

JHARKHAND CAMPA
Monitoring work done by the Monitoring and Evaluation wing of the State Forest Department
Summary of Monitoring Report

Scheme 1	Name of Forest Division 2	Inspection Site 3	Unit/Area (ha) 4
Year 2016-17			
Soil Conservation & Afforestation scheme (NPV)	Hazaribagh East	Mokamo	50 ha
		Mayapur	40 ha
		Nagarkeswari/Dumriyatnr	50 ha
		Mandramo	50 ha
Compensatory Afforestation	Hazaribagh West	Talsavar	100 ha
Year 2017-18			
Construction of Forest Guard Quarter	Chatra North	Hauaag	1 unit
Construction of Forest Guard Quarter		Kunda	1 unit
Rehabilitation of degraded forests	Gumla	Surajpur P.F	25 ha
Silvicultural Operation	Chatra South	Lohra	50 ha
Year 2018-19			
Construction of Forest Guard Quarter	Hazaribagh SF	Bamnvey	1 Unit
Permanent Nursery		Charwa Dam	02 ha
Soil Conservation & Afforestation scheme		Kanchanpur, Garke, Govindpur	40 ha
Soil Conservation & Afforestation scheme		Dumardih	45 ha
Construction of Forest Guard Quarter	Koderma SF	Tetariyadih, Domchanch	1 unit
Linear Plantation	Chatra North	Maithan Gaya Transmission Line Construction of	17.827 km
Silvicultural Operation		Itavani	50 ha
Checkdam	Ranchi	Nagri P.F	1 unit
Silvicultural Operation		Nagri P.F	20 ha
Silvicultural Operation	Gumla	Tusgaon P.F	60 ha
Wild Life Management, habitat Improvement	Ranchi	Urgutu P.F	31 ha
Checkdam	Ranchi SF	Setahuru	1 unit
Checkdam		Setahuru	1 unit
Checkdam		Permanent Nursery	1 ha
Checkdam		Permanent Nursery	1 ha
Checkdam	Jamshedpur	Khokhra PF	1 unit
Checkdam		Bonta PF	1 unit
Guardwall Construction		Chimti PF	200 km
Silvicultural Operation		Ango	50 ha
Natural regeneration & Soil Conservation Scheme		Pandu	77 ha
		Bundu	92 ha

Scheme 1	Name of Forest Division 2	Inspection Site 3	Unit/Area (ha) 4
Compensatory Afforestation	Jamshedpur	Gosaibeliya	12.48 ha
		Talsavar	28.30 ha
Construction of Forest Guard Quarter		Barkagaon	1 unit
		Plandu	1 unit
		Kodve	1 unit
Check Dam		Chandol	1 unit
		Patrakla	1 unit
	Jorakath	1 unit	
Compensatory Afforestation	Chatra South	Pokla -1	25.50 ha
		Pokla -2	25.50 ha
		Kadamdiri	72 ha
		Dhangada	50 ha
		Daridag	49.36 ha
		Karo	46.45 ha
Silvicultural Operation		Gonda	50 ha
	Raham	50 ha	
Year 2019-20			
Maintenance of Forest Roads	PTR, South	Betla Park Road No. 1-5,	264 km
Construction of Causeway/Culvert		Chamrhi Nala, Morvai, West Chipadohar	8 unit
Weed eradication work		Kusum Dhalaan,	500 ha
Checkdam	Koderma SF	Tetaryadih P.F	1 unit
Checkdam		Badki Karaunjiya P.F	1 unit
Compensatory Afforestation	Hazaribagh West	Devchanda	65 ha
Checkdam		Pabai	1 unit
Checkdam	Simdega	Ranjari (Bano-49)	1 unit
Bambo gabion plantation		Odaga to Dumarmunda	5 km
Bambo gabion plantation		Dumarmunda to Girda	5 km
Bambo gabion plantation		Girda to Hurda	5 km
Bambo gabion plantation		Hurda to Ghat Bazar	5 km
Silviculture Operation		Kevangutu	30 ha
Silvicultural Operation	Khunti	Garke (karra-114)	48 ha
Silvicultural Operation		Katamkuku (Karra-158)	2 ha
Hi-Tech and Permanent Nursery	Palamu Region	Mangra P.F	1 ha
		Mirchaiya P.F	1 ha
		Sevati P.F	1 ha
		Selari P.F	1 ha
		Uldanda P.F	1 ha
		Chaplsi P.F	1 ha
		Bariyatu P.F	1 ha

