



# Highlights of ODISHA FORESTRY SECTOR 2022

**Principal Chief Conservator of Forests & Head of Forest Force, Odisha**  
Aranya Bhawan, Chandrasekharpur  
Bhubaneswar - 751 023







**HIGHLIGHTS OF  
ODISHA FORESTRY SECTOR  
2022**

**PRINCIPAL CHIEF CONSERVATOR OF FORESTS &  
HEAD OF FOREST FORCE, ODISHA**  
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ନବୀନ ଚନ୍ଦ୍ରନାୟକ  
ପୁଷ୍ପମତୀ, ଓଡ଼ିଶା



ଲୋକସେବା ଭବନ  
ଭୁବନେଶ୍ୱର

## ବିଶ୍ୱ ବନ ଦିବସ ୨୦୨୨ ଉପଲକ୍ଷେ ମାନ୍ୟବର ମୁଖ୍ୟମନ୍ତ୍ରୀଙ୍କ ବାର୍ତ୍ତା

ବିଶ୍ୱ ବନ ଦିବସ ଅବସରରେ ରାଜ୍ୟବାସୀଙ୍କୁ ମୋର ସ୍ୱାଗତ୍ୱା ଜଣାଇଛି ।

ପ୍ରତ୍ୟେକ ବର୍ଷ ମାର୍ଚ୍ଚ ୨୧ ତାରିଖ ଦିନଟିକୁ 'ବିଶ୍ୱ ବନ ଦିବସ' ରୂପେ ଆନେମାନେ ପାଳନ କରିଆସୁଛୁ ।

୨୦୨୨ ବିଶ୍ୱ ବନ ଦିବସ ପାଳନର ଆଲୋଚ୍ୟ ବିଷୟ ହେଉଛି 'ଜଙ୍ଗଲ ଓ ସ୍ତ୍ରୀ ଉତ୍ପାଦନ ଏବଂ ବ୍ୟବହାର' ।

ଜଙ୍ଗଲ ଦୃଶ୍ୟ ଓ ଅଦୃଶ୍ୟ ଭାବରେ ଅଦ୍ୱିତୀୟ ଆମର ସେବା କରିଆସୁଛି । ଦୃଶ୍ୟମାନ ଭାବରେ ଶାନ୍ତ, ଉତ୍ତମ, ଔଷଧ ଇତ୍ୟାଦି ସହିତ ଦୈନନ୍ଦିନ ଜୀବନରେ ପ୍ରତ୍ୟେକ ମୁହୂର୍ତ୍ତର ଆବଶ୍ୟକତାକୁ ଜଙ୍ଗଲ ପୂରଣ କରୁଛି । ଗୁପ୍ତ ଭାବରେ ଆମର ଜଳ ସମ୍ରାଧି, ବାୟୁକୁ ଶୁଦ୍ଧ କରୁଛି ଏବଂ ଜଳବାୟୁ ପରିବର୍ତ୍ତନରୁ ରକ୍ଷା କରୁଅଛି । ଜଙ୍ଗଲର ଏହି ସେବାଗୁଡ଼ିକୁ ସବୁଦିନ ପାଇବା ନିମନ୍ତେ ଆମକୁ ଜଙ୍ଗଲର ସତ୍ୟାଦିତ ବ୍ୟବହାର ସହିତ ଏହାର ଅବଶ୍ୟକତା ରୋକିବା ଆମର ପ୍ରଥମ କର୍ତ୍ତବ୍ୟ ।

ଏହା ଏକ ଆନନ୍ଦର ବିଷୟ ଯେ, ଓଡ଼ିଶାର ଜଣେ ସହିତ ରୋକମାନଙ୍କର ଏବଂ ବିଶେଷକରି ବନ ପୁରୁଣା ସମିତିମାନଙ୍କର ଉଦ୍ଦର୍ଶନୀୟ ସହଯୋଗ ପାଇଁ ଦିଗତ ଦୂର ବର୍ଷ ମଧ୍ୟରେ ଆମ ରାଜ୍ୟରେ ଖ୍ୟାତ ବର୍ତ୍ତା ବିଲେମିଟର ଜଙ୍ଗଲ ଅଞ୍ଚଳର ଦୃଷ୍ଟି ସମ୍ପଦ ହୋଇପାରିଛି ।

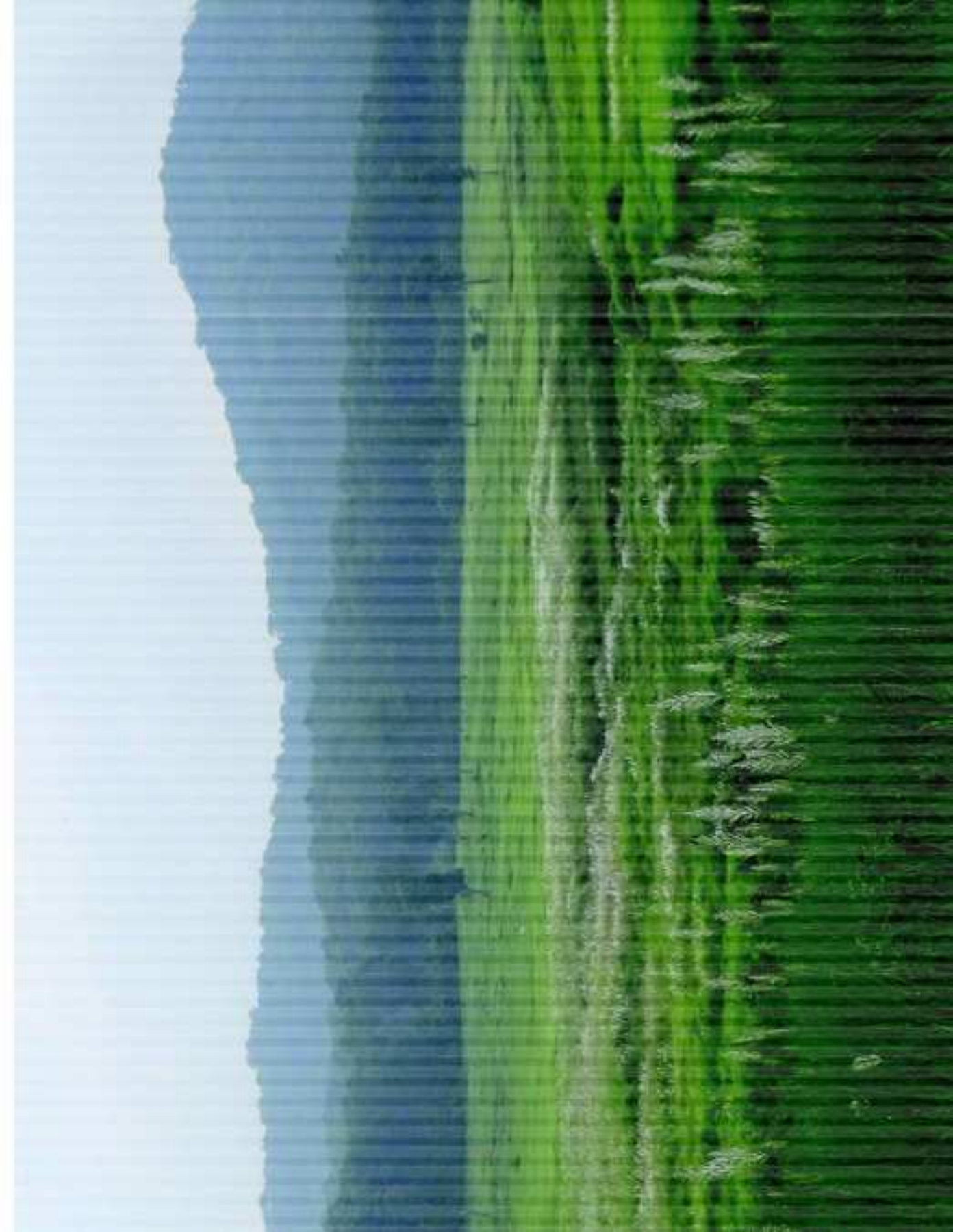
ଏହିପରି ଭାବରେ ଆଗାମୀ ଦିନରେ ଜଙ୍ଗଲ ଅଭିବୃଦ୍ଧି ପାଇଁ ସରକାରଙ୍କର ବିଭିନ୍ନ ଯୋଜନାରେ ରାଜ୍ୟବାସୀଙ୍କର ସହଯୋଗ ଜାମନା କରୁଛି ।

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## Message

The International Day of Forests is celebrated every year on 21<sup>st</sup> of March after its proclamation by the UN General Assembly on November 28, 2012. The aim of observing this day is to raise awareness among the public towards the significance and value of forests in the lives of living creatures.

This year, the Day will be celebrated with the theme i.e. "Forests and sustainable production and consumption".

The State is on the rising trend in forest and tree cover over the last few years. The total forest and tree cover of the country has increased by 2261 square kilometers between the last two consecutive assessment years of 2019 and 2021. Currently, our state has also gained 893 square kilometers of forest and tree cover. This has been achieved because of various plantation and conservation initiatives in a participatory mode taken by the State Government.

The current year's theme emphasizes on the role of forests in ensuring sustainable production and consumption for the better future. The forest carries the potential to produce goods and services for sustainable development, fostering an economic activity to employ people and improves their lives. It is vital to consume and produce forest based products in a more environmental friendly way for the planet and its inhabitants and to protect the easily renewable resources with a sustainable approach.

I expect that this report titled "Highlights of Odisha Forestry Sector 2022" compiled with useful information will help the policy makers, researchers, academicians and field functionaries to plan effective management of forests.

*Mona Sharma*  
(Dr. Mona Sharma)



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## FOREWORD

This year, the International Day of Forests will be celebrated on 21<sup>st</sup> of March with the theme - "Forests and sustainable production and consumption".

Odisha is the third highest state in terms of increase in 537 square kilometres of forest cover and the second largest in extent of tree outside forest in the country covering 24,474 square kilometres which includes 19,470 square kilometres of forest cover outside RFA and 5004 square kilometres of tree resources outside forests. This phenomenal achievement has been possible due to the purposeful involvement of the Government machineries in implementing various forest development schemes with the effective participation of the Vana Surakshya Samitees at the grass root level.

It is a well known fact that forests are essential for planetary health and human well-being. But the process of deforestation and degradation of forest land leads to the most pressing challenge currently, that is, climate change. Managing forests sustainably can help reduce deforestation, restore degraded landscapes and provide people with employment opportunities and renewable materials. Expanding the innovation and use of forest products and replacing less-sustainable materials with renewable wood and tree-based products can reduce the carbon footprint. These efforts will help to achieve the goals for the wellbeing with a transition towards low-carbon and green economies.

A comprehensive report titled "Highlights of Odisha Forestry Sector" is being published every year by the State Forest Department. This year's report underlines the achievements on several afforestation, forest conservation and sustainable forest management schemes implemented in the state. Additionally, all important forest statistics with up-dated information have also been highlighted in this report.

I congratulate Dr Pradeep Raj Karat, IFS, CCF (PP&A), Ms Sujata Rani Sahu, Sociologist and the SFDA staff for their commitment and sincere efforts in preparing this report in a time bound manner.

I am sure that this report will be useful as a document of reference for administrators, researchers, field staff, functionaries, the media and the general public.

  
(Sisir Kumar Ratho)



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## ODISHA FOREST

### 1.1. Background of Forests in Odisha

The State of Odisha located between the parallels of 17.49N and 22.34N latitudes and meridians of 81.27E and 87.29E longitudes is surrounded by the adjacent states of West Bengal to the north-east, Jharkhand to the north, Chhattisgarh to the west and north-west, Telangana to the south-west and Andhra Pradesh to the south. Covering an area of 155,707 square kilometer (4.87% of the total geographical area of the country), the state can physiographically be divided into four regions, viz, Northern Plateau, Eastern Ghats, Central Table Land and Coastal Plains. It has a coast line of about 482 kilometres stretched across the Bay of Bengal on its east, from Balasore to Ganjam with virgin beaches interspersed with a number of river mouths and deltas supporting coastal vegetation including mangroves and associated wild fauna. With the rich heritage and history of the state, Odisha is dotted with exquisite temples, historic monuments as well as pieces of modern engineering galore.

The average annual rainfall varies from about 1,200 mm to about 1,600 mm and the average annual temperature ranges from 25OC - 28OC. The state is drained by a number of important rivers, which includes Mahanadi, Brahmani and Baitarni. The state has 30 districts, among which 12 are tribal districts. As per the 2011 census, Odisha has a population of 41.97 million accounting for 3.47% percent of India's population. Rural and urban populations respectively constitute 83.32% and 16.68%, whereas total tribal population in the state is 22.85%. The population density of the state is 270 per square kilometre, which is lower than the national average. The 20th Livestock census 2019 has reported a total livestock population of 61.01 million in the state.

Odisha's forests are well stocked, diverse, multi-storied and dense. As per the Champion & Seth Classification of Forest Types (1958), the forests in Odisha belong to four Forest type Groups which are further divided into 19 Forest Types. Two National Parks and 19 Wildlife Sanctuaries constitute the protected area net work of the state covering 5.19% of its Geographical area.

### 1.2. Forest Area

Total Geographical Area	1,55,707 Sq Km
Recorded Forest Area (RFA)	61,204 Sq Km
Forest Cover within Recorded Forest Area (Green Wash)	32,686 Sq Km
Forest Cover outside Recorded Forest Area (Green Wash)	19,470 Sq Km
Forest Cover Area	52,156 Sq Km
Tree Cover (Outside Forest Area)	5,004 Sq Km
Total Forest & Tree Cover	57,160 Sq Km



Extent of Trees outside Forest Area	24,474 Sq Km
Percentage of Forest Area (Recorded) to Geographical Area	39.31 %
Percentage of Forest Cover Area to Geographical Area	33.50 %
Percentage of Tree Cover Area to Geographical Area	3.21 %
Percentage of Forest & Tree Cover to Geographical Area	36.71 %

### 1.3. Forest and Tree Cover in Odisha

Based on Satellite imagery, the forest and tree cover of the State is being assessed and published every two years by the Forest Survey of India, Government of India since 1997. The Recorded Forest Area (RFA) of the state is 61,204.17 square kilometer which is 39.31% of Geographical Area. The Reserved (36,049 square kilometer), Protected (25,133 square kilometer) and Unclassed Forests (22 square kilometer) are 58.90%, 40.75% and 0.35% of the RFA in the state respectively.

As per the 2021 assessment by the Forest Survey of India, the forest cover in the State is 52,156 square kilometre i.e. 33.50% of its geographical area, while tree cover of the State is 5,004 square kilometre i.e. 3.21% of geographical area. The state has gained 537 square kilometres area of forest cover and 356 square kilometres of tree cover within a period of 2 years i.e. from 2019 to 2021. So, the total forest and tree cover in the state has increased by 893 square kilometres during the period from 2019 to 2021. The total forest and tree cover area of forest constitutes 36.71% of the total Geographical Area of the state.

The Forest cover of the state has been categorized as Very Dense (7213 square kilometer), Moderately Dense (20,995 square kilometer), Open forest (23,948 square kilometer) and scrub (4,924 square kilometers). Shorearobusta i.e. Sal is the major tree species in Odisha forests & all its associates are found profusely.

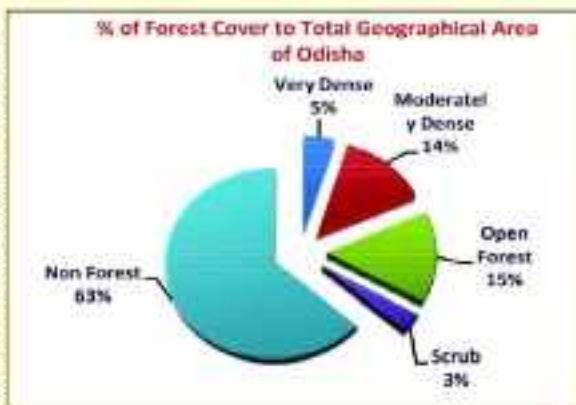
The forest cover of the State in 11 assessment years is as under:

[Area in Sq. Km]

India State of Forest Report	Very Dense Forest (VDF)	Dense Forest (DF)	Moderately Dense Forest (MDF)	Open Forest (OF)	Total	Scrub	Tree Cover	Mangrove
2021	7213	0	20995	23948	52156	4924	5004	259
2019	6970	-	21552	23097	51619	4327	4648	251
2017	6957	-	21370	23008	51345	4306	3993	243
2015	6985	-	21470	22005	50460	4699	3988	231
2013	7043	-	21298	22007	50347	4424	4013	213
2011	7060	-	21366	20477	48903	4734	4301	222
2009	7073	-	21384	20388	48855	4852	4435	221
2005	538	-	27656	20180	48374	4743	4589	203

2003	288	-	27882	20196	48366	-	-	207
2001	-	27972	-	20866	48838	5782	-	211
1999	-	26288	-	20745	47033	5489	-	215
1997	-	26312	-	20629	46941	5461	-	211

- ◆ The percentage of forest cover (52156 square kilometres) to total recorded forest area (61204.17 square kilometres) of the State is 85.22 % in 2021.
- ◆ The State has gained more than 5215 square kilometre area of forest cover since 1997.
- ◆ Forest Cover in the State has increased by 537 square kilometre (with a net increase of 243 square kilometers in Very Dense Forest and 851 square kilometres in Open Forest and decrease of -557 square kilometers in Moderately Dense Forest), by 597 square kilometres Scrub area and by 356 square kilometres Tree Cover as compared to the previous assessment (2019).
- ◆ Massive plantation activities and concerted conservation efforts coupled with peoples' participation in protection of forests has led to increase in forest cover over the years.
- ◆ The digitized boundary of Recorded Forest Area (RFA) from the State covers 42,430 square kilometers and the forest cover inside the RFA is 32,586 square kilometers (77.04 % of forest cover inside RFA) covering 5649 square kilometers in VDF and 14,636 square kilometers in MDF and 12,401 square kilometers in OF.
- ◆ The forest cover outside the RFA is 19,470 square kilometers covering 1564 square kilometers in VDF and 6,359 square kilometers in MDF and 11,547 square kilometers in OF.
- ◆ In 2021, there is a change inside the RFA i.e. -123 square kilometers and change outside the RFA i.e. 660 square kilometers indicating net change by 537 square kilometers over the assessment of 2019.
- ◆ As per the assessment of 2021 the total Forest Cover (52,156 square kilometers) includes area of Mangrove vegetation i.e. 259 square kilometers representing a major ecosystem with net increase by 8 square kilometers over the 2019 assessment.





## Forest Cover inside and outside RFA (Area in Sq. Km)

Forest Cover inside the RFA				Forest Cover outside the RFA				Grand Total
VDF	MDF	OF	Total	VDF	MDF	OF	Total	
5,649	14,636	12,401	32,686	1,564	6,359	11,547	19,470	52,156
17.28%	44.78%	37.94%		8.03%	32.66%	59.31%		

- Extent of Trees Outside Forest (TOF) is estimated as sum of forest cover outside RFA and tree resources outside forests i.e. 19,470 sq km + 5004 sq km = 24,474 sq km which is 42.82 % of Forest and Tree cover of the State and 15.72 % of the total Geographical area of the state. It is assessed that Odisha is having the second largest in respect of extent of TOF in the country.

## Forest Cover inside and outside RFA in Tribal Districts of Odisha (Area in Sq. Km)

No. of Geogra Tribal Districts	RFA in phical Area	Digitized Boundary	Forest Cover inside RFA				Forest Cover outside RFA				Net Change over 2019 Assessment
			VDF	MDF	OF	Total	VDF	MDF	OF	Total	
12	86,091	24,685	3,925	8,690	7,114	19,729	1,394	5,148	8,290	14,832	
Change over 2019 Assessment						-231				461	230

## Mangrove Cover Assessment 2021 (Area in Sq. Km)

District wise Mangrove Cover	Very Dense Forest (VDF)	Moderately Dense Forest (MDF)	Open Forest (OF)	Total	Change over the assessment 2019
Balasore	0	1.00	4.40	5.40	0.33
Bhadrak	0	8.76	26.11	34.87	0.00
Jagasinghpur	0	1.01	7.32	8.33	0.27
Kendrapada	80.43	83.54	45.28	209.25	7.76
Puri	0	0	1.13	1.13	-0.02
<b>Total</b>	<b>80.43</b>	<b>94.31</b>	<b>84.24</b>	<b>258.98</b>	<b>8.34</b>

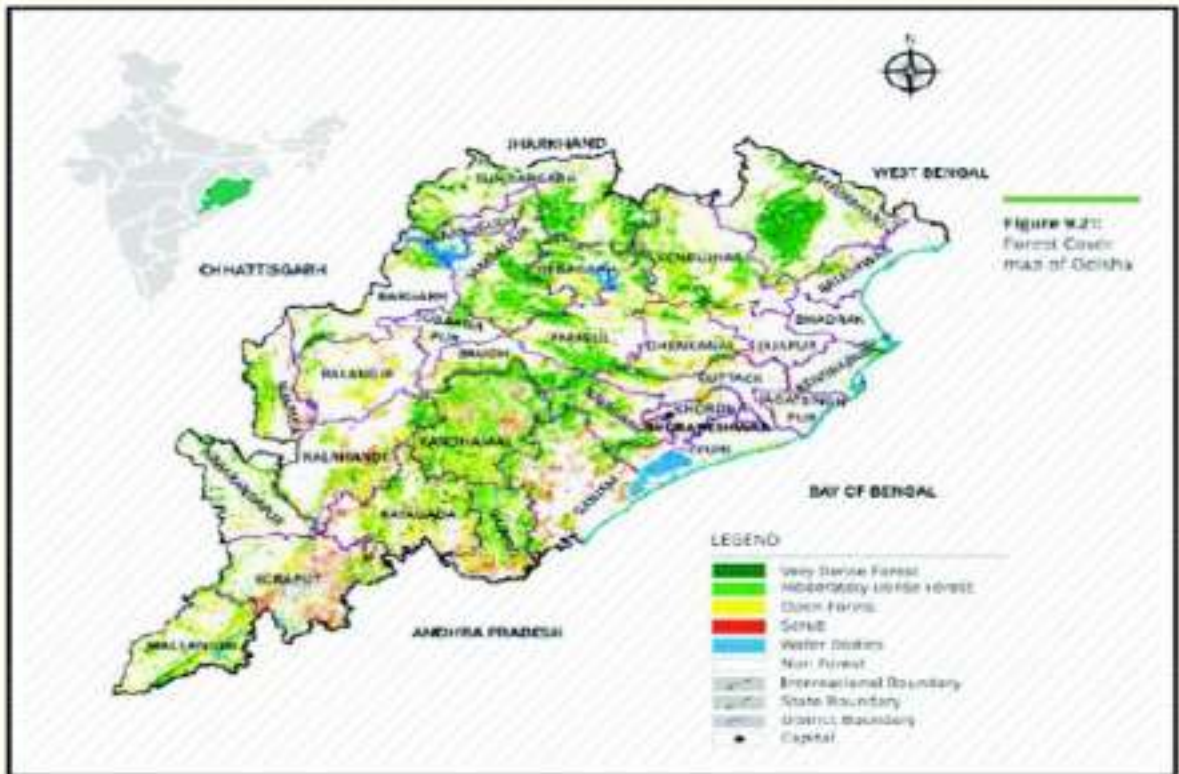
## 1.4. Growing Stock

Growing Stock in RFA	276.78 million cum
Growing Stock in Tree Outside Forest	106.87 million cum
Bamboo Bearing Area	1.12 million hectare
Total number of culms	3973 millions
Total equivalent green weight	23.716 million tonnes
Total Carbon Stock of Forest	444.83 million tonnes

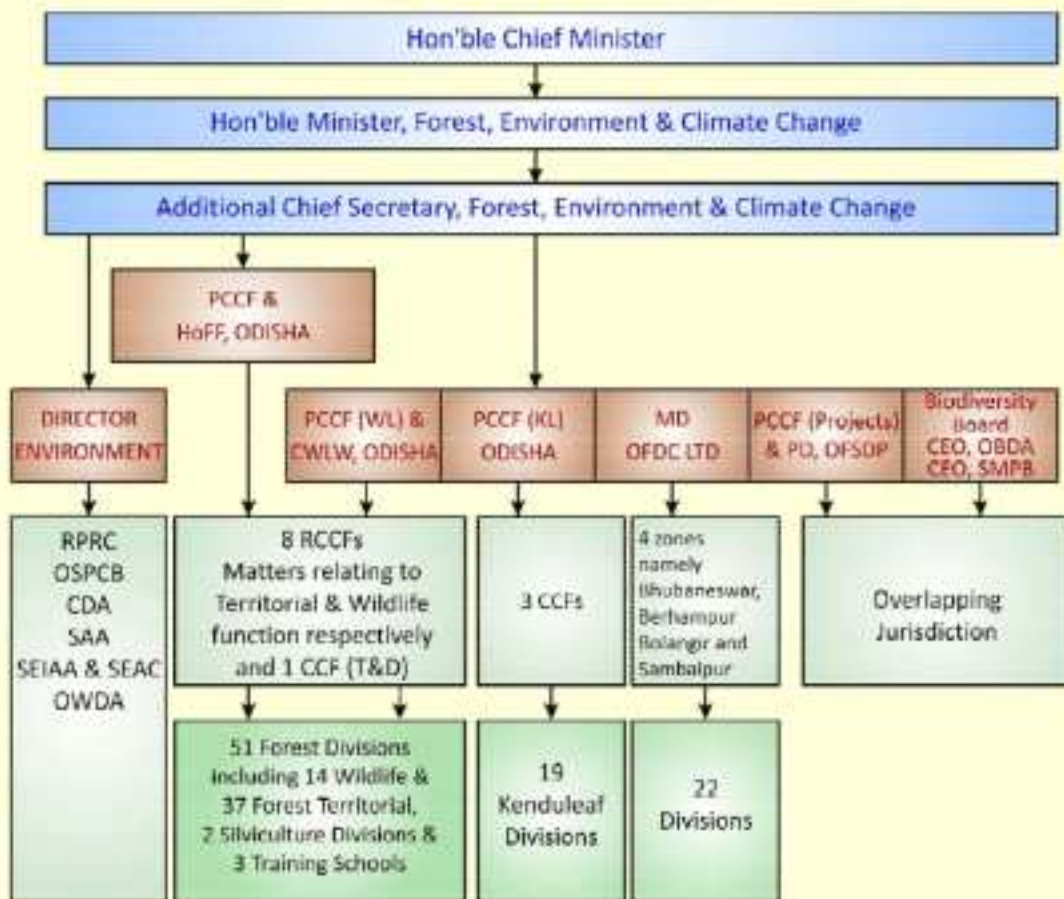


- ◆ The Growing Stock in RFA is 276.78 million cum, in Tree Outside Forest 106.87 million cum and total Carbon Stock of Forests is 444.83 million tonnes (85.28 tonnes per ha). Odisha is having the fourth position in the Bamboo bearing area of 1.12 million hectare in the country.

### 1.5. Map of Forest Cover of Odisha



## ORGANIZATION OF FOREST DEPARTMENT



- ✦ The Forest Department is headed by the Principal Chief Conservator of Forests (PCCF) & Head of Forest Force (HoFF). Broadly, the field organization of Territorial and Wildlife wings of Forest Department is as follows.

Wing	Circles	Divisions	Ranges	Sections	Beats
Territorial	8	37	223	827	3082
Wildlife	Overlapping	14	70	241	699
Kenduleaf	3	19	149	615	
Training & Development	1	2			
Working Plan		8			

- ◆ Principal Chief Conservator of Forests (Wildlife) being the Chief Wildlife Warden under provisions of Wildlife Protection Act, 1972 looks after Wildlife Management in the State.
- ◆ The Kendu Leaf Organization is headed by Principal Chief Conservator of Forests (KL).
- ◆ Odisha Forestry Sector Development Project is headed by Principal Chief Conservator of Forests (Projects) & Project Director.
- ◆ The Odisha Forest Development Corporation is headed by Managing Director.
- ◆ Besides the above, there is a sub-wing in the name of Training & Development supervised by Chief Conservator of Forests (Training & Development), Cuttack under the control of PCCF, Odisha. This sub-wing is entrusted with the responsibility of Forestry Research & Training for the forest personnel. The training infrastructure includes Ranger's training college at Angul and three training schools at Champua, G. Udaygiri and Bhubaneswar for the training of Foresters and Forest Guards. Further, there are eight Working Plan Divisions in the State entrusted with the responsibility of preparation of Forest Management Plans of various divisions.



