



CAMPA PLANTATION MONITORING REPORT FOR THE STATE OF WEST BENGAL



**MONITORING CELL
RESEARCH, MONITORING & DEVELOPMENT WING
FOREST DIRECTORATE**

DATE: 05.06.2021

PREFACE

The Monitoring programme of forest plantations in West Bengal commenced in 1992 with the advent of the West Bengal Forestry Project. A new Monitoring Circle was set up in Forest Directorate with the expansion of afforestation schemes since it was necessary to evaluate scientifically the success of the programme. Since investment in forestry is of long term nature, such evaluation is very much required.

While plantations raised under the State plan schemes are routinely monitored, the same was not done with respect to the plantations raised under the CAMPA scheme. Later, with the setting up of a dedicated CAMPA wing, formal monitoring of the plantations raised under that scheme was initiated. Major issue was the availability of the list of plantations raised in different years over different Divisions. Hence it was decided to monitor those plantations to which list are made available by the CAMPA authority. Consequently, 393.79 ha of plantations raised during the period 2004, 2011, 2016 to 2020 over 12 Divisions of North Bengal and 524.267 ha of plantations raised during the period 2017 to 2020 over 9 Divisions in South Bengal, were identified and monitored.

Since various plantations created in different years were there in the CAMPA, monitoring has been restricted to assessing the basic parameters viz. Survival percentage and general health (as indicated in the height and collar girth). Modern conformity parameters (processes oriented approach) were not taken into consideration.

The draft report was circulated among the participating Divisions and their remarks were incorporated. High sampling intensity of 7.5%, as applicable to the first year plantations ensured higher accuracy. I am happy to observe that our monitoring team has reported a relatively higher performance barring a few despite being done after many years considering the fact that survival of above 50% in a five years old plantation is considered very good.

Monitoring is a team work and contributions from different tiers of officers, front line and office staff are essential for its success. The ADFOs and the Forest Range Officers are the unsung heroes. Special commendations are conveyed to the DFOs viz. Sri K. Sarkar IFS, Sri D. M. Pradhan IFS, and Sri U. K. Nag WBFS for their inspiring leadership. The Chief Conservator of Forests, Sri M R Bhatta IFS and Dr. Sudhir Chandra Das IFS provided the able guidance. Special thanks are conveyed to the prevailing CCF M & E, the DFO, Mon (N), the ADFO, Mon(S)(Sri Kamal Saha, WBFS) and computer assistant, (Sri Suman Ghosh) for taking efforts in editing and compiling the Report in the present form.



(Dr. J T Mathew IFS)
Principal Chief Conservator of Forests
Research, Monitoring & Development

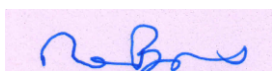
FOREWORD

Periodic survey and monitoring of plantations is an indispensable tool for forest management & policy formulations. It also helps policy makers, field executives and Government as a whole in ascertaining the plantation growth statistics, accountability of stake holders and to judge the effectiveness of the management practices.

Monitoring of CAMPA plantations have been done for the first time during 2020-21 by Monitoring (North) Division. Total area of 393.79 ha has been monitored belonging to different years of creation. Hence, instead of classifying the plantations into 1st year, 3rd year and 5th year, the report has shown all the plantations together under one category i.e. 1st time monitoring of plantations. In Monitoring (South) Division, monitoring of CAMPA plantations were also done for plantation creation years from 2017 to 2020 over an area of 524.267ha in 9 Divisions.

The presentation of the Draft Survey Monitoring Report of North Bengal was made on 13th February, 2020 at Sukna NIC Hall, Siliguri. Some of the suggestions received during the presentation are included in this report. Valuable suggestions given by PCCF (HoFF) & PCCF, RMD, WB in the Presentation Meeting have been incorporated by DFO.

I would like to thank Shri. Koushik Sarkar, IFS, Divisional Forest Officer, Monitoring (North) Division, Shri D. M. Pradhan, IFS, Divisional Forest Officer, Monitoring (South) Division, Shri Bhupen Biswakarma, WBFS/ADF0, Shri Kamal Saha, WBFS/ADF0, all field staffs and office staffs for doing their job sincerely and painstakingly.



APCCF & Conservator of Forests,
Monitoring Circle, WB



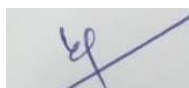
Chief Conservator of Forests,
Monitoring & Evaluation, WB

ACKNOWLEDGEMENT

The field executives and ministerial staffs of these Divisions have contributed to the best of their capabilities and dedication for carrying out the field assigned job and successful compilation of the data in prescribed format. We gratefully acknowledge the co-operation of all concerned.

Our counterparts of the respective Divisions, at all levels, were highly co-operative during execution of field works. We express our gratefulness for them.

The superiors in the hierarchy have been extremely helpful and encouraging throughout. We extend our personal gratitude to Dr. J. T. Mathew, IFS, Principal Chief Conservator of Forests, Research, Monitoring & Development, West Bengal, Shri. M.C. Biswas, Addl. PCCF & Conservator of Forests, Monitoring Circle, West Bengal, Dr. S.C. Das, IFS, Chief Conservator of Forests, Monitoring & Evaluation, West Bengal and Shri M. R. Bhatta, IFS, the then Chief Conservator of Forests, Monitoring & Evaluation, West Bengal for realization of the ground realities and rendering valuable suggestions and support wherever and whenever needed. We are sincerely thankful to the Assistant Divisional Forest Officer Sri Bhupen Biswakarma, WBFS, ADFO, Mon (N) and Sri Kamal Saha, WBFS, ADFO, Mon(S) for their painstaking effort in assisting us in all kinds of rectifications and compilations along with Sri Suman Ghosh, Data Entry Operator of Monitoring (South) Division and Sri Prasanta Paul, Data Entry Operator of Monitoring (North) Division.



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Monitoring (South) Division



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CHAPTER – I

MONITORING METHODOLOGY ADOPTED

Introduction

Monitoring & Evaluation is an important tool of management information system upon which many management decisions are dependent.

Monitoring (N) Division has executed the Survey Monitoring works of plantations under CAMP A during 2018-19 & Monitoring (S) Division did the same practice during the year 2020-21 as detailed below:

Name of the Division	Type of Monitoring	Creation Year of plantations	Year of Monitoring	Total Reported Area (in Hectares)	Area-monitored (in Hectares)
Monitoring (North)	1 st time Monitoring of plantations	2004,2011,2016,2017, 2018,2019,2020	2020-21	393.79	393.79
	Total			393.79	393.79
Monitoring (South)	1 st Time Monitoring of plantations	2017, 2018, 2019 and 2020	2020-21	638.12	524.26
	Total			638.12	524.26

The analysis has been carried out and result achieved on the basis of data recorded in the prescribed Survey Monitoring data sheets.

The individual plantation data in a compiled form was circulated to the concerned Divisional Management Unit and their respective Conservator of Forests/Chief Conservator of Forests in advance for checking of data & comments. This helped them to replace the casualties & take other remedial measures targeted towards improvement of quality of plantations. The feedback received has been considered in the compilation of draft monitoring report.

