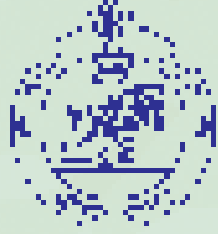




Highlights of ODISHA FORESTRY SECTOR 2021

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





**HIGHLIGHTS OF
ODISHA FORESTRY SECTOR
2021**

**PRINCIPAL CHIEF CONSERVATOR OF FORESTS &
HEAD OF FOREST FORCE, ODISHA**

ARANYA BHAWAN, CHANDRASEKHARPUR
BHUBANESWAR - 751 023





ନବୀନ ପଟ୍ଟନାୟକ
ମୁଖ୍ୟମନ୍ତ୍ରୀ, ଓଡ଼ିଶା



ଲୋକସେବା ଭବନ
ଭୁବନେଶ୍ୱର

ବିଶ୍ୱ ବନ ଦିବସ ୨୦୨୧ ଉପଲକ୍ଷେ ମାନ୍ୟବର ମୁଖ୍ୟମନ୍ତ୍ରୀଙ୍କ ବାର୍ତ୍ତା

ବିଶ୍ୱ ବନ ଦିବସ ଅବସରରେ ସମସ୍ତଙ୍କୁ ମୋର ଶୁଭେଚ୍ଛା ।

ମାର୍ଚ୍ଚ ୨୧ ତାରିଖକୁ ଆମେ ‘ବିଶ୍ୱ ବନ ଦିବସ’ ଭାବରେ ପାଳନ କରିଆସୁଅଛୁ । ଚଳିତ ବର୍ଷ ବନ ଦିବସ ପାଳନର ମୁଖ୍ୟ ବିଷୟ ବସ୍ତୁ ହେଉଛି ‘ଜଙ୍ଗଲର ପୁନରୁଦ୍ଧାର: ପୁନର୍ଜୀବନ ଏବଂ ସୁସ୍ଥତା ପାଇଁ ଏକ ମାର୍ଗ’ ।

ମାନବ ସମାଜର ଉନ୍ନେଷ, ଜଙ୍ଗଲରୁ ହିଁ ଆରମ୍ଭ ହୋଇଛି ଏବଂ ଆମର ପରିବେଶ ଉପରେ ଜଙ୍ଗଲର ପ୍ରଭାବ ବିଷୟରେ ଆମେ ସମସ୍ତେ ଭଲ ଭାବରେ ଅବଗତ । ଜଙ୍ଗଲ ହିଁ ଆମକୁ ଖାଦ୍ୟ, ବସ୍ତ୍ର, ବାସଗୃହ ଆଦି ମୌଳିକ ଉପକରଣ ଯୋଗାଇବା ସହିତ ପରିବେଶକୁ ଶୁଦ୍ଧ କରିଥାଏ । ସୁତରାଂ ସୁସ୍ଥ ଜଙ୍ଗଲ ହିଁ ସୁସ୍ଥ ପରିବେଶ ଓ ସୁସ୍ଥ ସମାଜର ବିକାଶର ଆଧାର ।

ଯେହେତୁ ବିଭିନ୍ନ ବିକାଶ କାର୍ଯ୍ୟ ନିମନ୍ତେ ଜଙ୍ଗଲ ଉପରେ ଚାପ ଦିନକୁ ଦିନ ବୃଦ୍ଧି ପାଉଛି, ଜଙ୍ଗଲର ପୁନରୁଦ୍ଧାର, ସୁରକ୍ଷା ଏବଂ ଜଙ୍ଗଲ ସମ୍ପଦର ଉପଯୁକ୍ତ ପରିଚାଳନା ପାଇଁ ଥିବା ସରକାରଙ୍କ ବିଭିନ୍ନ କାର୍ଯ୍ୟକ୍ରମର ସଫଳ କାର୍ଯ୍ୟକାରୀତା ପାଇଁ ମୁଁ ଆପଣମାନଙ୍କର ସହଯୋଗ କାମନା କରୁଛି ।

ଜଙ୍ଗଲ ହେଉଛି ପ୍ରକୃତିର ଅମୂଲ୍ୟ ସମ୍ପଦ । ଆମର ଭବିଷ୍ୟତ ବଂଶଧରଙ୍କ ପାଇଁ ତାକୁ ସୁରକ୍ଷିତ ରଖିବା ଆମର ନୈତିକ ଦାୟିତ୍ୱ । ଆସନ୍ତୁ, ଆମେ ସମସ୍ତେ ଆଜିର ଦିନରେ ସଂକଳ୍ପବଦ୍ଧ ହୋଇ ଏ ଦିଗରେ କାମ କରିଚାଲିବା ।

ବିଧି ଓ ସଂକଳ୍ପ

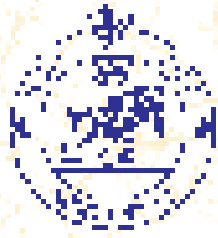
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ଭୁବନେଶ୍ୱର