## STATE BUDGET IN FORESTRY SECTOR

### 3.1. Budget from various Sources

The Budget detail from various sources for Forestry Sector during the Financial Year 2020-21 is given below:

Sl. No.	Source
1	Administrative Expenditure (Non-Plan)
2	Programme Expenditure (Plan)
3	Compensatory Afforestation Fund Management and Planning Authority (CAMPA) (Plan since 2019-20)
<b>Funds Received under Extra Budgetary Source</b>	
4	Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)
5	Odisha Environment Management Fund (OEMF)
6	District Mineral Fund (DMF)
7	Odisha Mineral Bearing Areas Development Corporation (OMBADC)
8	National Rural Livelihood Mission (NRLM)
9	CSR from Corporate Sectors like OMC, Railways, MCL, OPGC etc.

### 3.2. Budget Provision in last 13 years

The Budget provision in Forestry Sector under Plan & Non- Plan head during the last thirteen years is summarized below:

Year	Figures (Rs. in lakh)		
	Non-Plan	Plan	Total
2008-09	35038.23	21001.23	56039.46
2009-10	37817.76	21609.18	59426.94
2010-11	37069.38	24204.25	61273.63
2011-12	38309.00	28648.51	66957.51
2012-13	27952.84	36873.23	64826.07
2013-14	25791.51	39351.00	65142.51
2014-15	30722.16	25885.74	56607.90
2015-16	23040.88	20378.77	43419.65
2016-17	24637.81	18093.32	42731.13
	Non- Plan / Programme Expenditure		
	Administrative Expenditure		
2017-18	30600.01	10057.75	40657.76
2018-19	30599.90	21989.24	52589.14
2019-20	32304.36	93963.00	125589.79
2020-21	32115.70	128670.50	160232.2
2021-22	32168.78	21059	53227.78

## WORKING PLAN

### 4.1. Working Plans

The forests in the state are managed under the prescriptions of a Working Plan/ Scheme prepared on the basis of sustainable forest management and recognized innovative silviculture practices. The Working Plans are being approved by the authority as designated by the Ministry of Environment, Forests & Climate Change, Government of India.

There are various levels like Working Plan Circles /Working Plan Divisions of which Working Plan Officers (rank of Deputy Conservator of Forests) are the key functionaries. Working Plan is generally revised every 10 years; The working plan of forests other than those under the control of Forest Department like municipal, cantonment, private, village forests etc. is being prepared by Working Plan Officer on the request of the owner by owner themselves or through outside consultants. Micro-plan of jointly managed forests is prepared by forest staff of forest division as per MOU and in consultation with the communities involved. The micro-plan so prepared is integrated with the Working Plan of that forest division.

- The forest area of the state is being managed under fifty one (51) number of Forest and Wildlife (WL) Divisions; out of which seven (7) Wildlife Divisions namely Chandaka WL, Sunabeda WL, Satkosia WL, Mahanadi WL, Hirakud WL, Similipal Tiger Reserve (North) and Similipal Tiger Reserve (South) having only protected area are managed under approved Wild Life Management Plans. The Forest area of remaining seven Wildlife Divisions namely, Bamra WL, Rajnagar WL, Puri WL, Chilika WL, Balasore WL, Shadrak WL and Keonjhar WL partly having protected area are managed under Wild Life Management Plans for protection of forest areas and outside protected area managed under Working Plans. Thus, altogether 44 Forest Divisions including part of 7 Wildlife Divisions are covered under Working Plans for scientific management of Forests.



Mango Nursery Chandima, Jhansuipale Forest Division

## 4.2. Forest Working

### 4.2.1. Working of Coupes

Working status of Timber & Bamboo Coupes, Timber and Bamboo Operation and felling of Trees under respective Units of different Divisions for the last five years are picturised in the following Table.

Year	Timber				Bamboo	Sal Leaf
	Number of Divisions taken up Timber Operation	Number of Coupes worked out	Number of Units worked out	Number of Trees felled	Number of Divisions taken up Bamboo Operation	Number of Divisions Collected Sal Leaves
2017-18	21	126	71712	28859	23	15
2018-19	25	93	55107	22580	14	15
2019-20	29	129	55397	21089	18	15
2020-21	26	119	54687	21578	21	15
2021-22	Under progress	Under progress	Under progress	Under progress	Under progress	Under progress

### 4.2.2. Rate of Royalty

Rate of Loyalty of different forest produce such as Timber, Firewood, Pole, Casuarina firewood, Bamboo and Sal leaf etc. for last five years is summarized below:

Year	Rate of Royalty (In Rs.)									
	Timber (Per Ch.)	Irregular Lots (Per Ch.)	Sal Pole (Per Pc.)	Teak pole (Per Pc.)	Other Pole (Per pc.)	Sal & Non-Sal (Per Stack)	Casuarina (Per Qtl.)	Industrial Bamboo (Per 5L)	Commercial Bamboo (Per Pc.)	Sal Leaf (Per Qtl.)
2017-18	1717	261	55	48	32	397	155	255	Salia:1 Daba:2.50	86
2018-19	1803	274	55	48	32	397	155	255	Salia:1 Daba:2.50	86
2019-20	1929	293	55	48	32	397	155	255	Salia:1 Daba:2.50	Royalty waived out
2020-21	2006	305	60	50	35	405	155	255	Salia:1 Daba:2.50	Royalty waived out
2021-22	2086	317	60	50	35	405	155	255	Salia:1 Daba:2.50	Royalty waived out



## FOREST PROTECTION AND MANAGEMENT

### 5.1. Initiatives taken for protection of forest in the State

- ◆ The detail picture of Forest Protection Units in the State is reflected below.

Number of Units	Number of Forest Divisions	Number of Wildlife Division	Total
	37	14	51
Number of Ranges	223	60	283
Number of Sections	827	190	1017
Number of Beats	3082	601	3683

The different programmes/ activities undertaken by the Forest Department during the last 5 years for protection of forest from illicit felling/ smuggling by forest mafias are as follows:

- ◆ Each Division, Range, Section and Beat is manned by Divisional Forest Officer, Forest Ranger, Forester and Forest Guard respectively.
- ◆ There are two APR units deployed in Khordha Forest Division to assist forest staff in protection activities.
- ◆ In total, 163 Forest Check Gates have been set up for checking of vehicles and prevention of smuggling of forest produce on transit.
- ◆ 213 Fire Protection Squads have been constituted under State CAMPA APO 2021-22 involving 2130 number of local youths @1 squad per Range (each squad of 10 persons) in 37 Territorial Divisions of the State for forest fire prevention and control activities.
- ◆ Each Forest Range has been provided one hired vehicle under State CAMPA APO 2021-22 for movement of Field staff and Fire Fighting Protection Squads for forest fire prevention and control activities.
- ◆ During the year 2021-22 under this State CAMPA APO, 19500 Km of forest Fire Line have been maintained for prevention of forest fire in different Forest Divisions of State.
- ◆ Further, 32 Forest Protection Squads have been constituted under this State CAMPA APO involving 320 numbers of local youths respectively for forest protection activities in different Territorial Divisions of the State.
- ◆ 37 Fire Protection Squads have been constituted under Centrally Sponsored Scheme involving 370 numbers of local youths respectively for forest fire protection activities in 37 Forest Divisions of the State.
- ◆ During the year 2021-22, under Forest Fire Prevention and Management - Centrally Sponsored Scheme, 6799 Km of forest Fire Line have been created for prevention of forest fire in different Forest Divisions of the State.

- 590 numbers of VHF stations and 880 numbers of Walkie-Talkies are in operation in the State for strengthening communication network to be used for monitoring protection activities.
- The details of year wise offence cases detected with timber and vehicles seized for the last 5 years are given below:

Year	Offence Cases Detected (In No.)	Offenders Involved (In No.)	Timber Seized Quantity (In Cum.)	Vehicles Seized (In No.)
2016-17	65228	51180	1915	1280
2017-18	66493	60353	7952	530
2018-19	83105	47130	5397	411
2019-20	59460	41310	3673	358
2020-21	55412	50740	6185	558

- 25 Forest Guards and 4 Foresters have been recruited to assist Odisha Special Striking Force engaged for protection of Berbera and Dhuanal forests.

## 5.2. Rewards to Informers and Forest Officials

- Rewards are being given to informers, staff, public etc in cash as per "Reward for Detection of Forest Offence Rules, 2004" to encourage them to cooperate in forest protection activities. During 2021-22, an amount of Rs.12, 93,058/- has been provided to different Divisional Forest Officers towards reward amount to the informers.

## 5.3. Online Timber Transit Permit System (OTTPS)

Online Timber Transit Permit System (OTTPS) has been developed to facilitate the applicants (citizen/institution) to apply for transit permit of tenant timber from private holding land online. An individual/ applicant will apply through the internet facility available Mobiles /Desktop/ Jana Seva Kendra in the website [www.tppermittodisha.in](http://www.tppermittodisha.in). Applicant can easily apply for timber transit permit from any place and track his application status at any point of time. The user Guidelines/ manual for applying application through online system in details is available at the 1st webpage of the said website. In order to implement a transformational Action Point of ST Governance, the timeline for issue of timber transit permit is fixed to 42days for disposal through Online Timber Transit Permit System (OTTPS) which was earlier 172 days. All the provisions such as joint verification, registration of Property Hammer Mark, submission of tree enumeration list, issuance of T.I Permit etc are streamlined through this online application system.

## 5.4. Forest Fire Prevention and Management

In Odisha the dry deciduous forests cover approximately 50% of the total forest area. These forests are very much vulnerable to natural disasters such as forest fires, drought, floods, cyclones etc. Out of all these, the dominant factor of hazard in the Forests is FOREST FIRE which occurs from the month of February to June of every year. Forest fire is a regular phenomenon



in summer season throughout the state wherein the temperature increases during leaf shedding periods of deciduous natural forests and plantations.



*Fire squad member*



*Members of Odisha Saheli Members of Bush Wildlife Range, Balasagar Forest Division*

The Standard Operating Procedure (SOP) on prevention of forest fire both in English and Odia version has been prepared and communicated to all field officials for its effective implementation to combat the incidences of forest fire strategically. An alert from Forest Survey of India (FSI) on forest fire incident is quickly disseminated through the State's own IT intervention to the field with geo-coordinates up to Forest Block level for necessary prompt follow up action for immediate control of forest fire.

Besides, fire lines are made regularly in the fire prone areas to prevent accidental spread of fire. Further, during the fire prone season, the fire fighting squads are made functional by engagement of the local villagers.

In addition, Control room has already been functioning 24x7 at Forest Headquarters besides the Divisional Headquarters and even one toll free number 1800-3457-158 has been given for transmitting information on forest fire incidence, protection matters, smuggling, man - animal conflict issues and other forestry issues. This mechanism facilitates dissemination of information to field units on forest fire & forest protection matters.

Further, in order to sensitize the local community and to ensure their active involvement in control / prevention / breaking of forest fire, a series of awareness creation meetings at village level are being organized. The local communities / forest fringe villagers are also being extended various incentives so to ensure their active support for this purpose. All these measures have improved the position with regard to prevention and control of forest fire incidents as is evident from the following table.

Year	No. of fire incidences	Forest area affected (in Ha.)
2018	31690	9730.06
2019	19787	7164.95
2020	11088	6070.25
2021	42031	28652.901



The State Government have received financial assistance from Government of India through Centrally Sponsored Scheme under Forest Fire Prevention & Management programme in 60:40 basis (i.e. 60% Central Share & 40% State Share). The details are given below:

Sl.No.	Year	Name of the Scheme	Funds allotted (Rs. in Lakh)
1	2017-18	FPM under CSS (60:40) basis	280.00
2	2018-19	FPM under CSS (60:40) basis	467.39
3	2018-19	TSP Component of FPM under CSS (60:40) basis	83.99
4	2018-19	SCSP Component of FPM under CSS (60:40) basis	124.61
5	2019-20	FPM under CSS (60:40) basis	661.36
6	2020-21	FPM under CSS (60:40) basis	866.59
7	2021-22	FPM under CSS (60:40) basis	754.81

Further, funds under CAMPA are also being provided for combating the forest fire.

## 5.5. Saw Mills

### 5.5.1. Current Position of Saw Mills

- Seven number of Saw Mills owned by ODFC Ltd are functioning in the State. The District/ Forest Division wise details are furnished below.

Sl.No.	Name of District	Name of Division	Name of Saw Mill
1	Cuttack	City Forest	Khapuria Saw Mill
2	Nawarangpur	Nawarangpur	Saw Mill at Nawarangapur
3	Koraput	Jeypore	Saw Mill at Umri
4	Malkangiri	Malkangiri	Maithili Saw Mill
5	Sambalpur	Sambalpur South	Remed Saw Mill
6	Ganjam	Berhampur	Saw Mill at Raghunathpur
7	Sundargarh	Rourkela	Orissa Saw Mill

- In accordance with Forest & Environment Department Notification no. 15644/ F&E dt.18.07.2018, a State Level Rehabilitation Committee has been constituted for establishment, relocation and functioning of saw mills in the identified Industrial Estates of the State as per the provisions contained in Odisha Saw Mills and Saw Pits (Control) Act, 1991 and the Odisha Saw Mills and Saw Pits (Control) Amendment Act, 2010.
- The Rehabilitation Committee has selected 210 Saw Mill for rehabilitation.
- The Industries Department has notified 38 Industrial Estates in 26 Revenue Districts for rehabilitation of eligible Saw Mills.
- Out of 210 numbers of Saw Mills selected for rehabilitation, 137 numbers of private Saw mills are running.

## AFFORESTATION & PROGRAMME EXPENDITURE SCHEMES

### 6.1. Afforestation Activities

Year wise Afforestation activities taken up under different schemes from 2010-11 to 2021-22 in the State are given below.

Year Wise Afforestation Activities taken up under different schemes							
Year	AR in ha	ANR with Gap-Pltn in ha	ANR without Gap-Pltn in ha	Total in ha	Avenue Pltn in RKM	Seedlings planted in lakh	Seedlings distributed in lakh
2010-11	70842	60084	102519	233445	241	1086.10	128.34
2011-12	22950	10291	148946	182187	769	358.92	195.92
2012-13	18603	20230	68454	107287	3107	321.66	211.92
2013-14	24966	38023	40296	103285	4506	467.53	304.14
2014-15	24600	60253	114038	198891	4755	692.17	550.00
2015-16	16576	39540	241975	357091	4607	487.98	460.96
2016-17	15322	127973	258121	401416	5838	497.75	376.57
2017-18	5776.17	20366.94	356221.26	382364.36	3234.50	166.86	145.14
2018-19	622.80	108747.28	133560.84	248531.92	3685.65	338.74	142.46
2019-20	13055.19	55303.12	21696	140056.31	3558	339.25	212.48
2020-21	12486.07	94837.10	0	107323.17	4164.70	392.47	465.77
(up to 31.12.21)	11046.61	97829.00	0	108875.61	4726.60	364.92	212.62

#### 6.1.1. Increasing Green Cover in the State

The scheme was introduced in 2013-14 by subsuming 11 continuing plan schemes. A provision of Rs.3060.94 lakh has been made for the year 2021-22 for taking up different afforestation activities. The components implemented under this scheme during 2021-22 are: Plantation of Medicinal Plants at Patrapada, Ekamravana at Bindusagar and maintenance of other major components of "IGC".

##### 6.1.1.1. Medicinal Plants Knowledge Centre, Patrapada

Development of a Medicinal Plants Knowledge Centre at Patrapada has been initiated during 2008-09 to enhance the knowledge about medicinal plant species. So far, 314 species have been planted in 314 specified plots separately bounded by contour bunds to create zero run-off. A demonstration area has been developed where all 314 plant species are displayed at a landscaped site. An eight seated battery operated vehicle has been kept for movement of visitors.





A sum of Rs.170.00 lakh has been provided for development and maintenance of rare medicinal species and bamboo Setum in the centre during 2021-22.

#### 4.1.1.2. Ekamra Van at Bindusagar

Ekamra van with a garden of medicinal plants at Bindusagar has been developed under the Ekamra Garden Society since 2009-10. The objective for establishing this garden is not only to set up a site of tranquility and harmony in an ambience of religious atmosphere but to create awareness on traditional herbal medicines among urbanites. It is an example of quality work by local stone carvers and stone masons drawing inspiration from the ancient structures.

Maintenance of Medicinal Garden, Nursery & publicity etc are being organized by displaying stalls, photo exhibition, herbal fair, flower show, arogya mela, telecast of documentary films for development of the heritage plantations, improvement and maintenance of Ekamra Van at west bank of Bindusagar in Bhubaneswar.



A total budget provision of Rs.50.00 lakh has been made for maintenance and further improvement of Ekamra van at Bindusagar in Bhubaneswar during the year 2021-22.

#### 4.1.1.3. Casuarina Plantation

Under this component only maintenance of 80 hectare of casuarina plantations raised during 2019-20 has been taken up during 2021-22. However, as per supplementary budget provision, a target of 100 ha has been made under this plantation scheme to be taken up during 2022-23. For this purpose, a sum of Rs.24.95 lakh has been allotted to the field functionaries during 2021-22 for raising 250000 seedlings.





#### 6.1.1.4. Artificial Regeneration (AR / Block Plantation)

The condition of growing stock in the forests of the State is being consistently improved through this scheme by raising block plantations (@ 1600 plants/ha) with economically important species such as teak, rosewood, sisso, mahogany, bija, sal, acacia mangium, gambhar, kasi, tandra etc. in the suitable pockets of designated and notified forest areas. Sites having well to moderate soil depth and adequate soil moisture regime coming under Plantation Working Circle, Teak Plantation Working Circle of the Working Plans and other suitable notified forest areas of the state are being treated under this scheme.

During 2021-22, no new creation has been made under this plantation scheme. But maintenance works for previous plantations were taken up during this financial year. However, as per supplementary budget provision, a target of 500 ha has been provisioned for taking up plantations during 2022-23. For this purpose, a sum of Rs.447.11 lakh for raising 18 months old seedlings of 880000 and Rs.154.14 lakh for pre-planting operations have been allotted to the field functionaries during 2021-22.



*Naipoda Ail plantation Keonjhar*

#### 6.1.1.5. Bald Hill Plantation

The State of Odisha is having scrub forests of 4,734 square kilometres, many of them are bald hills. Hence, the soil and moisture conservation measures and plantations are taken up after filling the pits with foreign soil.



The scheme was started during 2009-10 by adopting special plantation techniques for restoration of green cover of bald hills in the districts of Cuttack, Jajpur, Ganjam, Koraput, Kalahandi, Khordha, Sundergarh, Mayurbhanj, Nuapada, Subarnapur, Bolangir, Rayagada, Gajapati and Nayagarh.

In the current year, Rs.989.53 lakh have been provided for pre-planting operations with raising of 18 months old seedlings of 8.8 lakhs for taking up bald hill plantations over 500 ha during 2022-23.

#### 6.1.1.6. Assisted Natural Regeneration with Gap Plantation

During 2020-21, 3646 hectares of Assisted Natural Regeneration (ANR) with Gap Plantation @ 200 plants per hectare have been achieved. Only maintenance work has been carried out during 2021-22.



ANR Plot at Khordha VSS of A/C Range of Forest Division



ANR with Gap plantation at Sunder VSS of BP Range 2021-22, Keonjhar Forest Division

#### 6.1.1.7. Urban Plantation

This scheme was introduced during the year 2007-08 with an aim to create green pool in crowded urban areas. Initially the tall sapling plantation was taken up in and around Bhubaneswar City areas through OFDC Ltd, City Forest and Chandaka WL Division. From the year 2011-12 onwards almost all Urban Local Bodies through out the State were covered.





Only maintenance works were taken up in all urban and peri-urban areas of the state so as to provide shade for the traffic as well as the pedestrians and to reduce the impact of vehicle noise.

#### 6.1.1.8. Raising & maintenance of Seedlings for Plantation & Distribution during 2021-22

During this year, 169.35 lakh seedlings were raised under MGNREGS for distribution purposes.



Seedling distribution at Mongapur ISS of Chhatisa Range



Seedling distribution at Pakitanisahi ISS of Ghatsopa Range

#### 6.1.1.9. 3rd Party Evaluation of IGC

As per decision of the Mission Monitoring Committee under the Scheme "IGC", Internal Evaluation and Audit are being conducted from time to time by the Monitoring & Evaluation cell established in the office of the PCCF & HoFF, Odisha as well as by Audit Team of Accountant General, Odisha. During 2018-19, IIFM, Bhopal has been selected as third party to evaluate all plantations raised during the period from 2013-14 to 2016-17 under this scheme at the cost of Rs.76.00 lakh. The IIFM, Bhopal has already submitted the evaluation report.

#### 6.1.1.10. Contingency

An outlay of Rs.16,19,744/- has been provided for the year 2021-22 for contingency expenditure under the IGC Scheme.



### 6.1.2. Green Mahanadi Mission (GMM)

Mahanadi is a lifeline of Odisha & In order to enhance water availability and to improve livelihood, the river Mahanadi needs to be protected and conserved for ensuring its perennial flow for benefit of the people of the state. In view of this, a new scheme namely "Green Mahanadi Mission" was launched during 2018-19 with an aim to create a Green belt in 1 km width on both sides of the river Mahanadi, Tel & IB on all available and suitable Forest Land, Revenue Forest Land, DLC Area and Private Land through massive participation of peoples' representatives and all stake holders. In order to spread the awareness amongst people towards the aim of the mission, wide publicity has been created through different awareness programmes, Mahanadi Seva Yatra, Pada Yatra by the people's representatives, stakeholders and general public etc.



Plantation under GMM at Cuttak Forest Division



Plantation under GMM at Boudh Forest Division

Besides, three respective GMM committees have been constituted in the Block, District and State level for monitoring, reviewing the GMM activities undertaken by different line departments for successful implementation of the mission in the state. Preparatory activities of the mission like identification of villages, selection of plantation sites, nursery sites, identification of Mahanadi Sevaks, mass motivation were taken up during 2017-18 in 16 districts covering 1303 villages under the jurisdiction of 20 Forest and Wildlife Divisions. The scheme is being implemented with the funding sources under State Plan and MGNREGS. The scheme has been approved in the Expenditure Finance Committee (EFC) meeting from 2018-19 to 2022-23 and their maintenance up to 2025-26.

#### 6.1.2.1. Achievement during 2018-19

Rs.5948.34 lakh have been provided under the programme expenditure scheme "Green Mahanadi Mission (GMM)", Plantations over an area of 912.25 hectare of AR, 50 hectare of Casuarina, 40 hectare of Bald Hill, 4196 hectare ANR with Gap, 101 hectare of Bamboo, 562 RKM of Avenue Plantation with planting of 5.742 lakh saplings under the scheme of Urban Tree Plantation (UTP) and distribution of 10.80 lakh saplings have been successfully achieved under the mission during 2018-19.

**6.1.2.2. Achievement During 2019-20 (2nd phase)**

The scheme has been implemented with inclusion of 4 more rivers namely Brahmani, Baitarani, Rushikulya and Vanshadhara and left-over area of Mahanadi, Tel & IB at a total budget provision of Rs.5100 lakh. The component wise achievement is summarized below:



Plantation under GMM at Boudh Forest Division



Plantation under GMM at Cuttack Forest Division

Plantations over a total area of 1035 hectare AR, 75 hectare Casuarina, 203 hectare Bald Hill, 4203 hectare ANR with Gap, 171 hectare Bamboo, 116 RKM Avenue with planting of 33.94 seedlings including 2.31 lakh seedlings under Urban Tree Plantation and distribution of 49.76 lakh seedlings have been successfully achieved along with maintenance of previous year's plantations of 5299.55 hectare of different components under the mission.

**6.1.2.3. Achievement during 2020-21 & 2021-22**

Rs.3100.00 lakh have been provided under the programme expenditure scheme "Green Mahanadi Mission (GMM)". Plantations over an area of 190 hectare of AR, 60 hectare of Casuarina, 700 hectare ANR with Gap with planting of 0.165 lakh saplings under the scheme of Urban Tree Plantation (UTP) and distribution of 23.34 lakh saplings have been successfully achieved under the mission during 2020-21. Only maintenance work has been taken up during 2021-22.





### 6.1.3. Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)

The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) has been developed to reduce rural poverty through 100 days of guaranteed employment for each family per year. Using focus group methods, this scheme has been explored to provide rights' based social protection through guaranteed employment for Scheduled Castes, Scheduled Tribes and women in our State. The main objectives of this scheme are: (1) social protection (2) the creation of durable assets such as water security, afforestation activities, soil moisture conservation measures, land productivity etc. through the manual labourers. The components of this scheme implemented during 2021-22 are:

#### 6.1.3.1. Plantations under MGNREGS

During 2021-22, an area over 2185.25 hectare of AR Plantations, 22,855 hectare of ANR with Gap Plantations and 4557 RKM of Avenue Plantations have been achieved under MGNREGS by planting 92.08 lakh seedlings of different species. There is a proposal for taking up of 5000 hectare AR, 35000 hectare ANR with gap Plantation and 5000 RKM of Avenue plantation during the year 2022-23.



#### 6.1.3.1.1. Avenue Plantation

Avenue Plantation over 4557 RKM has been achieved by planting of 11.39 lakh seedlings.



Avenue plantation at Narasipada



Avenue plantation at Narasipada



#### 6.1.3.1.2. Maintenance of Permanent Nurseries

This scheme is introduced to ensure availability of quality planting materials (QPM) so as to supplement QPM requirement of the department, promote and increase tree cover outside forests and to create year-round employment opportunity for the local people. During 2022-23, 5 crore seedlings are proposed to be raised and maintained as buffer stock zone of plantation activities out of which 2.17 crore has been achieved.



*Balimela Central Nursery at Malkangiri*



*Jaring Central Nursery at Kalahandi South*

#### 6.1.3.1.3. Agro Forestry

Over 169.36 lakh seedlings have already been distributed to the beneficiaries at a cost of Rs.1/- per seedling. However, the seedlings have been distributed to Government Schools / Educational Institutions and other Public Organizations with free of cost. This has been implemented as per Govt of Odisha, Forest & Environment Department Letter No.1356 dated, and 18<sup>th</sup> January, 2017. For the year 2022-23, there is a proposal of raising and distribution of 3.00 crore seedlings.

#### 6.1.3.1.4. Increasing Tree cover outside Forest Areas (Distribution of Seedlings)

A total of 34.13 lakh of different species has been distributed at a cost of Rs.1/- per seedlings to the beneficiaries and with free of cost to Government Schools / Educational Institutions and other Public Organizations as per Govt of Odisha, F&E Department Letter No.1356 dated, 18th January, 2017.

**6.1.3.1.5. Year wise Afforestation Programme under MGNREGS**

The year wise afforestation programme taken up and the amount utilized under MGNREGS up to 2021-22 (up to 28.02.2022) is given below.

Year	Area afforested (in ha)	Avenue Plantation taken up (in RKM)	Water bodies created(in no.)	Amount utilized (Rs. in lakh)
2006-07	779	0	146	264.00
2007-08	2590	51	0	492.00
2008-09	233	14	0	842.00
2009-10	11219	112	0	1106.41
2010-11	9543	241	24	1849.69
2011-12	14021	746	26	2648.45
2012-13	15307	2477	32	3954.36
2013-14	38115	3506	6	8703.55
2014-15	198891	4755	108	30904.02
2015-16	28354	3340	0	9113.18
2016-17	17806	3714	0	8213.62
2017-18	14330	2477	0	7245.25
2018-19	15370	3114	0	8567.00
2019-20	7288	3280	0	9021.00
2020-21	28615	4061	0	25836.00
2021-22 (up to 28.02.2022)	25041	4557	0	29337.43

**6.1.4. Plantations through Odisha Mining Corporation Ltd. (OMC) under Corporate Social Responsibility (CSR)**

As per MoU signed between M/s. Odisha Mining Corporation Ltd represented through Managing Director and State Forest Department represented through Principal Chief Conservator of Forests, Odisha executed on 5th June, 2015, it was decided to undertake plantation of 10 lakh seedlings every year along with its maintenance under Corporate Social Responsibility (CSR) scheme in the mining affected districts of the State. The districts covered under this scheme are Keonjhar, Sundargarh, Angul, Jajpur, Kalahandi, Koraput, Rayagada and Cuttack.