Three major parameters viz. survival percentage, height and girth at breast height (only for 5th year plantation) of seedling are taken into consideration for the process. Here for the monitoring of plantations raised under CAMP A only survival percentage & height have been taken under consideration.

The other parameters viz. maintenance of plantation journal, sources of seed for raising nursery, time schedule of activity of creation stage & frequency of field visit of the supervising authority etc are also

considered in performance scoring of the plantation, the detail of which is given in the new monitoring methodology.

The above parameters are measured in the field in individual patch of the plantation by random sampling method. The procedure is given below:-

For the purpose of execution of survey & monitoring works the Statistical random sampling method is in practice.

The sampling intensity and size of sample plot for different ages of plantation is given below-

Age of plantation	Sampling intensity	Size of sample plot	Data recording
1 st year	7.5% of the area	50mt.X50mt.	No of seedling species wise & height class wise

Pre-survey Works

1. Copies of regeneration maps along with plantation journals are collected from the respective Divisions.
2. Location, area, spacing, planting scheme etc. are also recorded as check list.
3. A grid line as per scale is laid over the map with quadrates of 50m x 50m & each grid is serially numbered.
4. Numbers of Sample plots (grids) are chosen randomly using the statistical random number table.

Field works

1. The selected sample plots are identified in the field.
2. Boundary corners are clearly marked with raised earthen mound topped with painted peg and geo-location is recorded.
3. Total enumeration is carried out species wise and in respect of height class intervals and also girth at breast height for the 5th year plantation.
4. The area of plantation is checked in the field by traversing with GPS.
5. At the time of Survey & Monitoring, the staff of respective FMU remains present & put their initials on the data sheets as the sign of authentication.

CHAPTER – II

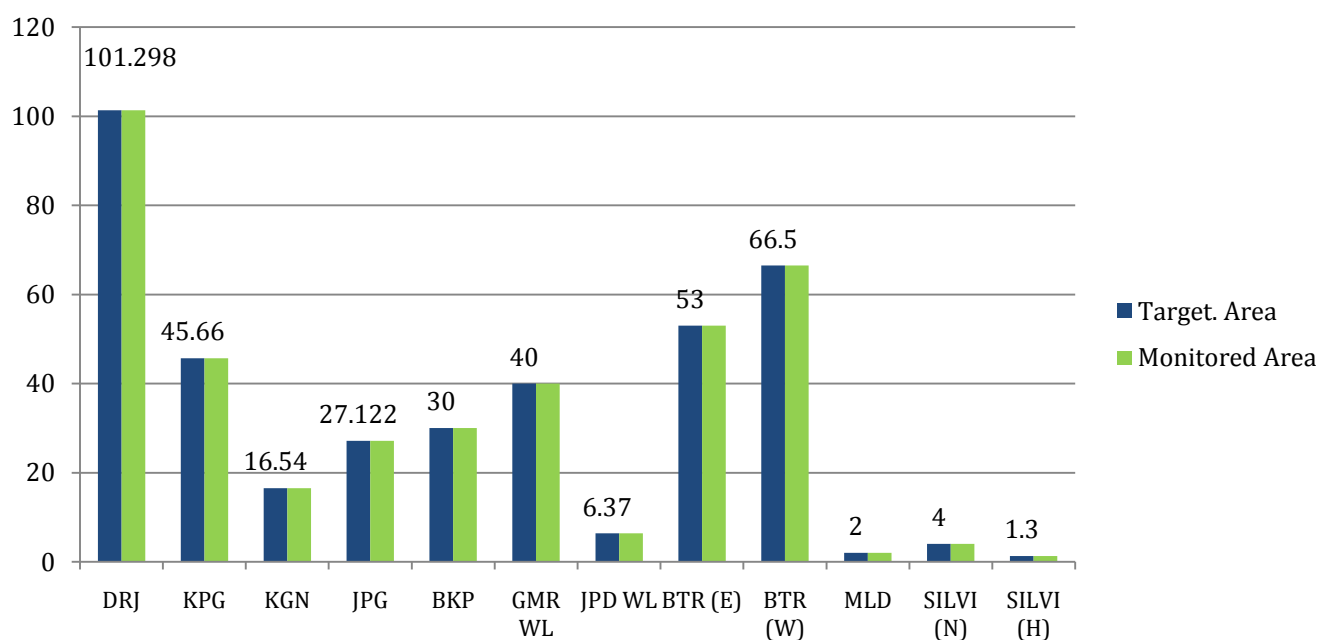
MONITORING OF CAMP A PLANTATIONS IN NORTH BENGAL (2020-21)

i. AREA STATEMENT

Area in Ha.
Table No. – 1

SL No.	Division	Monitoring (2020-21)	
		Total Area (Ha)	Monitored Area (Ha)
1	Darjeeling	101.298	101.298
2	Kalimpong	45.66	45.66
3	Kurseong	16.54	16.54
4	Jalpaiguri	27.122	27.122
5	Baikunthapur	30.00	30.00
6	Gorumara Wild Life	40.00	40.00
7	Jaldapara Wild Life	6.37	6.37
8	Buxa Tiger Reserve(East)	53.00	53.00
9	Buxa Tiger Reserve(West)	66.50	66.5
10	Malda	02.00	02.00
11	Silviculture (North)	04.00	04.00
12	Silviculture Hill	01.30	01.30
G. Total:-		393.79	393.79

Area Statement for Monitoring of CAMP A Plantations (2020-21)