ତାରିଖ . ୧୬.୦୩.୨୧

ବିକ୍ରମ କେଶରୀ ଆରୁଖ

ମନ୍ତ୍ରୀ

ଜଙ୍ଗଲ ଓ ପରିବେଶ, ସଂସଦୀୟ ବ୍ୟାପାର
ଓଡ଼ିଶା

ବିଶ୍ୱ ବନ ଦିବସ ଉପଲକ୍ଷେ ମାନ୍ୟବର ଜଙ୍ଗଲ ଓ ପରିବେଶ ମନ୍ତ୍ରୀଙ୍କ ବାଉଁ

ପ୍ରତିବର୍ଷ ମାର୍ଚ୍ଚ ମାସ ୨୧ ତାରିଖଟିକୁ ସମଗ୍ର ପୃଥିବୀରେ ‘ବିଶ୍ୱ ବନ ଦିବସ’ ରୂପେ ପାଳନ କରାଯାଉଥିବା ସହ ଜଙ୍ଗଲ ସମ୍ପଦର ସୁରକ୍ଷା, ସଂରକ୍ଷଣ ଓ ପୁନରୁଦ୍ଧାର ନିମନ୍ତେ ସଚେତନତାର ପ୍ରସାର କରାଯିବା ଉଦ୍ୟମ ସର୍ବଥା ପ୍ରଶଂସନୀୟ। ଚଳିତ ବର୍ଷ ଏହି ଦିବସ ପାଳନର ସନ୍ଦେଶ ରହିଛି ‘ଜଙ୍ଗଲର ପୁନରୁଦ୍ଧାର: ପୁନର୍ଜୀବନ ଏବଂ ସୁସ୍ଥତା ପାଇଁ ଏକ ପଥ’।

ଜଙ୍ଗଲ ହିଁ ଜୀବନ। ମାନବ ଜାତି ଓ ସୁସ୍ଥ ପରିବେଶ ପାଇଁ ଜଙ୍ଗଲର ଭୂମିକା ଅନସ୍ୱୀକାର୍ଯ୍ୟ। ଜଙ୍ଗଲ ଯୋଗୁଁ ଆମେ ପ୍ରଦୂଷଣମୁକ୍ତ ବାୟୁ, ଯଥେଷ୍ଟ ବୃକ୍ଷ, ଖାଦ୍ୟ, ଔଷଧ ଓ ଇନ୍ଦନ ପ୍ରଭୃତି ପାଇଥାଉ। ମନୁଷ୍ୟ ସମାଜ ପାଇଁ ବହୁମୂଲ୍ୟ ଜୈବବିବିଧତାର ମୂଳ ଉତ୍ସ ହେଉଛି ଜଙ୍ଗଲ। ଜଙ୍ଗଲର ଶ୍ରୀବୃଦ୍ଧି ଓ ସମୃଦ୍ଧି ଉପରେ ମାନବ ଜାତିର ଭବିଷ୍ୟତ ନିର୍ଭର କରିଥାଏ।

ବିକାଶ ନାମରେ ଜଙ୍ଗଲର ଦ୍ରୁତ ଅବକ୍ଷୟକୁ ରୋକିବା ସଂପ୍ରତି ଜରୁରୀ ହୋଇପଡ଼ିଛି। ଅବକ୍ଷୟିଷ୍ଟ ଜଙ୍ଗଲର ପୁନରୁଦ୍ଧାର ଓ ବ୍ୟାପକ ବନାକରଣ ଦ୍ୱାରା ପରିବେଶରେ ଉନ୍ନତି, ଖାଦ୍ୟ ଉତ୍ପାଦନରେ ବୃଦ୍ଧି ଏବଂ ସୁସ୍ଥ ଭବିଷ୍ୟତ ସମ୍ଭବ ହୋଇପାରିବ। ପ୍ରକୃତିଦତ୍ତ ବନାନୀର ସମ୍ପୂର୍ଣ୍ଣ ପୁନରୁଦ୍ଧାର ଓ ପୁନର୍ଜୀବନ ମାନବ ସମାଜ ପାଇଁ ଏକମାତ୍ର ବିକଳ୍ପ ପଥ।

ମାନ୍ୟବର ମୁଖ୍ୟମନ୍ତ୍ରୀ ଶ୍ରୀଯୁକ୍ତ ନବୀନ ପଟ୍ଟନାୟକଙ୍କ ନିର୍ଦ୍ଦେଶ କ୍ରମେ ରାଜ୍ୟ ସରକାର ଉଚ୍ଚତା ଜଙ୍ଗଲର ପୁନରୁଦ୍ଧାର ଓ ବନାକରଣ, ଜଙ୍ଗଲର ସୁରକ୍ଷା, ସମୃଦ୍ଧି ଓ ଅଭିବୃଦ୍ଧି ପାଇଁ ବିବିଧ ପଦକ୍ଷେପ ଗ୍ରହଣ କରିଆସୁଛନ୍ତି। ସେଗୁଡ଼ିକର ସଫଳ ରୂପାୟନ ନିମନ୍ତେ ରାଜ୍ୟବାସୀଙ୍କ ଅକୃଷ୍ଣ ସହଯୋଗ ପାଇଁ ମୁଁ ଭାଇ ଓ ଭଉଣୀମାନଙ୍କୁ ନିବେଦନ କରୁଛି।

ବିକ୍ରମ କେଶରୀ ଆରୁଖ
(ବିକ୍ରମ କେଶରୀ ଆରୁଖ)





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Date : 16.03.2021

Message

Every year, the International Day of Forests is celebrated on 21st of March as per the resolution of United Nations General Assembly to celebrate and create awareness about the importance of all types of forests and also trees outside of the forest.

The theme this year chosen by Collaborative Partnership on Forests is “Forest restoration: a path to recovery and well-being”.

Over the last two assessment years, India’s forest and tree cover has gone up by 5,188 square kilometres. This increase includes 929 square kilometres in our state itself. The State Government has played a pivotal role in increasing the forest area through its numerous afforestation and conservation schemes with active involvement of the village communities.

This year’s theme encompasses the message of restoring and rebuilding forests for improving the quality of life for our future generations.

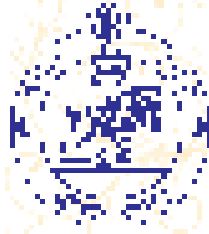
Restoration of forest will enhance food security, improve air and water quality, promote climate resilience, create jobs and conserve biodiversity.