-153-

Scheme	Name of Forest Division	Inspection Site	Unit/Area (ha)
1	2	3	4
Silvicultural Operation	Koderma	Chilsodih	60 ha
Linear Plantation		Koderma-Giridih Plantation along the railway line	5 km
Silvicultural Operation (Conditional Compliance)		Araiya	30 ha
Silvicultural Operation (NPV)		Parasbad	40 ha
		Dhaab	40 ha
		Laxmipur	25 ha
Checkdam	Chatra North	Naitarr	25 ha
Construction of Forest Guard Quarter		Nawdiha	1 unit
Checkdam	Ranchi SF	Kunda	1 unit
Checkdam		Kanti	1 unit
Silvicultural Operation	Latehar	Darla	1 unit
Guardwall Construction		Bariyatu PF	40 ha
Checkdam	Jamshedpur	Khokhra PF	88 mtr
Silvicultural Operation		Bandhdih PF	1 unit
Checkdam		Bonta PF	50 ha
Construction of Hazzat		Dhobni PF	1 unit
Construction of Hazzat	Jamshedpur	Musabani	1No
Construction of Hazzat		Chakuliya	50 ha
Construction of Hazzat		Ghatsila	1No
Construction of Barrack	Saranda	Sasangda	50 ha
Construction of Barrack		Karambadh	1No
Construction of Barrack		Thalkobad	1No
Checkdam	Kolhan	Hatgamhariya	1 unit
Construction of Forest Guard Quarter		Kumardungi	1 unit
Silvicultural operation	Saraikela	Delgapada PF	50 ha
Silvicultural operation		Mogodih PF	50 ha
Checkdam		Kasidih PF	1 unit
Construction of Forest Guard Quarter		Sinni	1 unit
Compensatory Afforestation		Sahebgunj PF	5.96 ha
Year 2020-21			
Checkdam	Jamshedpur	Beladih PF	1 unit
Forest Road		Koyra RF & Chimti PF	18 km
Construction of Guardwall		Koyra RF	300 meter
Miscellaneous Reports			
Soil Conservation & Afforestation scheme	Latehar SF	Dihi	40 ha
Soil Conservation & Afforestation scheme		Latehar Range Campus	01 ha
Soil Conservation & Afforestation scheme		Bari	50 ha
Soil Conservation & Afforestation scheme		Jadiyog	50 ha
RDF		Polpol	30 ha
RDF		Pokhraha	50 ha
Construction of Forest Guard Quarter		Daltonganj, Chainpur Range Campus	1 unit
Checkdam		Tilaiya Garha (Tetabar)	1 unit
Compensatory Afforestation		Rud	50 ha
Compensatory Afforestation		Salaiya	50 ha

-154-

Scheme 1	Name of Forest Division 2	Inspection Site 3	Unit/Area (ha) 4	
Compensatory Afforestation	Latehar SF	Nawada	50 ha	
Construction of Forest Guard Quarter		Balumath Range Campus	01 ha	
Checkdam		Karla Garha	01 ha	
RDF		Guruvey	50 ha	
Hi-Tech Nursery	Koderma SF	Tetariyadih, Domchanch	02 ha	
Soil Conservation & Afforestation scheme		Sardhawataar P.F	30 ha	
Silvicultural Operation		Saharjam P.F	40 ha	
Construction of Forest Guard Quarter	Gumla	Basiya Forest Complex	1 ha	
Checkdam		Okaba P.F	1 unit	
Checkdam		Devaki P.F Nala	1 unit	
Soil Conservation & Afforestation	Ranchi	Piparbanda/ Bargaibanda P.F	29 ha	
Checkdam		Gagari P.F	1 unit	
Construction of 4 Forest Guard Quarter		Ormanjhi Forest Complex	1 ha	
Checkdam		Forest Lotwa P.F	1 unit	
Checkdam	Jamshedpur	Khokhra PF	1 unit	
Checkdam		Khokhra PF	1 unit	
Checkdam		Koyra PF	1 unit	
Checkdam		Khokhra PF	1 unit	
Checkdam		Khokhra PF	1 unit	
Checkdam		Khokhra PF	1 unit	
Checkdam		Bonta PF	1 unit	
Checkdam		Belacih PF	1 unit	
Checkdam		Dhobni PF	1 unit	
Compensatory Afforestation		Hazaribagh West	Nawadh/Parvi	58 ha
			Jagedih	100 ha
			Tazpur	100 ha
	Virinda/Domapahari		116.16 ha	
	chepi		5 ha	
	Amnari		30 ha	
	Amjhar		50 ha	
	Gadokhar		30 ha	
	Lodhi		50 ha	
	Masratu		29 ha	
	Pasai		20 ha	
	Kusambha		50 ha	
	Hathgarha		50 ha	
	Murlikatiya		50 ha	
	Gangtiyahi		50 ha	
	Bariyath		100 ha	
	Sikri		53.02 ha	
	Jugra		50 ha	
	Talsavar	100 ha		
	Sikri	117.28 ha		
	Bonga	30 ha		
	Bangaowa	58.22 ha		