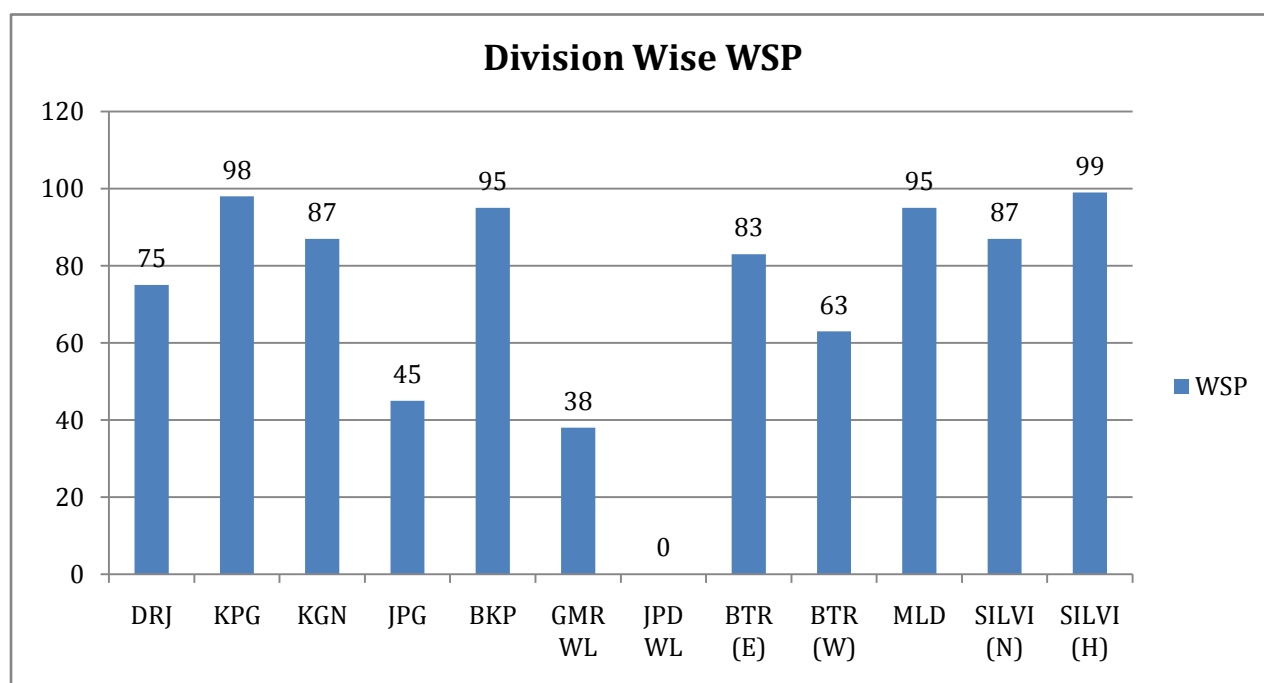


ii. WEIGHTED SURVIVAL PERCENTAGE YEAR WISE IN EACH DIVISION

Circle	Division	Year	Area Monitored	Total Area Monitored	SP	WSP
Hill Circle	Darjeeling	2004	20.00	20.00	66	66
		2011	5.00	59.778	75	80
			15.00		85	
			3.43		72	
			3.2918		72	
			3.3362		78	
			9.72		85	
			2.50		72	
			17.50		80	
		2016	1.84	20.88	94	66
			19.00		63	
			0.04		52	
		2018	0.64	0.64	85	85
	Kurseong	2019	5.04	16.54	90	87
			11.50		85	
	Kalimpong	2020	20.66	45.66	99	98
			15.00		97	
			10.00		96	
Northern Circle	Baikunthapur	2020	30.00	30.00	95	95
	Jalpaiguri	2011	7.062	19.062	36	28
			12.00		24	
		2019	8.06	8.06	84	84
North – West Circle	Malda	2020	2.00	2.00	95	95
Research Circle	Silviculture (North)	2019	4.00	4.00	87	87
	Silviculture (Hill)	2019	1.30	1.30	99	99
BTR Circle	BTR (East)	2017	10.00	20.00	63	74
			10.00		84	
		2020	12.00	33.00	91	89
			21.00		88	
	BTR (West)	2017	23.50	43.50	60	62
			10.00		68	
			10.00		60	
		2018	23.00	23.00	65	65
Wild Life (North) Circle	Jaldapara WL	2014	6.37	6.37	0	0
	Gorumara WL	2019	10.00	40.00	54	38
			10.00		39	
			6.00		26	
			12.00		29	
			2.00		51	

**DIVISION WISE WEIGHTED SURVIVAL PERCENTAGE
(MONITORING Report 2020-21)**

Division	CAMP A	
	Area	WPS
Darjeeling	101.298	75
Kalimpong	45.66	98
Kurseong	16.54	87
Jalpaiguri	27.122	45
Baikunthapur	30.00	95
Gorumara Wild Life	40.00	38
Jaldapara Wild Life	6.37	0
Buxa Tiger Reserve(East)	53.00	83
Buxa Tiger Reserve(West)	66.50	63
Malda	02.00	95
Silviculture (North)	04.00	87
Silviculture Hill	01.30	99
Total:-	393.79	72



iii. DETAILED MONITORING REPORT OF DIVISIONS

DETAILED MONITORING REPORT OF HILL CIRCLE

Division - Darjeeling Forest Monitoring Report 2020-21 (CAMPA)																
Year	Zone	Circle	Division	Scheme	Range	Beat	Location	Spacing	Area (Ha)	Major Species tried	SP	GPS Reading		Ht. (cm)	B H G	Date of Survey
												Latitude	Longitude			
2004	NB	Hill Circle	Darjeeling	CAMPA	Rimbick	Ramam	Ramam-3&4	2.5mx 2.5m	20.00	Maya,Dhupi, Champ,Kapasi	66	27°00'14.2"	88°10'12.7"	828	30	14.02.21
2011	NB	Hill Circle	Darjeeling	CAMPA	Ghoomsimana	Lepchajagat	Lepchajagat	2.5mx 2.5m	5.00	Pipli,Okhar,Champ,Chiloni	75	27°10'18.5"	88°11'15.5"	822	21	14.02.21
2011	NB	Hill Circle	Darjeeling	CAMPA	Ghoomsimana	Lepchajagat	Lepchajagat 1&2	2.5mx 2.5m	15.00	Pipli,Okhar,Cupresseus, Kafol	85	27°01'23.6"	88°11'46.5"	828	32	14.02.21
2011	NB	Hill Circle	Darjeeling	CAMPA	Teestavalley	Peshok	Peshok-1	2.5mx 2.5m	3.43	Champ,Kanjali,Garjan,Lampate	72	27°00'30.2"	88°26'19.2"	737	24	18.01.21
2011	NB	Hill Circle	Darjeeling	CAMPA	Teestavalley	Peshok	Mangua-1	2.5mx 2.5m	3.2918	Kanjali,Garjon,Lampate,Champ	72	27°10'30.21"	88°27'19.51"	605	22	18.01.21
2011	NB	Hill Circle	Darjeeling	CAMPA	Teestavalley	Peshok	Mangua-1	2.5mx 2.5m	3.3362	Champ,Kanjali,Losuni,Gokul	78	27°03'41.2"	88°25'03.1"	639	23	18.01.21
2011	NB	Hill Circle	Darjeeling	CAMPA	Darjeeling	Chataidhora	Poobong-2	2.5mx 2.5m	9.72	H.Chandan,Champ,Cupressus,Pipli	85	26°59'55.6"	88°12'09.8"	817	29	28.02.21
2011	NB	Hill Circle	Darjeeling	CAMPA	Ghoomsimana	Sukhiapokhari	Dungdungi-1	2.5mx 2.5m	2.50	Kafol,Champ, Maya,Okher	72	26°19'11.8"	88°23'11.9"	816	29	14.02.21
2011	NB	Hill Circle	Darjeeling	CAMPA	Ghoomsimana	Sukhiapokhari	Lapchajagat-1&4	2.5mx 2.5m	17.50	Champ,Mya, Pipli,Okhar	80	27°13'15.9"	88°11'17.1"	817	21	14.02.21
2016	NB	Hill Circle	Darjeeling	CAMPA	Ghoomsimana	Pokriabong	Pokriabong	2.5mx 2.5m	1.84	Champ,Kafol, Uttish,Pipli	94	26°17'19.3"	88°19'21.8"	283	14	12.02.21
2016	NB	Hill Circle	Darjeeling	CAMPA	Ghoomsimana	Pokriabong	Pokriabong-4	2.5mx 2.5m	19.00	Pipli,Maya,Kafol,Uttish	63	26°61'14.2"	88°59'18.7"	257	14	12.02.21
2016	NB	Hill Circle	Darjeeling	CAMPA	Ghoomsimana	Sukhiapokhari	Pulungdung-2	2.5mx 2.5m	0.04	Kafol,Champ, Pipli,Maya	52	26°58'54.9"	88°09'14.9"	365	16	12.02.21