I am sure “Highlights of Odisha Forestry Sector 2021” report will be used as a reference document by policy makers, researchers, academicians and citizens of our State.


(Dr. Mona Sharma)



Jitendra Kumar, IFS
Principal Chief Conservator of Forests
& Head of Forest Force, Odisha



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FOREWORD

The International Day of Forests is celebrated every year since 2012 as per the United Nations General Assembly Declaration. Just like every year, this year too, the International Day of Forests will be celebrated on 21st of March with the theme - "Forest restoration: a path to recovery and well-being."

Forests are said to be ever benevolent and kind as they provide us with our needs in return for nothingness for their sustenance. They don't discriminate between the poor man who needs a shade and the axe wielding man who destroys them. Despite the rampant deforestation and a sudden rise in forest fires across the globe, we as a global community can help restore forests which will not only make us healthier and improve our environment but also help create millions of green jobs. With thousands of forest plants and animals facing extinction due to forest cover losses every year, it is crucial to engage and empower people to help restore our forests saving us from both climate change and biodiversity crises.

Both the country and the state are on the path to rising forest cover over the last few years. Our state of Odisha currently has 56.267 square kilometres of forests which is 36.14% of the total Geographical Area. This has been possible not only due to the proactive role of the state government via its various afforestation and conservation schemes but also due to the relentless efforts of the Vana Surakshya Samitees at the ground level.

Like every year, the State Forest Department has published a comprehensive report titled "Highlights of Odisha Forestry Sector 2021". This report will highlight the various activities currently being undertaken for afforestation and conservation strategies for forest restoration. Additionally, it will also include vital forest statistics and summarize the achieved targets of the various schemes.

I am delighted to extend my thanks to Sri Sushil Kumar Popli, IFS, PCCF (PP&A), Smt Sujata Rani Sahu, Sociologist and the SFDA staff for their tireless efforts in making this report a success.

I am confident that this report will be of help to administrators, researchers, field staff, functionaries, the media and the general public.


(Jitendra Kumar)

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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 Indian 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 kilometre (4.87% of the total geographical area of the country), physiographically, the state can 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, serpentine rivers, mighty waterfalls and forest-clad blue hills of Eastern Ghats with rich wild life. Extended over the rich mineral belts in the western and north-western parts 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 25°C - 28°C. 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 (1968), 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)	32,809 Sq Km
Forest Cover outside Recorded Forest Area (Green Wash)	18,810 Sq Km
Forest Cover Area	51,619 Sq Km
Tree Cover (Outside Forest Area)	4,648 Sq Km
Total Forest & Tree Cover	56, 267 Sq Km



HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

Extent of Trees outside Forest Area	23,458 Sq Km
Per capita Forest Area (Recorded)	0.146 ha
Per capita Forest & TreeCover	0.134 ha
Percentage of Forest Area (Recorded) to Geographical Area	39.31 %
Percentage of Forest Cover Area to Geographical Area	33.15 %
Percentage of Tree Cover Area to Geographical Area	2.99 %
Percentage of Forest & Tree Cover to Geographical Area	36.14 %

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 2019 assessment by the Forest Survey of India, the forest cover in the State is 51,619 square kilometre i.e. 33.15% of its geographical area, while tree cover of the State is 4,648 square kilometre i.e. 2.99% of geographical area indicating per capita Forest area (recorded) as 0.146 hectare and per capita Forest & Tree cover as 0.134 hectare. The state has gained 274 square kilometre area of forest cover and 655 square kilometre of tree cover within a period of 2 years i.e. from 2017 to 2019. So, the total forest and tree cover in the state has increased by 929 square kilometre during the period from 2017 to 2019. The total forest and tree cover area of forest constitutes 36.14% of the total Geographical Area of the state.

The Forest cover of the state has been categorized as very dense (6,969.71 square kilometer), moderately dense (21,551.93 square kilometer), open forest (23,096.87 square kilometer) and scrub (4,326.91 square kilometer). *Shorea robusta* 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	Dense	Moderately dense	Open Forest	Total	Scrub	Tree cover	Mangrove
2019	6970	—	21552	23097	51619	4327	4648	251
2017	6967	—	21370	23008	51345	4306	3993	243
2015	6985	—	21470	22005	50460	4499	3986	231
2013	7042	—	21298	22007	50347	4424	4013	213
2011	7060	—	21366	20477	48903	4734	4301	222
2009	7073	—	21394	20388	48855	4852	4435	221
2005	538	—	27656	20180	48374	4743	4589	203

HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

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 (51618.51 square kilometres) to total recorded forest area (61204.17 square kilometres) of the State is 84.34 % in 2019.
- ❖ The State has gained more than 4677.51 square kilometre area of forest cover since 1997.
- ❖ Forest Cover in the State has increased by 273.51 square kilometre with a net increase of 2.71 square kilometre in Very Dense Forest, 181.93 square kilometre in Moderately Dense Forest and 88.87 square kilometre in Open Forest. Additionally scrub area has gone up by 21 square kilometre and tree cover by 655 square kilometre as compared to the previous assessment (2017).
- ❖ 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 kilometre.
- ❖ The total wetland area inside the Recorded Forest Area in Odisha is 646.27 square kilometre.
- ❖ As per the assessment of 2019 the total Forest Cover (51618.51 square kilometre) includes area of Mangrove vegetation i.e. 251 square kilometre representing a major ecosystem.