-151-

Summary of Third Party Evaluation report

Site wise progress status

Region	Circle	Division	Range	Site	Area (in ha.) /Nos.	Total Sample Plots/Structures (in ha/km/no.)	Year	Type of work
1	2	3	4	5	6	7	8	9
Ranchi	Ranchi	Ranchi	Mandar	Baske	25	10	2016-17	Block Plantation
			Mandar	Chamranga	156	23	2017-18	Block Plantation
			Mandar	Katandiri	60	6	2017-18	Block Plantation
			Mahilong	Nawagarh	58	9	2017-18	Block Plantation
			Mahilong	Losera	40	16	2017-18	Block Plantation
Bokaro	Bokaro	Ramgarh	Gola	Govindpur	20	6	2017-18	Block Plantation
			Ramgarh	Chamron	12	4	2017-18	Block Plantation
			Ramgarh	Bhuchungdih	20	5	2018-19	Block Plantation
			Ramgarh	Kander		1	2018-19	Check dam
			Patratu	Armadag	50	15	2017-18	Block Plantation
			Patratu	Palani		1	2018-19	Check dam
			Patratu	Joda talab Pochra East side	700	229	2016-17	Linear Plantation (Gabion)
			Patratu	Joda talab pochra West side to Ghutua pool	2050	670	2016-17	Linear Plantation (Gabion)
			Patratu	Balkudra over bridge to JSPL Gate	2000	654	2016-17	Linear Plantation (Gabion)
			Patratu	Uchringa check post to Uchringa Katwa Kocha	1250	409	2016-17	Linear Plantation (Gabion)
			Patratu	Talatand Betimore to Talatand pool	2000	654	2016-17	Linear Plantation (Gabion)
			Mandu	Fusari	15	5	2017-18	Block Plantation
			Mandu	Padrangi	80	24	2017-18	Block Plantation
			Mandu	Govindpur		1	2018-19	Check dam
		Kuju	Tongi	45	13	2017-18	Block Plantation	
		Dhanbad	Dhanbad	Dumka-Sahibganj Road	2.56	0.256 km	2016-17	Linear Plantation
			Dhanbad	Angolkata	9.98	4	2017-18	Block Plantation
			Tondi	Purni satuatand, Paharpur	20	5	2016-17	Block Plantation
			Tondi	Banskhajodi	15	3	2016-17	Block Plantation
			Tondi	Dumka-Sahibganj Road	12	1.2 km	2016-17	Linear Plantation
			Tondi	Bhagudih	2.9	1	2017-18	Block Plantation
			Tondi	Tondi Pahar	50	11	2017-18	RDF
			Tondi	Thethatand	25	7	2018-19	Block Plantation
			Tondi	Rajnagar	50	10	2018-19	Silviculture
			Tondi	Dalugodah	1	1	2018-19	Check dam
			Tondi	Tondi Forest Guard Quarter	1	1	2018-19	Forest Guard Quarter
			Topchanchi	Chitarpur	40	8	2016-17	Block Plantation
Topchanchi	Tetulya, Mahuda		19.13	4	2017-18	RDF		
Topchanchi	Gendanwadi, Chalmundari	25	10	2017-18	Block Plantation			
Topchanchi	Sadhubaad/Chutiara	8.25	3	2018-19	Block Plantation			
Topchanchi	Khanudih	1	1	2018-19	Check dam			
Bokaro	Chas	Rahargora	30	3	2016-17	Block Plantation		
	Chas	Kumhari	50	5	2017-18	Block Plantation		

Region	Circle	Division	Range	Site	Area (in ha.) /Nos.	Total Sample Plots/Structures (in ha/km/no.)	Year	Type of work
1	2	3	4	5	6	7	8	9
			Chas	Chargoi	13	4	2017-18	Block Plantation
			Chas	Mohanpur + Shakhakuri	50	8	2018-19	Block Plantation
			Chas	Chas PN				Permanent Nursery
			Bokaro	Chepro	30	5	2018-19	Block Plantation
			Bokaro	Gunjardih	50	5	2017-18	Block Plantation
			Bokaro	Gomari	50	12	2016-17	Block Plantation
			Bokaro	Bari	50	12	2016-17	Block Plantation
			Bokaro	Bhavani	50	7	2017-18	RDF
			Bokaro	Kharpito PN				Permanent Nursery
			Bokaro	Narra				Check dam
			Petarwar	Chipudi and Jhirki	40	8	2017-18	Block Plantation
			Petarwar	Durgapur	50	8	2018-19	Block Plantation
			Petarwar	Raghubyar & Khurd Chando	30	4	2017-18	RDF
			Petarwar	Bhulanketko	30	3	2016-17	Block Plantation
			Petarwar	Tarbalidig PN				Permanent Nursery
Hazaribag	Hazaribag	Hazaribag (W)	Hazaribag Aff.	Katkamsandi	50	15	2016-17	Block Plantation
			Hazaribag Aff.	Katkamsandi	4.00 km	0.40 km		Linear Plantation
			Hazaribag	Pabra	33	10	2016-17	Block Plantation
			Hazaribag	Lodhi	50	10	2017-18	Block plantation
			Hazaribag Aff.	Kedarut	75	10	2017-18	Block Plantation
			Hazaribag	Parheria	30	8	2018-19	Block Plantation
			Hazaribag Aff.	Nachanwe		1	2018-19	Check dam
			Barhi Aff.	Aradiri	45	14	2016-17	Block Plantation
			Barhi Aff.	Gangpacho	50	15	2016-17	Block Plantation
			Barhi Aff.	Dapok	50	20	2016-17	Block Plantation
			Hazaribag	Kushumbha	50	8	2017-18	Block Plantation
			Hazaribag	Masratu	29.22	4	2017-18	Block Plantation
			Hazaribag	Pasai	20	4	2017-18	Block Plantation
			Hazaribag Aff.	Saraiya	25	3	2017-18	Block Plantation
			Barhi Aff.	Gangtiyahi	50	10	2017-18	Block Plantation
			Barhi Aff.	Bariyatha	100	12	2017-18	Block Plantation
			Barkagaon	Bengwari	50	15	2016-17	Block Plantation
			Barkagaon	Pagar	35.24	11	2016-17	Block Plantation
			Barkagaon	Talashwar	100	19	2017-18	Block Plantation
			Barkagaon	Jugra	50	10	2017-18	Block Plantation
			Barkagaon	Pakribarwadih	50	5	2018-19	Silviculture
			Barkagaon	Suiwadaha		1	2018-19	Check dam
			Barkagaon	Mahudi (PCA)	73	7	2016-17	Block Plantation
			Hazaribag	Padma	50	5	2017-18	Silviculture
			Hazaribag	Harhad	50	5	2018-19	Silviculture

1. Analysis

The present analysis is based on data collected from three Forest Regions of Jharkhand (Bokaro, Hazaribag and Ranchi) during the ongoing field survey under the third party evaluation of CAMPA activities. Since the data collection phase is still underway, this report is restricted to 5 sites where data collection and analysis has been completed. The aim of the report is to provide an overview of the different activities undertaken as a part of this evaluation and the preliminary findings thereof.