CAMPA Plantation Monitoring Report, 2020-21 (NB)

2018	NB	Hill Circle	Darjeeling	CAMPA	Tistavalley	Peshoke	Mangua-1	2.5mx 2.5m	0.64	Garjon, Panis aj, Chalta, Chi krasi	85	27°04'020"	88°25'321"	180	---	05.01.21
Grand Total:-									101.2 98							

Division - Kalimpong Monitoring Report 2020-21 (CAMPA)

Year	Zone	Circle	Division	Scheme	Range	Beat	Location	Spacing	Area (Ha)	Major Species tried	SP	GPS Reading		Ht.	BHG	Date of Survey
												Latitude	Longitude	(cm)		
2020	NB	Hill Circle	Kalimpong	CAMPA	Neora	Gorubathan	Mal - 9	2.5mx2.5m	20.66	Champ, Sal, Chikrasi, Jarul	99	26°55'67.8"	88°40'0.55"	88	---	19.02.2021
2020	NB	Hill Circle	Kalimpong	CAMPA	Neora	Burikhola	Mal - 5	2.5mx2.5m	15.00	Champ, Chikrasi, Jarul, Mehogoni	97	26°55'59.5"	88°44'019"	90	---	20.02.2021
2020	NB	Hill Circle	Kalimpong	CAMPA	Neora	Burikhola	Mal - 4	2.5mx2.5m	10.00	Jarul, Sal, Tun, Champ	96	26°55'89.0"	88°44'97.6"	83	---	18.02.2021
Grand Total:-									45.66							

Division - Kurseong Forest Monitoring Report 2020-21 (CAMPA)

Year	Zone	Circle	Division	Scheme	Range	Beat	Location	Spacing	Area (Ha)	Major Species tried	SP	GPS Reading		Ht.	BHG	Date of Survey
												Latitude	Longitude	(cm)		
2019	NB	Hill Circle	Kurseong	CAMPA	Sevoke	Kalijhora	Setikhola	2.5mx2.5m	5.04	Champ, Maya, Kafal, Chalta	90	26°56'53.4"	88°25'04.1"	110	---	08.01.2021
2019	NB	Hill Circle	Kurseong	CAMPA	Sevoke	Birrik	Kundung	2.5mx2.5m	11.50	Champ, kafal, Maya, Jarul	85	26°56'21.7"	88°26'20.0"	125	---	08.01.2021
Grand Total:-									16.54							

DETAILED MONITORING REPORT OF NORTHERN CIRCLE

Division - Jalpaiguri Forest Monitoring Report 2020-21 (CAMPA)																
Year	Zone	Circle	Division	Scheme	Range	Beat	Location	Spacing	Area (HA)	Major Species tried	SP	GPS Reading		Ht.	BHG	Date of Survey
												Latitude	Longitude	(cm)		
2011	NB	Northern Circle	Jalpaiguri	CAMPA	Chalsha	Nagrakata	Hillajhora-2b	2m x 2m	7.062	Minjiri, Pakasaj, Jarul, Chikrasi	36	26°53'34.7"	88°53'22.2"	569	25	20.02.21
2011	NB	Northern Circle	Jalpaiguri	CAMPA	Chalsha	Nagrakata	Hilla-4b	2m x 2m	12.00	Khair, Gokul, Teak	24	26°51'53.1"	88°53'45.7"	786	32	20.02.21
2019	NB	Northern Circle	Jalpaiguri	CAMPA	Diana	Karron	N Diana	2m x 2m	8.06	Khair, Sirish	84	26°53'33.8"	89°03'35.4"	162		10.01.21
Grand Total :-									27.122							

Division - Baikunthapur Forest Monitoring Report 2020-21 (CAMPA)																
Year	Zone	Circle	Division	Scheme	Range	Beat	Location	Spacing	Area (Ha)	Major Species tried	SP	GPS Reading		Ht.	BH G	Date of Survey
												Latitude	Longitude	(cm)		
2020	NB	Northern Circle	Baikunthapur	CAMPA	Targhera	Targhera	PurbaTotegaon , Gajoldoba	2.5mx2.5m	30.00	Sissoo, Khair, Pakasaj , Karanj	95	26°51'33.7"	88°30'25.2'	88	---	07.01.2021
Grand Total :-									30.00							

DETAILED MONITORING REPORT OF NORTH-WEST CIRCLE

Division –Malda Monitoring Report 2020-21 (CAMPA)																
Year	Zone	Circle	Division	Scheme	Range	Beat	Location	Spacing	Area (Ha)	Major Species tried	SP	GPS Reading		Ht.	BHG	Date of Survey
												Latitude	Longitude	(cm)		
2020	NB	North-West	Malda	CAMPA	Gazole	Singabad	Balisimla	2.5mx2.5m	2.00	Arjun, Akashmani, Jarul	95	24°55'34.1"	88°18'53.1"	138	---	07.01.2021
Grand Total :-									2.00							

DETAILED MONITORING REPORT OF RESEARCH CIRCLE

Division -Silviculture (North) Monitoring Report 2020-21 (CAMPA)																
Year	Zone	Circle	Division	Scheme	Range	Beat	Location	Spacing	Area (Ha)	Major Species tried	SP	GPS Reading		Ht.	BHG	Date of Survey
												Latitude	Longitude	(cm)		
2019	NB	Research Circle	Silviculture (North)	Campa	Salugarah Lab	Headquarter	Dabgram - 9	2.5mx2.0m	4.00	Sissoo	87	26°45'26.6"	88°27'47.0"	102	---	08.01.2021
Grand Total :-									4.00							

Division –Silviculture (Hills) Monitoring Report 2020-21 (CAMPA)																
Year	Zone	Circle	Division	Scheme	Range	Beat	Location	Spacing	Area (Ha)	Major Species tried	SP	GPS Reading		Ht.	BHG	Date of Survey
												Latitude	Longitude	(cm)		
2019	NB	Research Circle	Silviculture Hill	Campa	Kalimpong Upper Hill Research	-	Kolbong-1b	2.5mx2.5m	1.30	Buk	99	27°07'937"	88°39'081"	74	---	07.01.21
Grand Total :-									1.30							