Forest Cover inside and outside RFA

Forest Cover inside the RFA				Forest Cover outside the RFA				Grand Total
VDF	MDF	OF	Total	VDF	MDF	OF	Total	
5,567	15,250	11,992	32,809	1,403	6,302	11,105	18,810	51619
16.97%	46.48%	36.55%		7.46%	33.50%	59.04%		

- Extent of Trees Outside Forest (TOF) is estimated as sum of forest cover outside RFA and tree resources outside forests i.e. 18,810 sq km + 4648 sq km = 23,458 sq km.

1.4. Growing Stock

Growing Stock in Recorded Forest Area	299.04 million cum
Growing Stock in Tree Outside Forest	95.02 million cum
Bamboo Bearing Area inside RFA/ Green Wash	1.18 million hectare
Total Carbon Stock of Forest	432.29 million Tones

- ❖ The Growing Stock in Recorded Forest Area is 299.04 million cum, in Tree Outside Forest 95.02 million cum and total Carbon Stock of Forest is 432.29 million Tones. The Bamboo Bearing area inside RFA is 1.18 million hectare.

1.5. Dependence of Forest Fringed villagers on Forests in Odisha

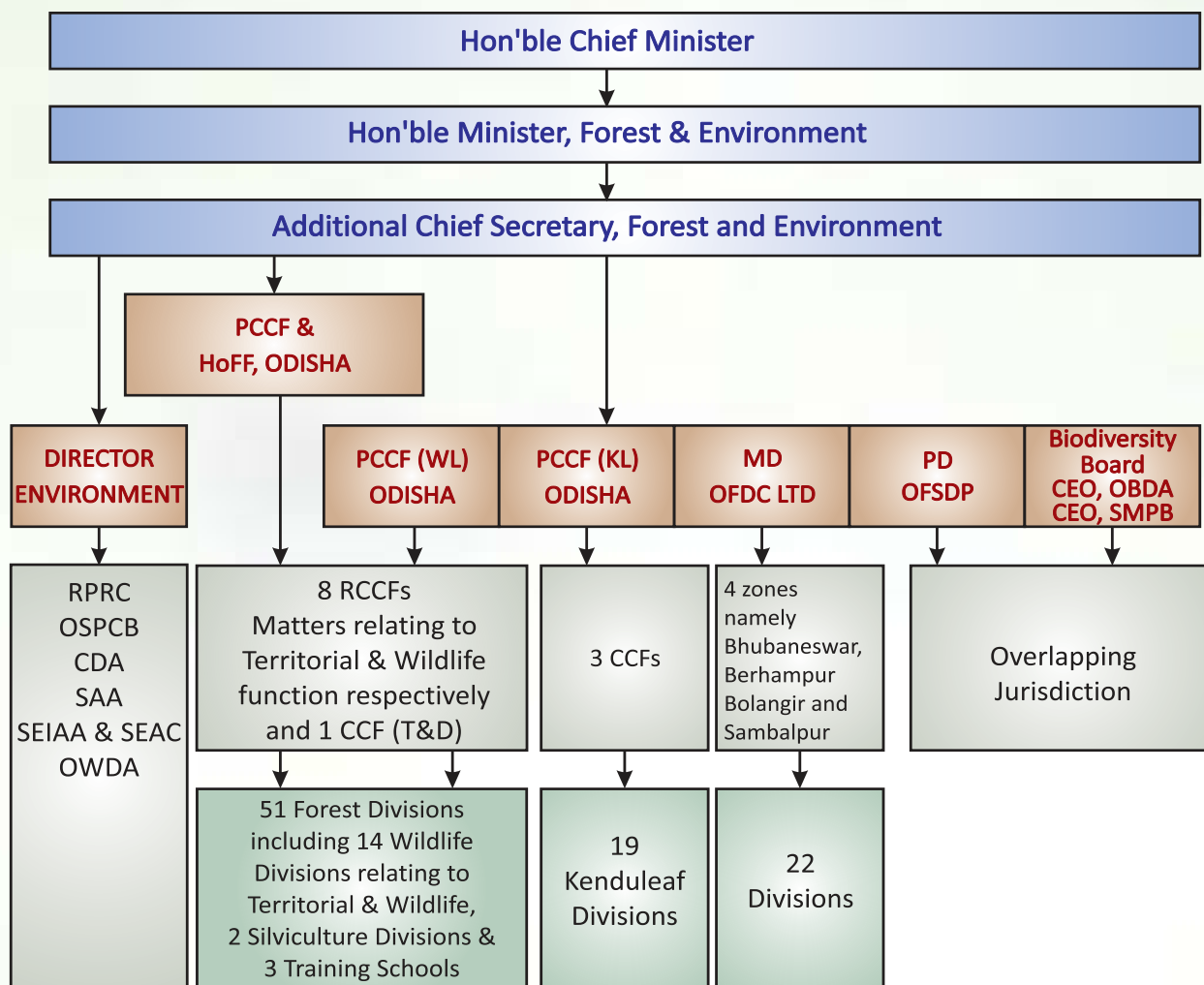
Fuelwood (tonnes)	Fodder (tonnes)	Bamboo (tonnes)	Small Timber (cum)
91,85,833	5,60,35,117	1,10,787	3,76,521

1.6. 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	60	190	601
Kenduleaf	3	19	153	657	
Training & Development	1	2			
Working Plan		8			





HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

- ❖ 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).
- ❖ 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.