During 2021-22, AR plantations over an area of 625 hectare by planting 10.00 lakh seedlings have been achieved and there is a target of 625 hectare AR Plantations for the year 2022-23.

**6.1.5. Plantations under District Mineral Fund (DMF)**

During 2021-22, 8.6 RKM of Avenue plantation and 2.54 lakh seedlings for distribution under Urban plantation have been achieved in the mineral bearing affected districts of the

State. The divisions covered under this scheme are Rourkela, Cuttack, Bansi, Sambalpur, Keonjhar, WL, Sundargarh, Angul, Keonjhar, Rayagada, Koraput, Dhansamal and Jharsuguda.

#### **6.1.6. Plantations under site specific conservation plan of CAMPA APO Wildlife**

During 2021-22, AR plantations over an area of 36 hectare, ANR over 90 hectare has been achieved by planting 8.76 lakh seedlings. There is a proposal of plantation of 98 ha AR and 925 ANR with Gap Plantation during the year 2022-23.

#### **6.1.7. Fodder Plantations under Wildlife & Central Plan Scheme**

During 2021-22, AR plantations over an area of 135 hectare, fruit bearing & fodder species by planting 2.16 lakh seedlings have been taken up under the scheme. There is a proposal of 60 hectare AR and 2760 ANR with Gap Plantation during 2022-23.

#### **6.1.8. Plantations under OFSDP-II**

During 2021-22, AR plantation over an area of 2873 hectare, ANR with gap plantation over 15972 hectare by planting 86.02 lakh seedlings have been achieved under the project. There is a target of afforestation over 293 hectare AR and 832 hectare ANR with gap plantations during the year 2022-23.

#### **6.1.9. Plantation under Ama Jungle Yojana (AJY)**

ANR plantations over an area of 18325 hectare have been achieved by planting 35.55 lakh seedlings. There is a proposal of ANR with gap Plantation over 25,000 hectare during 2022-23.

#### **6.1.10. Plantations under State CAMPA**

During 2021-22, AR plantations over an area of 1526 hectare, ANR with gap plantations over 35273 hectare, Bamboo plantations over 1370 hectare, Bald Hill plantations over 1326 hectare, Compensatory Afforestation for AR plantation, ANR with gap and Bald Hill plantations over 182 hectare, 3397 hectare and 345 hectare respectively with planting of 16.17 lakh seedlings have been achieved under the State CAMPA. During 2022-23, there is a target for taking up of 4324 hectare AR & 52087 hectare ANR with gap plantation.

#### **6.1.11. State Forest Development Agency (SFDA) for Implementation of Centrally Sponsored Schemes**

As per the Revised Operational Guidelines issued during 2009 by National Afforestation and Eco-development Board (NAEB), the State Forest Development Agency, Odisha was constituted on 17.06.2010 under the Societies Registration Act, 1860 with PCCF, Odisha as the Chairperson and CCF (PP&A) as the Member Secretary and Chief Executive. The aim of the constitution of this state level agency is to implement the centrally sponsored schemes in the participatory mode by a three-tier set-up, namely State Forest Development Agency (SFDA) at the State level, Forest Development Agencies (FDAs) at the forest division level, and Joint Forest Management Committees (JFMCs) or Eco-development Committees (EDCs) at the village level. The SFDA is the federation of 45 FDA divisions of the state. The Chairpersons and Member-Secretaries of all FDAs of the State are members of SFDA, Odisha. No FDA has been formed in Chilika (WL), Sunabeda (WL), Mahanael (WL), and STR (Bariapada) divisions.





In the current year, an amount of Rs.1294.37 lakh has been sanctioned for taking up maintenance of over 13776 hectare area of last three years' plantations.

#### 6.1.11.2. National Mission for Green India (GIM)

National Mission for Green India (GIM) is one of the eight Missions under the National Action Plan on Climate Change (NAPCC). The Broad objectives of the scheme are:

- to increase forest/tree cover to the extent of 5 million ha and improve the quality of another 5 million ha of forest / non-forestlands,
- to enhance carbon sequestration through increase of forest/tree cover along with provisioning services like fuel, fodder, timber & non-timber forest products and
- to increase the forest-based livelihood income level of 3 million households.

The scheme is being implemented on funding share of 60:40 between centre and state since 2015-16.

As per the approved project of five years from 2015-16-2019-20, plantations over 2177.72 ha (including distribution of seedlings) have been taken up with providing alternative fuel energy to 2500 households in five identified landscapes covering 50 VSSs under five divisions. Under the 2<sup>nd</sup> project of five years started in 2018-19, plantations over 5537 hectare have been achieved with providing alternative fuel energy to 1200 households in the same five identified landscapes covering 81 VSSs. The third project which has been started during 2019-20, plantations over 4670.75 hectare have been achieved under different components and alternate fuel energy devices have been distributed to 2600 households in the selected landscapes covering 129 VSSs of fifteen divisions of the state.

Creation of 1449.60 hectare with 1st year maintenance over 4620.75 hectares and 2<sup>nd</sup> year maintenance of 5537 hectares plantations have been taken up in the previously selected landscapes of fifteen divisions of the state under APD 2021-22. The sanctioned outlay for APD 2021-22 is Rs.2199.00 lakh for implementation of the scheme.





Plantation under GWM at Dhankotal Forest Division

#### 6.1.12. Odisha Bamboo Development Agency (OBDA) – National Bamboo Mission (NBM) - CSS

Odisha Bamboo Development Agency (OBDA) has been constituted during 2006-07 to promote the bamboo sector through implementation of a centrally sponsored scheme namely National bamboo Mission (NBM) in the State with a special focus on:

- increasing the coverage area with suitable species
- promotion for marketing of bamboo-based handicrafts
- capacity building of bamboo farmers and artisans
- promoting sustainable livelihood for tribal and minority groups or rural poor with special emphasis on women empowerment

The scheme has been restructured in 2018-19 with fund sharing pattern of 60:40 ratio between Centre and State. The major work components of the scheme are:

- (i) Establishment of nurseries
- (ii) Bamboo plantation in farmer's land
- (iii) Promotion of bamboo treatment and preservation units
- (iv) Market infrastructure
- (v) Skill Development Training programme
- (vi) Research development

##### 6.1.12.1. Achievement so far

- ◆ Establishment of 16 numbers of Bamboo Nurseries through out the state of Odisha including 3 Hi-tech nurseries, 6 big nurseries, 6 small nurseries and one big nursery under Private Sector,
- ◆ 955 hectare of Bamboo plantations in farmer's land during the last 3 years.



Year	Target (in ha)	Achievement (in ha)	No of Farmers
2019-20	293	53	97
2020-21	300	406	788
2021-22	500	496	649
<b>Total</b>	<b>1093</b>	<b>955</b>	<b>1534</b>

- ◆ 14 numbers of Farmers training programmes organized at district level wherein 690 numbers of farmers participated,
- ◆ One artisan training programme organized at district level to train 37 number of beneficiaries,
- ◆ 4 Workshops organized at Circle level with participation of 418 participants,
- ◆ Establishment of Bamboo Bazaar at Telligali of Subarnapur division,
- ◆ Establishment of Demonstration plot at Silviculture Garden, Bhubaneswar & Rayagada,
- ◆ Participation in one Domestic Trade Fair during March 2021 at Bhubaneswar organized by the MSME Department and
- ◆ Establishment of 4 numbers of Farmer Producer Organizations (FPOs) at Betamal, Udala, Khunta & Kaptipada block of Mayurbhanj District to promote propagation and cultivation of bamboo taken up by NAFED, Bhubaneswar.

#### 6.1.12.2. Target for 2022-23

For the year 2022-23 a target of 600 hectares of Bamboo Plantations in Farmers land has been carried out by the divisions for which 2.76 lakhs of bamboo seedlings will be raised.

The various sub components such as (i) Establishment of Bamboo treatment and seasoning plants, (ii) Establishment of processing units for value addition of bamboo, handicrafts/ cottage industries, furniture making units, fabrics/ jewellery making units, incense stick making machine, (iii) Common Facility Centre, (iv) Rural Haat and Bamboo Bazaar etc. are to be taken up by the Directorate, Handicraft and Cottage Industry (DHCI) under the Department of Handlooms, Textiles and Handicrafts, Govt. of Odisha for which funds have been made available to them.





Bamboo Nursery of Mahanadi Forest Division

### 6.1.13. Forest Fire Prevention and Management (FPM)

The scheme is being implemented with a fund sharing pattern of 50:40 between centre and state. The broad objectives of the scheme are to minimize forest fire incidence with optimal use of modern technology such as Remote sensing, GPS, GIS etc and assist in restoring productivity of forests in affected areas and institutionalize the partnership with forest fringe communities for forest protection for achieving the larger goal of maintaining environmental stability.



The components of the scheme include creation of fire line, maintenance of fire line, construction of watch towers, engagement of fire watches, assistance to Joint Forest Management Committees, construction of water storage structure, setting up of fire fighting cells, procurement of firefighting equipment, fire mapping & preparation of fire management plan, training & awareness control & management, strengthening infrastructure for forest protection, Working Plan preparation/survey and demarcation. During 2021-22, a total outlay of Rs.603.85 lakh has been received for taking up above activities.

## 6.2. Programme Expenditure Schemes:

### 6.2.1. Intensive Protection of Critically Endangered Areas

The scheme was introduced in the State Plan Budget during 2008-09 with an aim to strengthen the protection measures of forests against organized mafias & timber smugglers and illicit removal of timbers and other forest produce.



Critically vulnerable belts of forests have been identified in 37 Forest Divisions where forest protection measures have been beefed up with the deployment of a squad in each belt. A vulnerable forest belt normally comprises of 3 contiguous beats for detecting organized gangs of forest offenders / timber mafias / poachers. Each squad consists of 10 local youth engaged on daily wage basis and stationed at strategic locations of each vulnerable belt throughout the year for effective protection work. These squads not only carry out regular patrolling and monitoring the identified forest belts for surveillance on potential offenders operating in the area, but also act as a striking force to aid in search, seizure & raid operations. During the year 2021-22, an amount of Rs.500.00 lakh has been provided for engaging 50 squads in 37 territorial forest divisions of the state.

### 6.2.2. Training Programme

An outlay of Rs.249.60 lakh has been provided during the year 2021-22 for taking up the following activities under the Programme Expenditure Scheme "Training Programme".

#### 6.2.2.1. Human Resources Development Programme

The Forest staff need to be oriented and trained both in technology and forest extension aspects. Imparting training to initial recruits is very vital. To augment the efficiency & skill of forest personnel, updating their knowledge on emerging and new topics on all aspects of forestry, forest management and forest research is essential. Presently, there are 4 Training Institutes i.e. Social Forestry Training Institute,

Bhubaneswar, Odisha Forest Ranger's College, Angul, Nicholson Forest Training School, Champua and Forester Training School, G. Udayagiri where training programmes are being conducted regularly. During the current year, various training programmes have been carried out in these institutes. The infrastructure of the forest training institutes of the state needs to be further developed so as to make them well equipped for conducting training programmes smoothly. The Department also organizes Annual Forest Sports Meet for forest personnel at zonal & state level and select the best one for participation at National Level.

#### 6.2.2.2. Policy Analysis & Strategic Planning Unit (PASPU)

The Policy Analysis & Strategic Planning Unit (PASPU) has been established with an aim to serve as a nodal point of convergence of programmes as per the National Forest Policy/ Vision Document of different sectors impacting forests & related livelihood activities, and to undertake publicity works like broadcasting of the weekly radio programme "BANANI" & other activities like revision of Forest Department Code etc.

### 6.2.3. Forest Research

Silviculture research on tree improvement, nursery and plantation techniques and plant ecological studies is an integral part of forestry and deserves top priority in the Forest Conservation & Development agenda. The scheme supports special research programmes based on the following themes-

- i) Tree breeding /improvement activities of commercially important trees and important indigenous species including NTFPs,



- ii) Standardization of nursery & establishment techniques of medicinal plants and NTFP species,
- iii) Sustainable harvest techniques for NTFPs and medicinal plants,
- iv) Propagation of improved varieties of Bamboo and Cones,
- v) Development of agro-forestry models in different agro-climatic zones,
- vi) Applications of bio-fertilizer and
- vii) Development of seed production areas for major species.

The aim is to conduct Silviculture research on tree improvement, nursery and plantation techniques and plant ecological studies as per approved quinquennial Research Programme. A total outlay of Rs.35.00 lakh has been provisioned during 2021-22.

#### **6.2.4. Construction of Buildings**

This scheme was introduced in the State Plan Budget during 2008-09 to provide accommodation facilities to Divisional Forest Officers, Assistant Conservator of Forests & Ministerial Staff working in the division/regional offices. During 2021-22, the budget provision of 300 lakh has been made for construction of one ACF residence, 13 ministerial staff quarters, 5 Class-IV staff quarters, new building for Balangir Forest Division, 1<sup>st</sup> floor of office building of RCCF Sambalpur, renovation of entrance & exit gate of Aranya Bhawan, office of PCCF & Hoff, Odisha, renovation of ground floor of Aranya Bhawan and renovation of transit house located inside the premises of Khandagiri Research Garden.

#### **6.2.5. Survey & Utilization of Forest Resources**

##### **6.2.5.1. Survey and Investigation Expenses**

Forest Resource Inventories (sampling, enumeration), compilation of reports, procurement of maps and Survey Instruments have been prepared under this scheme with a total outlay of Rs. 1.20 lakh during 2021-22.

##### **6.2.5.2. Working Plan**

Enumeration, stockmapping, estimation of growing stock, checking of boundary, procurement of maps and Survey of India toposheets, data entry in computer and taking print outs have been prepared under this scheme. The total out lay of Rs.200.00 lakh has been provisioned in Annual Plan 2021-22 for taking up the works.

#### **6.2.6. Forest Conservation, Development and Regeneration**

##### **6.2.6.1. Working Plan**

The main objective of the scheme is to carry out all working plan prescriptions & reparation of Working Plans. An out lay of Rs.400 lakh has been provisioned for Annual Plan 2021-22 for taking up the works.

##### **6.2.6.2. Forest Consolidation**

The components like demarcation and survey of new forest blocks, clearance of boundary of proposed forest blocks, repair of boundary pillars etc have been implemented with a total outlay of Rs.15.00 lakh during 2021-22.

### 6.2.6.3. Regeneration

Activities like cutting of high stumps, climber cutting, thinning in congested crop and gap planting of economic species have been taken up under this scheme to facilitate regeneration during 2020-21 with a total outlay of Rs.13.20 lakh during 2021-22.

### 6.2.6.4. Sowing and Planting

Activities like production of QPM non-teak stumps, maintenance of (i) QPM non-teak stumps; (ii) 18 months old seedlings & (iii) root-trainer seedlings and seed collection have been taken up under this scheme with a total budget provision of Rs.33.01 lakh during the current year 2021-22.

### 6.2.6.5. Protection from Fire

A Fire Control Room at the State Forest Headquarters has been established & made fully functional for 24x7 hours under this scheme to monitor the forest fire incidences in the State. An outlay of Rs.12.00 lakh has been provisioned in the State Annual Plan 2021-22 under this component.

### 6.2.7. Drift & Waif wood and Confiscated Forest Produce

This scheme includes components like salvaging of drift & waif wood collection of A1 timber and transportation of seized timber of UD & OR cases with a total outlay of Rs.32.00 lakh during 2021-22.

### 6.2.8. Forest Produce Sold to Consumer and Purchasers

Salvaging of naturally fallen trees like cyclone damaged as well as seized timber of Undetected (UD) and Offence Recorded (OR) cases are undertaken under this scheme. The total outlay of Rs.59 lakh has been provided for 2021-22 to implement the scheme.

### 6.2.9. Departmental Working of Forest Coupes and Depots

#### 6.2.9.1. Departmental Working of Timber

The components of this scheme include demarcation and marking of timber coupes, departmental working of Car Timber etc. The total budget provision of Rs.180.00 lakh has been provided for 2021-22 works.

#### 6.2.9.2. Departmental Working of Bamboo

Silviculture operations in bamboo coupes, cutting of broken, dead & dying clumps, thinning of congested clumps, thinning and putting earth around the clump, clearing and burning the debris, making half-moon trenches for water conservation structure at uphill side of clumps have been taken up during 2021-22 with a total outlay of Rs.20.00 lakh.

### 6.2.10. Information, Education and Communication

The Forest Department activity based programmes titled as "BANADARSHAN" in Odia Darshan Odia are telecasted. The total outlay of Rs.312.00 lakh has been provided for 2021-22 programme.

#### **6.2.11. Relocation of Villages from Reserve Forests and Sanctuaries**

This scheme has been introduced under Programme Expenditure in 2018-19. Villagers inhabiting in core area or buffer area of Protected Areas are trans-located to suitable places outside the PA and given compensation and other facilities as per the extant rules and guidelines issued by State Government.

During the year 2021-22, relocation of Pitanau village from Hadgad Wildlife Sanctuary of Keonjhar WL division and of 3 habitations (named as Bhtuli, Rengali and Kurumkel in Ambabhona Tahasil of Bargarh district) from Debrigarh Wildlife Sanctuary of Hiakud WL division has been carried out under the budget provision of Rs.312.00 lakh.



## JOINT FOREST MANAGEMENT PROGRAMME

### 7.1. Implementation of Joint Forest Management Programme

In realizing the need for community participation in forest protection, the Govt. of Odisha was the pioneer to adopt a policy of IFM in August 1988, even before implementation of National Forest Policy, 1988 (w.e.f. 2.10.1988) in the country and initiated a step to involve the people in protection of forests adjoining their villages with assigning specific roles and in return granting certain concessions (under section 24 of the Odisha Forest Act 1972) for meeting their bonafide requirement of firewood and small timbers through Resolution No. 10F (Pron)-4788/7240 FFAH dated 1st August 1988 and sought community participation for protection, regeneration and management of the forest wealth widening the scope of employment generation and social empowerment of the forest-fringe dwellers.

With the changing scenario of Forest Management, increasing awareness among people and experiences gained from the past management practices, such resolution on IFM, was revised and amended periodically latest on 2011, 2015 and 2019 respectively in adding several points, like inclusion of villages located within the National Park/ Sanctuaries as well as adjacent to the same for protection and management of the wildlife and habitat and covering the Reserve Forests and Protected forests, Village forests and Revenue forests having crown density of less than 40% under JFM, role of Pali Sabha and composition of members of Executive Body of Vana Surakhya Samiti, constitution of a "Range level VSS and EDC Forum" for having better interaction between the Range Officers and VSS Members etc.

#### 7.1.1. Progress on Constitution of VSS/EDC in the state

- As per Government direction for implementation of one of the Transformational Action Points under ST Governance, the 3rd Party Evaluation of Functioning of Vana Surakhya Samities (VSS) for understanding of effectiveness of the Joint Forest Management (JFM) activities has been done by the organization named as AFC India Ltd. New Delhi. The report has also been submitted by them.



Gram Sabha for Rehabilitation of Three Habitation i.e. Ghatal, Baspali & Kumbhal



Community Mobilization Meeting before Rehabilitation of Gantapali Forest Village

- A total of 13,68,541.01 Square Kilometer of Forests have been brought under Joint Forest Management through 15,996 Vana Surakshya Samities (VSSs) for protection under usufruct sharing mechanism. Besides, 590 Eco Development Committees (EDC) have been formed till September 2021 within and outside protected areas for protection of the Sanctuaries and National Parks.

JFMCs Formed (In No.)		Families Involved (No. in lakh)	Forest area assigned to VSS (Sq. Km.)	RF (Sq. Km.)	PRF/DPF (Sq. Km.)	Other Forest (Sq. Km.)
VSS/EDC	15,996/590	18.83	13,685.41	7443.49	3700.77	2541.70

### 7.1.2. Implementation of JFM under different schemes/projects

Different projects and schemes named as National Afforestation Programme (NAP), Green India Mission (GIM), Odisha Forest Sector Development Project-I & Project II (OFSDP) and Ama Jungal Yojana (AJY) are also being implemented in the state under Joint Forest Management mode.



G.E. Meeting at Sinduria VSO of Talcher Range, Keonjhar Division



NAME OF THE DISTRICT: ANANDPUR DISTRICT  
 NAME OF THE RANGE: SINDURIA RANGE  
 NAME OF THE VSO: SINDURIA VSO  
 NAME OF THE FORESTER: SINDURIA FORESTER



## WILDLIFE MANAGEMENT

### 8.1. Wildlife Organization

Odisha has registered constant increase in green cover as per the Reports published by Forest Survey of India (FSI). This increase of green cover on the face of development is pretty challenging and needs well planned concerted and sustained efforts to reduce degradation of natural habitats and loss of bio-diversity. Special habitat improvement measures and relocation of villages from the core and buffer zones of Protected Areas are executed to mitigate the negative effects of development on wildlife habitats. Efforts in the field of in-situ conservation measures by increasing the Protected Area network are and ex-situ conservation measures through establishment and management of zoos, rescue centres and breeding programmes are required to prevent extinction / depletion in the numbers of threatened species.

### 8.2. Activities of Wildlife Organization

The main activities of the Wildlife Organization are related to protection, conservation and management of wildlife and its habitat within and outside the protected areas of the state. The total protected area (i.e. 8351.31 Square kilometres) in the state constitutes 10.37% of the total forest area and 5.36% of the total geographical area. There are 19 Sanctuaries, one National Park (Bhitarkanika), 2 Tiger Reserves (Similipal & Saktasia), 3 Elephant Reserves (Mayurbhanj, Mahanadi and Sambalpur), one Biosphere Reserve (Similipal) and 14 identified elephant corridors with one proposed National Park (Similipal) and two proposed Tiger Reserve (Sunabeda) in the State for in-situ conservation of wildlife. In addition, ex-situ conservation programme are also taken up in Zoological Parks. The state has one large zoo (Nandankanan), 3 small zoos and 6 mini zoos. All activities for conservation of the sanctuaries are carried out as prescribed in the Wild life Management Plan which is prepared for 10 years and approved by Principal CCF. Similarly, all Zoo activities are taken up as per the Zoo Management Plan approved by the Central Zoo Authority of Government of India.

Odisha has total shore line of 480 kilometer which is very rich and houses preferred habitats of marine and estuarine flora and fauna. The State has the singular distinction of





having three stretches of mass nesting beaches of endangered Olive Ridley Sea turtles including the world's largest breeding ground of Olive Ridley Sea turtle, *Lepidochelys olivacea* at Gahirmatha, Rushikulya and Devi rookeries.

Odisha coast experiences a rich bio-diversity of dolphins and as of now four species of dolphins have been recorded. Many endangered and endemic species are also seen in these areas. Apart from that the shores of Odisha attract massive migratory bird population which serves as their wintering grounds prominent of which are Chilika (the largest wetland of Asia) and Bhitarkanika with "Ramsar Sites". There are five Eco-sensitive Zones namely Kapilash, Chandaka-Dampara, Konark-Balukhand, Bhitarkanika and Gahirmatha Marine sanctuary.

It is imperative to protect and conserve marine eco-systems and habitats by extending legal sanctity for designating them as inviolate zones in order to ensure conservation and proliferation of marine flora and fauna.



Besides, there are 4 crocodilian research and conservation centres in the state, viz for Gharial in Tikarpada /Satkosia, Saltwater crocodile in Dangmal /Bhitarkanika, Mugger in Romtirtha/ Simlipal and captive breeding programme of all three Indian crocodilian species in Nandankanan respectively.

There is a Community Reserve [proposed] for Black buck habitats at Balipadar-Bhetnoi of Ganjam district.



Various activities like creation and maintenance of water body, plantation of wildlife forage species, different measures for soil and moisture conservation, firefighting, maintenance of boundary of Protected Area, meadow development, invasive weed eradication and immunization of cattle of forest fringe villages are included in Annual Plan Operations of CAMPA and accordingly, fund allocation is being made to implement these programmes for restoration and improvement of wildlife habitats.

Voluntary relocation of villages from critical protected areas is an important step for conserving flagship species like tigers which require vast inviolate habitats. It not only makes the protected area inviolate but also enable the villagers to access the various development schemes of the state. Voluntary Relocation of villagers from the Protected Area / Tiger Reserve / other forest areas to outside these areas is done as per policy framed by NTCA & State Government. Till 2022, 15 villages 843 families have been relocated outside the Tiger Reserve/ Protected Area.

As on 31.12.2021, about 590 numbers of Eco Development Committees (EDC) have been formed covering an area of 43455.32 ha of protected area and thus people's participation plays a major role in conservation of wildlife. The State has enhanced compassionate amount to Rs.4.00 lakh from Rs.3.00 lakh towards human kill. A crime cell has been constituted in the office of the Principal CCF (Wildlife) & CW/CW, Odisha as well as in the office of the Special Director General of Police, CID-Crime, Odisha for proper and timely investigation of the wild animal poaching cases. Dossier of habitual offenders are being maintained and circulated to the field from time to time to keep close vigil on their activities. A new software module has been developed for monitoring the mortality of Olive ridley sea turtles on daily basis and is now operational in all the 6 coastal Divisions of the State. Control Room, Elephant Monitoring App, Anukampa App, Site Specific Plan through App are developed to facilitate monitoring of different wildlife related activities.









### 8.3. Management Interventions taken up for Wildlife Conservation

Accelerated developmental activities added with promotional aspects of industries and ever-increasing anthropogenic pressure has created a challenge for protection of wildlife and its habitats. As a result, human and wild animals' confrontations are taking place quite often. In order to minimize man-animal conflict and to protect the life and properties of human beings as well as wildlife, the wildlife organization has initiated a number of steps during 2020-21 and 2021-22 which are given below:

Steps taken	2020-21	2021-22
Mangrove plantation (area in hectare)	108	148
Meadow development (area in hectare)	155.18	152
Deployment of Anti-poaching/Protection squad (in number)	281	290
Engagement of Elephant Trackers (in number)	25	25
Deployment of Elephant Squad (in number)	128	128
Deployment of Firefighting squad (in number)	72	76
Protection of marine turtle and marine fauna in 5 Divisions (in number)	5 off-shore 61 on-shore camps	5 off-shore 61 on-shore camps
Creation of water body (in number)	42	35
Renovation of water body (in number)	61	47
Trench fencing (in Kilometer)	3	1
Engagement of Gajabandhu through VSS / EDC (in number)	122	
Provision of Solar Street light (in number)	250	366
Maintenance of Forest Road (in Kilometer)	129	163
Construction of Watch Tower (in number)	2	13
Construction of Check Dam	5	7
Engagement of Gaja satthi (in number)		557

### 8.4. Census of Blackbucks in Odisha

The population estimation exercise for Blackbuck (*Antelope Cervicapra*) for the year 2021 has been conducted in the State on 28.02.2021. Census was conducted in Ghumsur South Forest Division (Aska, Polosara, and Buguda Ranges), Berhampur Forest Division (Khallikote, Digapahandi and Berhampur Ranges), Ghumsur North Forest Division (Jagannath Prasad Range). The method of census adopted was individual total count of animals by direct sighting. The animals sighted were categorized in to males, females and young ones.



The Division wise details of Blackbuck estimated population is given below:

Sl.No.	Name of the Division	No. of Blackbucks during the current year 2021 census			
		Male	Female	Young	Total
1	Ghumsur South	1220	2471	792	4483
2	Ghumsur North	63	201	37	301
3	Berhampur	429	1524	621	2574
	<b>Grand Total</b>	<b>1712</b>	<b>4196</b>	<b>1450</b>	<b>7358</b>

### 8.5. Dolphins and other cetaceans in Odisha

The Dolphins and other cetaceans were found in coastal of Odisha. The Irrawaddy dolphin (*Orcella brevirostris*) is found mainly in Chilika lagoon. Census of Irrawaddy dolphin is carried out regularly in the Chilika lagoon since the year 2003 but during the year 2015 first time the census of Dolphins and other cetaceans species were conducted in entire coast of Odisha by the six coastal Divisions and in Similipal by Field Director, Similipal Tiger Reserve, Baripada. During the current year 2021 census, a total of 544 nos. of Dolphin and other Cetacean species were found in Odisha.



