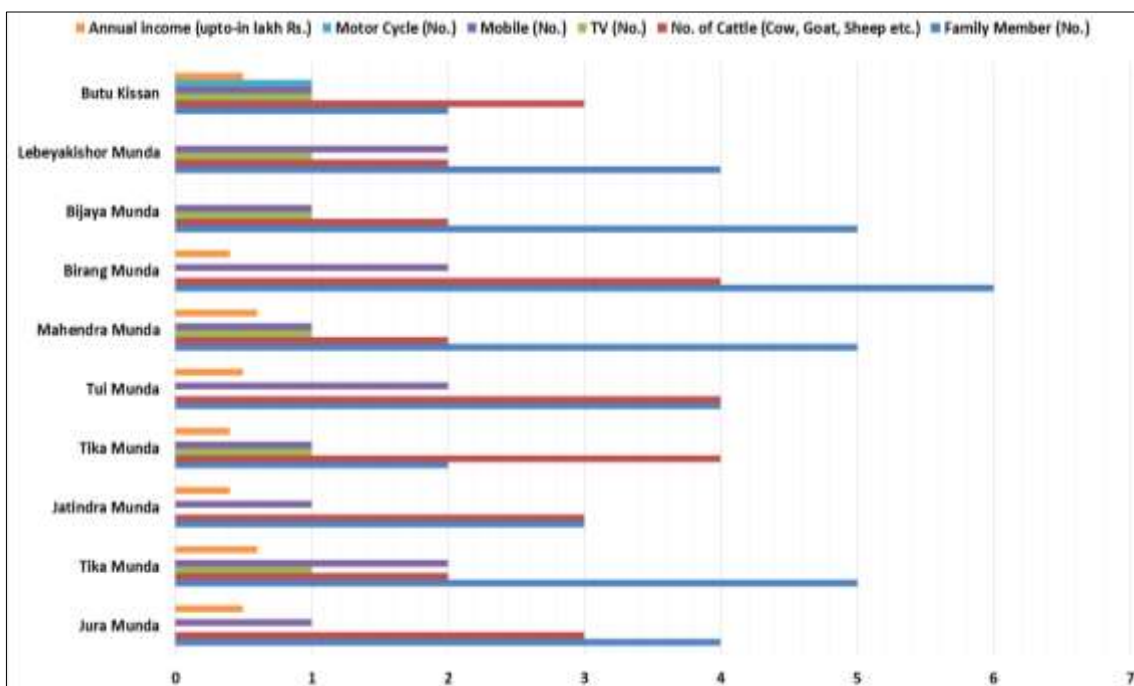
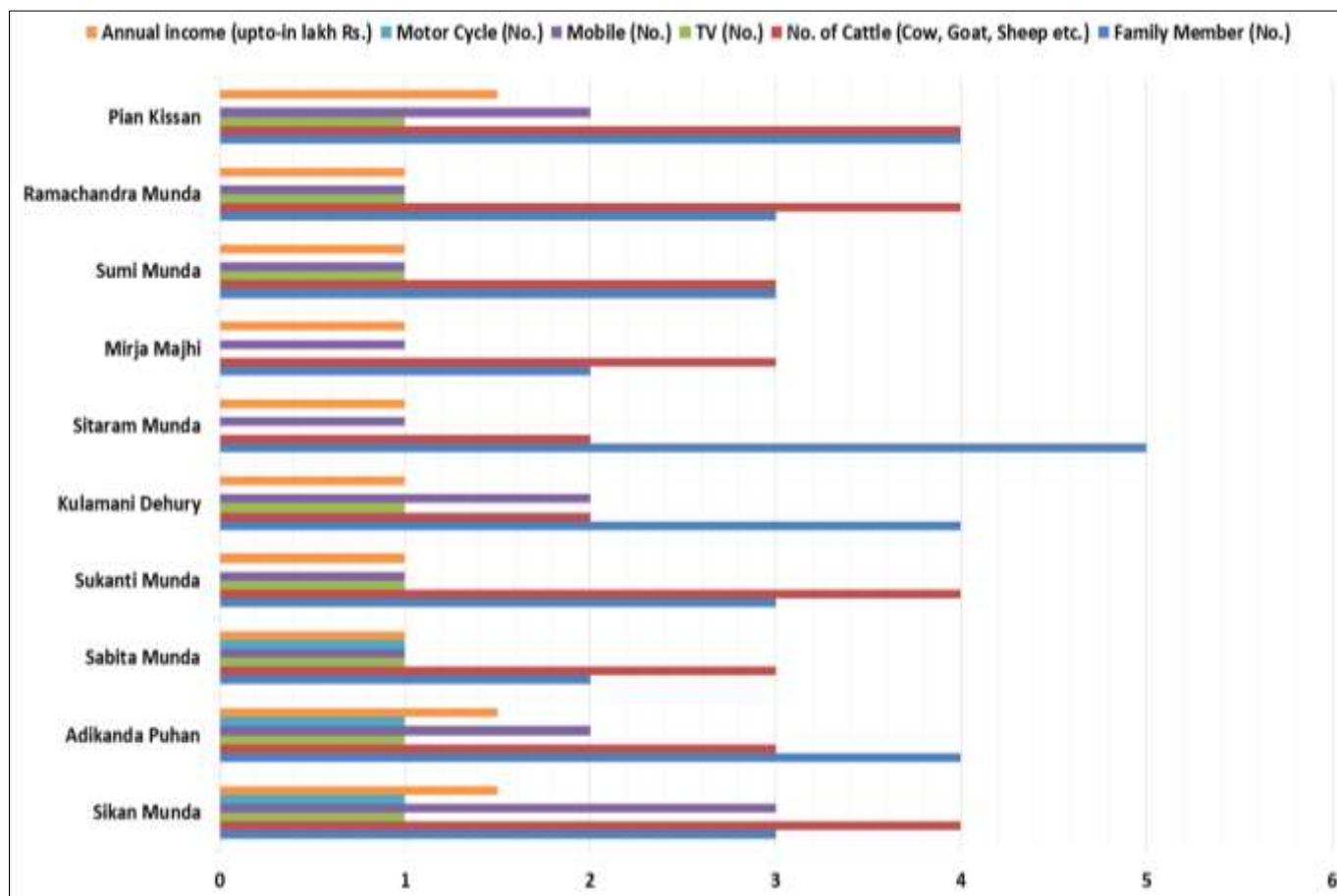