DIVERSION OF FOREST LAND

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

About 57737.52 hectare of forest land has been diverted under the Forest (Conservation) Act, 1980 for 516 number of different developmental projects as on 31.12.2020; the details of such diversion are reflected below:

Name of the Sector	No. of Proposals	Forest Area diverted (ha)
Irrigation	84	10652.06
Industry	34	4438.52
Mining	189	28732.56
Energy	06	116.45
Road & Bridges	51	1381.55
Railway	22	2737.82
Defence	04	3865.25
Human Habitation	05	366.46
Transmission	70	4338.81
Others	51	1108.04
TOTAL	516	57737.52



3.2. 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 924.474 hectare of forest land has been diverted for 1742 number of different small developmental projects under the above Act as on 31.12.2020. The sector wise details are given below:

Name of the Sector	No. of Proposals	Forest Area diverted (ha)
Anganwadi	16	0.833
Electric Line	605	309.945
Water Harvesting Structure	39	11.470
Tank & other Minor Water Bodies	29	12.324
Drinking Water Supply & Water Pipeline	136	33.916
Irrigation	49	14.898
Road	598	415.032
School	115	64.953
Community Centre	77	21.798
Vocational Training Centre	26	17.192
Hospital	14	4.216
Telephone Line	13	2.113
Non-Convention Energy Source	05	4.044
Others	20	11.739
TOTAL	1742	924.474



3.3. 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 31.12.2020, 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
TOTAL	20	82.799

3.4. 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. The detail picture on the titles issued under Individual and Community Right up to 31.01.2021 is given below:

Category of Right	Titles issued	Forest Area involved (In Acres)
Individual	443686	658952
Community	6697	241904



STATE BUDGET IN FORESTRY SECTOR

4.1. 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)
Funds Received under Extra Budgetary Source	
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	Other Corporate Sectors like OMC, Railways, MCL, OPGC etc.

4.2. Budget Provision in last thirteen 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	42731.1313
	Non- Plan/ Administrative Expenditure	Programme Expenditure	
2017-18	30600.01	10057.75	40657.76
2018-19	30599.90	21989.24	52589.14
2019-20	31626.79	93963.00	125589.79
2020-21	31561.70	128670.50	160232.2



WORKING PLAN

5.1. 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, Hiraikud WL, Simlipal Tiger Reserve (North) and Simlipal 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, Bhadrak 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.

5.2. Status of Working Plans

Divisions having Working Plan Expired	Divisions having Valid Working Plans	Divisions Revised Working Plan of Which under Progress after approval of Preliminary Working Plan Reports by the Standing Consultative Committee
31	13	31

NB: The divisions where working plans have expired and being managed through the working schemes pending approval of the corresponding working plans.





HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

- ❖ The Working Plans of 13 Forest and Wild Life Divisions namely Boudh, Sundargarh, Rourkela, Dhenkanal, Deogarh, Bamra Wildlife, Ghumsur South, Berhampur, Bargarh, Rairangpur, Ghumsur North and Nawrangpur and Puri WL divisions are having long validity.
- ❖ The Working Plans of 31 Forest and Wildlife Divisions namely Koraput, Paralakhemundi, Bhadrak WL, Athamalik, Karanjia, Baripada, Balasore WL, Raygada, Angul, Kalahandi North, Jharsuguda, Nayagarh, Bonai, Kalahandi South, Keonjhar, Keonjhar WL, Malkangiri, Phulbani, Jeypore, Rairakhol, Chilika WL, Athagarh, Baliguda, Cuttack, Sambalpur, Subarnapur, Bolangir, Rajnagar WL, Khordha, City Forest and Khariar have expired. Presently, the Preliminary Working Plan Reports of all these Divisions have been approved by the Standing Consultative Committee and revision of their working plans is in progress.

5.3. Status of Working Schemes

The working schemes of 32 Divisions namely Koraput, Paralakhemundi, Bhadrak WL, Athamalik, Karanjia, Baripada, Balasore WL, Raygada, Angul, Kalahandi North, Jharsuguda, Nayagarh, Bonai, Kalahandi South, Keonjhar, Keonjhar WL, Malkangiri, Puri WL, Phulbani, Jeypore, Rairakhol, Chilika WL, Athagarh, Baliguda, Cuttack, Sambalpur, Subarnapur, Bolangir, Rajnagar WL, Khordha, City Forest and Khariar Divisions have been approved for the year 2020-21.

5.4. Forest Working

5.4.1. 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
2016-17	23	109	67133	27435	13	15
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	Under progress	Under progress	Under progress	Under progress	Under progress	Under progress



5.4.2. 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 Cft.)	Irregular Lots (Per Cft.)	Sal Pole (Per Pc.)	Teak pole (Per Pc.)	Other Pole (Per pc.)	Sal & Non-Sal (Per Stack)	Casuarina (Per Qtl.)	Industrial Bamboo (Per SU)	Commercial Bamboo (Per Pc.)	Sal Leaf (Per Qtl.)
2016-17	1605	244	55	45	32	385	150	255	Salia:1 Daba:2.50	86
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



FOREST PROTECTION AND MANAGEMENT

6.A.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 Divisions	Total
	37	14	51
Number of Ranges	223	60	283
Number of Sections	827	190	1017
Number of Bits	3082	601	3683

- ❖ 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, 199 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 2020-21 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 2020-21 for movement of Field staff and Fire Fighting Protection Squads for forest fire prevention and control activities.
- ❖ During the year 2020-21 under State CAMPA APO 2020-21, 19500 Km of forest Fire Line have been maintained for prevention of forest fire in different Forest Divisions of State.
- ❖ 32 Forest Protection Squads have been constituted under State CAMPA Scheme 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 2020-21, under Forest Fire Prevention and Management - Centrally Sponsored Scheme 4727 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 number 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 (upto December 2020):

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	63105	47130	5397	411
2019-20	59460	41310	3673	358
2020-21	37271	30992	4887	704

- ❖ The Orissa Forest Act, 1972 has been amended as “The Orissa Forest (Amendment) Act, 2010”, wherein the compounding fee has been enhanced from Rs.100/- to Rs.5,000/-.
- ❖ 25 Forest Guards and 4 Foresters have been recruited to assist Odisha Special Striking Force engaged for protection of Berbera and Dhuanali forests.