The Division wise detail estimated Dolphin population is given below:

Sl.No.	Name of the Division	Species and Number of Dolphins			Total
		Irrawaddy Dolphin	Bottle-nose Dolphin	Humpback Dolphin	
1	Chilika Wildlife	162	26	0	188
2	Mangrove (WL) Rajnagar	39	22	281	342
3	Puri (WL)	0	4	0	4
4	Berhampur	0	0	0	0
5	Bhadrak (WL)	8	0	0	8
6	Balasore (WL)	0	2	0	2
	<b>Total</b>	<b>209</b>	<b>54</b>	<b>281</b>	<b>544</b>

### 8.6. Olive Ridley Sea turtles in Odisha

Olive Ridley turtle is one of the 8 species of sea turtles, which are very ancient creatures. This species is critically endangered. All five species of sea turtles found in the sea along the Indian coast are listed in Scheduled-I of the Wildlife (Protection) Act.

More than 50 percent of the world population of Olive Ridley turtles is found in the Odisha coast. They are migratory species and there is a convention on migratory species to which India is a signatory. International Treaty obligations and our own law mandate protection of the Olive Ridley turtles.

The Olive Ridley turtle congregations start building up in the coastal sea from middle of October each year at 3 places off the Odisha coast. These are Dhamara-Maipura river mouth area near Gahirmatha coast, Devi-Kadua river mouth area and Rushikulya river mouth area.

During the season 2020-21 mass nesting of Olive Ridley sea turtles have been taken place only at Gahirmatha Marine Sanctuary during the period from 10th to 24th March, 2021, which period a total of 3.50 lakhs turtles emerged to lay eggs and at Rushikulya there was no mass nesting occurred during the 2020-21 season. Besides, there are sporadic nesting all along the Odisha Coast.







## 8.7. Wildlife Census

### 8.7.1. Mid-winter waterfowl census in Odisha during 2021

Mid-winter waterfowl / water bird status survey 2021 was conducted in the wetlands and water bodies all over Odisha by all Divisional Forest Officers of Odisha under supervision of Odisha State Wildlife Organization.

The waterfowl census report of major three water bodies of Odisha is given below:

Sl.No.	Name of the Wetland / Water Body	No. of Species	Number of Waterfowls
1	Chilika Lagoon	190	12.43 lakh
2	Bhitarkanika Mangrove Wetland	121	01.36 lakh
3	Hirakud Reservoir	41	01.03 lakh





### 8.7.2. Census of three Crocodylian species in Odisha during 2021

#### 8.7.2.1. Saltwater Crocodile

Annual census of Saltwater crocodiles was conducted in the river systems, in and outside the Bhitarkanika Wildlife Sanctuary under Mangrove Forest Division (Wildlife), Rajnagar and river systems under Bhadrak Wildlife Division to assess their population number and trend, migration, survival, etc.

A total of 1830 saltwater crocodiles were counted in the river systems coming under the jurisdictions of both Rajnagar and Bhadrak Wildlife Divisions during the current season 2021. The size wise saltwater crocodile population is given below:

Census year	Hatchling	Yearling	Juvenile	Sub-adult	Adult	Total
	< 2'	2'-3'	3'-6'	6'-8'	8'-20'	>
2021	618	367	321	157	367	1830





## 8.7.2.2. Mugger and Gharial Crocodile

**Gharial and Mugger Census in Mahanadi River Systems during 2021**

The annual census of Gharial and Mugger Crocodiles in Mahanadi river systems was conducted by Satkosia Wildlife Division jointly with Mahanadi (Wildlife) and Athamalik Divisions. The method of census adopted to count both the crocodilian species (Gharial & Mugger) was by direct sighting and track marks. The river route / area were suitably divided into seven census units and each unit was entrusted to a census party. The census results are as follows:

Location	Gharial	Mugger
Mahanadi river System	5	47
Water bodies in Satkosia Wildlife Division	6	35
Water bodies in Athamalik Forest Division	0	5
Waterbodies in Mahanadi Wildlife Division	0	8
<b>Total</b>	<b>11</b>	<b>95</b>





### Mugger Census in the River Systems of Similipal Tiger Reserve during 2021

The census of mugger crocodile was conducted in the river systems of Similipal by the Field Director, STR-cum-RCCF, Baripada and the Divisional Forest Officers of Karanjia and Baripada Forest Division. The method of census adopted to count the Mugger crocodile population (number) was individual total count by direct day time sighting of animals. The census results are as follows:

Location	No. of Mugger crocodile sighted during 2021
West Deo River	63
East Deo River	4
Khairi / Bhandan River	7
Budhabalanga River	2
Khadkei River	3
Palpala River/Thakthaki River	1
<b>Total</b>	<b>80</b>

### Mugger Census in Ghodahada Reservoir

The mugger crocodile census was conducted in and around Ghodahada reservoir by the Divisional Forest Officer, Berhampur Division. The entire reservoir was divided into 20 segments and each segment was headed by forest staff with boat man for the crocodile census programme. The census work was done as per the direct sighting method at day time. The census figures are as follows:

Location	No. of Mugger crocodile sighted during 2020
Ghodahada reservoir	53
Outside Ghodahada reservoir	19
<b>Total</b>	<b>72</b>

### Abstract of Mugger and Gharial census Mugger crocodile

Location	No. of mugger sighted during 2021	No. of Gharial sighted during 2021
Satkosia	95	11
Similipal	80	-
Ghodahada	72	-
<b>Total</b>	<b>247</b>	<b>11</b>

## 8.8. Nandankanan Zoological Park

Nandankanan Zoological Park is one of the premier large Zoos of India located amidst beautiful natural surroundings and spreads over an area of 3.62 square kilometre. The Zoological Park was dedicated to public on 29 thDecember, 1960. The undulating topography with natural moist deciduous forest, water bodies and enchanting landscape provides the zoo inhabitants an appropriate ambience to live in harmony with nature.

The Mission of the Park is to achieve the distinction of an outstanding zoo through World Class Conservation, Education, Research and Exciting Visitor Experiences by connecting people to biodiversity conservation.

### Visitors

Total 10,61,811 visitors had their footfall at Nandankanan during the year 2021-2022 (From 01st April 2021 to 31st January, 2022). Zoo remained closed due to Covid-19 pandemic from 30th April 2021 to 03rd August, 2021.

### Revenue

An amount of Rs. 4,90,83,566/- has been generated during the year 2021-22 (From 01st April 2021 to 31st January, 2022) towards revenue from entry ticket and other facility.

### 8.8.1. New Facilities

#### 8.8.1.1. Multi-Level Car Parking

The Multi-Level Car Parking (MLCP) building has a three storied parking facility with a built-up area of 5600 M2 each and a capacity to accommodate parking for 583 (141+145+152) cars. The estimated cost of the facility is Rs. 3542.79 Lakhs. The project work is being executed by R&B Division-III, Bhubaneswar from the budget provision made under PE "2216-Development and Beautification of Nandankanan Zoological Park". Fire safety measures including sprinkling system is provided throughout the parking area. A pond near to the MLCP has been renovated and being developed as lily pool to have different varieties and colours of lily round the year. Diver rest rooms, drinking water and snacks kiosks, CCTV monitoring, elevator, ramps and landing facilities for visitors along with wash room for both gents and ladies for visitors have been provided. The open areas adjacent to MLCP have been developed with paver tile with landscaped for safe accommodation of 2000 nos of motor cycle and cycles. Boom bar for car entry with digital ticketing system have been developed. The facilities not only provide safe parking of 583 cars at a time but also minimize traffic jam and rush at main PWD Road from Nandankanan Police Station to Barang By-Pass Road.





### 8.8.1.3. Modular PM House

Modular PM House has been developed over an area of 1237 sqft with vitrified floor and will have the following facilities. Pathologist chamber (14 x 20 ft) with ward robes containing personal protective clothing, attached toilets, wash sink, sit outs for small discussion of pathologist and his team. Necropsy Hall (20 x 20 ft) with independent wide entry and exit gates for carrying the trolley with



carcass, wide dissection area for the large animals, modern stainless steel mobile hydraulic dissection table with overhead light for dissection/ viscera preparation. Morgue (Carcass holding area) cum staff preparation room (20 x 20ft) with Wash (Decontamination) sink for washing of instruments after post-mortem, big size instrument rack for keeping all post-mortem instruments, two body mortuary refrigerator, two number of wheeled trolleys for carrying carcass and weighing machine (1000kg capacity). The facility is being developed with an estimated cost of Rs. 30,43,600/-.

### 8.8.1.4. Incinerators

Two numbers of Incinerators of capacity 100 kg/hr and 50 kg/hr have been already installed for Management of Solid wastes like disposal of animal carcass, left over feed/bones/ flesh and biodegradable materials. The incinerators 100 kg/hr and 50 kg/hr were installed with expenditure of Rs 26,59,552/- and Rs 15,20,000/-, respectively and Rs 17,00,000/- each for the construction of incinerator house. These incinerators are smokeless and environmental friendly.



**8.8.1.5. New Quarantine facility**

At present the quarantine for new animal arrivals is situated inside the zoo but it should away from the existing animal enclosures to prevent any cross infection. Therefore, this new quarantine facility is being developed in western side of zoo (near the Cattle Proof Gate). Presently the quarantine facility for carnivores is being developed over an area of 1034 sqm and having provision of 4 kraals (15mX10mX4.5m), 8 retiring cells (3.25mX3mX3m) and 4 sliding squeeze cages along with 02 keeper corridors (23mX2.5mX3m) to house the large carnivores. This facility is being developed with an amount of Rs. 1, 08, 69,200/-. Other sections for giving quarantine facility to herbivores, birds and reptiles will be added in future.

**EXCHANGE & PROCUREMENT OF ANIMALS**

Sl No	Species received	Sex (M:F:U)	Zoo /Farm Name	Date of arrival
1.	Indian Grey Wolf	0:1:0	Kamala Nehru Prani Sangrahalaya, Indore	19.04.2021
2.	Indian Grey Wolf	1:1:0	Nahargarh Biological Park, Jaipur	09.10.2021
3.	Leopard	1:1:0	Nahargarh Biological Park, Jaipur	09.10.2021
4.	Gharial	1:1:0	Nahargarh Biological Park, Jaipur	09.10.2021
5.	Chinkara	1:1:0	Nahargarh Biological Park, Jaipur	09.10.2021
Sl No	Species Given	Sex(M: F: U)	Zoo /Farm Name	Date of Disposal
1.	Indian Tiger (White)	0:1:0	Kamala Nehru Prani Sangrahalaya, Indore	20.04.2021
	Indian Tiger (Melanistic)	1:0:0		
	Gharial	2:1:0		
	Golden Pheasant	2:2:0		
	Silver Pheasant	2:2:0		



### 8.8.2. Observation of Different Days

Different National and International Days are being observed where all the staff of Nandankanan participates.



World Wildlife Day 2021

### 8.8.3. Other Activities

#### 8.8.3.1. Virtual Tour and On-line activities

With the changing time to cope with COVID-19 pandemic situations, we have progressed with our virtual presence and conducted several activities. Among which Virtual Tour of Nandankanan Zoo and State Botanical Garden, Online Animal Adoption programmes, online zoo education programmes like online quiz, painting, photography, and sharing memories of visitors of Nandankanan are worth mentioning. We had the privilege to organize Quiz Competition on behalf of State Wildlife Headquarter to celebrate Wildlife Week 2022.





### 8.8.3.2. Adopt-an-Animal Programme

The pandemic has made us to revive and pursue Adopt-an-Animal programme to mobilize resources for animal welfare. More than 150 individuals and organizations like OMC & IPICOL have adopted animals of Nandankanan pledging an amount of Rs. 15 lakhs during the financial year 2021-22.



### 8.8.3.3. Species Recovery of Gharial in the River Mahanadi at Satkosia Gorge

Satkoshia gorge in the river Mahanadi is home of the fabled gharial in Odisha. After 20 years of release of 860 gharials into the river Mahanadi could not yield expected results of rehabilitation as 10/12 were found in the recent census. Therefore, an ambitious project "Species Recovery of Gharial (*Gavialis gangeticus*) in river Mahanadi" was conceptualized and commissioned during 2019. An updated assessment of gharials in the river Mahanadi was carried out with 15 month of pilot study and release of 7(2M:5F) transmitter tagged sub-adult gharials from 20th July 2019 to assess the river physiography and problems impacting non-survival of gharials. The revised strategy for recovery of gharials in Satkoshia Gorge was implemented with release of larger sized transmitter tagged gharials from Nandankanan Biological Park consisting of 3 males and 3 females measuring 2.3m-3.3m on 5th January 2021. In addition some unprecedented steps were taken that included association of 10 Divisional Forest Officers on either side of the river Mahanadi from Hirakud Dam to Bay of Bengal for rigid protection, implementation of No-Fishing Zone in 10km gharial habitat in the Satkoshia gorge of Mahanadi where present population of gharial exists, spreading awareness among local



people, provision of compensation for the damaged fishing net and reward of Rs. 1000/- for live gharial caught in the net, study of river physiography, gharial ecology, monitoring of transmitter-tagged gharials for their dispersal and survival.

Proper protection measures and implementation of No Fishing Zone have made the habitat more conducive in the Salkoshia gorge for their breeding. Courtship behaviour was observed during November 2020 among one adult male and two adult females near Sunakhania sand-bars of the gorge. One of the above female gharial has bred on 22nd May, 2021 with 28 hatchlings at Baladamara in the No-Fishing Zone. With the present natural breeding, it is hoped that Gharials will be saved in the Salkoshia Gorge, if rigid protection and future releases to repopulate gharials in nature remain in place. On 02nd December 2021, 04 adult gharials comprising of (1M: 3F) with satellite transmitter-tagged were released to River Mahanadi. It is an improvement over radio-telemetry study for dependable tracking of release gharials with accurate location. This is unique and first time in River Mahanadi, Odisha.

#### 8.8.3.4. Azadi Ka Amrut Mahotsav

Central Zoo Authority (CZA) under MOEF & CC, Government of India, New Delhi is organised the "Azadi Ka Amrut Mahotsav" (Celebration of 75th Anniversary of India's independence) for 75 weeks taking 75 selected zoos to highlight 75 animal species. Nandankanan Zoological Park, Bhubaneswar is assigned with celebration of the state event highlighting "Indian Pangolin" as the species on focus from 12th- 18th July, 2021. For this celebration, Directorate Nandankanan has organized virtual conference involving national and international experts to share their knowledge and experience on dealing with Indian pangolins. Other than this Nandankanan also organised different outreach programmes to aware the people about this important species. Finally, a book was published on this titled "Hand Book on Rehabilitation of Indian Pangolin" by Nandankanan with collaboration with Central Zoo Authority, New Delhi.

**Azadi Ka Amrut Mahotsav**  
Nandankanan Zoological Park

Sl. No.	Activity	Date	Time	Location
1	Virtual Conference on Indian Pangolin	12th July 2021	10:00 AM	Online
2	Book Launch of "Hand Book on Rehabilitation of Indian Pangolin"	13th July 2021	11:00 AM	Library
3	Workshop on Indian Pangolin	14th July 2021	10:00 AM	Workshop
4	Interactive Session on Indian Pangolin	15th July 2021	11:00 AM	Workshop
5	Workshop on Indian Pangolin	16th July 2021	10:00 AM	Workshop
6	Interactive Session on Indian Pangolin	17th July 2021	11:00 AM	Workshop
7	Workshop on Indian Pangolin	18th July 2021	10:00 AM	Workshop

**75th India**  
CONSERVATION TO CO-EXISTENCE  
#75Weeks75Species75Zoo

**NANDANKANAN ZOOLOGICAL PARK**  
NANDANKANAN ZOOLOGICAL PARK  
Bhubaneswar-751007  
Odisha-751007  
From 12th July to 18th July 2021

75th India

CONSERVATION TO CO-EXISTENCE  
#75Weeks75Species75Zoo

75th India

CONSERVATION TO CO-EXISTENCE  
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75th India

CONSERVATION TO CO-EXISTENCE  
#75Weeks75Species75Zoo

75th India

CONSERVATION TO CO-EXISTENCE  
#75Weeks75Species75Zoo

75th India

CONSERVATION TO CO-EXISTENCE  
#75Weeks75Species75Zoo



**8.8.3.5. Regional Level Zoo Keepers Training Programme**

Regional Zoo Keepers Training Programme for eastern zone was conducted at Nandankanan Zoological Park from 24th to 26th November, 2021. It was conducted in Hybrid mode in collaboration with the Central Zoo Authority, New Delhi. In this training programme 24 zoos across 5 states and one UT (Andaman & Nicobar) has been invited to send 1-2 zoo keepers out of which 16 zoos of 5 states has been participated i.e., Bihar, Jharkhand, Chhattisgarh, West Bengal and Odisha. The objective of this training program is to improve Animal keeper's knowledge and skills about the animals and their management, to develop better interaction and coordination between Animal keepers and management and to develop some interaction between keepers and visitors.







#### 8.8.3.6. COVID-19 Management

Nandankanan Zoological Park is being properly managed during COVID-19 pandemic following Central Zoo Authority recommendations and government guidelines. The zoo was opened to public on 03.08.2021 following proper COVID-19 guidelines for safety of visitors, employees and animals.





#### 8.8.3.7. Uniqueness of Nandankanan

- Only zoo in the world where melanistic tigers were born (2014) and displayed to the visitors.
- It is the host zoo for white tigers, white tigers were born to normal coloured parents in 1980, a unique event in the world.
- First zoo in the country where endangered Gharials were born in captivity in 1980.
- A unique white tiger safari was established in the Zoological Park on 1st October, 1991.
- Wonderful site for wildlife conservation and education where one can experience integration of ex-situ and in-situ conservation of wild fauna and flora.
- Presence of Kanjia Lake- A wetland of National Importance (2005).
- Conservation Breeding Centre for Indian Pangolin and Long-billed vultures.
- Nandankanan has the largest enclosures for housing Gharials and Hippopotamus.
- Second largest heronry for open billed storks in Odisha.
- It has a Captive-Fodder Farm (over 33 Acs.) and a Slaughter house to cater the dietary needs of animals housed in the Zoological Park.
- First zoo in the country to become an Institutional member of the World Association of Zoos & Aquarium (WAZA).
- First Zoo in the country where endangered Ratel was born in captivity.
- First zoo in the country after which an express train 12815/12816 Puri-New Delhi Express has been named as "Nandankanan Express".

## DIVERSION OF FOREST LAND

### 9.1. Diversion of Forest Land under Section 2 of F (C) Act, 1980

About 59383.59 hectare of forest land has been diverted under the Forest (Conservation) Act, 1980 for 538 number of different developmental projects as on 31.12.2021; the details of such diversion are reflected below:

Name of the Sector	No. of Proposals	Forest Area diverted (ha)
Irrigation	85	10653.05
Industry	34	4438.52
Mining	193	29989.53
Energy	08	159.45
Road & Bridges	54	1449.37
Railway	25	2768.29
Defence	04	3865.25
Human Habitation	05	366.46
Transmission	74	4377.03
Others	56	1316.64
<b>TOTAL</b>	<b>538</b>	<b>59383.59</b>



## 9.2. Diversion of Forest Land under Section 3 (2) of Forest Rights Act 2006

The Scheduled Tribes & Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 secure individual or community tenure or both. The Ministry of Environment, Forests & Climate Change, Government of India has authorized Divisional Forest Officers to grant permission for diversion of forest land up to 1 hectare in each case & this involves felling of trees not exceeding 75 numbers per hectare for small projects in 13 categories as envisaged under section-3(2) of Forest Rights Act, 2006. About 1088.394 hectare of forest land has been diverted for 2203 number of different small developmental projects under the above Act as on 31.12.2021. The sector wise details are given below:

Name of the Sector	No. of Proposals	Forest Area diverted (ha)
Anganwadi	19	00.856
Electric Line	628	323.345
Water Harvesting Structure	43	11.787
Tank & other Minor Water Bodies	35	14.014
Drinking Water Supply & Water Pipeline	383	75.605
Irrigation	71	25.864
Road	704	479.699
School	127	74.158
Community Centre	102	34.433
Vocational Training Centre	32	21.963
Hospital	15	5.167
Telephone Line	15	2.886
Non-Convention Energy Source	05	4.044
Fair Price Shop	01	1.000
Others	23	13.573
<b>TOTAL</b>	<b>2203</b>	<b>1088.394</b>

### 9.3. Diversion of Forest Land under General Approval by State Government

The Ministry of Environment, Forests & Climate Change, Government of India has authorized the State Government to grant General Approval under Section 2 of Forest (Conservation) Act, 1980 for diversion of forest land up to 5 hectare in each case (in two laning of roads, the area is not limited to 5 hectare) for creation of critical public utility infrastructure by Government Departments and this involves felling of trees not exceeding 50 number of trees per hectare in Left Wing Extremism (LWE) affected districts in 15 categories. As on 31.12.2021, about 82.799 hectare of forest land has been diverted under the above Act for 20 number of different developmental projects in LWE districts; the details of such diversion are reflected below:

Name of the Sector	No. of Proposals	Forest Area diverted (Ha.)
Road	07	53.540
Stone Quarry	01	2.992
Police Establishment	04	3.972
Drinking Water Supply	04	6.241
Power Sub-Station	01	2.833
Irrigation	01	4.800
Transmission Line	01	4.261
School	01	4.160
<b>TOTAL</b>	<b>20</b>	<b>82.799</b>

### 9.4. Rights to Tribal and Other Traditional Forest Dwellers (OTFD)

The Tribal and other traditional forest dwellers have been granted individual rights and community rights as per provisions of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Rights) Act, 2006.

## DEVELOPMENT OF ECO-TOURISM

### 10.1. Eco Tourism Policy

The State Government has approved the Ecotourism Policy and the Forest Department has been declared as the Nodal Agency for development of ecotourism in the state. The Scheme named as "Development of Eco-tourism" has been approved by the Government with financial implication of Rs.56.00 crore for a period of five years from the financial year 2016-17 to 2020-21 for its sustainable development and promotion. At present, the scheme is being operated by the Wildlife Wing of the State.

### 10.2. Eco Tourism Destinations

47 Ecotourism destinations have been created in different Forest and wildlife areas of Odisha covering 18 revenue Districts including important tribal areas of Mayurbhanj, Sundargarh, Malkangiri, Kandhamal, Bargarh, Nayagarh etc. 333 rooms have been created to accommodate 1010 number of Eco-tourists/day. These 47 destinations are the livelihood sources for more than 600 households. The households earning their livelihood through Ecotourism are the local forest dependent communities. There has been gradual increase in tourist foot fall. Since 2016 the booking for all Ecotourism sites has been made online through [www.ecotourodisha.com](http://www.ecotourodisha.com) (figure of tourists and revenue are derived from online portal).



Nature camp Debrigarh Sanctuary, Hirakud IVC



Boating at Debrigarh Nature Camp



Satkosia Sanda Resort, Eco Tourism, Satkosia South, Boudhal



Boating at Sarjogarh at Sundargarh



### 10.3. Implementation Status

Year wise expenditure already incurred vis a vis the tourist foot fall and generation of revenue from 2016-17 to 2020-21 is furnished below:

Year	Budget Provision (Rs. in lakh)	Expenditure Incurred (Rs. in lakh)	Night Stay Tourist foot fall in Ecotourism Destinations	Revenue generated (Rs. in lakh)	Jungle Safari (Revenue) (Rs. in lakh)	Jungle Safari (Visitors)	Total Visitors in Ecotourism destinations	Total Revenue of Ecotourism destinations
2016-17	1600.00	1600.00	11,500	157.00	-	-	11,500	157.00
2017-18	1299.99	1299.99	17,148	340.00	-	-	17,148	340.00
2018-19	854.99	844.99	24,772	557.00	4.26	4252 (9 safari Vehicles in 1 Ecotourism destination)	29,024	561.00
2019-20	776.99	756.98	30,784	658.00	26.85	15,215 (13 safari Vehicles in 2 Ecotourism destinations)	46,019	685.00
2020-21 (Figures till 20 <sup>th</sup> February 2021)	700.00	Under Progress	31,474	681.00	50.28	19,146 (16 Safari Vehicles in 2 Ecotourism destinations)	50,620	731.28

During 2020-21 due to COVID-Pandemic, all Ecotourism destinations were closed from April 2020 to October 2020. 10 Ecotourism destinations were opened on 1st October 2020 and by November 2020, 35 Ecotourism Destinations were opened with the COVID protocols.

### 10.4. Employment Generation

600 local community members are now managing 47 Ecotourism destinations all over the State & earning their livelihood, majority of them are rural women and tribal's. Gradually more number of community members are getting enrolled in Ecotourism activities. Ecotourism has been an alternative income for them as they earlier used to rely on forest for their survival by poaching, smuggling, fishing, collecting honey, firewood, etc. Indirectly, 5 to 6 villages per Ecotourism project are now earning their livelihood by providing daily requirements to the Ecotourism projects (i.e. by selling vegetables, handmade articles, different food items, milk, non-veg products, travel facilities etc). All the community members have been trained on hospitality & Ecotourism services for proper management of the destinations and they play different roles in management of Nature Camps i.e. Housekeeping, accounting, store, reception, service, cooking, cleaning etc. The total income generated through online booking is shared as below to respective community accounts Forest & Environment Dept, Government of Odisha

has notified the standard revenue sharing mechanism of Ecotourism destinations (Govt. Letter Number- 6324 Dt.19.3.18), as below (excluding 10% which is available for OFDC Ltd. and for margin of Tour Operators, maintenance of Ecotour portal by OFDC Ltd. And for advertisement / promotion of Ecotour properties):

Components	% Share	
ETG Wage Salary (Online release to respective Community accounts)	35 %	Shared by Management Committee of the Community towards wages
Recurring Expenses (Online release to Community account)	25 %	For day to day expenses & management of Nature Camps. (Fooding of visitors, fuel, electricity etc.)
Infrastructure Development (Online release to Community account)	10 %	Major maintenance, improvement in Infrastructures etc.
EDC Share (Online release to Community account)	10 %	For developmental works in local villages
Corpus Fund (with PCCF WL for salary of Hospitality Experts engaged in Nature camps etc)	10%	Salary of Hospitality Experts engaged in different Ecotourism Destinations
Government Revenue	10 %	Revenue share to Government
Total :	100 %	



*Landscape of Debrigarh Nature Camp*

### 10.5. Facilities for Eco-tourists

Boating facilities have been created in 20 Ecotourism destinations like Bhitarkanika, Debrigarh, Nuanal, Bichitrapur, Satkosia, Chilika etc. For safety of tourists Decks & Floating jetties have been constructed and lives saving jackets have been made available for all Ecotourists. Other activities like Cycling, Birding, Sports, Trekking, Farm land visits, Cultural programmes etc. by local communities is being introduced in all destinations. Ecoguides (one person acquainted with local trees, herbs, birds, animals etc. from the community) are present in all Nature Camps, Display of wildlife movies, library facilities along with Souvenirshops, watch towers for sighting wild animals have also been developed in all destinations. Safari Tourism is functioning in Chandaka, Debrigarh & Similipal with open jeep Safari vehicles.



Boating in the backwaters of Haskud Dam



Nature camp Debrigarh Sanctuary, Bhitarkanika WL



Jeep Safari - Debrigarh Nature Camp, Bhitarkanika WL



Satkosia Sand's Beach, Eco Tourism, Sarbajit Sarda, Bhitarkanika



Cottages in the Ecotourism Complex in the Haskud Wildlife Division



Sarbajit, Eco. Cottage at Sundargarh Forest Division



## 10.6. Promotion of Ecotourism as part of ST initiative

Ecotourism is listed as one of the Transformational Action points (ST) of Govt of Odisha under Forest and Environment Department. Upscaling of Ecotourism activities going on in State, better services and management through professionals are the priority for taking Odisha Ecotourism to next level.

Forest Department & Tourism Department are signatory to a joint MoU till the year 2026 for promotion of Ecotour – Nature Camps throughout India and abroad. Eco-tour website [www.ecotourodisha.com](http://www.ecotourodisha.com) has been embedded in the website of Odisha Tourism website [www.odishatourism.gov.in](http://www.odishatourism.gov.in) for better promotion of ecotourism destinations & for enhancing the booking of Nature Camps. Social media promotion of Ecotourism destinations is done on regular basis in Face book, Twitter, Instagram etc jointly by Tourism Department & Forest Department. 3rd National Chilika Bird Festival was organized on 27th & 28th January 2021 with bird watchers from 8 different states on India.

## 10.7. Awards and Accolades

During the year 2019 the community model of ecotourism adopted by Odisha has received "Best Ecotourism Initiative Awards" by Federation of Indian Chambers of Commerce and Industry (FICCI).