DETAILED MONITORING REPORT OF WILD LIFE (N) CIRCLE

Division - Gorumara Wild Life Monitoring Report 2020-21 (CAMPA)																
Year	Zone	Circle	Division	Scheme	Range	Beat	Location	Spacing	Area (Ha)	Major Species tried	SP	GPS Reading		Ht.	BHG	Date of Survey
												Latitude	Longitude	(cm)		
2019	NB	WildLife North	Gorumara W/L	CAMPA	Gorumara North	Murti	BM-1	2.5mx 2.5m	10.00	Amloki, Bahera, Chalta, Sindure	54	26°49'48.3"	88°49'54.9'	92	---	10.01.21
2019	NB	WildLife North	Gorumara W/L	CAMPA	Gorumara North	Chapramari	Chapramari-2	2.5mx 2.5m	10.00	Arjun, Sindure, Chalta, Chikrasi	39	26°54'41.4"	88°50'21.0'	85	---	10.01.21
2019	NB	WildLife North	Gorumara W/L	CAMPA	Gorumara South	Budhura	Barahati-3	2.5mx 2.5m	6.00	Chalta, Sindure, Kumbhi, Latore	26	26°44'18.0"	88°50'31.6'	78	---	11.01.21
2019	NB	WildLife North	Gorumara W/L	CAMPA	Gorumara South	Dhupjhora	Dhupjhora-1b	2.5mx 2.5m	12.00	Sindure, Jam, Latore, Pitali	29	26°48'50.6"	88°50'02.0'	88	---	11.01.21
2019	NB	WildLife North	Gorumara W/L	CAMPA	Gorumara South	Gorumara	Dhupjhora-1a	2.5mx 2.5m	2.00	Chalta, Sindure, Kumbhi, Latore	51	26°47'23.9"	88°51'23.0'	74	---	11.01.21
Grand Total :-									40.00							

Division - Jaldapara Wild Life Monitoring Report 2020-21 (CAMPA)																
Year	Zone	Circle	Division	Scheme	Range	Beat	Location	Spacing	Area (Ha)	Major Species tried		GPS Reading		Ht.	BHG	Date of Survey
											SP	Latitude	Longitude	(cm)		
2014	NB	Wildlife Circle	Jaldapara Wild Life	CAMPA	Jaldapara West	TEC	Torsha-1	2.5mx2.5m	6.37	---	0	26°37'03.9"	89°17'20.1"	0	---	26.02.21
Grand Total :-									6.37							

DETAILED MONITORING REPORT OF BUXA TIGER RESERVE CIRCLE

Division - Buxa Tiger Reserve(East)
Monitoring Report 2020-21 (CAMPA)

Year	Zone	Circle	Division	Scheme	Range	Beat	Location	Spacing	Area (Ha)	Major Species tried	SP	GPS Reading		Ht.	BHG	Date of Survey
												Latitude	Longitude	(cm)		
2017	NB	BTR Circle	BTR (East)	CAMPA	South Rydak	MKT	MKT-1	1mx1m	10.00	Chepti, Dhadda	63	26°35'31.7"	89°46'07.8"	7		22.02.21
2017	NB	BTR Circle	BTR (East)	CAMPA	South Rydak	South Rydak	SRD-4	1mx1m	10.00	Chepti, Dhadda	84	26°33'44.5"	89°43'37.4"	7		22.02.21
2020	NB	BTR Circle	BTR (East)	CAMPA	South Rydak	South Rydak	Dhowla-2	2mx2m	12.00	Panisaj, Arjun, Kainjal, Bahera	91	26°34'28.8"	89°93'12.1"	64	---	04.01.21
2020	NB	BTR Circle	BTR (East)	CAMPA	South Rydak	South Rydak	Dhowla-1	2mx2m	21.00	Arjun, Kainjal, Haritaki, Panisaj	88	26°36'08.5"	89°91'10.2"	75	---	22.02.21
Grand Total :-									53.00							

Division - Buxa Tiger Reserve(West)
Monitoring Report 2020-21 (CAMPA)

Year	Zone	Circle	Division	Scheme	Range	Beat	Location	Spacing	Area (Ha)	Major Species tried	SP	GPS Reading		Ht.	BHG	Date of Survey
												Latitude	Longitude	(cm)		
2017	NB	BTR Circle	BTR (West)	CAMPA	WDPO	BTR East	Garam East	2mx2m	23.50	Panisaj, Amloki, Kainjal, Jarul	60	26°33'52.4"	89°31'03.9"	188		19.02.21
2017	NB	BTR Circle	BTR (West)	CAMPA	Nimati	East Nimati	NMT-3	1m x 1m	10.00	Dhadda, Chepti	68	26°37'46.7"	89°27'31.1"	7		21.02.21
2017	NB	BTR Circle	BTR (West)	CAMPA	West Rajavatkawa	NRVK	SRVK - 2	1m x 1m	10.00	Dhadda, Chepti	60	26°39'23.2"	89°32'47.6"	7		20.02.21
2018	NB	BTR Circle	BTR (West)	CAMPA	WDPO	Gorom	Gorom Poro-8	2mx2m	23.00	Arjun, Panisaj, Pakasaj, Jarul	65	26°33'54.7"	89°29'30.9"	242		05.01.21
Grand Total :-									66.50							



Division-BTR (E) ,Range-South Rydak, Beat-South Rydak, Block-Dhawla-2, Area-12.0ha,Yr.-2018.



Division-BTR (W) ,Range- West Damanpur, Beat- Garam West, Block- Poro-8, Area-23.0ha,Yr.-2017.



Division-BTR (E) ,Range- South Rydak, Beat- South Rydak, Block- MKT-1, Area-10.0ha,Yr.-2017.



Division-Coochbehar ,Range-Pundibari, Beat-Pundibari HQ, Block- Chhat Singimari, Area-1.564ha,Yr.-2018.

CHAPTER – III

MONITORING OF CAMPA PLANTATIONS IN SOUTH BENGAL

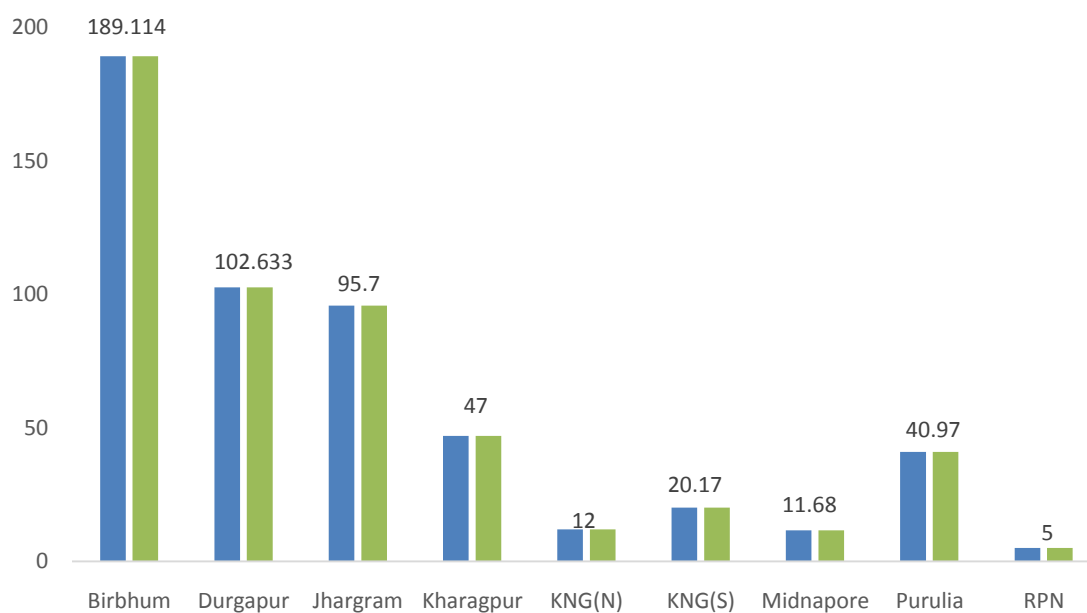
i) AREA STATEMENT

Area in Ha.