1.1. Plantation sites

3.1.1. Block plantation

i. Site Details

Five block plantation sites from Bokaro, Hazaribag and Ranchi Forest Regions are included in the analysis. Site wise details are as follows:

Site name	Forest Region	Forest Division	Year of plantation	Area	Planted
Losera	Ranchi	Ranchi	2016	40	40000
Dapok	Hazaribag	Hazaribag (W)	2017	50	83300
Barai	Bokaro	Bokaro	2016	50	83300
Sadobad-Chutiyaro	Bokaro	Dhanbad	2018	25	41851
Chamrom	Bokaro	Ramgarh	2016	12	20039

ii. Key Findings from selected sites

Primary species	<ul style="list-style-type: none"> Bokaro Region- Sagwan, Chakundi & Shisham; other species found are Gamhar, Acacia, Karanch, Laxmi Taru Ranchi Region- Sagwan; other species found are Chakundi, Sidha, Karanch, Amaltas, Churchu, Amaltas Hazaribag Region- Acacia; other species found are Sagwan Chakundi, Shisam 			
Growth of plants	Site name	Forest Region	Avg. height (inch)	Avg. collar girth (inch)
The average height and collar girth of plants in selected sites was observed to be good.	Losera	Ranchi	160.02	11.06
	Dapok	Hazaribag	194.59	14.9
	Barai	Bokaro	173.97	9.28
	Sadobad-Chutiyaro	Bokaro	154.07	9.61
	Chamrom	Bokaro	129.65	7.82
Natural to Planted percentage Good balance of natural and planted plants in selected sites	Site name	Forest Region	Planted %	
	Losera	Ranchi	80.94	
	Dapok	Hazaribag	99.07	
	Barai	Bokaro	88.42	
	Sadobad-Chutiyaro	Bokaro	97.58	
	Chamrom	Bokaro	100	
Survival Rate	Site name	Forest Region	Avg. survival rate (%)	
Survival rate between 'moderate' to 'good' in selected sites	Losera	Ranchi	75	
	Dapok	Hazaribag	66.29	
	Barai	Bokaro	69.37	
	Sadobad-Chutiyaro	Bokaro	72.28	
	Chamrom	Bokaro	65.57	

Table below provides plot-wise details on different parameters (total plants, average height and growth, survival rate) for the five sites

Region-wise details of sites included in the analysis

Plot No.	Total plants	Natural	Planted	Avg. Height (inch)	Avg. Collar girth (inch)	Major Species (Local name)	Latitude	Longitude
0	114	21	93	252.68	13.35	Sagwan, Chakundi	23° 24' 20.8038"	85° 49' 40.9722"
1	116	20	96	116.08	8.59	Sagwan, Chakundi	23° 24' 34.6386"	85° 49' 42.981"
2	110	31	79	198.53	16.38	Sidha, Karanch	23° 24' 27.6474"	85° 49' 24.4554"
3	55	0	55	161.64	13.46	Sagwan	23° 24' 24.9222"	85° 49' 48.8706"
4	78	25	53	42.06	3.17	Sagwan, Karanch	23° 24' 27.2874"	85° 49' 29.7222"
5	97	0	97	227.05	16.38	Amaltas, Churchu	23° 24' 28.2996"	85° 49' 20.8086"
6	161	62	99	78	4.65	Sagwan, Karanch	23° 24' 27.2262"	82° 51' 0.1794"
7	75	11	64	262.91	15.78	Sagwan, Churchu	23° 24' 26.5746"	85° 49' 33.3984"
8	90	15	75	178.34	12.33	Sagwan	23° 24' 26.1468"	85° 49' 33.351"
9	73	25	48	105.92	7.69	Sagwan, Chakundi	23° 24' 25.869"	85° 49' 31.908"
10	58	19	39	76.85	4.49	Sagwan, Sidha	23° 24' 25.7178"	85° 49' 31.8828"
11	84	0	84	172.23	11.39	Amaltas, Sidha	23° 24' 30.456"	85° 49' 22.08"
12	93	22	71	75.67	4.81	Sagwan, Chakundi	23° 24' 28.152"	85° 49' 31.98"
13	88	6	82	260.73	22.37	Sidha, Churchu	23° 24' 30.2754"	85° 49' 25.8954"
14	98	8	90	191.64	11.09	Sagwan, Chakundi	23° 24' 24.5664"	85° 49' 41.736"
Forest Region: Hazaribag						Site: Dapok		
Plot No.	Total plants	Natural	Planted	Avg. Height (inch)	Avg. Collar girth (inch)	Major Species (Local name)	Latitude	Longitude
0	108	0	108	102.31	8.51	Sagwan, Acacia	24° 15' 27.324"	85° 35' 22.524"
1	139	0	139	164.78	16.06	Acacia, Sagwan	24° 15' 34.416"	85° 35' 30.48"
2	67	1	66	205	14.33	Acacia, Sagwan	24° 15' 29.952"	85° 35' 15.108"
3	90	2	88	208.41	20.29	Acacia, Chakundi	24° 15' 16.2"	85° 35' 38.832"
4	102	3	99	227.04	14.19	Acacia, Sagwan	24° 15' 31.068"	85° 35' 22.0194"
5	146	0	146	186.54	12.28	Acacia	24° 15' 30.1314"	85° 35' 41.712"
6	119	0	119	201.3	13.32	Acacia, Sagwan	24° 15' 31.716"	85° 35' 41.424"
7	93	0	93	205.04	13.75	Acacia, Shisam	24° 15' 23.832"	85° 35' 37.68"
8	108	5	103	192.86	16.26	Acacia, Chakundi	24° 15' 30.96"	85° 35' 48.696"
9	106	0	106	185.61	12.25	Acacia, Sagwan	24° 15' 25.7034"	85° 35' 32.8194"
10	136	0	136	228.01	14.01	Acacia, Sagwan	24° 15' 16.848"	85° 35' 33.3954"
11	151	0	151	197.05	12.49	Acacia, Sagwan	24° 16' 11.6394"	85° 35' 37.6434"
12	87	1	86	187.33	11.95	Acacia, Sagwan	24° 15' 20.844"	85° 35' 23.7474"
13	70	1	69	178.91	15.97	Acacia, Chakundi	24° 15' 15.5874"	85° 35' 38.6154"
14	107	2	105	196.71	17.03	Acacia, Sagwan	24° 15' 16.128"	85° 35' 45.2034"
15	76	0	76	181.12	18.84	Acacia	24° 15' 27.7554"	85° 35' 50.9634"
16	123	4	119	219.71	14.52	Acacia, Sagwan	24° 15' 36.9354"	85° 35' 38.3994"
17	123	0	123	231.22	19.37	Acacia, Sagwan	24° 15' 32.4714"	85° 35' 33.864"
18	88	0	88	206.35	13.34	Acacia, Sagwan	24° 15' 29.052"	85° 35' 38.004"
19	121	0	121	186.4	19.32	Acacia, Sagwan	24° 15' 33.8754"	85° 35' 30.8754"
Forest Region: Bokaro						Site: Sadobad-Chutiyaro		
Plot No.	Total plants	Natural	Planted	Avg. Height (inch)	Avg. Collar girth (inch)	Major Species (Local name)	Latitude	Longitude
0	160	3	157	68.23	4.05	Sagwan, Chakundi, Karanch	23°53' 15.864"N	86°21'51.012"E
1	144	2	142	148.46	10.65	Sagwan, Chakundi, Shisam	23°52' 44.112"N	86°22'6.384"E
2	68	4	64	245.51	14.12	Sagwan, Chakundi, Laxmi taru	23°53' 32.46"N	86°21'49.824"