## 10.8. Benefits of Community Managed Nature Tourism

- Livelihood support to the forest dependent communities of State.
- Employment to rural women & tribal communities in wildlife areas who were earlier dependent on poaching & anti forestry activities for their living.
- Zero forest fire and poaching in those landscapes where communities are engaged in Ecotourism activities.
- Communities are running programmes in each destination. Ecotourists are engaged in different activities like trekking, birding, boating, cycling, farm land visit, cultural programmes by locals, safari, watching wildlife movies in Nature Camps, canopy walk etc. to provide the visitor holistic experience on forest, culture & traditions of the local communities. Eco guides, boatman etc. employed in Ecotourism destinations are all locals and trained.
- The Ecotourism destinations have been developed covering different landscapes of the State i.e. forests, hill stations, lakes, rivers, beaches, lagoon etc. which also provides basic knowledge to the tourists about natural ecosystems.
- As Ecotourism destinations are providing job opportunities for the local communities, they themselves are conserving & protecting Nature and also maintaining cleanliness of the landscape. All destinations are maintained free from plastics.
- The model "Community Managed Nature Tourism" adopted by Odisha Govt. is unique in the Country as forest dependent communities are utilizing 80% share of the State revenue.
- Two of those 47 Ecotourism destinations in Odisha i.e. Saktosia Sands Resort & Nature Camp at Badmul in Saktosia Tiger Reserve in Nayagarh District & Simlipal Nature Camps in Mayurbhanj District have earned revenue each year.
- 60% of the community members engaged in all the 47 Ecotourism destinations of Odisha are rural women.

## FOREST RESEARCH

### 11.1. Silviculture Research

The Silviculture Research plays a vital role in conservation of forest resources. Keeping in view on our vast stretch of forest cover, the Forest Research Wing with its headquarters at Angul was created during the year 1986 with a vision to explore various strategies and provide scientific support for decision making on matters related to forestry with particular emphasis on conservation, sustainable utilization and scientific management of our forest resources in the state. Subsequently the headquarters was shifted to Bhubaneswar in the year 1993 and one more Silviculture division was created with headquarters at Rayagada during the year 2008 for imparting focus on conservation strategy of Forest wealth in KBK districts which is having rich biodiversity.

Earlier a lot of research studies was made on adaptability of different exotic species through field trial and progeny trial and in the long run it was found that though the exotics like various pinus species are yielding very good growth especially in Koraput and Kandhamal district, their natural regeneration are noticed to be very poor. Besides that it was further observed that introduction of exotics in our forest land hampers the regeneration of ground flora and indigenous species.

In the present scenario, it is observed that though the forest cover is increasing, there is always a threat to our indigenous growing stock. Thus it is the need of the hour to embellish the conservation strategy in the back drop of dwindling growing stock and to create employment opportunity and livelihood support for the forest dwellers through scientific management by utilizing our existing NTFP resources.

To beacon the aspiration of forest lovers and to provide improvised technique to the department, the research wing is having 19 Research Gardens and 4 Hi-Tech Nurseries in the state, where in different silviculture studies are being conducted under guidance of the experienced officers of the state and scientists. The list of different silviculture plots existing in the state are as follows:

Sl. Item No.	Number of Existing Plots		Total	Area in Hectare		Total
	Bhubaneswar	Rayagada		Bhubaneswar	Rayagada	
1. Research Garden	10	9	19	393.6	409.90	803.50
2. Preservation Plot	14	03	17	551.8	140.0	691.80
3. Sample Plots	18	14	32	4.63	10.99	15.62
4. Hi-Tech Nursery	3	1	4	383.0	142.50	525.50
5. Seed Orchards	43	9	52	44.03	33.50	77.53
6. Seed Production Area	11	12	23	66.63	177.06	243.69
7. Plus Tree	148	136	284	1443.69	913.95	2357.64



In the plots we broadly focus on Tree Improvement Programme, Adaptive Research and Silviculture study of Indigenous species available in our Forests.

## 11.2. Tree Improvement Programme

Silvicultural Research and experiments in the State are carried out in pursuance to quinquennial programme approved by the Principal Chief Conservator of Forests, Odisha, Bhubaneswar as per Rule 195 OFD Code.

The details of Research Activities are given below:-

### 11.2.1. Collection of Quality Seeds:

Collection of quality seeds from the phenotypically superior trees of important species from Seed Production Area and other forest area taken up every year. The candidate mother trees of important indigenous species have been identified and selected from the different forest blocks of the states. In toto 4857 numbers of candidate trees have been selected in both Bhubaneswar and Rayagada Silviculture division from 2019-20 to 2021-22, covering different Reserve Forests of the state.

### 11.2.2. Preservation Plot:

There are 17 (Seventeen) number of preservation plots existing in the state, representing the main Forest sub-types set up for systemic observation of silvicultural and ecological changes.

### 11.2.3. Plus Trees:

Elite trees of important indigenous species have been identified and selected on the basis of exceptional rate of growth form and resistance to adverse factors to obtain significant amount of genetic gain as quickly as possible. During the current year steps has been taken to identify the plus tree from the candidate trees with the collaboration of ICFRE, Dehradun under the guidance CCF, T&D, Cuttack. Now focus is being made to collect seeds from Plus trees of indigenous species.





#### 11.2.4. Raising RT seedlings:

The large scale use of polybags for raising seedlings creates tremendous environmental hazards and inviting pollution in the vicinity of natural forests while carrying out massive plantation in the open forests. In order to minimize the pollution, we have introduced to raise seedlings in hydro-pots permanently made for the purpose which are reusable and produces better quality planting material in comparison to polybags because of stronger root system of the seedlings.



### 11.3. Adaptive Research

#### 11.3.1. NTFP Species:

A large number of NTFP species were tried in different stations under different agro-climatic zones over the years to introduce economically important species in the degraded forest areas. Species like *Cinnamomum zeylanicum*, Lemon-grass (*Cymbopogon*), *Piper nigrum* and *Coffea arabica* have been grown in Odisha. The planting technique of these species has been standardized. The Hill broom and Sial climber have been introduced in the Research Gardens and forest areas simultaneously in the last year to study their growth and output so that these are to be cultivated in a large scale by the tribal people to increase their livelihood support.



### 11.3.2. Intercropping of NTFP species in Bamboo Plantation:

During the year 2020-21, trial of planting of Rauwolfia roots, seeds and Hill brooms was done as inter crop in bamboo plantation to study the qualitative and quantitative production of Rauwolfia seeds and broom sticks by using FYM and organic manure and its commercial feasibility with market link so that it can be introduced in forests as well as in private lands for providing livelihood support to the forest dwellers. Intercropping of above NTFP items will enhance the economic value of the bamboo plantation programme till harvesting of bamboo culm for commercial purpose.



### 11.3.3. Hi-tech Nursery & Other Nurseries:

There are 4 Hi-tech Nurseries existing in the two divisions, 3 Nurseries in Silviculture Division, Bhubaneswar and the rest one in Silviculture Division, Rayagada and one Upgraded Nursery established at Khandagiri R.G of Silviculture Division, Bhubaneswar which have been maintained for production of large-scale Quality Planting Materials of Indigenous species. The names of HTNs & UG Nursery are as follows:

1. Tartua Hi-Tech Nursery
2. Bhasma Hi-Tech Nursery
3. Ajodhya Hi-Tech Nursery
4. Jaring Hi-Tech Nursery
5. Khandagiri Upgraded Nursery

### 11.3.4. Nakshyatra Vana:

A Nakshyatra Vana has been developed at Khandagiri Research Station during 2010, where trees associated with 27 constellations of Nakshatras have been planted. A lawn has been maintained at the centre of the Nakshyatra Vana area adding aesthetic value to it. During current year Nakshyatra Vana was renovated and reconstructed by repairing the signage which was damaged during 2019 cyclone Fani.





### 11.3.5. Arboretum:

One arboretum was created during the year 1996 at Khandagiri Research Garden with collection of 200 indigenous species for academic study of the forest scholars. One inspection path has been constructed during this year for better supervision and recording of growth data. In future the arboretum will be treated as seed production area.

### 11.3.6. Medicinal Garden

Medicinal garden was established in the year 2002 over an area of 2.5 Ha. It is situated inside Khandagiri Research Station which comes under Bharatpur D.P.F of Chandaka (Wild Life) Division, about 2 Kms from Khandagiri square towards Nandankanan road.

A gene bank of medicinal plants has been established during 2002 by collection of medicinal plants from different regions with objective of in-situ and ex-situ conservation of medicinal plants naturally growing in forests and to develop market facility to help the small farmers to sale their products under State Medicinal Plant Board scheme.

The medicinal garden houses have 140 numbers of mother beds which is maintained regularly during this period.







### 11.4.3. Production of Quality Planting Materials (QPM)

With the intention of raising non-teak species in the nursery, effort was made to collect different indigenous seeds from the forest. Since the traditional production of teak stump is discontinued, the collection of seeds of Sal associates was a difficult task. Field staff have taken interest for collection of 53 varieties of non-teak species seeds and supplied to different Divisions to the tune of about 35,593 quintals. Raising of nursery in root trainers and mother beds (stump) was initiated for different indigenous species.

In total, 3650000 numbers of quality planting materials of indigenous species have been raised in both Bhubaneswar and Rayagada Silviculture Division and distributed to different forest divisions of the states for afforestation programme during 2021-22.



### 11.4.4. Ficus Conservation Garden

The Germ Plasm of Ficus species is significant for its prominent role in climate change of the states having tropical climate. A Ficus conservation plot is under taken with 94 varieties of Ficus plants and more than 50 species of Ficus bonsai in Khandagiri Research Garden over 3.0 ha of land in the year 2018-19.

Ficus species of the large old trees which are often recognized for the provision of variety of ecosystem services to humanity are declined day by day. Existence of such keystone structures spans many human generations and they become a historic link between the generations. Therefore, protection and recognition of more culturally, historically and ecologically important trees by establishing a comprehensive tree list of Ficus is the need of the day.

The ecological roles of old trees in improving and maintaining the quality of water and soil, mitigating the impact of environmental pollution, carbon sequestration, regulation of microclimate, providing habitat for wildlife providing recreational and spiritual values among other values are widely acknowledged.

This Ficus garden will be useful for academicians as well as for common public for recreation, ecological and biodiversity conservation. Ficus is very good with vegetative propagation. So the exotic and rare species of ficus can be multiplied and propagated along with few Bonsai. The study of growth and behavior of different species of Ficus can be carried out in this garden.

#### 11.4.5. Wild flower Garden

The wild flower Garden was created during 2020-21 over an area of 0.4 acre. The purpose of this wild flower garden was to in-situ conservation of herbs, shrubs and climber species available in the forest to provide pollinators and insects with food from leaves, pollen, nectar, shelter and places to breed. Wild flower are beneficial during the winter also. As food is scarce in the countryside, wildflower seeds become an important food source for birds and small mammals. All total 399 nos. of seedling planted in the garden having 73 nos. species.





## TRAINING, RECRUITMENT AND AWARDS

### 12.1. Training Programme

The Forest staffs need to be both technically trained and extension oriented. The training of the initial recruits as well as orientation training for in-service personnel is extremely important. Updating knowledge on new emerging topics of different aspects of forestry, forest management and forest research is essential to augment the efficiency & skill of forestry personnel.

The training institutes need to be strengthened by providing modern training equipment, better amenities like boarding & lodging facility for the trainees, facility for sports & other curricular activities during training.

### 12.2. Training at inside and outside the State

Training the officers is an important activity taken up by the Forest Department. Every year large number of officers ranging from IFS Officers, State Forest Service Cadre Officers such as Divisional Forest Officers, Assistant Conservator of Forests, Forest Range Officers, Foresters and Forest Guards undertake various trainings organized at both inside and outside the State.

### 12.3. Training of Frontline Staff

The training of frontline staff/ State level Executive officers is being under taken by the Forest Department under the supervision of Chief Conservator of Forests, Training and Development, Cuttack. The training imparted is of technical nature and as per the theme prescribed by Director of Forest Education, Dehradun. At present four training institutions are functioning at different corner of the State as detailed below.

#### 12.3.1. Odisha Forest Rangers College, Angul

Odisha Forest Rangers College occupying a total area of 37.79 acre was established in 1979 at Angul. Every year, the different training courses are conducted in the college. This year, the academy has been allotted to undertake training to the 17th Batch of FRO trainees comprising





Inauguration ceremony of Ranger's Training (Outside State), 2022



of 57 numbers of young and energetic officers from the state of Uttarpradesh, NCT Delhi and Tamilnadu. Besides, a 5 Days Online Refresher Course Training from 13th-17th December for the IOs has also been conducted.

### 12.3.2. Nicholson Forester Training School, Champua

Nicholson Forest Training school was established in the year 1927 at Chamupa Town of Keonjhar District covering a total area of 7.76 acres by Late Dr. H.F. Mooney IFS, the-then advisor to the eastern states for imparting training in forestry to the foresters of the province of Bihar, Orissa and Eastern State Agency. Subsequently, the school was renamed as "Nicholson Forest



Training School" in the year 1950, in recognition of the meritorious service rendered by Late Mr. J.W.Nicholson, IFS who was the first Conservator of Orissa. As of now 2298 numbers of Foresters and 730 numbers of Forest Guards trainees have been successfully completed the training course from Nicholson Forest Training School, Champua. In this training school, 139 numbers of Promotee Foresters have undergone four months refresher induction training course during 2020-21.

Induction Training course has been imparted to 98 numbers of Promotee Foresters for a duration of 4 months and 42 Forest Guards for a duration of 6 months in two batches during the current year in the above Training School.



Passing out ceremony of Forest guard trainees at NFTS Champua







### 12.3.3. Forester Training School, G.Udayagiri

Forester Training School, G. Udayagiri was established in 1980 at G.Udayagiri Town of Kandhamal District occupying 11.5 acres of land. During 2020-21 145 numbers of Promotee Foresters have undergone four months Refresher Induction training Course in the School.

Induction Training course has been imparted to 76 numbers of Forester for duration of 4 months in two batches during the current year in the above Training School.



### 12.3.4. Forester Training School, Bhubaneswar

Forester Training School, Bhubaneswar was established in 1987 at Ghatikia, Bhubaneswar town of Khurda District occupying a total area of 8.0 acres.

- ❖ In the above Training School 44 numbers of Foresters are undergoing Induction Training course during the 2020-21.
- ❖ In the above Training School 44 numbers of Foresters are undergoing Induction Training course of Foresters for duration of one year during this current year.



#### 12.4. Recruitment

The vacancies in the various cadres are being filled-up either through the direct recruitment or through promotion as prescribed in the Rule. Recently the list of 67 candidates selected provisionally to fill up 25 post of ACFs & 42 post of Forest Rangers has been received from OPSC through Government In FE&CC Department. As per provision of prevailing Rules, the provisionally selected 67 candidates after completion of training would be posted.

Besides, recruitment process has been initiated by OSSSC to fill up 806 numbers of Forest Guards under direct recruitment quota.

### 12.5. State Forestry Awards

State Forestry Awards are conferred, on the occasion of World Forestry Day, every year for outstanding work in afforestation and plantation activities to Gram Panchayats, Educational Institutions and students. As per the provision made in the Notification No. 14585-I-Affn.-6/2012-F&E dated 03.08.2012 of Forest & Environment Department, Govt. of Odisha, since the year 2013-14, a cash award of Rs. 10,000/- for the Best Educational Institution (one for every sub-division) and cash award of Rs.20,000/- for the Best Gram Panchayat (one for every sub-division) are given each year for outstanding performance in plantation/afforestation work. These awards are given in district level functions each year on World Forestry Day. Further, the forest field staff (2 Forest Rangers, 6 Foresters and 12 Forest Guards) are honoured each with a cash award of Rs.5,000/-, a citation and a medallion for meritorious services and achievements in Forest protection, promotion of JFM, Afforestation and Plantation works, Forest and Wildlife Management, Forest Research and Kenduleaf operation.



## STATE MEDICINAL PLANTS BOARD, ODISHA

### 13.1. Constitution of Board

State Medicinal Plants Board (SMPB) has been constituted in the year 2002 for promotion and cultivation of medicinal plants in the State. The main objective of the Board is to create awareness amongst public on conservation ensuring sustainable availability and use of medicinal plants and their marketing by organizing State and Regional level Kalinga Herbal Fairs; raising & distribution of seedlings under home herbal garden, developing /improving medicinal plant gardens conducting training programme for traditional healers/ vaidyas.

### 13.2. Achievement during 2020-21

- In order to create awareness and promoting the use of Medicinal Plants, one state level programme on "National Campaign on AYUSH Apke Dwar" has been organized, 5 other programmes have also been arranged by Koraput, Ghumsur (S), at Ballipatana under Khurda Forest Division by SMPB, Odisha during 2021-22. Further Cuttack, Keonjhar Forest Divisions & Silviculture, Rayagada during 2021-22. Various booklets on cultivation & use of Medicinal Plants have been distributed amongst the participants in these programmes.
- Three 4-Days training programmes on "Identification, Conservation, Sustainable Utilization, Cultivation, Post Harvesting Technology & Marketing of Medicinal Plants" have been conducted by Bargarh, Keonjhar & Kalahandi (S) Forest Division. Around 467 numbers of stake holders including traditional healers, medicinal Plants cultivators and forest officials had attended the residential training programme.
- A 3-days Training Programme on "Good Agriculture & Collection Practices, Procurement & Market Demand and Market Demand of Medicinal Plant Products" has been conducted by SMPB at CYSD, Bhubaneswar under Nucleus Centre Grant of NMPB, New Delhi. Around 90 nos. of various stakeholders such as Traditional Healers, Medicinal Plant Cultivators, Traders and Buyers had attended the training programme.
- Establishment work of a Medicinal Plants Processing unit at Medicinal Plant Knowledge Centre, Patrapada, Bhubaneswar is in progress and likely to be completed this year.
- The project related activities on Establishment of Medicinal Plants Conservation and Development Area (MPCDAs) in Mandargiri RF of Angul forest division supported by NMPB are going on for ensuring sustainability of medicinal plants through in-situ resource augmentation and conservation of Mandargiri Hills.
- The State Medicinal Plants Board, Odisha conducted one-day training programme thrice on "Doubling of Farmers' Income through Cultivation of Selected Medicinal Plants" at Bolangir, Keonjhar and Baripada. In total, 210 participants including medicinal plants cultivators and traditional healers from several districts of Odisha have been trained under National AYUSH Mission (NAM) Scheme. It has been proposed to establish 2 Model Nurseries and 1 Small Nursery at various strategic locations of the State.



*One day training programme on "Doubling farmers' income through cultivation of selected Medicinal Plants" at Balangir Division, dttd. 03-01-2022*



*AYUSH APKE DWAR organized by Ghumsur (S) Forest Division & free distribution of Medicinal Plants seedlings, dttd. 03-09-2022*

- It has also been planned for the printing of booklets on Standard Cultivation Procedures of various medicinal plants both in English and Odia version for its wide circulation,



*Free distribution of Medicinal plants seedlings under AYUSH APKE DWAR programme by Ghumsur (S) Forest Division, dttd. 03-09-2022*



## STATE COMPENSATORY AFFORESTATION FUND MANAGEMENT & PLANNING AUTHORITY (CAMPA)-ODISHA

### 14.1. Objectives

As per Hon'ble Supreme Court's Order dated 10 th July 2009 the State Compensatory Afforestation Fund Management & Planning Authority (CAMPA), Odisha was constituted vide Notification No. 13995/F & E dated 14.08.2009 with an objective of Conservation, Protection, Regeneration and Management of existing natural forests, Wildlife and their habitats and raising Site Specific Compensatory Afforestation, Penal Compensatory Afforestation etc. with utilization of funds deposited in Adhoc CAMPA towards Net Present Value of Diversion of Forest Land for Non-Forestry purposes under Forest Conservation Act, 1980.

THE COMPENSATORY AFFORESTATION FUND ACT, 2016 has been enacted by the Hon'ble, President of India on 3rd August,2016 and subsequently the rules framed in accordance to the Act as COMPENSATORY AFFORESTATION FUND RULE, 2018 on the 13th August ,2018 for smooth management of Compensatory Afforestation activities.

- ◆ The state CAMPA has formulated 12 Annual Plans of Operations (APOs) so far starting with APO 2009-10. The last one is APO 2021-22 which is being implemented from April 2021.
- ◆ Since inception of State CAMPA in 2009, 11 numbers of APOs have been implemented with total receipt of Rs.2644.15 Crore from Adhoc CAMPA and Rs.2303 Crore from State Budget up to APO 2021-22.
- ◆ Further, a total sum of Rs.5933.95 Crore has been received from National Authority, CAMPA, New Delhi and kept with the RBI to meet the expenses against forth coming APOs which include the aforesaid Rs.2303 Crore. Total expenditure at State CAMPA through above APOs is Rs 4219.24 Crore up to APO 2021-22 (Dec-2021).

### 14.2. Achievement up to APO 2020-21

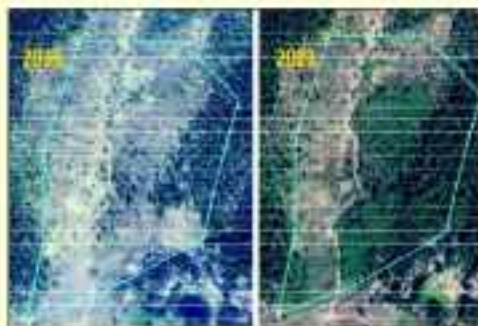
#### 14.2.1. Afforestation Activities

The following interventions under various afforestation components have been achieved.

- Afforestation (CA) and Penal Compensatory Afforestation (PCA) etc. include 87.47 hectare of Block Plantation, 2684.22 hectare of ANR plantation,727.85 hectare of Bald hill, 449.50 hectare of ANR without Gap,Avenue Plantation over 192.64 KKM and 5050 nos. tree plantation
- SSO Bamboo over-73689 hectare,
- Block Plantation over-1500 hectare
- ANR Plantation over-39900hectare
- Bald Hill Plantation over-875 hectare
- Bamboo Plantation-770 hectare



- Miyawaki Plantation-4 hectare
- Protection & Conservation of Pure Stand & RET Species-884 hectare
- Soil Moisture Conservation (SMC) over 6650 hectare
- Maintenance of Old Plantation



#### 14.2.2. Forest Protection & Prevention of Forest Fire

Under this head the following steps have been undertaken.

- Deployment of 216 firefighting squads in 37 Forest Divisions,
- Deployment of 2270 rural unemployed youth for protection duty and
- 289 vehicles provided for protection duties

#### 14.2.3. Infrastructure Development

The following activities have been taken up under this component. They are:

- Construction of 24 Range offices, 34 Range Officer's Quarters, 98 Forester's Quarters & 197 Forest Guard's Quarters,
- Construction of 32 Culverts and 61 Causeways and 131 Tube well,
- Construction of 15008 RKM of Boundary wali and
- Maintenance of 889 KM Forest Road



#### 14.2.4. Wildlife Management

Under this component the activities such as -

- Management of Wildlife (Rs.133.43 Crore) in Protected Areas including protection activities, anti-depredation activities, communication, habitat improvement, infrastructure development, zoo management & implementation of elephant train collision mitigation plan,
- Preparation of comprehensive Wildlife Management Plan for the state,
- Implementation of site specific Wildlife Conservation Plan and
- Relocation of families from Similipal & Satkosia Tiger Reserve have been carried out.

#### 14.2.5. Other Programmes

Other programmes include the following activities:

- Ama Jangal Yojana (65.35 Crore): Strengthening of VSS & preparation of Micro Plan for taking up ANR & Block Plantation under,



- Maintenance of Research Garden & other research activities like Adaptive Research / Tree Improvement Programmes/Production of QPM and
- Construction of "State Forest Academy",

### 14.3. Highlights for APO 2021-22

The CAMPA Annual Plan of Operation 2020-21 is being implemented since April, 2021 with financial outlay of Rs.903.03 Crore which has been approved by the State Level Steering Committee against which Rs. 903.03 Crore has been kept in State Budget. Meanwhile the National Authority has approved the APO at 901.03 Crore.

The APO 2021-22 is summarized below.

#### 14.3.1. Afforestation Activities

- Site specific Compensatory Afforestation (CA), Penal Compensatory Afforestation (PCA) etc. over 331.17 hectare of Block Plantation, 3245 hectare of ANR Plantation, 551.08 hectare of Bald Hill Plantation, 13.09 hectare of ANR without gap, 10.116 RKM of Avenue Plantation with planting of 340 number of saplings,
- Regeneration of Degraded Bamboo Forests over 75000 hectare,
- Block Plantation over 1,625 hectare,
- ANR Plantation over 35,540 hectare,
- Bald Hill Plantation over 1336 hectare,
- Bamboo Plantation over 1465 hectare,
- Fruit and Fodder Plantation (PO+1st Yr.) over 535 hectare,
- RET species with Gap Plantation over 130 hectare, without Gap Plantation over 90 hectare,
- Miyawaki Plantation over 13 hectare,
- Raising of 2 crores of 18 months old seedlings for various plantation activities and
- Soil Moisture Conservation (SMC) work over 7,000 hectare.

#### 14.3.2. Forest Protection & Prevention of Forest fire

- Deployment of 216 fire fighting squads in 37 Forest Divisions
- Deployment of 2270 rural unemployed youth for protection duty.
- 289 vehicles provided for protection duties.

#### 14.3.3. Infrastructure Development

- Construction of 15 Range Offices, 15 Range Officer's Residence, 75 Forester's Quarters & 200 Forest Guard's Quarters
- Construction of 10 numbers of Seizure Yards, 150 numbers of Tube Wells
- Construction of 70 number of Culverts and 100 number of Causeways



- Construction of 20000 RMT of Compound Wall and
- Maintenance and repair of 1000 KM Forest Road.

#### 14.3.4. Wildlife Management

- Management of Wildlife (Rs.232.81 Crore) in Protected Areas including protection activities, Anti-depredation activities, Communication, Habitat improvement, Infrastructure development, Zoo management & Implementation of Elephant Train Collision Mitigation Plan,
- Preparation of comprehensive Wildlife Management Plan for the state,
- Implementation of site specific Wildlife Conservation Plan.
- Relocation of families from Similipal & Satkosia Tiger Reserve.

#### 14.3.5. Other Programmes

- Ama Jangal Yojana (Rs.107.00 Crore): Strengthening of VSS & preparation of Micro Plan for taking up ANR & Block Plantation.
- Maintenance of Research garden & other research activities like Adaptive Research / Tree Improvement Programmes/Production of QPM and
- Construction of "State Forest Academy".

#### 14.3.6. Monitoring Mechanism (e-Green Watch)

Web based monitoring portal 'e-Green Watch' has been launched for monitoring and evaluation of all activities taken up under CAMPA in the state. The process of uploading the geo-reference of all activities undertaken on to the portal has already been initiated and likely to be completed soon for their monitoring and evaluation by Forest Survey of India (FSI) & National Information Centre (NIC). Apart from that 3rd party monitoring and deployment of flyingsquads as an internal vigilance have been set up for effective monitoring & checking of all CAMPA activities.

#### 14.3.7. Status of Compensatory Afforestation as on September 2021

Sl. No.	Description	Forest Land (Ha.)	Non-Forest Land (Ha.)	Total (Ha.)
1	Target as per stipulation for Compensatory Afforestation	39654.328	39259.054	78913.382
2	Achievement under Compensatory Afforestation	36628.231	34121.578	70749.809

## ODISHA FORESTRY SECTOR DEVELOPMENT SOCIETY

### 15.1. Background

Odisha Forestry Sector Development Society (OFSDS) has been constituted as an autonomous organisation under the Department of Forest and Environment, primarily for the implementation of Odisha Forestry Sector Development Project (OFSDP) during 2006 - 2015 with financial assistance from JICA (i.e. Japan International Cooperation Agency [formerly known as JBIC - Japan Bank of International Cooperation]). Presently, the society is implementing two projects namely OFSDP Phase-II and Ama Jangala Yojana (AJY) in the state. The Society has a High Power Committee headed by the Chief Secretary, Odisha with other members. The Governing Body is headed by the Additional Chief Secretary to Government, Forest and Environment Department with other members. The PCCF (Projects) and Project Director, OFSDS is the Member Secretary for both the High Power Committee and Governing Body of OFSDS.