Fig 4: Impact of TSP Bhagamunda on the standard of living of tasar seed rearers

**Table 5:** Impact of TSP Bhagamunda on the standard of living of private graineur

Name	Village	Family Member	Number				Current status of income /Annum (up to Rs. in lakhs)
			Cattle (Cow, Goat, Sheep etc.)	TV	Mobile	Motor Cycle	
Sikan Munda	Dhurudiamba	3	4	1	3	1	1.5
AdikandaPuhan	Gelhamunda	4	3	1	2	1	1.5
Sabita Munda	Dhurudiamba	2	3	1	1	1	1
Sukanti Munda	Dhurudiamba	3	4	1	1	0	1
KulamaniDehury	Billa	4	2	1	2	0	1
Sitaram Munda	Jamuposi	5	2	0	1	0	1
Mirja Majhi	Chandaposi	2	3	0	1	0	1
Sumi Munda	Dhurudiamba	3	3	1	1	0	1
Ramachandra Munda	Maniabindh	3	4	1	1	0	1
Pian Kissan	Jamuda	4	4	1	2	0	1.5



**Fig 5:** Impact of TSP Bhagamunda on the standard of living of private graineurs

**Table 6:** Impact of TSP Bhagamunda on the standard of living of reelers

Name	Village	Family Member	Number				Current status of income /Annum (up to Rs. in lakhs)
			Cattle (Cow, Goat, Sheep etc.)	TV	Mobile	Motor Cycle	
KuniDehury	Karadapal	3	0	1	2	1	1
SakuntalaDehury	Karadapal	4	0	0	1	0	1
Nupur Padhan	Bailobeda	3	0	1	2	0	1
LabangaPadhan	Bailobeda	5	0	1	1	1	1
Pankajini Naik	Karadapal	4	0	1	2	0	1
MadhumatiDehury	Sahartangiri	4	0	1	2	0	1
SumitaDehuri	Ragada	3	1	1	2	1	1
Subhadra Naik	Karadapal	5	0	1	1	0	1
Bharati Dehuri	Ragada	5	0	1	2	0	1
Radhika Munda	Masinajodi	4	1	1	1	0	1