6.A.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 2020-21 an amount of Rs.33, 31,898/- has been provided to different Divisional Forest Officers towards reward amount to the informers.

6.A.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.ttpermitodisha.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 5T Governance, the timeline for issue of timber transit permit is fixed to 42 days 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.T Permit etc are streamlined through this online application system which is in operation from 25.10.2019.

6.A.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

HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

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



The Standard Operating Procedure (SOP) on prevention of forest fire 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. In addition, fire lines are made regularly in the fire prone areas to prevent accidental spread of fire; in the current year, total of about 4700 kms of such lines have been created besides maintenance of over 19,000 kms of existing firelines. Further, during the fire prone season, the fire fighting squads are made functional by engagement of the local villagers; over 250 nos of such squads have been engaged this year. In addition, Control room has already been functioning 24x7 at Forest Headquarters besides the Divisional HQs 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. 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	31680	9730.06
2019	19787	7164.95
2020	11088	6070.25

However, this year, particularly in the month of Feb'2021, there is an increase in forest fire incidents reported, primarily because of lack of rainfall from Nov'2020 onwards and early/ sudden increase in the temperature. We have already attended most of the spots timely. Further, a State Level Task force under the chairmanship of Dr Sandeep Tripathi, former PCCF & HoFF, Odisha and comprising of even representatives of FSI, Dehradun; ICFRE, Dehraudun and



NRSC, Hyderabad has been constituted to review the ongoing Forest fire incidences, causes & immediate containment besides suggesting measures for augmenting the existing fire management protocols.

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	668.35

Further, funds under CAMPA are also being provided for combating the forest fire. For the year 2020-21, funds allotted are Rs.2100 lakh.

6.A.5. Saw Mills

6.A.5.1. Current Position of Saw Mills

- Seven number of Saw Mills owned by OFDC 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 37 Industrial Estates in 26 Revenue Districts for rehabilitation of eligible Saw Mills.
- Out of 210 numbers of Saw Mills selected for rehabilitation, 123 nos. of private Saw mills are running.



JOINT FOREST MANAGEMENT PROGRAMME

6.B.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 JFM 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)-47/88/7240 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 JFM, 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 Palli Sabha and composition of members of Executive Body of Vana Surakshya Samiti, constitution of a "Range level VSS and EDC Forum" for having better interaction between the Range Officers and VSS Members etc.

6.B.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 5T Governance i.e. 3rd Party Evaluation of Functioning of Vana Surakshya Samities (VSS) for understanding of effectiveness of the Joint Forest Management (JFM) activities and enhancement of the total number of JFMCs (VSSs and EDCs) upto 20,000 in the state, steps have been taken up to engage an organization for evaluation



VSS Meeting Bolangir Forest Division



VSS Meeting Kalahandi South Forest Division



and to enhance the number of JFMCs with assigning degraded part of areas of forest for protection. The final evaluation report will be come out very shortly.

- A total of 13,477.37 Squire Kilometer of Forests have been brought under Joint Forest Management through 15,399 Vana Surakshya Samities (VSSs) for protection under usufruct sharing mechanism. Besides, 606 Eco Development Committees (EDC) have been formed till September'2020 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	15,399/606	18.50	13,477.37	7359.47	3653.82	2464.08

6.B.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.



General Body meeting of Kulasingha sudasahi VSS of Angul Division for reformation of EC



Orientation on PRA and Microplanning at Khilua VSS, Koraput Division



WILDLIFE MANAGEMENT

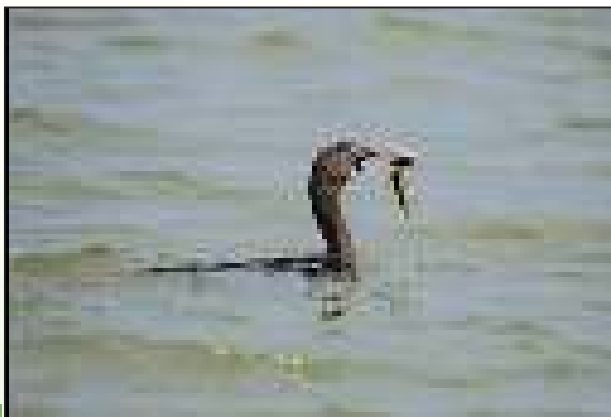
7.1. Wildlife Organization

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.

7.2. 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 kilometre) 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 & Satkosia), 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 7 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

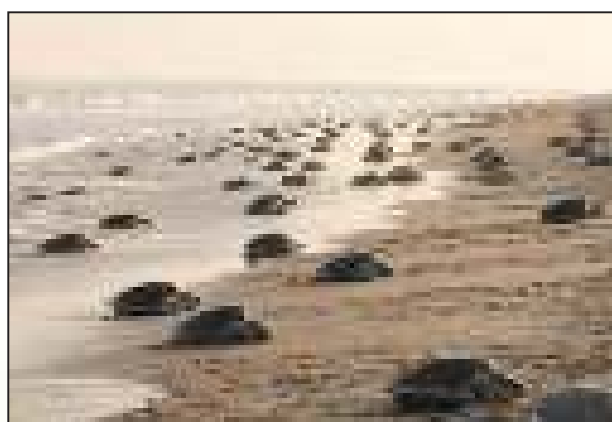
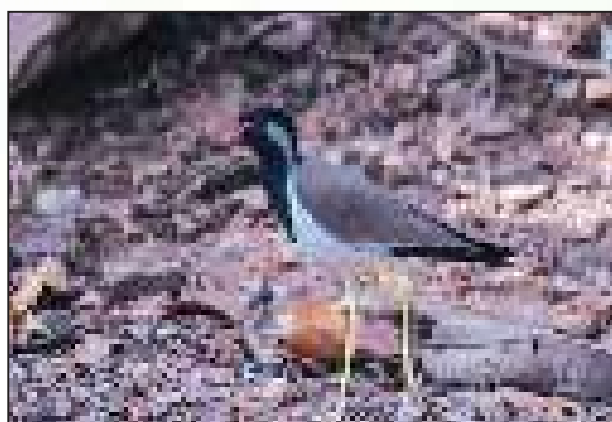