### 15.2. Odisha Forestry Sector Development Project (OFSDP) Phase-I

Odisha Forestry Sector Development Project was initially formulated and implemented from 2006-07 to 2014-15. The project was implemented by the Forest and Environment Department through the Odisha Forestry Sector Development Society with the aim to restore degraded forests and to improve income levels of villagers from the promotion of sustainable forest management and community development, thereby improving environment and all eviating poverty. The total project cost agreed as per the above agreement is Rs. 659.79 Crore (16,429 JPY million) with JICA loan of Rs. 559.66 Crore (13,937 JPY million) and Government of Odisha contribution of Rs.100.12 Crore (452 JPY million). Subsequently, the total project outlay was revised and worked out to be Rs. 802.3 Crore of which the loan component came to Rs. 666.7 Crore with the project period extended up to March 2015.

The project utilized an amount of Rs. 790.26 Crore till 31 st March, 2015. The reimbursement claimshave been submitted for Rs. 627.69 Crore and total disbursement made by JICA up to March 2015 is Rs. 622.46 Crore. The project was implemented in 10 districts of Odisha i.e. Angul, Balasore, Bhadrak, Deogarh, Gajapati, Kandhmal, Keonjhar, Koraput, Rayagada and Sundergarh covering 14 Forest and Wildlife divisions namely, Angul, Parlekhamundi, Phulbani, Baliguda, Koraput, Jeyore, Rayagada, Deogarh, Keonjhar, Bonol, Rourkela, Sarkosia (WL), Balasore (WL) and Bhadrak(WL).

### 15.3. Odisha Forestry Sector Development Project (OFSDP) Phase-II

Odisha Forestry Sector Development Project, Phase-II is continuation of the successful implementation of Odisha Forestry Sector Development Project, Phase-I (OFSDP-I). The learning of OFSDP, Phase-I and of similar JICA assisted sustainable forestry management projects have been integrated into the Project Document of OFSDP, Phase-II.

Odisha Forestry Sector Development Project, Phase-II is an externally aided project being implemented in Odisha with the loan assistance from Japan International Cooperation Agency



(JICA). The Executing Agency of the OFSDP- II is the Department of Forest, Environment & Climate Change, Govt. of Odisha, whereas the Odisha Forestry Sector Development Society is the Implementing Agency of the project. Such arrangements provide adequate flexibility in implementing the project activities.

The objective of the project is to promote sustainable forest management through community participation following Joint Forest Management mode of implementation and to promote sustainable livelihood improvement through inter-sectoral convergence.

The Odisha Forestry Sector Development Project-Phase-II, a 10 year project (2017-18 to 2026-27) is being implemented in 12 Forest Territorial Divisions and 2 Wildlife Divisions under 10 Districts namely Athamalik, Baripada, Boudh, Dhenkanal, Ghumsar (N), Ghumsar(S), Jharsuguda, Karanjia, Rairangpur, Sambalpur, Subarnpur, Sundergarh, Bamra (WL) & Rajnagar (WL) covering 1211 Joint Forest Management Committees (Vana Surakshya Samitees) in 50 Ranges and 10 Eco Development Committee (EDCs) in Badarama Wildlife Sanctuary.

The major themes of the project are:

- Sustainable Forest Management through Community Participation
- Livelihood Improvement through Inter-sectoral Convergence
- Experiments in Biodiversity Conservation & Management
  - Satoyama Initiatives in Badarama Wildlife Sanctuary&
  - Scientific Monitoring of Bhattarkanika Conservation Area in Mangrove Forest Division (Wildlife), Rajnagar





### 15.3.1. Project Outlay & Components

The Government of Odisha's share/contribution towards the project cost includes administrative expenditure for the implementation of the project in respect of PMU and 12 Forest Divisions and 2 Wildlife Divisions of the state. The Project outlay for the 10 years' project period is summarised below.

COMPONENTS	OUTLAY (Rs in Crore)
<b>ELIGIBILITY PORTION – JICA loan</b>	
Preparatory Works	83.4
Sustainable Forest Management	284.1
Sustainable Biodiversity Management	7.0
Livelihood Improvement	91.7
Capacity Development	73.5
Supporting Activities	131.2
Phase-out / Phase-In	5.0
Price escalation	116.3
Physical contingency	39.6
Consulting Services	16.8
<b>Total</b>	<b>848.6</b>
<b>NON_ELIGIBLE PORTION – State Share</b>	
Administrative cost	84.2
VAT for Material	16.6
Service Tax for Professional	35.3
Interest during Construction	13.9
Front end Fee	1.7
<b>Total</b>	<b>151.7</b>
<b>TOTAL (A+B)</b>	<b>1000.3</b>

### 15.3.2. Key Interventions under the project

The project is being implemented in JFM mode with active involvement of 1211 VSSs selected in 50 Forest Ranges within 12 Forest Divisions with execution of the biodiversity components in 2 Wildlife Divisions. For the purpose of community mobilisation and strengthening of the institutions like VSS/EDC, there is provision of engagement of the services of partner NGOs at the level of each implementing Divisions (DMU). Moreover, there is a provision for engagement of Animators at the level of each VSS for record maintenance and coordination of meetings, field level activities and convergence of programmes at the village level. The provision for Capacity Development of various stakeholders at different levels including the partner

NGOs on various technical and managerial matters covering project implementation has tremendous impact on the project implementation. Income Generating Activities for enhancing the income of 3600 Women self-help groups has also been provisioned under the project.

COMPONENTS	TARGETS
<b>Sustainable Forest Management - JFM Mode</b>	
ANR Plantation	51000 Ha.
Block Plantation	6000 Ha.
Drainage Line Treatment	1500 Ha.
Fire Protection	1710 km
<b>Sustainable Forest Management Plan - Non-JFM Mode</b>	
Farm Forestry	10000 Ha.
Drainage Line Treatment	750 Ha.
Permanent Nursery	6 numbers
Sustainable Biodiversity Management	2 Sanctuary
Livelihood Improvement	
Promotion of IGAs	3600 WSHG

### 15.3.3. Progress of Activities

Major activities implemented under OFSDP-II during the year 2020-21 are indicated below.

#### 15.3.3.1. Preparatory work

31 numbers of VSSs from Batch-IV Forest Ranges (FMUs) from 5 Project Divisions have been taken up for implementation under OFSDP-II during 2021-22. The remaining 1180 numbers of VSS have been covered during the previous years. Survey, Demarcation and Posting of pillars across the assigned area of 31 VSSs have been completed. Moreover, Micro Plan preparations in all 31 VSSs are completed.

## 15.3.3.2. Sustainable Forest Management Plan

Under this component, OFSDP-II has made the following progress in 2021-22.

Activities	Batch	Component	Target	Achievement	Status of progress
Drainage-Line Treatment (DLT)	2021-22 (403 VSS of Batch-III & IV)	DLT(JFM)	502.5 Ha.	502.5 Ha.	1478.5 Ha.
		DLT (Non-JFM)	251.29 Ha.	251.29 Ha.	743.29 Ha.
Assisted Natural Regeneration (ANR) & Artificial Regeneration (AR)		ANR	17730 Ha.	17730 Ha.	50091 Ha.
		AR	2873 Ha.	2873 Ha.	5993 Ha.
				(86 lakhs seedlings planted)	194.82 lakhs seedlings planted)
Fire line Creation and Maintenance		Sustainable Forest Management	572.89 Km	572.89 Km	1681.89 Km
Consolidation and Demarcation of Forest Boundaries			635.81 Km	635.81 Km	1865.81 Km
Form Forestry			422 VSSs of Batch-II	2129 Ha.	2129 Ha (16.76 lakh seedlings & 4670 beneficiaries)
Establishment of High-tech Nurseries	6 Hi-tech Nurseries have been established in Athamallik, Baripada and Ghumsur (North), Sambalpur, Subarnapur & Sundargarh Forest Divisions with a capacity to raise 2.2 lakhs of Poly-pot Seedlings and 2.2 lakhs of Hyco-pot Seedlings in each Nursery every year.				

## SOIL &amp; MOISTURE CONSERVATION MEASURES



SMC Work in Baripada Division





JBT Work in Ghamsur - South Division



JBCD Work in Subanspur Division

### HI-TECH NURSERY



Hi-tech Nursery developed in Jorhapeta DMU under DVSNP-V



Hi-tech Nursery developed in Sankarpari DMU under DVSNP-V

### PLANTATIONS IN 2021-22



ANR with gap plantations in Bargarh DMU



ANR with gap plantations in Jharsuguda DMU



*Silviculture operation in Baripada DMU*



*Block Plantation in Subarnapur DMU*



*AR Plantation in Subarnapur DMU*



*ANR Plantation in Boudh DMU*



*Fuel Fodder plantation in Subarnapur DMU*



*ANR with gap plantations in Boudh DMU*





- Green Fencing of 1903 feet has been done in two EDCs covering 40 beneficiaries in convergence with Panchayati Raj and Drinking Water Dept.
- Promotion of Bio-fertilizer and Bio-pesticide initiated.
- Promotion of traditional paddy namely Bhajana, Kolaguda, Subhagi and Jui by adopting organic method of cultivation initiated.
- Promotion of Kitchen Garden in 10 EDCs, covering about 482 beneficiaries taken up.
- Mushroom cultivation has been taken up by 2 women SHGs of Nunvet EDC and they have generated the profit of Rs. 15,000 to Rs. 20,000/- in each cycle.
- Training on Apiculture has been taken up covering 15 beneficiaries in Nunvet village.
- Cattle Immunization camp organized in 7 EDCs benefiting 286 families.
- 64 beneficiaries have been selected for old age pension in project EDCs.
- 78 numbers of Solar fencing have been planned to be erected in 10 EDCs.



*Capacity Building Programme of community members in Badana Sanctuary under Satoyama Initiatives of OISD-V*

#### **B. Establishment of Scientific Monitoring System in Shitarkanika Conservation Area:**

Eco-system based Conservation Management of Bhitarkanika Conservation Area (BCA) is under implementation in Rajnagar Wildlife Division since December, 2017. National Centre for

Sustainable Coastal Management, Chennai, Ministry of Environment, Forest and Climate Change, Government of India has been assigned the task of formulation of the long term monitoring plan for eco-system based conservation and management of Bhitarkanika Conservation Area. The Scientists of NCSCM, Chennai have prepared the database pertaining to physical, chemical and biological parameters for monitoring in the Bhitarkanika Conservation Area and these parameters are being regularly monitored for last two years. Information collected at periodic intervals on these parameters for last three years have been analysed for delineating the stress factors. On the basis of these parameters "Eco-system Health Report Card" for BCA has been prepared involving various components for sustainable management of the mangrove ecosystem.

The following Activities are being undertaken under this component.

- Information pertaining to different parameters of flora, fauna, plankton etc. have been collected on regular basis.
- Development of Long-term Scientific Monitoring Plan for Ecosystem based Conservation of Bhitarkanika Conservation Area.
- Health Report Card for 2019-20 & 2020-21 of Bhitarkanika Conservation Area capturing different parameters has been developed.
- EDDY Flux Tower has been installed at Kanika Range.
- 15 field staffs of Kanika Range have been trained on concurrent monitoring of different parameters for conservation and management of BCA.

#### 15.3.3.4. Livelihood Initiatives

##### A. Community Development:

During the process of preparation of Micro Plan at the VSS level, a strong need emerged to have a Common Facility Centre at each VSS, which was expected to be an asset to the villagers for conducting meetings, cultural programme, organizing health camps, using for storage, drying yard etc. Moreover, it was envisaged that the space can be optimally utilized for undertaking small IGA Activities as well. Accordingly, a VSS cum IGA Facilitation Centre has been constructed in each VSS covered under OFSDP II. As on date, a total of 1163 VSS cum IGA Buildings have been constructed and constructions of rest 37 buildings in Batch-III & IV VSSs are under progress.



VSS Building-cum-IGA Centre in Boudh District





VSS Building cum-IC4 Centre in Bursapati Division



VSS Building cum-IC4 Centre in Shumsaar - South Division



#### B. Community development through Inter-sectoral Convergence with line Departments

A comprehensive livelihood development plan through convergence of schemes has been included in the Microplans with the facilitation of the officials of line departments for overall development of the communities including Sustainable Forest Management plan.

In order to facilitate smooth implementation of inter-sectoral convergence programme under DFSDP-II, *District Level Advisory Committee* (DAC) at the District level under the Chairmanship of Collector and *Block Level Advisory Committee* (BLAC) under the Chairmanship of Block Development Officers were constituted. The senior officials of the line departments at District level and Block level are the members of DAC & BLAC respectively. BLAC meetings are convened once in every month, whereas the DAC sits once in every quarter to facilitate the implementation of different government schemes in the DFSDP-II project villages, as per the requirement identified in the Livelihood Development Plan. Various community development activities such as repair of approach roads and tube wells, cleaning of drains, fixing of street lights, animal and human health camps etc. are taken up at VSS level as Entry Point Activity achieved through convergence.



## CONVERGENCE UNDER OFSDP-II (APRIL, 21 TO JANUARY 2022)

Departments	No of Households	No of Beneficiaries	Amount of In Convergencia (Rs in Lakh)
Agriculture & Farmers' Empowerment	12658	17565	289.67
Bank	1209	1769	188.41
Corporate	1485	2927	45.80
Dept of Energy	20	20	0.70
Dept of Industry	10	10	5.00
Dept of Youth Services & Sports	78	807	5.00
District Mineral Foundation	706	741	15.00
Education	50	60	0.78
Finance Dept.	404	404	1.01
Fisheries and ARD Department	11002	18093	248.78
Forest Environment & Climate Change	14333	25462	419.36
Health & FW Dept.	13059	27324	90.86
Horticulture Dept.	10771	12098	574.23
Irrigation	1905	4062	226.25
Labour Deptt.	289	359	0.92
Ministry of Food Production	40	100	0.75
Ministry of Petroleum and Natrual GAS	724	724	11.32
Mission Shakti	1961	2975	122.76
MPLAD	452	1761	3.50
NGO	1122	2225	14.81
Other	531	967	5.80
Panchaytiraj & Drinking water	106727	290586	6631.64
PWD dept.	1161	3575	102.75
Rural Development	974	3979	51.35
SC & ST Dev. Dept.	5955	14536	406.84
Security & Empowerment of Persons With Disabilities	94	97	0.39
Skill Development	904	1368	13.29
Soil Conservation Dept.	2859	9772	574.05
Urban Development	349	705	38.37
Women and Child Development	2890	5075	99.66
<b>Grand Total</b>	<b>194722</b>	<b>450146</b>	<b>10189.04</b>

### C. Promotion of Income Generating Activities

Income Generating Activities have been taken up through the VanaSurakshyaSamitis for the Self Help Groups, Common Interest Groups and Poorest of the Poor. The Revolving Funds available under the project have been released as a grant to the VSSs for extending loan facilities to these groups with clear guidelines for execution. The staff of the project at all levels was oriented on taking up Income Generating Activities (IGA) by judicious utilisation of Revolving Fund.

### D. Promotion of Product Clusters

In order to enable product aggregation, additional value addition and organised marketing, 117 numbers of products and 12 numbers of Multi Product Clusters have been identified located at each Division under the project. At present, 3 numbers of Sal Leaf Clusters have been established. Formulation of a Business Development Plan for operationalisation of the Multi-Product Clusters is under progress.

Livelihood improvement has been planned to be implemented by supporting VSSs and SHGs for promotion of income generating activities (IGAs) through cluster approach, covering all 1200 VSSs.

- VSS-cum-IGA facilitation center has been completed in 1163 VSSs of all the batches of OFSDP-II. Construction in 37VSSs of batch-III & IV are under progress.
- VSS wise product authentication has been completed in 403 VSSs of Batch-III & IV. Identification of product clusters have been initiated in all Project Divisions based on product authentications.
- During the FY-2021-2022, from April to till January, ₹ 10180.04 lakhs has been mobilized through convergence with different Departments viz. Agriculture, Horticulture, Panchayati Raj & Drinking water, W&CD, SC & ST Development, Fisheries & ARD, F&E, Mission Shakti etc. benefitting 1,94,722 households and 4,50,146 beneficiaries.
- Three Sal leaf Clusters have been operationalised in Baripada, Rairangpur and Karanja Divisions after skill building of the members. Production of sal leaf has begun in the newly constructed Cluster Buildings of these three clusters.
- Community Development activities and different Income Generating Activities (IGAs) have been facilitated in Batch-I and Batch-II VSSs through inter-sectoral convergence with the Line Departments and through support of Revolving Funds of the Project.
- Annual Action Plan 2021-22 of Livelihood Resource Centre (LRC) has been prepared to facilitate the Income Generating Activities of the forest dependent communities across the Project Divisions.
- Establishment of Product Cluster at remaining 9 Divisions is under process. The community members are being sensitized on best practices on collection of produces, processing, packaging and marketing to ensure remunerative price. This intends to create a brand name in the long run to ensure a suitable business ecosystem for the community.





Mixer Rice Mill supported by Acharya N.K. Ghosh CMU under Livelihood Activities



Bio-compost preparation by VSS members in Sambalpur Division under Livelihood Convergence Programmes



Mo Upakaribagicha Seed Distribution Programme in Ghumusar - North Division under Livelihood Convergence Programmes



Training on ISG Activities in Ghumusar - South Division under Livelihood Convergence Programmes



Mushroom Cultivation in Ghumusar - South Division by Communities under Livelihood Convergence Programmes



LPG Gas Distribution under convergence activities in Sundergarh Division



## E. Capacity Development

Capacity Building to ensure smooth implementation of project interventions with the active community participation is a major thrust area under OFSDP-II. Moreover, timely and appropriate capacity building of primary stakeholders ensures during and post project sustainability. Accordingly, during the preparatory phase of OFSDP-II, Training Need Assessment (TNA) Exercise was carried out to ascertain the training needs of all stakeholders associated in implementation of OFSDP-II. Based on the TNA Document, a comprehensive capacity building document under OFSDP-II has been prepared.

Annual capacity building programme for all stakeholders of OFSDP-II are prepared every year based on the intervention plan of VSSs for the respective years. Modules relating to all training programme are being prepared at PMU. The field staffs of OFSDP-II at DMU & TMU level are being oriented on the thematic trainings as Training of Trainers for conducting similar trainings for the support staff and primary stakeholders. Customized Capacity Building Modules are prepared for the trainings are shared with the field staff for conducting the second round of trainings at field level. Such initiative helped in timely implementation of project interventions till date.

- Annual CB Plan 2021-22 for all stakeholders of OFSDP-II has been prepared following the approved Capacity Development Framework.
- 95 numbers of training nine different themes have been conducted covering 6086 beneficiaries during 2021-22 (Up to Dec, 2021).



*Capacity Building Programme on Pheng/ Making and other livelihood activities*

## 15.4. Ama Jangala Yojana (AJY) -2021- 2022

### 15.4.1. About AJY

Ama Jangala Yojana (AJY) is a Flagship Program of Government of Odisha, being implemented through Odisha Forestry Sector Development Society with the objective to promote participatory and sustainable forest management and alternate livelihoods for the forest fringe communities in the state. The duration of the project is six years i.e. from 2016-17 to 2021-22 and presently being implemented in 22 Territorial and Wildlife Divisions of the State. All the activities are being carried out with active participation of local community based institutions

called Vana Suraksha Samities (VSSs) in Joint Forest Management (JFM) mode. State CAMPA & State Plan are the major source of funding for Ama Jangala Yojana.



#### 15.4.2. Outreach

AJY is presently being implemented in 22 Territorial and Wildlife Divisions of the State covering 4,605 nos. of VSSs have been covered under the scheme by 2021-22. The project has reached out to 4.2 lakh households in 4605 VSSs. In addition to this, about 14,263 women SHGs have been linked to various income generating activities through convergence with other line Departments under various Schemes.

#### 15.4.3. Progress of Major Activities (2016-17 to 2021-22)

##### 15.4.3.1. Community Mobilization

As a major policy under the project, participatory village level micro-plans have been prepared in all 4605 villages under the project with an aim to explore and resolve major issues of the community. These micro-plans act as referral documents for the overall socio-economic and ecological development of the community. In addition to this, 14,263 women self help groups have also been linked with various income generation activities under inter-sectoral convergence with various Departments of the Government. AJY team is instrumental in conducting regular VSS meetings and facilitating all the community development activities within the VSS area. Fifteen Partner NGOs have been engaged in the field level as support organizations for community mobilization and livelihood promotion activities under the scheme.





GB meeting at Sisdunka VSS, Keonjhar Division



GB meeting held at Kholanurubi VSS, Deogarh Division



GC meeting at Godvan VSS, Anayagar (M) Division



VSS GC Meeting at Sakhna VSS, Anayagar (M) Division



GB meeting at Asidpara VSS, Keonjhar Division



GB meeting Kishijar VSS, Keonjhar Division





JC meeting at Bargarhat VSS, Keonjhar (VI) Division



JC meeting at Badhamunda VSS, Deogarh Division



Awareness meeting on Malaria and Dengue at Bopapada VSS, Khariar Division



Dengue & Malaria awareness meeting at Dupsteiwar Range, Jyepore Division



Awareness on Covid-19, Tentulohati VSS, Anjuli Division



JC Meeting of Turatal VSS, Balasohal Division



SHG meeting for IGA planning of Budhramunda VSS, Deogarh Division



VSS level IGA Planning meeting at Manjapada VSS, Bargarh Division



Forest Fire prevention meeting at Narbereni VSS, Angul Division



Forest fire prevention meeting at Chhenukuda Range, Angul Division



Awareness Campaign on Forest Fire prevention & control, Bhanupada VSS, Bargarh Division



Fire control Demonstration at Kotasahi VSS, Deogarh Division





Recognition to VSS members for effective control of Forest Fire, Jyepore Division



Street play on Forest Fire prevention, Parusadike VSS, Parusikhemundi Division

#### 15.4.3.2. Afforestation Activities

Preparatory works as well as forest protection activities like survey, demarcation, pillar postings and fire protection measures are being carried out in the assigned areas of all 4605 VSSs with geo-tagged information. During the project period ANR-without gap plantation has been carried out in 2,09,568 ha of forest area in 4,605 VSSs (22 Divisions) and block plantation in 1010 ha (in 87 VSSs belonging to 12 Divisions). In addition to these, Assisted Natural Regeneration-with gap plantation has been carried out in 20,000 Ha of degraded forest area under 18 Forest Divisions during the 2021-22.



Seedlings for ANR plantation at Jitpada VSS Nursery, Jyepore Division



Seedlings for ANR plantation at Khuntabarahi VSS nursery, Deogarh Division



ANR with Gap Plantation at Munspajuar VSS, Deogarh Division



ANR with Gap Plantation at Balibahu VSS, Deogarh Division





ANR with Gap plantation at Sujinda VSS, Keonjhar Division



ANR with Gap Plantation at Khuntabandi VSS, Deogarh Division



Plantation Sign Board of Pujara VSS in Gharghat Range, Keonjhar Division



Plantation Sign Board of Borabali VSS, Keonjhar South Division

#### 15.4.3.3. VSS Office-cum-meeting Place

Total 512 numbers of VSS buildings have been completed and handed over to the respective VSSs.



VSS building cum meeting hall of Mandasindur VSS, Balasore Division



VSS building cum office at Patipura VSS, Deogarh Division



VSS office cum meeting hall at Nuzali VSS, Hubballi Division



VSS office cum meeting hall at Jenua VSS, Angul Division



VSS building, Mayarnocher VSS, Bardo WL Division



VSS building, Palakhamar VSS, Bardo WL Division

#### 15.4.3.4. Capacity Building Initiative

Capacity Building Training programs have been carried out for various stakeholders on implementation of AJY activities, such as Survey and Demarcation, Community Mobilization, PRA tools, Micro Plan preparation and Soil Moisture Conservation Measures. Training programmes, both under project components and convergence activities have been conducted at Project Management Unit (PMU) as well as field level involving 4605 VSS and 14263 SHGs with 2,39,522 participants during the project period.



Capacity Building Training(CBT) for SHG members at Ganshwar Range, Jajpur Division



Mushroom cultivation training through Convergence of Andhabinia PMU, Balaikhal Division





Training on Livelihood Skills at Sambhar VSS of Ghatgeon Range, Keonjhar Division



Mushroom Cultivation training to SHGs at Bonabangua VSS, Keonjhar Division



Selection of Beneficiaries for Training at Jashichar VSS, Keonjhar Division



Training on SHG record keeping at Tentakpala VSS, Keonjhar South Forest Division



Capacity Building Training of Anandapada VSS, Keonjhar Division



Capacity Building Training of Muniguda FMU, Rayagada Division

#### 15.4.3.5. Livelihood Interventions through Convergence

Inter-sectoral convergence is one of the core objectives of Amalangala Yojana, which ensures the livelihood opportunities for the forest dependent communities so as to reduce their dependence on forests. The schemes which have been successfully linked under convergence with line Departments are MGNREGS, Mission Shakti, Odisha Livelihood Mission,



HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2022

Pradhan Mantri Awas Yojana, Swachha Bharat Mission, Rashtriya Krishi Vikas Yojana, National and State Horticulture Mission, Backward Region Grant Fund (BRGF) and Pradhan Mantri Ujjwala Yojana (PMUJY). During the last six years, the project could mobilize Rs. 511.46 Crores through convergence with other line Departments under different Schemes, benefitting about 19,41,500 beneficiaries.



Mushroom Cultivation Training in convergence with Horticulture Department at Talima VSS, Radahal Division



Mushroom Cultivation Training in convergence with Horticulture Department at Bhowanipour Range, Bhubaneswar South Division



Mushroom Cultivation Training in convergence with Horticulture Department at Sanachandak VSS, Khandagiri Division



Mushroom production through convergence with DDM at Janki VSS, Durgam Division



Pond Rehabilitation work in convergence with PW Department through MGNREGS, Sandilapat VSS, Nayagarh Division



Mic Pothani through convergence with PW Department, Tripada VSS, Nabarangpur Division



Nutri-garden support through convergence with OJLF at  
Renukonda VSS, Khariar Division



Talking training of Goyasamudra VSS, Boudhar WL  
Division



Pointed gourd cultivation by SRS members at Jentelkhunt  
VSS, Bolangir Division



Ridge gourd cultivation by Shastri SMG members at  
Jentelkhunt VSS, Bolangir Division



Commercial Anjal Cultivation through convergence with  
Horticulture Department of Khuntabara VSS, Dengali  
Division



Commercial Anjal Cultivation through convergence with  
Horticulture Department of Khuntabara VSS, Dengali  
Division





Location: KOLKATA  
 District: KOLKATA  
 Date: 10/01/2022  
 Time: 10:00 AM

Motivational training to SHG members for Pisciculture in Kandiapada VSS, Barpuzma FMU of Jeppore Division



Location: KOLKATA  
 District: KOLKATA  
 Date: 10/01/2022  
 Time: 10:00 AM

Pisciculture in convergence with Fishery Dept. through SHGs at Kandiapada VSS, Jeppore Division



Earthen Compost Pit support to farmers at Kandiapada VSS through convergence with MGNREGS, Kharar Division



Earthen Compost Pit support to farmers at Dalvi VSS through convergence with MGNREGS, Kharar Division

#### 15.4.3.6. Livelihood Promotion Project under QFSDS by OMBADC

The Livelihood Promotion Project, supported by OMBADC is under implementation in 5 Forest Divisions with a view to mitigate the adversities faced by the forest fringe dwellers by providing them livelihood promotion opportunities. The primary objectives of the Project are:

1. To provide alternative livelihood opportunities of the forest dependent and forest fringe dwelling communities so as to reduce their dependency on forests and provide additional/ alternative source of income.
2. To develop the skill (technical, managerial and decision making) of the forest dependent communities including ST & SC population on various Income Generation Activities.

The project period is for five years, i.e. from 2021-22 to 2025-26 and the total outlay of the project is 43.43 crore which will be met from OMBADC. The project has been proposed to be implemented in 900 Vana Suraksha Samities/ Eco-Development Committees belonging to 25 Forest Ranges under five Forest Divisions, namely Rourkela, Bonal, Keonjhar, Keonjhar (WL) and Deogarh.

By December, 2021, the preparatory activities like identification of VSS, community mobilization, institutional building & strengthening and the capacity building of the project personnel have been carried out. Steps have been taken to expedite the Income Generation Activities during the coming financial year.

## FOREST INFORMATION TECHNOLOGY AND GEOMATICS CENTRE (FITGC)

### 16.1. FIT & Geo-matics Centre

The Forest Information Technology and Geomatics Centre (FITGC) is functioning in Forest Head Quarters since 7th January, 2014.