Forest Region: Bokaro						Site: Chamron		
Plot No.	Total plants	Natural	Planted	Avg. Height (inch)	Avg. Collar girth (inch)	Major Species (Local name)	Latitude	Longitude
0	85	0	85	109.38	6.21	Chakundi, Gamhar, Shisam	23°32' 36.348"N	85°37'39.9"E
1	101	0	101	41.39	3.52	Sagwan, Shisam	23°32' 40.164"N	85°37'41.196"E
2	144	1	143	264.06	15.67	Acacia	23°32' 48.336"N	85°37'40.08"E
3	109	0	109	103.76	5.86	Chakundi	23°32' 38.688"N	85°37'45.624"E
Forest Region: Bokaro						Site: Barai		
Plot No.	Total plants	Natural	Planted	Avg. Height (Inch)	Avg. Collar girth (inch)	Major Species (Local name)	Latitude	Longitude
0	104	32	72	137.11	8.06	Sagwan	23°51' 5.868"N	85°58'56.208"E
1	115	6	109	81.43	5.18	Sagwan	23°51' 10.728"N	85°58'44.148"E
2	141	19	122	355.45	14.39	Sagwan	23°50' 54.744"N	85°58'47.388"E
3	139	16	123	136.8	9.35	Sagwan	23°50' 59.064"N	85°58'47.64"E
4	163	15	148	162.67	8.37	Sagwan	23°50' 59.172"N	85°58'33.42"E
5	134	14	120	174.81	9.82	Sagwan	23°50' 57.264"N	85°58'29.676"E
6	119	4	115	169.53	9.8	Sagwan	23°50' 52.908"N	85°58'29.568"E

ii. Key findings from selected sites

Primary species	Site name	Forest Region	Primary species	
Gulmohar	Talatad	Ranchi	Mahugani, Chatni, Kadam	
	Uchringa	Hazaribag	Kadam, Sagwan	
Other species Mahugani, Chatni, Kadam, Sagwan, Sidha, Shisam, Gamahar Amaltas	Balkudra overbridge to JSPL gate	Bokaro	Sidha, Gulmohar, Shisam	
	Joda talab Pochra East side	Bokaro	Mahugani, Gulmohar	
	Joda talab Pochra West side	Bokaro	Gamahar, Gulmohar, Amaltas	
Growth of Plants	Site name	Forest Region	Avg. height (inch)	Avg. collar girth (inch)
The average height and collar girth of the plants in the sample sites are 248.5 inch and 16.58 inch respectively	Talatad	Ranchi	292.86	14.14
	Uchringa	Hazaribag	268.4	15.32
	Balkudra overbridge to JSPL gate	Bokaro	237.76	17.14
	Joda talab Pochra East side	Bokaro	247.92	21.28
	Joda talab Pochra West side	Bokaro	195.56	15
Grazing	The selected sites had 'minor' to 'no evidence' of grazing' and 'no evidence' of fire incidence.			
Fire incidence	The selected sites had 'no evidence' of fire incidence.			