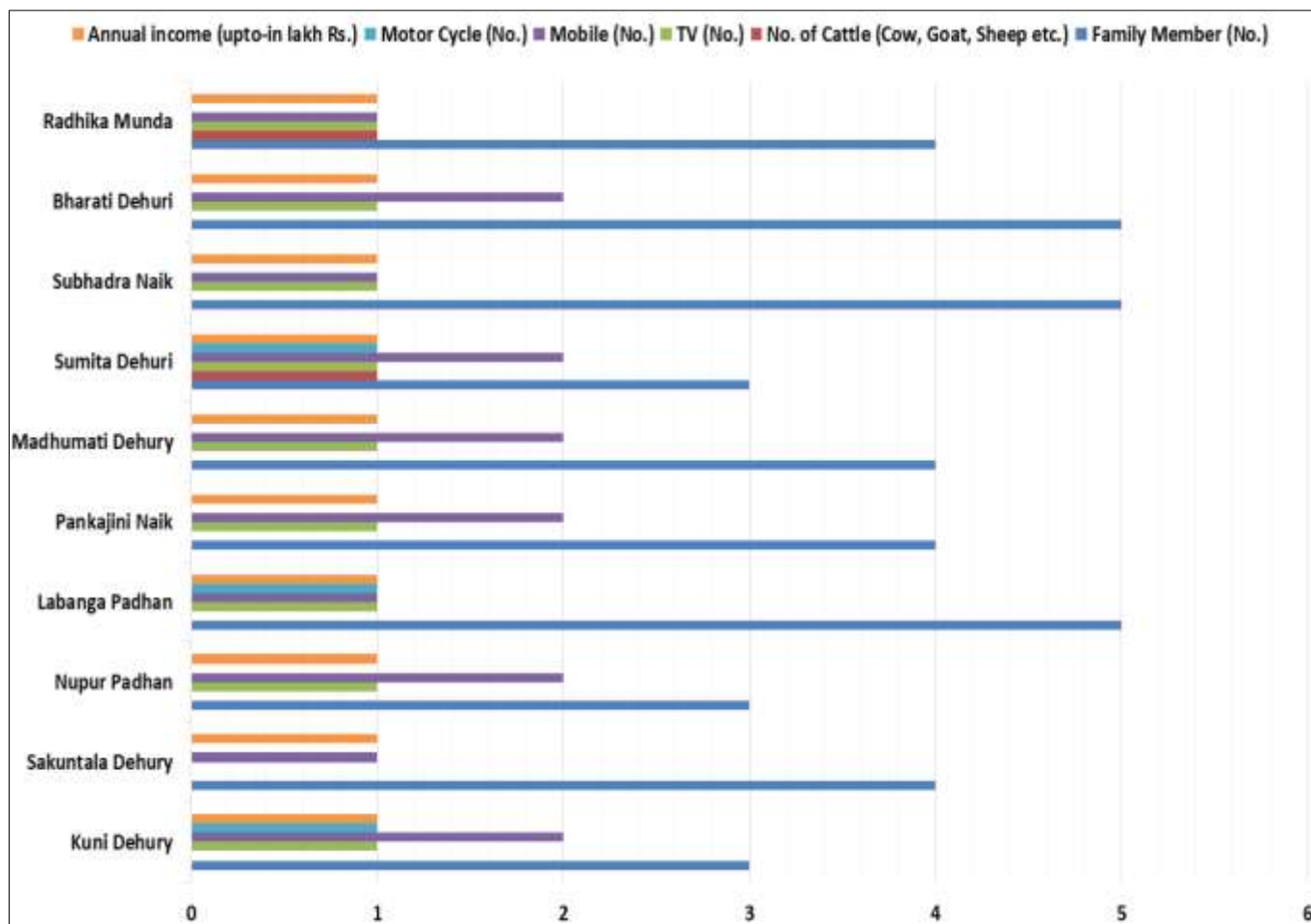


Fig 6: Impact of TSP Bhagamunda on the standard of living of reelers

**Conclusion**

With the entire Kendujhar district having been embodied with vast Tasar flora & fauna, availability of large mass and traditional farming knowledge among the tribal communities, most of the people are well versed with tasar rearing. The availability of natural and block tasar host plantations and waste lands, village forest etc for taking up block plantation besides the availability of local eco-races, it offers the ample scope for *in-situ* value addition through women groups. TSP Bhagamunda working in this direction to enhance the income through different commodities in the value chain from Soil to Silk.

Though, some of the constraints faced like increased requirement of quality DFLs besides shortage of trained and technically sound staff in view of most of the stakeholders being illiterate but TRCS done efforts amidst these like aiding in providing the usufruct right of the tasar host plantation @ minimum 01 Ha per family for silkworm rearing crop, utilized traditional farming knowledge among the tribal, created strong demand for tasar cocoons among the weavers through the well-organized tasar cooperative marketing network.

However, some of the constraints need to overcome are efficient management of fluctuation of abiotic factors during seed cocoon preservation and further more efficient adoption of proven technologies of Central Tasar Research and Training Institute (CTRTI) Ranchi and Central Silk Technological Research Institute (CSTRI) Bengaluru will definitely enhance the productivity of TRCS besides bringing furthermore increase in value addition.

**Glimpses of tasar silk park Bhagamunda**





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