### 16.2. Aim & Objectives

The primary objectives of the Centre are to:

- undertake geospatial survey of all Forest Blocks and land parcels recorded or deemed as forests using RS, GIS and DGPS survey and to develop Decision Support System,
- develop, upgrade and maintain web based Management Information System/ GIS for Forestry Sector (OFMS) in the state of Odisha,
- provide Internet & Wi-Fi facility with OSWAS connectivity in all the six floors in AranyaBhawan& its maintenance,
- ensure Internet & OSWAS Connectivity in all the Field functionaries up to Divisional Level,
- procure, install, commission and maintain Computer/Server/ VC solution/CCTV Surveillance/ Network Hardware and Software system in the Forest Headquarter and guidance to field units thereof,
- develop, maintain and up-grade a comprehensive database on web-based GIS application for decision support System in Forest Management and use of Odisha Spatial Data Infrastructure (OSDI),
- monitor Forest Cover Change periodically and land based forestry activities using Remote Sensing and GIS Technologies,
- facilitate capacity building of forestry personnel to build their capabilities for handling MIS/ GIS activities in the department and
- procure goods in Government e-market place by FITGC.

### 16.3. Steps undertaken

The steps undertaken to operationalize the above objectives are summarized below:

#### 16.3.1. Official Website for the State Forest Department

The Official Website for the Forest Organization has been developed by FITGC in the domain name [www.odishaforest.in](http://www.odishaforest.in) having 90 dynamic Web pages hosted in the server placed at FITGC, Forest Headquarters, Odisha. Now initiatives have been taken for preparation of unified website for the Forest Department covering the entire state by linking the Circle and Division Level Portals. The respective Field Units can upload and edit the contents of their own websites through content management system. This has been developed using in-house resources of the Forest Department.



### 16.3.2. Digitization of Forest Blocks of the whole state of Odisha

Digitization and geo-referencing of 4604 forest blocks covering area about 45, 58,638 hectare (from 1:50000 scale topo sheet based management maps) have been completed under Working Plan Exercise at ORSAC. The data has been rectified over high resolution ortho image of Worldview and Cartosat satellite imagery present at ORSAC through involvement of field staff of each Forest Section of the State.

### 16.3.3. DGPS Survey and Geo-referencing of Forest Lands in Odisha using high accuracy DGPS Survey, Remote Sensing & GIS

Grounding of DGPS Survey has already been initiated during 2019-20 in 13 Forest Divisions by the Circle and Division Level Technology Partners. The main purpose is to develop an "Enterprise Class GIS based Decision Support System" for forest lands in the state of Odisha. Geo-referencing of 60991.33 square kilometres of forest land will be covered in 4 years using DGPS Survey. Cadastral Map Vector & MMV data layers generated through compilation of data collected from Division, FITGC & ORSAC. Development of DGPS Survey web portal "<https://odishaforestlandsurvey.co.in/>" has been completed and published in the FITGC server stack with the establishment of Base Stations in 8 Forest Circles.

Under DGPS Survey Project, joint verification by Forest & Revenue officials for confirmation of boundary pillars in 2055 forest blocks over 29107.45 square kilometers area has been completed. DGPS Survey has been completed in 1404 forest blocks over 21825.61 square kilometers area by the CDLTPs. ORSAC Certification is being done for all the DGPS surveyed Forest Blocks and accordingly Draft map has been prepared and submitted to FSO for final hearing. FSO certification has already been completed in 1073 Forest Blocks covering 7302.35 square kilometers area. Verification and Authentication of Revenue Forest (RoR) have been completed in 139 Tehsils of area 5612.94 square kilometers area. Verification and authentication of DLC records have been completed for 128 Tehsils covering area over 870.17 square kilometers.



DGPS Survey going on in the forest blocks

### 16.3.4. Wi-Fi LAN System in Aranya Bhawan

Wi-Fi LAN has been established in the office of PCCFB, HoFF, Odisha with enterprise UTM system on high availability and content filtering. All offices including Kenduleaves, OMBADC & OBDA Wing are provided with Internet over Wi-Fi at a bandwidth of 1 Gbps of the ISP M/s Rail Tel Corporation of India Ltd through a dedicated leased line connection. 175 Mbps through a dedicated leased line connection from Software Technology Park of India (STPI), Bhubaneswar are used as the back-up ISP. The bandwidth is digitally divided and dedicated bandwidth is provided to the servers installed in the Data Centre at Aranya Bhawan.

### 16.3.5. Digital monitoring of forestry activities



Geo-ICT based digital monitoring of forestry activities include foot patrolling, plantation & nursery activities, selection of afforestation areas, online forest fire mitigation/monitoring, wildlife habitat management & protection activities and survey of area approved under Forest Right Act inside notified forest blocks. Online monitoring by the administrators has been done in the website <https://odishaforestgis.in>. Using OFMS (Odisha Forest Monitoring System) from the website consolidated reports are generated on progress of nursery, afforestation & SMC activities, Vanamahotsava celebration, site selection for plantation, details of Forest fire mitigation etc. The captured details are also shown over Bing maps, Bhuvan maps and Google maps for GIS queries and better analysis. There are also facilities for downloading of .kmz files for opening the data through google earth and shape files for working on GIS platform. Odisha Forest Monitoring System (OFMS) mobile application is made available in both Google play store and App-Store. There are 25 modules in OFMS Application.

- A. Forest Assets:** Module is used to map any asset geospatially to project it on map with images. Assets include all types of Plantations, Nurseries, buildings, Rest sheds, Roads, Waterbodies etc.







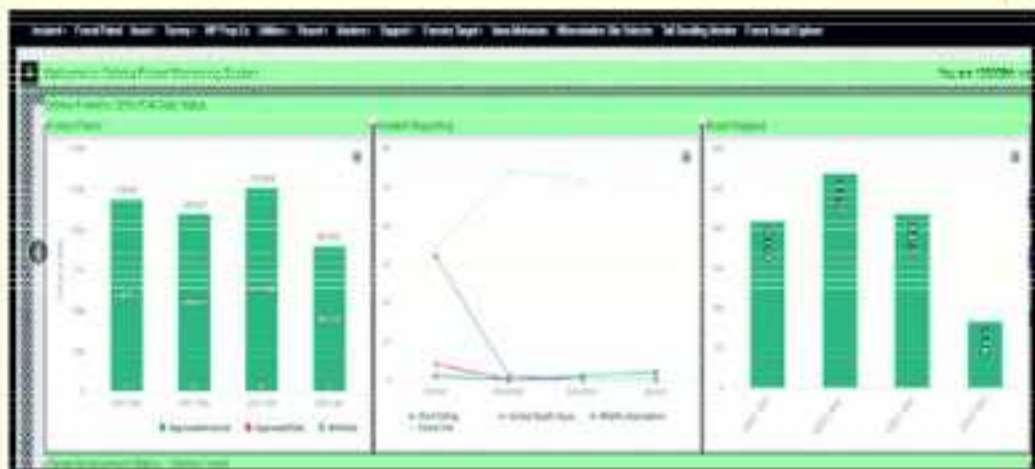
- D. **Forest Patrol:** It is an application in the device which automatically captures the distance covered by the field staff during foot patrolling in Forest with Photographs.
- B. **AOI Survey:** This module helps in survey of a new area of interest.
- C. **Field Presence:** This module is for attendance of the field staff, which captures the location details along with photographs.
- D. **Forest Land Survey:** It is used for survey of total or any part of any Forest Block with facilities for calculation of gross area, net area, number of pillars, perimeter of boundary line etc.
- E. **Working Plan Field Data:** This app is used for data capturing of number of trees/ herbs/ scrubs present at working plan sample points in various forest blocks provided by ORSAC/NRSC for preparation of working plan.
- F. **Forestry Inspection:** Used to digitally capture the inspection report in the field by one Forest Officer.
- G. **Tree Felling & Salvage:** To report regarding illicit felling of tree & salvage of tree.
- H. **Forest Right Act Survey:** The application is used for survey of individual rights and community rights issued to the Tribal and Traditional Forest Dwellers as per provision of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Rights) Act, 2006. This module also enables us to capture the data regarding rejected FRA cases.



- I. **Threats to Wildlife:** To capture wildlife vulnerability.
- J. **Forest Encroachment:** Forest land encroachment survey is carried out with the help of this module.
- K. **Tall Plant Monitor:** Monitoring of tall tree plantation in habitation areas.
- L. **Vanmahotsav:** Using this module Vanmahotsava sites are reported along with number of participants & photographs.
- M. **Damage by Wildlife:** Wildlife Depredation reported using this module.
- N. **Animal Reporting:** Animal sighting is reported along with Death & Injury.
- O. **Forest Fire Controller:** Reporting of day to day fire incidents received from FSI portal to the field and feedback reporting from field is carried out using this application.
- P. **GNSS Skymap:** Function as GPS aids and used for tracking and arriving at any desired location.
- Q. **Locator:** To know about the present location in field.
- R. **Navigation:** Which function as GPS aids and used for tracking and arriving at any desired location.
- S. **Data Trans:** Used to sync the captured data from field to FITGC Server and vice versa.
- T. **Forest Cam:** Used to take Geo Tagged photographs.
- U. **Gallery:** Used to store the Photographs & files.
- V. **Road Explorer:** Used to survey & upload all the Forest Roads.

### Graphical Representation of Odisha Forest Monitoring System Web Portal





Map Showing Forest Patrolling data in OFMS Web Portal





### 16.3.6. Development of mobile apps under ST initiatives of Govt. of Odisha:

Two numbers of mobile applications has been developed and made available in Google Play Store & App Store to bring transparency is as follows:

- KYFL @ Odisha (Know Your Forest Location In Odisha):** Under ST initiatives of Govt. of Odisha, one Application i.e. KYFL @ Odisha has been inaugurated by Hon'ble Minister Forest and Environment, Parliamentary Affairs, Govt. of Odisha, The user can get the geo-location of Point of Interest (POI), name & Approximate Distance from the nearest Notified Forest Block and details of Forest Administrative Jurisdiction. The application also provide the additional land revenue information like Name of the District, Tahasil, CD Block, GP, Village, Khata No., Plot No., Owner's Name, Land Type & area in Ha with respect to POI.



- Mo Jungle: My Odisha Forest-** Under ST initiatives, recently one new Application named "Mo Jungle: My Odisha Forest App" has been inaugurated by Hon'ble Minister Forest and Environment, Parliamentary Affairs, Govt. of Odisha, All plantation assets which have been created during 2020 are brought under public domain through web application ([www.odishaforest.in](http://www.odishaforest.in)) and mobile application Mo Jungle: My Odisha Forest in iOS and Android to bring transparency in afforestation activity. All 10514 number of plantation assets created during the year 2020 are available for public access.



**16.3.7. Online Odisha Timber Transit Permit System:**

Under ease of doing business in Odisha (single window portal) the offline TT Permit process has been made online to help the citizens and the institutions to apply for TT Permit online. Citizens and institutions are using Online Odisha TT Permit Applications for hassle free process of timber transit permit. The Offline mode of TT Permit issue is being stopped. Assistance is being provided to field staffs/public for use of the online application in the portal <https://ttpermitodisha.in/>. Now steps has been taken to develop mobile application for the above purpose under 5T initiatives to facilitate the Citizens for TT Permit Application.

**16.3.8. Annual Maintenance Contract and Purchase of IT equipment:**

This Centre has taken up the task of Annual maintenance of Computers and peripherals through an approved firm by process of tender. The FITGC has also been assigned the task of procurement of IT items form GeM portal.

**16.3.9. Video Surveillance System in the Office of the PCCF, Odisha:**

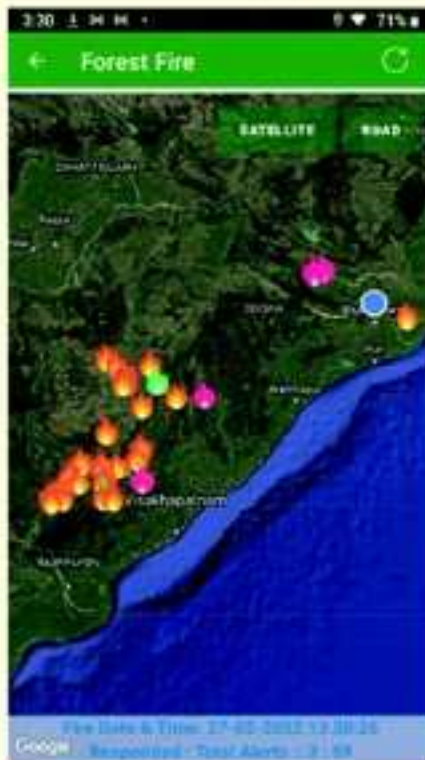
Video surveillance system consisting of 17 CCTV cameras have been set up at AranyaBhawan. All the cameras are IP based and networked. These operate 24x7 and provide feed to remote users as per requirement and has built in analytics.

**16.3.10. Monitoring of Forest Fire:**

The forest fire monitoring is done in a unique way by integrating our FITGC server with FSI server to fetch the fire data directly in the fire application from FSI server. In addition to this, the application having navigation facility helps the ground staff to navigate and quickly reach to the fire spot thereby substantially reducing time to respond fire incidences and area of damage. The user responds all the fire spot through android application and then sync the data to the server for further monitoring by Forest Headquarter. The Forest HQ has dedicated fire-cell which monitors fire on 24X7 basis and thus the number of fire incidences has been reduced from year to year. The application has red spot and green spot to depict the non-responded fire point & responded fire point respectively to monitor the response of the user. The application also depicts the repeated fire points in different colour to alert the user on recurrence of fire incidences. During the year 2021, out of 56194 number of fire incidences, 44687 nos. fire points have been responded by the front line field staffs. During this year (2022), out of 440 nos. fire incidences, 343 nos. have already responded by the field staffs.



(Screen display of fire app showing the auto fetching fire point from FSI server, navigating to the fire spot, responding through App. and syncing to the server for monitoring.)



Fire Points received From FSI downloaded in Mobile App shown in Orange/ Repeat Fire Points in Pink



Fire Points received From FSI responded by Forest Staffs in field using Mobile Application shown in Green

### 16.3.11. Setting Up of a Server Room

A modular and integrated data centre was created in the Forest IT and Geomatics Centre in January 2016. These have been placed in a part of the FITGC having facilities of a mini-server room. The Server room is now Populated with 22 servers and two Unified storage system from which all applications of FITGC including DGP5 Survey, website of the office of the PCCF, Odisha and PCCF, Kenduleaves, Seasonal Staff HRMS & KL Accounting System of Kenduleaves Wing have been hosted. Similarly, Networking Infrastructure is being upgraded for better cyber security with NextGen Firewall and Cisco network Switches. All the servers are housed in self-cooled contained chilled racks with networking infrastructure and facilities of storage of generated data. It is planned to host all Forest Department Data from the Data Centre.

### 16.3.12. DRFL:

The project of identification of degraded Revenue Forest Land for the purpose of raising Compensatory Afforestation against the project requiring Diversion of Forest Land for Non-Forest use is under process. This is a part of the Project "Geo-referencing of Forest Land in Odisha". Till date Identification of Degraded Revenue Forest Land has completed in 13 Forest Divisions. Under this exercise all Revenue & DLC Forest in a Division is being Geo-referenced based on high resolution satellite image, cadastral maps and Tahsildar & DFO certified Revenue & DLC Forest Land schedules as per RoR& DLC records. All these data of each Division has made available in the official website [odishaforestgis.in](http://odishaforestgis.in) for use by Forest & Revenue officials as below:

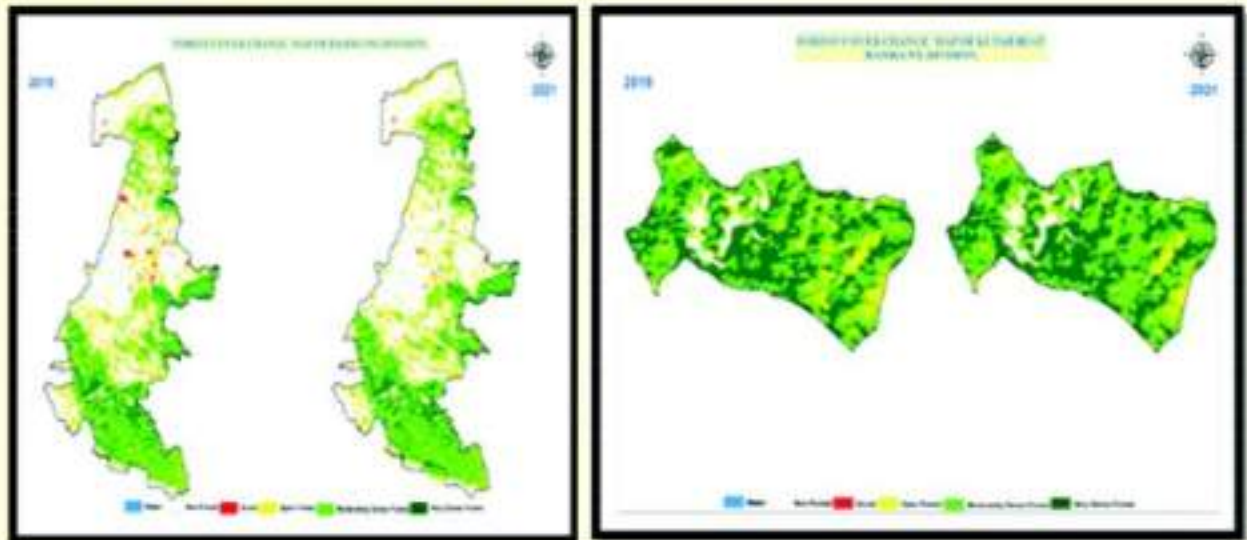
S.No.	Date	Year	Village	Area	Part	Ad Area	Water Area	Other Area	Total
1	1980	1980	1980	00	00	000	000	000	000
2	1980	1980	1980	00	00	000	000	000	000
3	1980	1980	1980	00	00	000	000	000	000
Total						000	000	000	000



### 16.3.13. Monitoring of Forest Cover Change periodically:

Beat-wise Forest Cover changes are being analyzed from the ISFR data received from Forest Survey of India, Dehradun using Remote Sensing and GIS Technologies. The change detection data made available in our OFMS web portal for ready reference of the field staffs.

#### Monitoring of Forest Cover change between 2019-2021 ISFR Report



## KENDU LEAVES ORGANIZATION, ODISHA

### Introduction

Kendu leaves in Odisha is an important forest produce and natural resource and plays a vital role in the lives of poor people especially tribals of our state. KL trade provides, employment during lean summer when there is no agricultural work or any other substantial wage earning opportunity. In consideration of its large scale importance, it is popularly known as "Green Gold" of Odisha.

Odisha Kendu leaves is known for its unmatched flavor and texture. Odisha is the third largest producer of Kendu leaves next to Madhya Pradesh and Chhatisgarh. KL is available in 22 districts (40 Revenue Sub Divisions and 168 C.D. Blocks) excluding districts of Gajapati, Puri, Khurda, Kendrapada, Jagatsinghpur, Jajpur, Bhadrak and Balasore.

### 17.1. Kendu Leaves Organization

Kendu leaves generate employment for large section of rural and tribal population. Besides, the uniqueness of Odisha Kendu leaves is the value addition of green leaves by way of drying and processing (except phal areas) for which Kendu leaves procurement and processing is managed by the Kendu leaf organization in Odisha headed by Principal Chief Conservator of Forests (KL). The field establishment comprises of 3 Kendu leaf Circles, 19 KL Divisions, 42 KL Sub Divisions and 149 KL ranges. In addition, there is about 18,000 Seasonal staff engaged in KL procurement and processing.

The field set up of Kendu Leaves Wing of Forest Department is as follows:

Organization	Circle	Division	Sub-division	Range	Section
Kendu Leaf Organization	03	19	42	149	635
Principal Chief Conservator of Forests (KL) Odisha	CCF Cuttack Circle	5 Divisions	13 Sub Divisions	41 Ranges	
	CCF Balangir Circle	8 Divisions	16 Sub Divisions	59 Ranges	
	CCF Sambalpur Circle	6 Divisions	13 Sub Divisions	49 Ranges	

### 17.2. KL Working

Kendu leaf trade in Odisha was nationalized in the year 1973. Since then, collection and processing of KL are being done by KL organization whereas disposal and sale of Kendu leaves have been entrusted to OFDC.

Kendu leaf working starts with Bush Cutting operation in the month of February- March. All KL bushes are cut flush to the ground. This operation is done manually by engaging semi-skilled labourers. After 45-50 days of Bush Cutting, collection of KL starts. Pluckers offer kendu



leaves in form of "Kerry" containing 20 leaves in process area (In phal area one Kerry contains 40 leaves). KL korries are purchased at phadis, the collection centres. Processing of KL is done in all the Divisions except phal areas which covers entire Jeypore (KL) Division, Nawarangpur (KL) Division, and a part of Kharlar (KL) Division. In Phal areas, leaves are sold as such without processing. In the process areas, the leaves after drying are stored inside phadis till processing. There are about 7300 phadis across the state. There are about 8 lakh pluckers who offer kendu leaves.

During the time of processing, the leaves are graded into different qualities from Grade-I to IV as per the specification of colour, texture, size and leaf condition and 5 Kg bundles are produced. 12 such bundles are packed in gunny bags which makes one bag of 60 Kg and 100 such bags equivalent to 60 quintals are delivered to OFDC for sale as KL lots. Around 18,000-20,000 binding labourers are involved in processing of KL.



### 17.3. Deregulation of KL trade

KL working in entire Nawarangpur Division and Malkangiri district of Jeypore (KL) Division was deregulated during the year 2013 and 2014 respectively. Thereafter, total 19 villages in Kalahandi district in Shawanipatna (KL) Division have so far been deregulated in phases during 2017, 2018 and 2021 basing on community claims conferred to Gram Sabha under Forest Rights Act. Pluckers in deregulated areas are free to sell kendu leaves to private traders and/or even to KL organization.



#### 17.4. Achievement of KL during last 3 years

The physical and financial achievement of last 3 years is furnished below.

Crop year	Kerries Purchased In Crore	Physical achievement in lakh Qtl	Financial Achievement in crores	Sale value in crores	Mandays generated in lakhs	OFDC commission in crore	Trade Surplus in crore
2018	137.65	2.84	312.93	461.66	107.98	45.35	103.37
2019	96.31	2.02	256.68	376.17	64.14	34.73	84.76
2020	89.34	1.89	265.44	407.35	60.18	38.37	103.53

The physical and financial achievement of 2021 crop year upto 31.01.2022 is furnished herein under.

##### Physical

Crop year	Kerries Purchased In Crore	Target in lakh Qtl	Achievement in lakh Qtl	Sale in lakh Qtl upto 31.01.2022	Sale Value in crores upto 31.01.2022	Anticipated Sale value in crores	Anticipated Trade Surplus
2021	125.46	2.76	2.651	2.370	568.92	600.0	160

##### Financial

Crop year	Revised Target in crores	Achievement in Crores upto 31.01.2022	Anticipated achievement in crores	Mandays generated in lakhs up to 31.01.2022
2021	376.00	363.16	370.00	90.00



### 17.5. Fund Management

- (i) Working Fund advance is arranged by OFDC by availing DBI loan and taking sale proceeds from KL Joint account.
- (ii) Kendu Leaves Development Board (KLDB) under the Chairmanship of Hon'ble Chief Minister, Odisha is the apex policy making body
- (iii) KLCC under the Chairmanship of Chief Secretary, Odisha approves budget and monitors progress of KL operations.

### 17.6. Welfare Measures

- (i) After establishment of Kendu Leaf Development Fund (KLDF) during 2015, the trade surplus fund from KL working is deposited in this account from which various welfare activities are being taken up every year as approved by KLDB. As per decision taken in KLDB meeting held on 11.01.2021, the following welfare measures have been taken up during 2021.
- (ii) Rs 59.79 crores have been paid towards bonus @ 50 % to 7, 54,631 nos of pluckers.
- (iii) Rs 5.31 crores have been paid towards incentive @ 10 % to 16,459 nos of Seasonal staff.
- (iv) Rs 2.61crores have been paid towards incentive @ 10 % to 18,184 nos of binders.
- (v) Rs 9.06 have been paid towards choppal allowance to 7,54,631 nos of pluckers @ Rs 120/-
- (vi) Rs 0.77 crore have been paid towards cost of bicycles to 1994 nos of checkers
- (vii) Compassionate grant for death and permanent disability are available to the eligible pluckers and binders besides all Seasonal staff under their respective welfare Trust Fund. The compassionate grant has been enhanced to Rs 2.00 lakh w.e.f. 2021 from earlier amount of Rs. 1.0 lakh. During 2021, Rs. 13.83 Crores have been, released in favour of 963 no of nominees towards compassionate grant for settlement of death claims.

### 17.7. Other interventions

- i. About 8 lakh beneficiaries have been paid more than Rs. 275.00 crore directly through their bank account (DBT) through SBI CMP portal during the current year.
- ii. IKIMS (Integrated Kendu Leaf Management System), a web based GIS portal has been developed by ORSAC for KL organization. All KL operations including KL accounting, Seasonal staff HRMS, Welfare Trust are being integrated in this single portal for the purpose of transparency and accountability as a part of ST governance.

### 17.8. SKOCH Award

Kendu Leaves organization participated SKOCH award competition with project titled "Kendu Leaves- the Green Gold of Odisha: An unparalleled KL working" under the category of "Employment Generation and DBT". The project bagged SKOCH Silver Award.





## CHILIKA DEVELOPMENT AUTHORITY

Chilika is one of the important hot spots of biodiversity sheltering a number of endangered species. The lagoon is an avian grandeur and wintering ground of more than one million migratory birds and is also a Ramsar site. The highly productive eco-system with its rich fishery resource, sustains the livelihood of more than 0.2 million fisher folk who live in and around the lagoon. For preservation of its ecology and conservation as well as to bring an all-round development in and around the lake which calls for multi-dimensional and multi-disciplinary developmental activities, Chilika Development Authority is carrying out the most desired and appropriate restoration measures for the lake.



The government had been pleased to consider the implementation of the scheme Conservation and Management of Chilika Lake, and sanctioned funds of INR 23,50,50,000 (Rupees twenty-three crore fifty lakhs and fifty thousand only) for a period of 36 months on 60:40 funding pattern of Central Government and State Government and have released an amount of INR 7,83,50,000 (Rupees seven crore eighty-three lakhs and fifty thousand only) for the year 2020-21 on 18.03.2021. The following activities have been taken up from the fund sanctioned.

### **18.1. Improvement of water exchange and salinity gradient by desiltation and Enhancement of hydrological regimes.**

Chilika being a very shallow Lake, the depth of water varies from 0.38 to 6.20 mtr. Maximum silt is being brought to the Lake from the catchment areas of river Mahanadi through its rivulets. About more than 1.00 million tons of silt is brought by the Rivers draining in to the Lake. To reduce the silt load, for maintenance of a salinity gradient of the Lake as well as to maintain the dredged channels (Lead channel, Muggarmuh channel, Balugaon channel etc) and



to maintain salinity gradient, facilitate proper flushing out of sediment, auto recruitment of juveniles, breeding & migration of economic species, massive de-siltation is essential to keep the Lead channel open. The desiltation of Lead channel was completed from RD from 7680 M to 8,120 M through dredging. Now dredging activities are under progress.

## 18.2. Biodiversity Conservation

Chilika is well known for being the largest congregation of migratory avifauna in India. It is an avian grandeur which hosts over 228 species of birds during the peak migratory season, out of which at least 97 species are intercontinental migrants. Restoration and improvement of Nalabana Eco-system, is being supported by CDA with assistance to the Chilika Wild Life Division for protection of the migratory bird, census, habitat improvement and research. The census estimate during 2021 was 1242826 nos.



Table 1: Bird Population at Chilika wetland from 2016-2022

Year	Waterbirds	Water dependent birds	Total Population
2016	839478	19377	858855
2017	924353	22766	947119
2018	867834	25556	893390
2019	1021563	26405	1047968
2020	1071477	33563	1105040
2021	1204351	38475	1242826
2022	1036220	37953	1074173

Irrawaddy dolphin is the flagship species inhabiting Chilika Lake. The present distribution range of this species is only in Asia, from Chilika to Indonesia. Irrawaddy dolphins in India are protected under Wildlife (Protection) Act, 1972, CITES (Appendix-I), and IUCN Red List.