Sl. No.	Division	1st Time Monitoring (2020-21)					
		Total Area (Ha)				Total Area (Ha)	Monitored Area (Ha)
		2017	2018	2019	2020		
1	Birbhum		17.99	170	1.124	189.114	189.114
2	Durgapur		52.633	50		102.633	102.633
3	Jhargram		85.7	10		95.7	95.7
4	Kharagpur	25			22	47	47
5	KNG(N)	3	4	5		12	12
6	KNG(S)			20.17		20.17	20.17
7	Midnapore	4.08		7.6		11.68	11.68
8	Purulia		25.97	15		40.97	40.97
9	RPN	1		4		5	5
G. Total		33.08	186.293	281.77	23.124	524.267	524.267

Table-1

Area Statement for 1st time Monitoring of CAMPA Plantations



ii) WEIGHTED SURVIVAL PERCENTAGE -

Year & Divisionwise Weighted Survival Percentage (1st year plantation)

Area in Ha.

Division	2017		2018		2019		2020		Total Area (Ha)	Division wise WSP
	Area	WSP	Area	WSP	Area	WSP	Area	WSP		
Birbhum			17.99	97	170	99	1.124	100	189.114	99
Durgapur			52.633	98	50	98			102.633	98
Jhargram			85.7	96	10	100			95.7	96
Kharagpur	25	99					22	99	47	99
KNG(N)	3	51	4	100	5	100			12	88
KNG(S)					20.17	100			20.17	100
Midnapore	4.08	99			7.6	100			11.68	100
Purulia			25.97	99	15	100			40.97	99
RPN	1	91			4	99			5	97
Total	33.08	95	186.293	97	281.77	99	23.124	99	524.267	98

Table No. 2

Year & Division wise WSP



Overall WSP

Area in Ha.

Year	Area	WSP
1 st Year	524.26	98

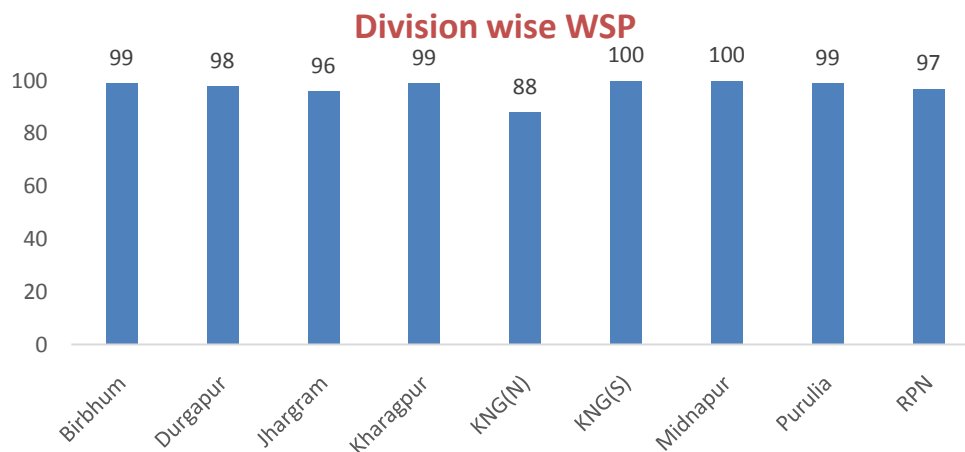
Table -3

Division & Scheme wise Weighted Survival Percentage (1st year plantation)

Area in Ha.

Division	Misc.		QGS		Sal		Total Area (Ha)	Division wise WSP
	Area	WSP	Area	WSP	Area	WSP		
Birbhum	1.124	100	187.99	99			189.114	99
Durgapur			102.633	98			102.633	98
Jhargram	21	99	74.7	96			95.7	96
Kharagpur			47	99			47	99
KNG(N)			3	51	9	100	12	88
KNG(S)					20.17	100	20.17	100
Midnapur	11.68	100					11.68	100
Purulia			30.97	99	10	100	40.97	99
RPN			4	99	1	91	5	97
Total	33.804	99	450.293	98	40.17	100	524.267	98

Table -4



Abstract

- The quantum of plantation comes under category A zone is 98% that means the plantations having survival percentage equal or more than 90%.
- 2% quantum of plantation is in category B zone that means the plantations having survival percentage between 89% to 75%.

iii) DETAILED MONITORING REPORT OF DIVISIONS -

Detail monitoring data of South East Circle

Area in Ha.& height in cm.

Year	Scheme	Circle	Division	Range	Beat	Location	Area	Key Species	SP	Lat. (N)	Long. (E)	Height	Date of Survey	WC
2018	QGS	South East	Birbhum	Rajnagar	Aligarh	Haripur	4.99	Akashmani, Jam	95	23°58'51.5"	087°25'58.5"	86.84	10.11.20	Dev
2018	QGS	South East	Birbhum	Ukhra	Kantaberia	Madhaiganj	13	Akashmani	98	23°39'34.7"	087°19'25.5"	245.8	10.11.20	Dev
2019	QGS	South East	Birbhum	Dubrajpur	Khairasole	Dhaolasimul	5	Akashmani, Mahaneem	99.75	23°51'04.7"	087°14'53.7"	150.4	07.11.20	Dev
2019	QGS	South East	Birbhum	Dubrajpur	Khairasole	Bandhagal	15	Akashmani, Minjiri, Karanj	99.65	23°51'24.6"	087°14'42.1"	128.2	20.11.20	Dev
2019	QGS	South East	Birbhum	Dubrajpur	Khairasole	Bhagabandh	15.5	Akashmani, Karanj	99.65	23°48'27.7"	087°16'54.7"	145.9	06.11.20	Dev
2019	QGS	South East	Birbhum	Dubrajpur	Bakreswar	Pratappur Rampur	60	Akashmani, Karanj, Sissao, Arjun	99	23°52'29.3"	087°19'20.7"	128.7	3.11.20, 4.11.20, 5.11.20	Dev
2019	QGS	South East	Birbhum	Dubrajpur	Rasa	Geruapahari	9.5	Akashmani, Sissao	99.83	23°51'12.2"	087°07'51.0"	123.4	06.11.20	Dev
2019	QGS	South East	Birbhum	Rajnagar	Aligarh	Kanmora	17	Akashmani, Karanj	98	23°59'23.1"	087°23'17.9"	142.4	02.11.20	Dev
2019	QGS	South East	Birbhum	Rajnagar	Aligarh	Lowberia	48	Akashmani, Karanj, Sissao, Arjun	98	24°01'22.6"	087°19'38.3"	100.1	18.11.20, 19.11.20, 20.11.20	Dev