having three stretches of mass nesting beaches of endangered Olive Ridley Sea turtles including the world's largest breeding ground of Olive Ridley Sea turtle, *Lepidochelys olivacea* at Gahirmatha, Rushikulya and Devi rookeries. The 2018 season had witnessed the largest congregations of about 10.45 lakh Olive Ridley Sea Turtles.

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.



Mating pair of Olive Ridley Sea turtles in Rushikulya

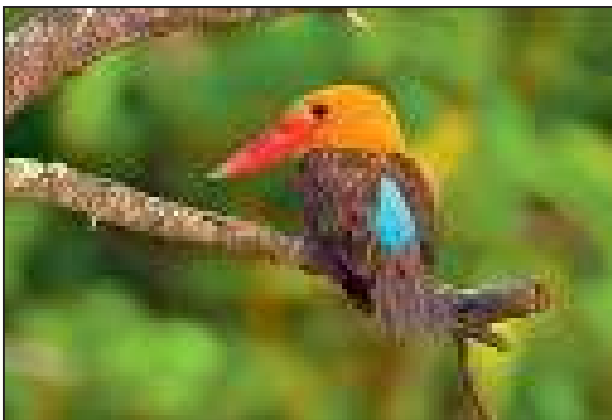
Besides, there are 4 crocodilian research and conservation centres in the state, viz for Gharial in Tikarpada /Satkosia, Saltwater crocodile in Dangmal /Bhitarkanika, Mugger in Ramtirtha/ Simlipal and captive breeding programme of all three Indian crocodilian species in Nandankanan respectively. There is a Community Reserve (proposed) for Black buck habitats at Balipadar-Bhetnoi of Ganjam district.



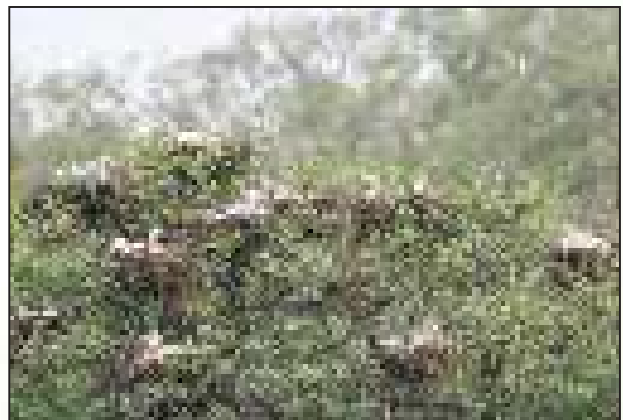


Blackbuck in Balipadar, Bhetnoi

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.