The annual population estimation survey of the Irrawaddy dolphin has been conducted by CDA since 2003. The annual survey was conducted by the "Transact Survey Method" followed worldwide for a population of aquatic mammals. Each survey team was equipped with binoculars, GPS, Range finder and data recording sheets, etc. This year there was a total sighting of 156



nos. Good amount of sighting was observed in Rambha Bay area along with the Outer Channel. The Dolphins are colonizing new areas of Chilika Lagoon and this gives a hope for this endangered mammal. The movement has been facilitated by clearing of Gherries at places.



The dolphin population in Chilika lake from the year 2013 to 2022 is as below;

Year	Dolphin Population in Chilika lake
2013	152
2014	158
2015	160
2016	145
2017	121
2018	155
2019	150
2020	156
2021	162
2022	156

### 18.3. Population Estimation of Fishing Cat (*Prionailurus viverrinus*) in Chilika Marshes

The total study area is 230sq. km. A map of this study area was superimposed with grids of 1.5 km x 1.5 km. The study was conducted from 1st March 2021 to 15<sup>th</sup> April 2021 when the water levels receded exposing mudflats in which it became easier to detect tracks and signs. In each grid, a pair of camera traps were placed in areas known to be frequented by Fishing Cat (water channels or ponds lined with tall emergent vegetation of *Phragmites Karka*) after locating tracks and signs. Each team was composed of a local fisherman, a boatman, Wildlife Protection Committee members, Student Volunteers, and a technical expert from The Fishing Cat Project team and also personnel from Chilika Development Authority (CDA). Each trap was placed at a mean nearest neighbor distance of 1 km approximately. Each station was

placed at the location for at least 30 trap nights leading to a total of 1440 trap nights. Total number of 119 species were recorded during and also seven kittens during the first phase of Population estimation in the Northern sector of Chilika lake.



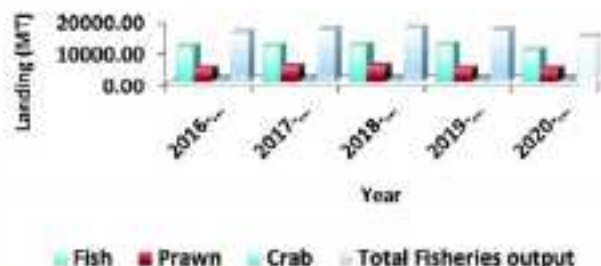
#### 18.4. Fishery Resource Development

CDA has been continuing to monitor the fishery resource assessment from 33 landing centers and Two Godowns, demolition of unauthorized gharries, research studies on crab and shrimps, construction of fish landing centers, capacity building, and training of fishermen, etc. The total estimated Fish, Prawn, and Crabs from Chilika during the year 2020-21 was 9942.85 MT, 3973.11 MT, and 269.15 MT respectively.

Year wise Fish, Prawn, and Crab landing at Chilika

Year	Fish	Prawn	Crab	Total Fisheries output
2016-2017	11101.74	4154.00	351.38	15607.12
2017-2018	11375.27	4706.70	276.37	16358.34
2018-2019	11618.05	4951.37	330.90	16900.32
2019-2020	11808.46	4112.88	305.41	16226.75
2020-2021	9942.85	3973.11	269.15	14185.11

Landing in Chilika lake from 2016-17 to 2020-21





### 18.5. Wetland Research, Training, Monitoring & Assessment

Monitoring & assessment is the backbone of wetland management. Chilika Lake is a complex and dynamic ecosystem. The salinity gradient of the Lake is influenced by the influx of freshwater from the catchment area and the ingress of saline water with every tidal cycle. It is a complex assemblage of marine, brackish and freshwater ecosystems. Sound knowledge and understanding of all the factors that influence the distribution and the behavior of the bio-data of the ecosystem are essential for sustainable management of the Lake. The biological phenomenon occurring in aquatic systems pertaining to the biological regime such as plankton, algae, macrophytes, fish, prawn, crab, other benthic bio-data, etc. are directly or indirectly influenced by the intrinsic properties of water. Considering the fragile ecosystem of the Lake, close monitoring of the Lake is carried out to assess the impact of various management interventions on the Lake.



For a long-term management strategy of the Lake, it is essential to generate scientific data to bridge the gap and to develop an integrated database. The basic objective of the Wetland Research Centre is to facilitate the studies and research in the field of limnology, marine biology, hydrology, coastal influence on the Lake, floristic and faunistic study, weed analysis, ecological and mathematical modeling, advanced oceanographic and hydrological studies like sediment transport, wave climate, tidal influence, Lake bathymetry, hydrographic survey, weed distribution maps using Remote Sensing and GIS Technique. The monthly monitoring of the Chilika lake has been carried out from 33 predefined monitoring stations spread over four sectors of Chilika lake, namely Southern, Central, Northern, and Outer Channel area and also during the monsoon season the discharged of fresh water and also sediment has been collected from 12 river gauge stations of Mahanadi and Western Catchments.

### 18.6. Excavation of Creeks

CDA carried out the excavation of creek at Balipatpur village under Tangri Block at an estimated cost of INR 6, 94,500.00 Khetandi at INR 1,95,692 to facilitate the fishers for navigating their boats.

### 18.7. Construction of Boat sheltering Yard

Under the Fishery Infrastructure development, a boat sheltering yard had been constructed at Amaraoli at an estimated cost of INR 80,764.00 and removal of Water Hyacinths at an estimated cost of INR 45,000.

### 18.8. Celebration Azadi Ka Amruta MAHOTSAV

Chilika Development Authority in association with the Forest Department celebrated the Azadi Ka Amruta Mahotsava at Chilika, Ansupa, Tampara, Satkosia Gorge, and also Hirakud Reservoir. The activities that had been carried out were Cleaning of the Wetlands, No Plastic Campaign, Visit the Wetlands, Identification of Ambassador Species, Registration of Wetlands Mitra, and Stakeholder Consultation meeting with participation from the local MP, MLA and other people representative and also School Children.

### 18.9. Celebration of World Wetlands Day

Chilika Development Authority this year on 2<sup>nd</sup> February 2022 celebrated World Wetlands Day at Wetland Research and Training Center, Barkul, Visitor Center, Satapada, and also Ansupa lake. The activities that were taken up like Cleaning of Wetland, Pledge to participate in the Wetland Conservation activities.

### 18.10. Ongoing activities in Chilika lake under NPCA Components

- Tendering process has been initiated for Desiltation of Balugaon channel and Lead Channel of Chilika Lake.
- Desiltation of Aswaripatna creek, Mangalajodi creek, Jatiapatna
- Bird migration and ringing operation in Nalabana Island through BNHS. Macrophytes have been collected and identified from 33 monitoring stations.
- Collection of fish landing data, fish catch estimation following approved statistical sampling method and preparation of monthly catch reports, Research studies on lake fisheries, conducting awareness training camps on sustainable fisheries, authorized fishing gears and fisheries practices, Infrastructure development at landing centers, construction of one new concrete Jetty at WRTC, Barkul.
- Development of Community halls at Balipada under Kanas block - Construction of one protection Camp -cum- Watch Tower at Mangalajodi under Tangi Block of Khurda district under construction.



HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2022





## REGIONAL PLANT RESOURCE CENTRE

### Research and Developmental Activities in RPRC 2021-22

Regional Plant Resource Centre (RPRC), Bhubaneswar, an autonomous R&D institute of Forest, Environment & Climate Change Department, Govt. of Odisha, has been implementing various R&D activities primarily through execution of various research projects relevant to the state and establishment of different State of the Art facilities to produce and conserve plant genetic resources such as Modern Tissue Culture Laboratory, Orchidarium, Threatened Plants (RET) Garden, Wild Edible Fruits Garden, Medicinal Plants Garden, Cacti and other Succulents, Jagannath Vatika, Fragrant flower Garden, Morning Health Walk etc. Various research programmes have been undertaken with the financial support from Forest, Environment & Climate Change Department, Govt. of Odisha, RKVY, Science & Technology, Govt. of Odisha, other apex central funding agency like DST, NMPB, Govt. of India, which were prioritized to address issues pertaining to conservation and bio-resource utilization relevant to the state of Odisha.

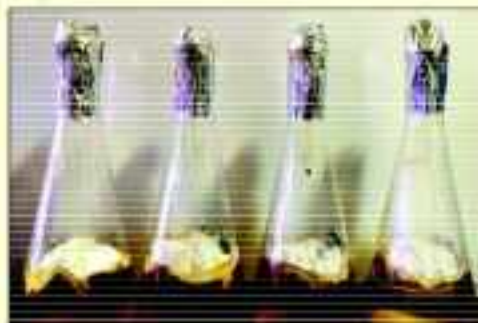
During the year 2021-22, RPRC has prioritized research areas such as re-introduction of RET and other important special group of plants including mangroves and orchids, domestication and evaluation of wild edible fruits and medicinal plants for active bio-molecules, nutraceuticals, antioxidants, development of bioinoculant for forest species, useful secondary metabolites from fungi, micro-propagation of forest species, plantation crops and endangered plants.

A total five external funded, fourteen state plan funded projects have been implemented during the year 2021-22, engaged around thirty research fellows, published eighteen research papers, one book, four leaflets, one Research & Activity Report, trained five M.Sc. Biotech students for their PG degrees.

### 19.1. Highlights of various research activities undertaken during 2021-22 in RPRC

#### 19.1.1. Microbiological Applications

1. Development of bioinoculant for growth and development of *Dalbergia latifolia* and *Desmodium bogainense* by using native microflora.
2. Morphotaxonomic characterization and documentation of fungi of Odisha.
3. Production, purification and evaluation of anticancer properties of extracellular secondary metabolite from *Colletotrichum* sp.
4. Screening of fungi for Glutaminase free L-asparaginase.
5. Harnessing the potential of endophytes against root knot nematode *Meloidogyne incognita* in banana.



*Microbial applications and growth and development of Dalbergia latifolia under protected climatic conditions*



*Morphotaxonomic characterization: Different morphological types of fungi of Odisha*





*Nematicidal Bioformulations (powder, granulated and liquid)*

### 19.1.2. Tissue Culture & its application on various important plant spp. (banana, orchids, medicinal & forest spp.)

1. Mass production of selected medicinal plants of Odisha through tissue culture.
2. Developing micropropagation methods for *Pterocarpus santalinus*, *Anogeissus latifolia* *Santalum album*, and *Desmodium oojeinense*, some endangered forest trees species of Odisha
3. Standardization of in vitro regeneration techniques in red banana and establishment of red banana in Odisha climate condition.
4. Establishment of mass propagation and breeding facility for orchids.
5. Mass Propagation of Local Musa Varieties of Odisha, Commercialization using Tissue Culture Techniques.
6. Omics'- approach to regulate ripening and enhance fruit shelf life in banana: an important fruit crop for food security.



*Production of planting materials of Paederia foetida through tissue culture*







Introduction of red banana and establishment of mother block in Odisha climatic condition for mass propagation



*Different steps in the regeneration of red banana using tissue culture techniques; initiation culture, shoot initiation and shoot proliferation of red banana*



### 19.1.3. Medicinal plant and its application

1. Therapeutic validation of *Pterocarpus marsupium* and *Piper trioicum* as a cholinesterase inhibitor for the treatment of Alzheimer's disease.
2. The protective diabetic neuropathy effect of *Buchanania lanzan* Spreng. in streptozotocin induced type 2 diabetic rats.
3. Assessment of antifungal activity of *Vallisneria spiralis* and *Vernonia anthelmintica* solvent extracts against *Aspergillus flavus*.
4. Phytochemical, antioxidant and cytotoxic activity of ornamental plant *Clerodendrum siphonanthus*.

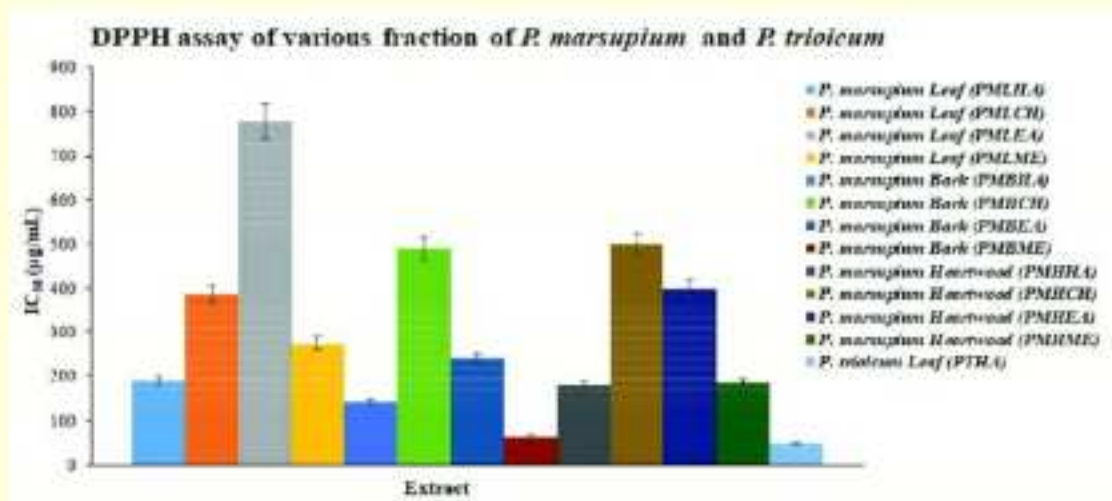


Fig.1.DPPH assay of various fractions of *P. marsupium* and *P. trioicum*

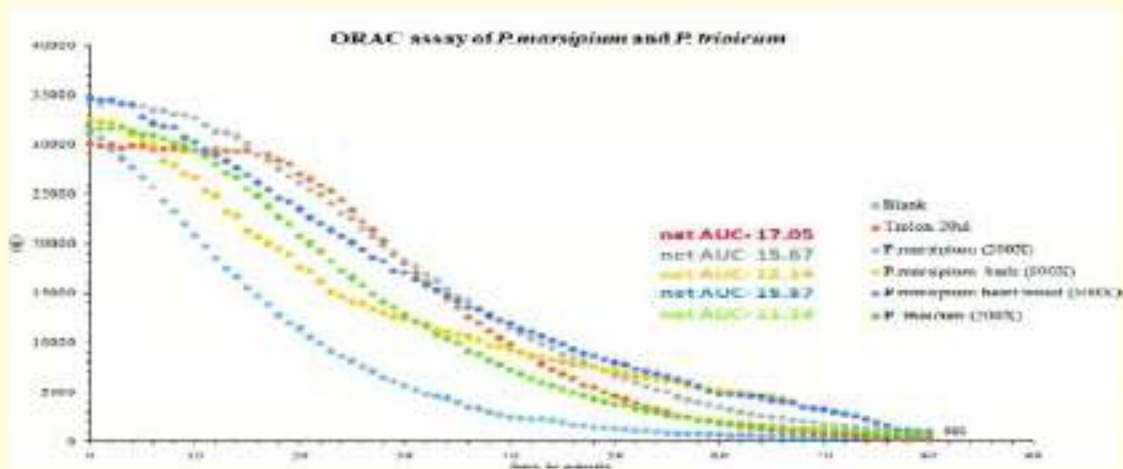
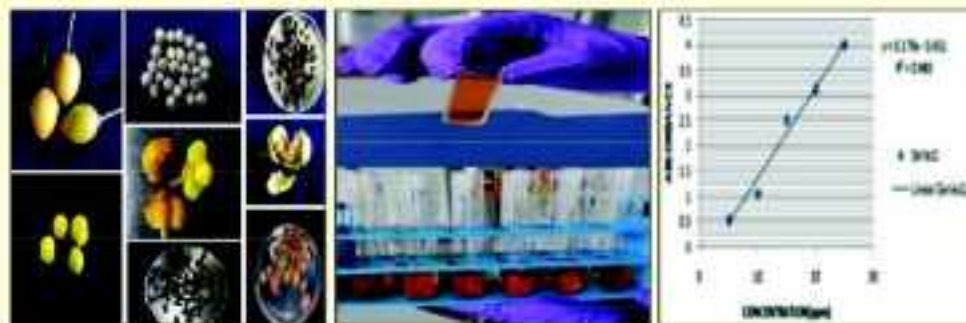


Fig.2.ORAC assay of *P. marsupium* and *P. trioicum*.

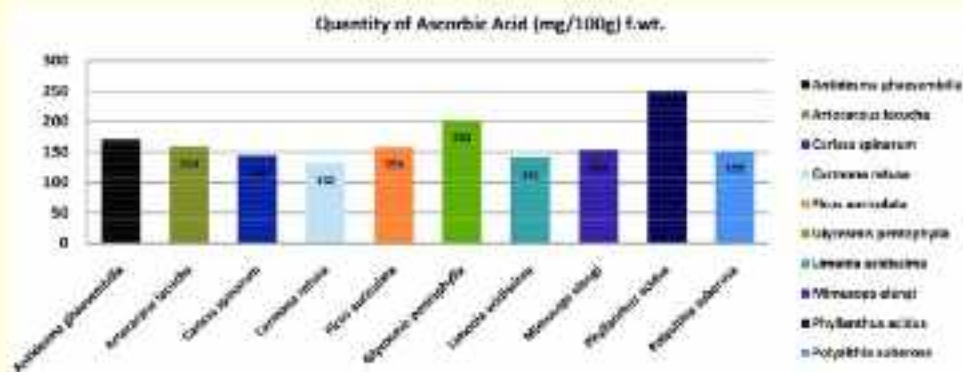
DPPH free radical scavenging activity and ORAC assay have been conducted, and we observed that hydroalcohol fraction extract of both *P. marsupium* and *P. triocicum* demonstrated potent free radical scavenging activity of DPPH (*P. marsupium*: leaf  $188.7 \pm 1.23$ ; bark  $140.74 \pm 1.56$ ; heart wood  $182.316 \pm 2.01 \mu\text{g/mL}$ ), and *P. triocicum* leaf  $48.56 \pm 0.98 \mu\text{g/mL}$  and the results were found comparable with the reference drug ascorbic acid with IC50 value of  $20.5 \pm 0.45 \mu\text{g/mL}$  (Fig. 1). In ORAC assay, net AUC for *P. marsupium* (leaf, bark, and heart wood) and *P. triocicum* (hydroalcohol) with reference drug (trolox) were calculated to be 15.67, 12.14, 15.57, 11.14, and 17.05 respectively (Fig. 2).

#### 19.1.4. Wild Edible Fruits : propagation and nutraceutical analysis

1. Standardization of various macropropagation methods of useful wild edible fruits of Odisha.
2. Immunity boosting natural fruits : determination of Vitamin-C [Ascorbic Acid] for selection of potent species to promote domestication.



Selection & segregation of edible natural fruits from Chandaka forest regions (i.e. *Mimusops elengi*, *Phyllanthus acidus*, *Glycosmis pentaphylla*, *Cordia retusa*, *Artocarpus lacucha*, *Limonia acidissima*, *Polyalthia suberosa*, etc) for analysis of Ascorbic acid.



Quantitative & qualitative determination of Ascorbic acid (i.e. Vitamin C) in through Spectrophotometer in various wild edible fruits of Odisha





Production of quality planting materials (QPM) of wild edible fruits species *Antidesma ghaesambilla*, *Carissa spinarum*, *Threbinia microphylla*, *Eugenia roxburghii*, *Glycosmis pentaphylla*, *Polyalthia suberosa* & *Ziziphus oenopia* for conservation and domestication purposes

#### 19.1.5. Propagation and reintroduction of RET & Mangrove plants

1. Propagation and reintroduction of selected endangered species of Odisha.
2. Conservation of salt sensitive back mangroves *Heritiera fomes* and *H. littoralis* through re-introduction in protected area: application of vegetative propagation technique



Vegetative propagation and salt-hardening of *Heritiera fomes* and *H. littoralis* in BPRC Nursery



Reintroduction of *Heritiera fomes* and *H. littoralis* in Bhitarkanika and Devi River Delta





*Propagation of RET Plants Cryptocarpus amygdalinus and Draculum indicum*

## 19.2. Other major developmental activities carried out in RPRC

- i. Strengthening of existing Model Nursery & Sale facilities along with provision of Toilet facilities for visitors.
- ii. Development and strengthening of high-tech propagation facilities for production of Quality Planting Materials of ornamental plants like rose, hibiscus, foliage etc.
- iii. Strengthening of botanical garden amenities such as Visitor sheds.
- iv. Renovation of Old Cambridge House (Polyhouse)
- v. Establishment of display huts in the nursery
- vi. Strengthening of peripheral compound wall damaged during Cyclone Fani.





*Establishment of New Model Nursery*



*Renovation and functioning of Old Polyhouse (Cambridge House)*



*Strengthening of botanical garden amenities such as Visitor sheds*



## OBSERVATION OF IMPORTANT DAYS

### 20.1. List of Observation days

Following are some of the annual events observed at international, national level and celebrated throughout the state to raise public awareness about values, importance and significance of natural resources like environment, forests, wildlife, wetland etc.

- |  |                      |
|--|----------------------|
| 1. World Wetlands Day                              | - 2nd February       |
| 2. World Wildlife Day                              | - 3rd March          |
| 3. World Forestry Day                              | - 21st March         |
| 4. World Earth Day                                 | - 22nd April         |
| 5. World Environment Day                           | - 5th June           |
| 6. World Day to Combat Desertification and Drought | - 17th June          |
| 7. Vana Mahotsava                                  | - 1st week of July   |
| 8. World Elephant Day                              | - 12th August        |
| 9. Wildlife Week                                   | - 2nd to 8th October |

#### 20.1.1. World Wetlands Day - 2nd February

World Wetland Day is celebrated every year on February 2nd to raise awareness about the value of wetlands for humanity and the planet. This day marks the date of the adoption of the Convention on Wetlands on 2 February 1971, in the Iranian city of Ramsar on the shores of the Caspian Sea. The day was celebrated for the first time in 1997 and its relevance has grown remarkably since then.



Each year, government agencies, non-governmental organizations and groups of citizens at all levels of the community have taken advantage of the opportunity to undertake actions aimed at raising public awareness of wetland values and benefits. Some of these benefits



include: biologically diverse ecosystems that provide habitat for many species, serve as buffers on the coast against storms and flooding, and naturally filter water by breaking down or transforming harmful pollutants.

Each year a theme is selected to focus attention and help raise public awareness about the value of wetlands. At national and state level, a variety of events are organized to raise awareness such as; lectures, seminars, nature walks, children's art contests, sampan races, community clean-up days, radio and television interviews, letters to newspapers, to the launch of new wetland policies, new Ramsar Sites and new programmes at the national level.

The theme for the current year is 'Wetlands for a sustainable urban future'. In our state, the wetland Day is celebrated every year successfully to raise public awareness on value and significance of wetlands.

#### 20.1.2. World Wildlife Day - 3<sup>rd</sup> March



#### 20.1.3. World Forestry Day - 21st March

The World Forestry Day initiated in the year 1971 at the 23<sup>rd</sup> General Assembly of European Confederation of Agriculture and it was decided to celebrate as an annual event celebration on 21st of March by the United Nations Food and Agriculture Organization to raise public awareness about the importance of the forests.

United Nation General Assembly proclaimed March 21 as International Day of Forests in 2012 to commemorate and raise awareness of the significance of all types of forests.

World Forestry Day or International Day of Forests is celebrated worldwide every year on 21st of March at the international level in order to increase the public awareness among communities about the values, significance and contributions of the forests to balance the life cycle on the earth. The theme for the current year is "Forest and Sustainable Production and Consumption".

The day has been observed and celebrated in the state with an aim to meet the above objectives.

#### 20.1.4. World Earth Day - 22nd April

World Earth Day is celebrated every year as an annual event by the people all across the world on 22nd of April in order to increase the awareness among people about the environment safety as well as to demonstrate the environmental protection measures. For the first time, the world earth day was celebrated in the year 1970 and henceforth was celebrated annually on a global basis by almost 192 countries.

The state of Odisha has been celebrating this day every year producing ever increasing awareness among the people.

#### 20.1.5. World Environment Day - 5th June

World environment day is a day especially celebrated to know and solve all the environmental issues. It is also known as the Environment Day, Eco Day or WED. It is a great annual event focusing on the issues of environment and trying to solve them completely. It is being celebrated for years worldwide with lots of creative activities and enthusiasm to bring positive changes in the environment. It aims to protect the natural environment forever on the earth for the healthy possibility of life.



### WORLD ENVIRONMENT DAY 2021



#### WINNERS OF ON LINE EVENTS



CUTTACK



SAMBALPUR



ANANDPUR



BHUBANESWAR



BALASORE



It is celebrated annually on 5th of June since 1973 however declared in 1972 by the United Nations General Assembly during the opening of conference on Human Environment to raise the global awareness about the declining condition of the environment as well as tell people about the importance of healthy and green environment on earth. The annual celebration of it depends on the particular theme of the year (declared by the UN) which focuses on implementing some new and effective plans to save the environment.

**20.1.6. World Crocodile Day 2021 (17.06.2021)**

**WORLD CROCODILE DAY 2021**

WINNERS OF ON LINE EVENTS



ARJUN



ANIKA MISRA



ANANYA MISHRA



ANIKA



ANANYA MISHRA



ANANYA MISHRA



**CROCODILES OF NANDANKANAN**

**20.1.7. World Day to Combat Desertification and Drought - 17th June**

The World Day to Combat Desertification and Drought is observed every year to promote public awareness of international efforts to combat desertification. The day is a unique moment to remind everyone that land degradation neutrality is achievable through problem-solving, strong community involvement and co-operation at all levels.

In 1994, the United Nations General Assembly declared June 17 the "World Day to Combat Desertification and Drought" (General Assembly Resolution A/RES/49/115) to promote public



awareness of the issue relating to international cooperation to combat desertification and effects of drought.

Similarly, Odisha has also been celebrating this day successfully every year. As a result, the forest cover in the state has always been more than the national average.

#### 20.1.8. Vana Mahotsava - 1st week of July

Vana Mahotsava is an annual pan-Indian week long tree planting festival, observed in the month of July. The day is dedicated by my Government to arouse public awareness on three key strategies; increasing tree cover by plantation of more and more trees, protection and conservation of existing forests with support of community to improve biodiversity.

This was first done in the 1950s immediately after independence by the then Union Minister for Agri-culture, Mr. K.M. Munshi and since then it has been annual event.



In our state Vana Mahotsava has always been celebrated right from the grass roots level in the first week of July ensuring greater participation and awareness among the people for receiving overall positive impact on forests and their biodiversity.

#### 20.1.9. World Lion Day (10.08.2021)



### 20.1.10. World Elephant Day - 12th August

This day highlights about the importance of conservation and protection of elephants from the numerous threats they face.

On August 12, 2012, the inaugural World Elephant Day brought about the attention towards the existing plight of Asian and African elephants. There is not an inkling of doubt that the elephant is loved, revered and respected by people and cultures around the world, yet we balance on the brink of seeing the last of this magnificent creature.



The escalation of poaching, habitat loss, human-elephant conflict and mistreatment in captivity are just some of the innumerable threats to both the African and the Asian elephants. In this connection, almost all the elephant conservation organizations are primarily focussing on better protection for wild elephants, conserving elephant habitats, improving enforcement policies to prevent the illegal poaching and trade of ivory, better treatment for captive elephants and, when appropriate, reintroducing captive elephants into natural, protected sanctuaries.

This day invites you to experience elephants in a non-exploitive and sustainable environment where elephants can thrive under adequate protection and care. Everyone needs to express their concerns, share knowledge and create solutions for the better care of captive and wild elephants alike.

Elephants are not just one more natural resource that is being caught up in human greed on the one hand and human need on the other. We somehow need people to become reacquainted with nature or they can have no clue as to the interrelatedness of cause and effect.

### 20.1.11. International Culture Awareness Day - 4<sup>th</sup> September





**20.1.12. World Rhino Day – 22<sup>nd</sup> September****20.1.13. Wildlife Week - 2nd to 8th October**

Wildlife Week is celebrated all over the country in the month of October from 2<sup>nd</sup> to 8<sup>th</sup> October every year with a view to preserve the fauna of India. It was first started in the year 1952 with the great vision of saving the life of animals by taking some critical steps. The Indian Government has established an Indian Board of Wild Life which works to improve the awareness as well as the consciousness of the Indian people towards the wildlife preservation.

On a similar note, in the State of Odisha, Wildlife Week has been successfully celebrated every year without hiccups.







20.1.14. 62<sup>nd</sup> Foundation Day 2021 - (29<sup>th</sup> December)