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Year	Scheme	Circle	Division	Range	Beat	Location	Area	Key Species	SP	Lat. (N)	Long. (E)	Height	Date of Survey	WC
2020	Misc.	South East	Birbhum	Bolpur	Illambazar	JoydebKenduli	1.124	Sissao, Simul, Karanj, Amlaki	100	23°38'20.3"	087°26'11.4"	71.31	05.11.20	Dev
2018	QGS	South East	Durgapur	Ukhra	Tilaboni	Bansgora	20.633	Akashmani, Karanj, Neem	98.5	23°36'51.0"	087°18'03.7"	205.3	12.11.20	Dev
2018	QGS	South East	Durgapur	Ukhra	Tilaboni	Bansgora	10	Akashmani, Karanj, Neem	98.41	23°36'51.0"	087°18'03.7"	184	13.11.20	Dev
2018	QGS	South East	Durgapur	Ukhra	Tilaboni	Parulia	10	Akashmani, Karanj	98	23°36'26.1"	087°19'19.2"	190.2	11.11.20	Dev
2018	QGS	South East	Durgapur	Ukhra	Kantaberia	Srikrishnapur	12	Akashmani, Karanj	98	23°39'51.3"	087°21'39.5"	186.7	11.11.20	Dev
2019	QGS	South East	Durgapur	Asansol (T)	Mongalpur	Tirat	7.5	Akashmani, Karanj	94	23°37'43.2"	087°03'23.8"	84.26	22.11.20	Dev
2019	QGS	South East	Durgapur	Asansol (T)	Mongalpur	Mamudpur	12.5	Akashmani, Karanj	95.75	23°40'49.8"	087°07'39.3"	67.62	22.11.20	Dev
2019	QGS	South East	Durgapur	Ukhra	Tilaboni	Bansgora	20	Akashmani, Karaj, Sissao	99.5	23°37'37.1"	087°18'22.7"	134.2	21.11.20	Dev
2019	QGS	South East	Durgapur	Ukhra	Kantaberia	Dhabani (Labnapara)	5	Akashmani, Karanj	98.5	23°35'47.8"	087°22'08.8"	169.2	07.11.20	Dev
2019	QGS	South East	Durgapur	Ukhra	Kantaberia	Dhabani	5	Akashmani, Karanj	99.87	23°35'06.2"	087°22'26.5"	108.2	07.11.20	Dev

Detail monitoring data of South West Circle

Area in Ha.& height in cm.

Year	Scheme	Circle	Division	Range	Beat	Location	Area	Key Species	SP	Lat. (N)	Long. (E)	Height	Date of Survey	WC
2017	QGS	South West	KNG(N)	Raghunathpur	Raghunathpur-II	Murabag	3	Karanj, Simul, Sissao, Challa	51	23°37'21.48"	086°31'06.28"	108	23.11.20	Dev
2018	Sal	South West	KNG(N)	Raghunathpur	Santuri	Maharajhagar	4	Sal	100	23°34'37.61"	086°44'36.32"	143	23.11.20	Dev
2019	Sal	South West	KNG(N)	Hura	Hura	Ledadi	3	Sal	100	23°15'20.30"	086°39'48.74"	92	24.11.20	Dev
2019	Sal	South West	KNG(N)	Puncha	Puncha	Chatalalpur	2	Sal, Daka	100	23°13'06.18"	086°37'53.03"	52	24.11.20	Sal
2019	Sal	South West	KNG(S)	Bandwan-I	Bandwan	Ghagra	3	Sal, Jam, Arjun	100	22°49'11.06"	086°34'02.88"	80	05.12.20	Dev
2019	Sal	South West	KNG(S)	Bandwan-I	Bandwan	Patkati	2	Sal, Jam, Arjun, Bahera	100	22°49'13.47"	086°28'51.61"	48	25.11.20	Sal
2019	Sal	South West	KNG(S)	Jamvna	Nanna	Harada	5	Sal, Jam, Kusum, Bahera	100	22°47'11.53"	086°34'55.03"	75	25.11.20	Sal
2019	Sal	South West	KNG(S)	Manbazar-I	Sindurpur	Majhijira	5.17	Sal, Jam, Simul	100	23°05'35.06"	086°32'29.25"	95	28.11.20	Dev
2019	Sal	South West	KNG(S)	Manbazar-I	Sindurpur	Janara	5	Sal, Mohul, Kusum	100	23°03'00.62"	086°31'38.91"	54	28.11.20	Dev
2018	QGS	South West	Purulia	Jhalda	Kalma	Ichahatu-II	25.97	Akashmani, Jam, Neem, Arjun	99	23°28'20.60"	086°53'19.09"	145	26.11.20	Dev
2019	Sal	South West	Purulia	Arsha	Kantadih	Rajpati-70	5	Sal, Simul, Pea sal	100	23°14'36.66"	086°13'20.80"	70	27.11.20	Sal
2019	Sal	South West	Purulia	Kotsila	Murguma	Jaharhatu	5	Sal	100	23°20'19.77"	086°02'11.55"	70	27.11.20	Dev
2019	QGS	South West	Purulia	PuruliaSilviculture	PuruliaSilviculture	Lakshmanpur	5	Akashmani	100	23°20'48.8"	086°33'40.18"	112	24.11.20	Dev

Detail monitoring data of Western Circle

Area in Ha.& height in cm.

Year	Scheme	Circle	Division	Range	Beat	Location	Area	Key Species	SP	Lat. (N)	Long. (E)	Height	Date of Survey	WC
2018	Misc.	Western	Jhargram	Jamboni	Bhaluka	KJ-286	11	Akashmoni, Neem, Karanj, Challa	98.08	22°21'28.4"	086°54'05.6"	101	07.11.20	Dev
2018	QGS	Western	Jhargram	Manikpara	Kusumghati	Louriadam	23	Akashmoni, Arjun, Amloki, Neem	94.96	22°22'36.4"	087°04'13.3"	196	03.11.20, 04.11.20	Dev
2018	QGS	Western	Jhargram	Manikpara	Kusumghati	Louriadam-671	16	Akashmoni	91.65	22°22'36.4"	087°04'13.3"	210	05.11.20	Dev
2018	QGS	Western	Jhargram	Manikpara	Balivasa	Radhashyampur	20	Akashmoni	97.21	22°20'57.2"	087°06'11.3"	201	06.11.20	Dev
2018	QGS	Western	Jhargram	Parihati	Ergoda	Guiara-6	15.7	Akashmoni	99.05	22°32'35.5"	086°50'06.7"	154	01.11.20	Dev
2019	Misc.	Western	Jhargram	Arabari	Arabari	Ghagra-450	5	Peasal	99.13	22°42'52.0"	087°19'35.6"	170	02.11.20	Dev
2019	Misc.	Western	Jhargram	Jhargram	Jhargram	Amlachati	5	Karam	100	22°22'50.3"	087°02'42.7"	126	02.11.20	Dev
2017	QGS	Western	Kharagpur	Kalaikunda	Kalaikunda	Arjuni-38	25	Akashmoni	99.4	22°21'20.9"	087°10'57.3"	291	28.10.20, 29.10.20	Dev
2020	QGS	Western	Kharagpur	Kalaikunda	Sankrail	Susnigeria-118	22	Akashmoni	99.04	22°14'20.8"	087°07'44.3"	103	30.10.20	Dev
2017	Misc.	Western	Midnapore	Godapiasal	Ghagrasole	Kulopachhuria	4.08	Chhatim, Kusum, Neem	99.38	22°31'52.0"	087°19'04.5"	167	31.10.20	Dev
2019	Misc.	Western	Midnapore	Bhadutola	Moupal	Karamarasol-215	7.6	Neem, Mahul, Peasal, Kusum	100	22°30'15.5"	087°14'18.6"	105	31.10.20	Dev
2017	Sal	Western	RPN	Hoomgarh	Barameshia	Barameshia	1	Jarul, Sal, Neem	90.5	22°11'56.6"	087°20'25.6"	295	08.11.20	Dev
2019	QGS	Western	RPN	Mahalisai	Adalia	Hatimasan	4	Akashmoni	98.75	22°48'33.1"	087°08'14.7"	175	08.11.20	Dev