3.1.3 Assisted Natural Regeneration (ANR)

i. Site details

The analysis includes two ANR sites namely Padma and Pakribarwadih from Hazaribag Region. Sites details are below:

Site name	Forest Region	Forest Division	Year	Area (ha.)
Padma	Hazaribag	Hazaribag (W)	2018	50
Pakribarwadih	Hazaribag	Hazaribag (W)	2019	50

ii. Key findings from selected sites

Grazing	Except for a few plots, no major evidence of grazing was found in the sample sites
Density	The density of the sample sites ranged between 'Medium' to 'Perfect'.
Coppice	70% of the sample plots had Coppice between '2 to 4 shoots'
Incidence of fire	No incidence of fire was recorded in the sample sites

1.2 Non-plantation sites

3.2.1. Permanent Nursery

i. Site details

A total of three permanent nurseries from the three Forest Regions are evaluated till now. Site wise details are below:

Site name	Forest Region	Forest Division	Latitude	Longitude
Chas	Bokaro	Bokaro	23°36'441"	86°10'243"
Kharpito	Bokaro	Bokaro	23° 52' 23.556"	86° 1' 47.8194"
Tarbalidig	Bokaro	Bokaro	23°32'00.85"	85°56'10.23"

ii. Key findings from selected sites

Common species grown in the nurseries	Local name	Botanical name
	Karanj	Millettia pinnata
	Mahogany	Swietenia
	Jamun	Syzygium cumini
	Amaltas	Cassia fistula
	Neem	Azadirachta indica
	Amrud	Psidium guajava
	Kachnar	Bauhinia variegata
	Kadam	Neolamarckia cadamba
	Water supply	The nurseries have access to consistent water supply, mostly supplied from a deep boring and wells located within the premises.
Amenities for workers	The workers are provided with basic amenities of drinking water and first aid kit.	
Material used for nursery growing	Farmyard and manure and soil are primarily used to prepare the media in the nurseries. A combination of D.A.P and vermicompost fertilizers are used.	
Equipments & protective wear	The nurseries have the necessary tools and equipments such as spade, basket, shovel, gloves etc.	
Reproductive material	Type: Nurseries use both seedling nursery and cutting based (clonal)	
	Source of seed: Seeds are obtained both locally as well as procured from seed supply dealers.	
Planting material quality	Size: The size of the planting material produced were of an average height of 30 cm.	
	Disease: The planting material were disease free	
	Health: The planting material were visibly green, indicating good health.	

3.2.2. Soil Moisture Conservation (Check dams)

i. Site details

Three check dams from the three Regions are included in the analysis. Site wise details are as follows:

Site name	Forest Region	Forest Division	Year	Latitude	Longitude	Length (inch)	Breadth (inch)	Height (inch)
Dalugora	Bokaro	Dhanbad	2018	24° 0' 52.956"	86° 21' 33.0834"	216	30	60
Suiwadaha	Hazaribag	Hazaribag (W)	2018	23° 52' 6.204"	85° 8' 12.3"	1440	264	125
Palani	Bokaro	Ramgarh	2018	23° 36' 45.972"	85° 15' 4.4994"	336	36	67

ii. Key Findings from selected sites

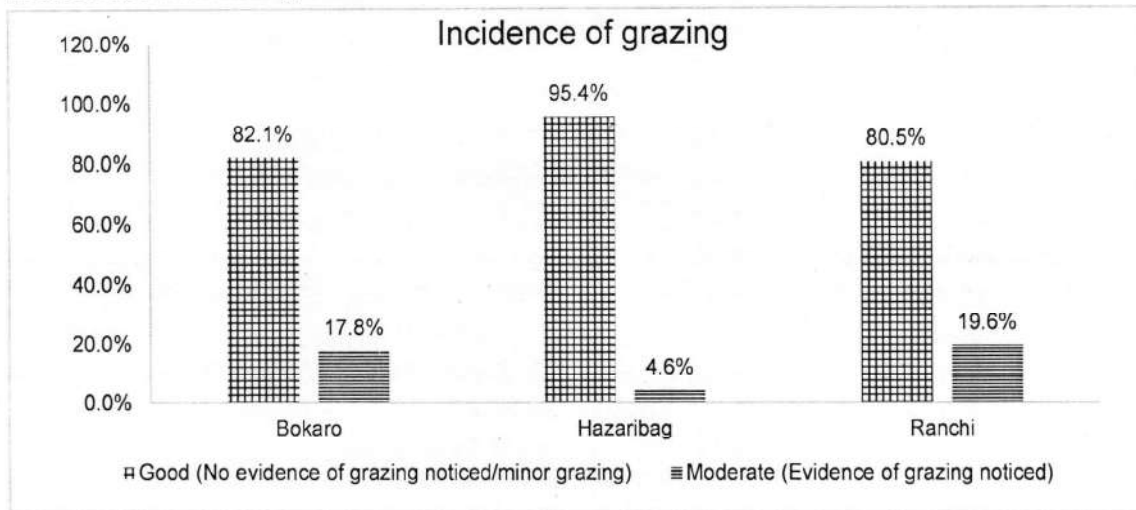
Site	Effect on controlling soil erosion	Relevance of structure	Structural Stability	Terrain	Suitability of location
Dalugora	Perfect- no erosion	Perfect	Stable	Gentle slope	Appropriate
Suiwadaha	Perfect- no erosion	Perfect	Needs minor repairs	Gentle slope	Appropriate
Palani	Moderate- Minor erosion	Moderate	Stable	Steep slope	Moderate

2. Observations from the regions

The following section represents a few general findings from all sites surveyed in the three Regions:

Incidence of grazing

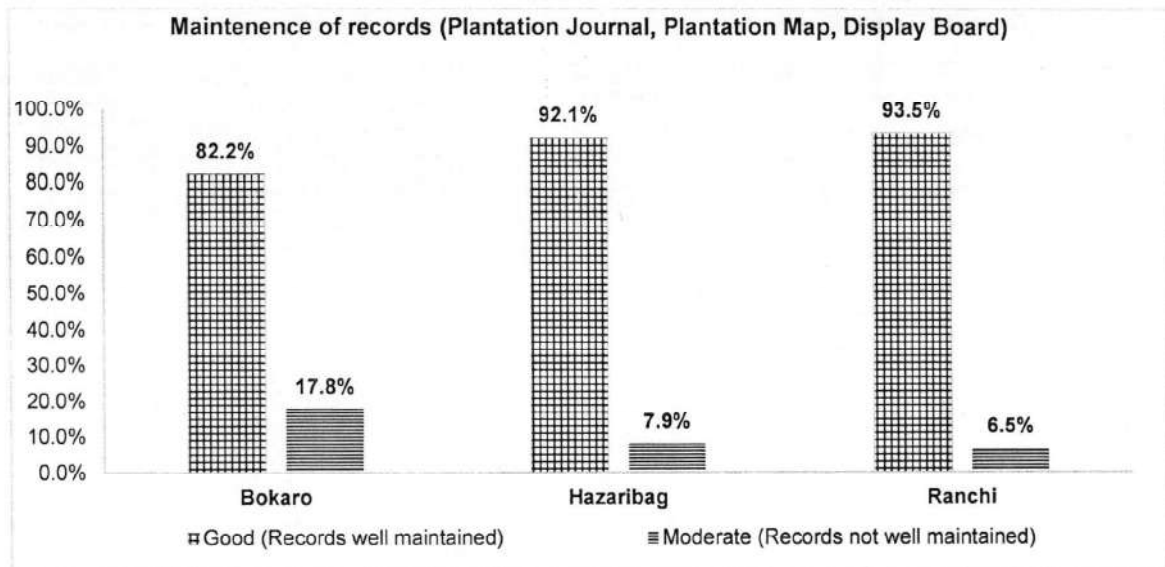
Grazing was found to be low all the three regions (illustrated in Graph 3). However, evidence of cutting was observed in few of the sites visited in the three regions.



Incidence of grazing

Maintenance of records

The documents and records of sites in all three regions were observed to be well maintained and regularly updated. In Bokaro, well maintained records are available for 82.2% of the sites, for Hazaribag it is 92.1% and for Ranchi it is 93.5% (illustrated in Graph 4). However, some of the documents were incomplete at the time of field survey, where the Divisional Forest Officers have been requested to share completed documents in due time.



Note on CAMPA Third Party Evaluation

1. Rationale for CAMPA third party evaluation

Forests are an important repository of terrestrial biodiversity and are responsible for the provision of important ecosystem services for human well-being, such as wood and non-wood forest products, water regulation, carbon sequestration, soil protection or recreation. In India, forests have been an integral part of the socio-economic and cultural life of its people. One in five people in India depend directly on forests for subsistence and livelihoods. Almost 50 percent of the food requirements of forest dwellers are provided by forests.

However, land-use change, including agricultural intensification and urbanisation, over-exploitation, pollution, climate change, and incoming species that compete with native flora and fauna, are causing great stress on forest ecosystems. More than 40 percent of India's forests are degraded, and this impacts the flow of forest goods and services that are critical for inclusive economic growth. Destroying forests has devastating consequences for tribal communities, poor people as they often rely directly on forest ecosystem goods and services. So, there is a need to improve the management of forests and other landscapes to strengthen their ecological health and, improve the livelihoods of forest-dependent population. Afforestation and several other forestry related works are important for restoring ecosystems and ecological processes, strengthening the watershed and hydrology, enriching wildlife habitats, sequestering carbon and supporting livelihoods.

Recognizing the need to balance economic development with environmental conservation to ensure sustainable use of natural resources, Government of India initiated several programmes to take up large scale plantations in all the states. Afforestation and several other forestry related works are being carried out by Jharkhand CAMPA under compensatory afforestation and other schemes through the assistance of Ministry of Environment, Forest & Climate Change, Government of India in 59 Forest Divisions distributed in all 24 Districts of Jharkhand.

These plantation projects are subject to several risks such as persistent droughts, ground fires, grazing by cattle, damage by wildlife, competition from invasive weeds, poor soil quality etc. There is a pressing need to evaluate these plantations on three aspects namely area coverage, survival percentage and growth parameters by using qualitative and quantitative approaches involving all the stakeholders.

2. Objectives of the evaluation

The main objective of the assignment is to evaluate the CAMPA works undertaken as per Annual Plan of Operations (APO) of 2016-17, 2017-18 and 2018-19.

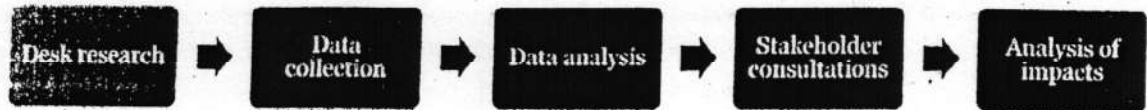
Forestry works as per approved Compensatory Afforestation Projects and Forest, Wildlife and Biodiversity Conservation works funded under the Net Present Value Scheme (Non-Compensatory Afforestation Works) during 2016-17, 2017-18 and 2018-19 in the state of Jharkhand will be studied and evaluated. These works are spread over 59 Forest Divisions distributed in all 24 Districts of Jharkhand. This study will include:

- Evaluation of interventions implemented in accordance with approved Compensatory Afforestation Projects. These are project specific interventions and all projects implemented during the period of study will be evaluated.
- Evaluation of Non-Compensatory Afforestation works implemented for Protection and Conservation of

Forests and Wildlife Conservation which are funded under the 'Net Present Value' Scheme. Works approved in the Annual Work Plans will be studied.