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Year	Scheme	Circle	Division	Range	Beat	Location	Area
2018	QGS	Western	Jhargram	Parihati	Ergoda	Guiara-6	15.7



Year	Scheme	Circle	Division	Range	Beat	Location	Area
2018	Sal	South West	KNG(N)	Raghunathpur	Santuri	Maharajhagar	4



Year	Scheme	Circle	Division	Range	Beat	Location	Area
2018	QGS	South East	Durgapur	Ukhra	Kantaberia	Srikrishnapur	12



Year	Scheme	Circle	Division	Range	Beat	Location	Area
2018	QGS	South West	Purulia	Jhalda	Kalma	Ichahatu-II	25.97

ANNEXURE

i. Abbreviations

➤ **Necessary Abbreviations against Monitoring (North) Division**

Sl. No.	Abbreviations	In full form
1	BKP	Baikunthapur
2	BTR(E)	Buxa Tiger Reserve (East)
3	BTR (W)	Buxa Tiger Reserve (West)
4	COB	Coochbehar
5	DRJ	Darjeeling
6	DRJ (T)	Darjeeling Territorial Division (GTA)
7	JPG	Jalpaiguri
8	KPG	Kalimpong Forest
9	KGN	Kurseong Forest
10	GMR WL	Gorumara Wild Life
11	JPD WL	Jaldapara Wild Life
12	Avg.	Average
13	BHG	Breast height girth
14	Dev.	Development
15	Fin.	Financial
16	GT	Grand Total
17	H/L	Highest / Lowest
18	PWC	Protection Working Circle
19	RWC	Rehabilitation Working Circle
20	SP	Survival Percentage
21	WC	Working Circle
22	WSP	Weighted Survival Percentage
23	YOP	Year of Plantation
24	WPS	Weighted Performance Score

➤ **Necessary Abbreviations against Monitoring (South) Division****Schemes**

Sl. No.	Abbreviation	Expanded
1	Sal	Forestry Treatment - Sal Plantation
2	QGS	Quick Growing Species
3	Misc.	Miscellaneous Species

For the names of the Divisions

Sl. No.	Abbreviation	Expanded	Sl. No.	Abbreviation	Expanded
1	24-PGS(N)	24 – Parganas (North)	11	KGP	Kharagpur
2	24-PGS(S)	24 – Parganas (South)	12	KNG(N)	Kangsabati (North)
3	BDN	Burdwan	13	KNG(S)	Kangsabati (South)
4	BIR	Birbhum	14	MID	Midnapur
5	BNK(N)	Bankura (North)	15	N & M	Nadia & Murshidabad
6	BNK(S)	Bankura (South)	16	PMID	Purba Medinipur
7	DGP	Durgapur	17	PNCT	Panchet
8	EFD	Extension Forestry Division, Purulia	18	PRL	Purulia
9	HWH	Howrah Social Forestry	19	RPN	Rupnarayan
10	JGM	Jhargram	20	URF	Urban & Recreational Forestry

Others

Sl. No.	Abbreviation	Expanded	Sl. No.	Abbreviation	Expanded
1	Avg.	Average	10	RBD	Randomized Block Design
2	BHG	Breast Height Girth	11	RWC	Rehabilitation Working Circle
3	Dev.	Development	12	SD	Standard deviation
4	Fin.	Financial	13	SP	Survival Percentage
5	GT	Grand Total	14	WC	Working Circle
6	H/L	Highest / Lowest	15	WPS	Weighted Performance Score
7	PS	Performance Score	16	WSP	Weighted Survival %
8	PWC	Protection Working Circle	17	YOP	Year of Plantation
9	SD	Standard Deviation	18	CV	Coefficient of variation

ii. Calendar of Operations

(O.O. No. 05/PCCF/R&M/2M-4 dt. 6.11.06 read with Memo No. 165-176/PCCF-RMD/2M-4 dated 26.06.2009)

Date	Activity	Action
April-May	Placement of Fund of CF/Monitoring by PCCF/West Bengal in respect of Directorate Fund	CCF Finance
30th Sept	Regeneration Plan Map along with Plantation Journals (Complete up to date)	R.O.s of other Divisions to be directed by concerned DFOs to make these available to the R.O.s of Monitoring Divisions
1st Oct	Placement of Fund to DFO/Monitoring by territorial DFOs in respect of Non-Forest Dept [GoWB] funds [Civil Deposits]	Planting DFOs
15th Oct	Starting Field Survey of Plantations	DFO/Monitoring (North) & DFO/Monitoring (South)
28th Feb	Finishing Field Survey of Plantations raised with funds from Forest Dept.	Do
31st Mar	Finishing Field Survey of Plantations raised with funds from civil deposits.	Do
10th May	Circulation of survey data to DFOs for verification & comments.	Do
31st May	Last date of receipt of comments from concerned DFOs/CFs.	DFOs / CFs
15th Jul	Draft Monitoring Report (2 volumes)-Circulation for Comments to DFOs, CFs & CCFs.	DFO/Monitoring (N) & DFO/Monitoring (S)
31st Jul	Last Date for Receipt of Comments	Other DFOs, CFs & CCFs
15th Aug	Draft (Power Point) Presentations [2 No. for North & South Bengal] of CF/Monitoring.	CF/Monitoring to prepare & CCF/ME & SC to approve
20th Aug	(Power Point) Presentations in North Bengal by CF/Monitoring.	DFO/Monitoring (North) Divn. & CF/MC
30th Aug	(Power Point) Presentations in South Bengal by CF/Monitoring.	DFO/Monitoring (South)Divn. & CF/MC
15th Sep	Draft Monitoring Report (2 volumes)	Vetting by PCCF/RM&D through proper channel
30th Sep	Final Report (2 volumes) – Publication and Distribution.	DFO/Monitoring (N) & DFO/Monitoring (S)
15th Nov	Draft State Monitoring Report (1 volume)	CF/Monitoring to submit to CCF/ME&SC & PCCF/RMD
30th Nov	Final State Monitoring Report (1 volume) Publication and Distribution	CF/Monitoring