3. Methodology

The approach adopted for evaluating the CAMPA works undertaken as per Annual Plan of Operations (APO) of 2016-17, 2017-18 and 2018-19 is based on five key pillars:



The work includes desk research, data collection through field inspections, conducting focused group discussions and stake holder consultations, analysis of data collected, analysis of impacts with reference to sustainable development goals and stated objectives of CAMPA.

Desk Research

After initial field visits, to understand the nature of terrain, vegetation and works, desk research was undertaken to review previous research findings to gain a broad understanding of the field. Focus is laid upon performance of plantations, effect of silvicultural interventions on natural regeneration and forest improvement, effect of soil and moisture conservation works, efforts for improving forest protection and biodiversity conservation, addressing anthropogenic pressure (grazing pressure or illicit cutting) and forest fires, PA management, research activities and infrastructure development works.

Data Collection

The collection of all the required data/information from various sources was undertaken with the required official letters and contact with focal person(s) wherever required. This process has captured and stored internal and external data - both qualitative and quantitative data that are needed to make the final evaluation report.

Division wise achievements for the years under study was obtained from Jharkhand Forest Department using questionnaires. These also include relevant criteria and indicators for physical as well as impact study. Detailed work plan and deployment of human resources etc., was developed considering the Division wise distribution of work spots in consultation with the Jharkhand Forest Department. GPS Coordinates for all sample plots and all structures and stretches studied were recorded and are made available in the report. All relevant record and documents maintained were also be verified.

Data Analysis

Data analysis is done based on collected primary and secondary data. This process has helped to summarize the data and interpret their meaning in a way that provides clear answers to questions that initiated the study.

Stakeholder Consultation

Stakeholder consultations at various stages of the engagement are pivotal to ensure appreciation of each other's objectives and interests, consensus on decisions and stakeholders' buy-in to achieve the intended goals. These consultations are conducted through telephonic or in person in-depth interview format or a focus group discussion or workshop based on the availability of key representatives from government institutions, non-governmental organizations, academic institutions and the private for gathering valuable inputs to strengthen stocktaking reports. A collaborative approach leading to the development of

a long-term relationship with the contracting authority and the project beneficiary will determine the success of the project.

Analysis of impacts

Impacts of interventions are studied with reference to their contribution in sustainable management of forest resources, rejuvenation of degraded forests, addressing issues of biodiversity conservation, influence of biotic and abiotic factors. Based on the inputs obtained through desk research and stakeholder consultations, extensive analysis shall be undertaken to prepare the deliverables.

4. Budget

As per the payment schedule in the RFP, budgetary allocation for PwC India for conducting the third party evaluation is as follows:

Table 1: Budgetary allocation for PwC India

Deliverable	Payment Schedule	Amount (in Rs.)
Inception Report	15%	8,85,000.00
Quarterly Progress Report (1 st quarter)	5%	2,95,000.00
Biannual Progress Report (2 nd quarter)	5%	2,95,000.00
Quarterly Progress Report (3 rd quarter)	5%	2,95,000.00
Draft report	50%	29,50,000.00
Final report	20%	11,80,000.00
Total	100%	59,00,000.00

5. Progress till date

PwC India started data collection for third-party evaluation of CAMPA, Jharkhand on 30th January 2021. However, field visits were deferred between 22nd April- 13th July 2021 due to COVID-19 lockdown imposed at State level and restrictions on inter district travel.

Field visits have recommenced from 14th July 2021 and it is currently underway in Palamu and Dumka Regions. As of 19th July 2021, data collection is complete in a total of 13 forest divisions and 50 forest ranges.

Tables 1 & 2 summarize the progress made till date and work plan for next two months.

Table 1: Details of progress achieved (till 19th July 2021)

Particulars	Achievement in numbers
Total Divisions covered till date	13
Total Ranges covered till date	50
Total Sites (plantation & non plantation) completed till date	160
▪ Block Plantation	112
▪ RDF/Silviculture	22
▪ Soil Conservation & Moisture Structure	15
▪ Linear plantation	6
▪ Permanent Nursery	5

Table 2: Division wise status of field survey

Progress of field Survey	Division	Region	
Completed work	Bokaro	Bokaro	
	Dhanbad	Bokaro	
	Ramgarh	Bokaro	
	Giridih (West)	Bokaro	
	Giridih (East)	Bokaro	
	Chatra (North)	Hazaribag	
	Chatra (South)	Hazaribag	
	Hazaribag (East)	Hazaribag	
	Hazaribag (West)	Hazaribag	
	Koderma	Hazaribag	
	Ranchi	Ranchi	
	Garwah (North)	Palamu	
	Garwha (South)	Palamu	
	Ongoing (July 2021)	Dumka	Dumka
Jamtara		Dumka	
Godda		Dumka	
Latehar		Palamu	
Medinagar		Palamu	
Planned work (Aug-Sept 2021)		Pakur	Dumka
		Sahibganj	Dumka
	Deoghar	Dumka	
	Jamshedpur	Jamshedpur	
	Saraikela	Jamshedpur	
	Chalbasa	Jamshedpur	
	Kolhan	Jamshedpur	
	Porahat	Jamshedpur	
	Saranda	Jamshedpur	
	Khunti	Ranchi	
	Gumla	Ranchi	
	Lohardaga	Ranchi	
	Simdega	Ranchi	