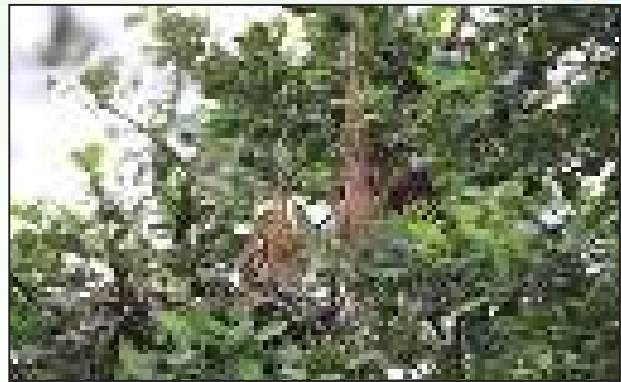
Kingfisher at Bhitarkanika



Open Billed stork



Oriental darter



Purple Heron



Elephant herds at Debasthali of Similipa



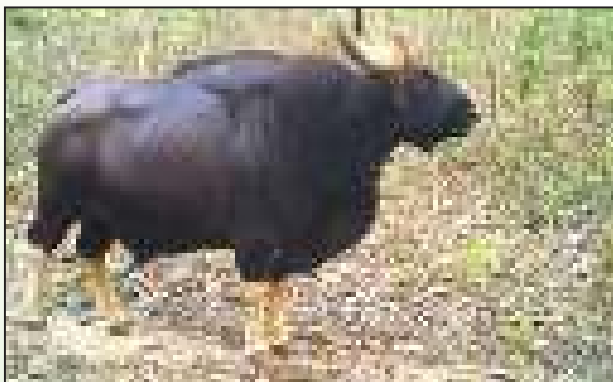
Gaur in Similipal



Spotted Deer in Similipal



Sambar in Similipal



Adult Bison in raigoda, Satkosia



Bison in Debrigarh



7.3. Management Interventions taken up for Wildlife Conservation

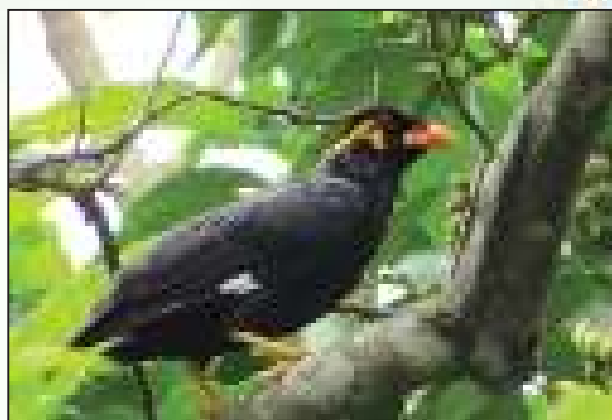
Accelerated developmental activities added with promotional aspects of industries and ever-increasing anthropogenic pressure has created a challenge for protection of wildlife and its habitats. As a result, human and wild animals' confrontations are taking place quite often. In order to minimize man-animal 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 2019-20 and 2020-21 which are given below:

Steps taken	2019-20	2020-21
Mangrove plantation (area in hectare)	60	148
Meadow development (area in hectare)	334	91
Deployment of Anti-poaching / Protection squad (in number)	459	276
Engagement of Elephant Trackers (in number)	25	25
Deployment of Elephant Squad (in number)	129	128
Deployment of firefighting squad (in number)	64	69
Protection of marine turtle and marine fauna in 6 Divisions (innumber)	5 off-shore 61 on-shore camps	5 off-shore 61 on-shore camps
Creation of water body (in number)	34	43
Renovation of water body (in number)	71	61
Trench fencing (in Kilometer)	1	3
Engagement of Gajabandhu through VSS / EDC (innumber)	70	150
Provision of Solar Street light (innumber)	74	245
Maintenance of Forest Road (in Kilometer)	794	103
Construction of Watch Tower (innumber)	10	2
Construction of Check Dam	6	10

- 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.
- Steps have been taken to construct a multi level car parking with other site development at Nandankanan Zoo since 2017-18.
- Till 2020, 706 families of 13 villages outside the Tiger Reserve/ Protected Area.
- The State has enhanced Compassionate amount to Rs.4 Lakh from Rs.3 Lakh towards human kill by wild animals.
- A Crime Cell has been constituted in the office of the PCCF (WL) & CWLW, Odisha as well as in the office of the Special Director General of Police, CID Crime Branch, Odisha for proper and timely investigation of the wild animal poaching and smuggling cases.
- Dossiers of habitual offenders are being maintained and circulated to the field from time to time to keep close vigil in their activities.



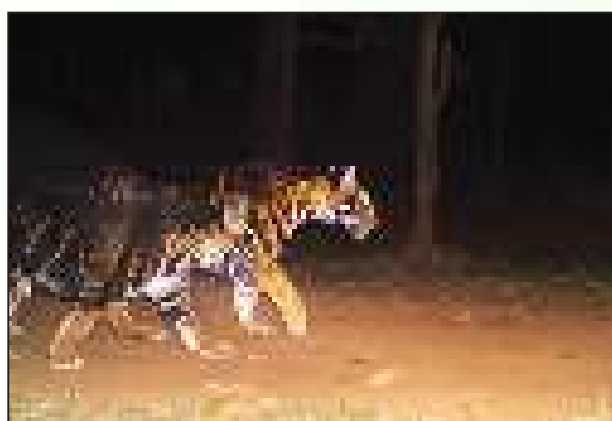
Giant Squirrel in Pampasar, Satkosia



Hill Myna in Pampasar, Satkosia



Endangered Fourhorned Antelope in Satkosia



Melanistic Tiger in Similipal

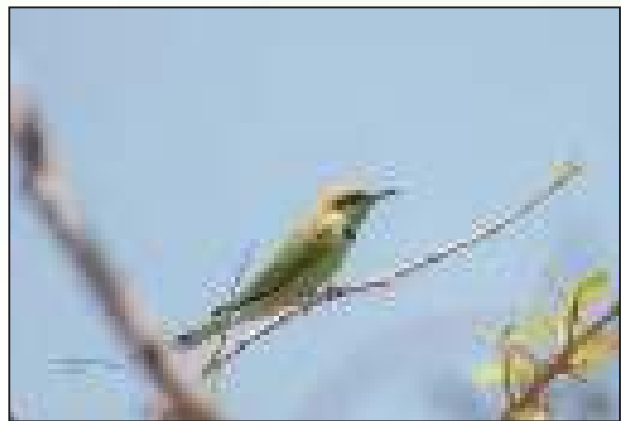
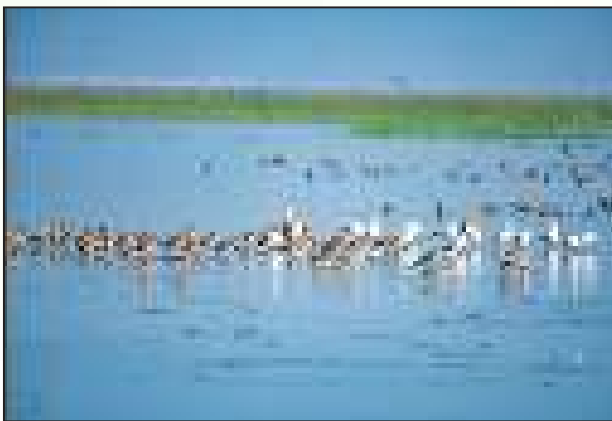
- Wildlife Control room, Elephant Monitoring App, Anukampa App, Site Specific Plan App have also been developed to facilitate monitoring of different wildlife related activities.

7.4. Wildlife Census

7.4.1. Mid-winter waterfowl census in Odisha during 2020

Mid-winter waterfowl / water bird status survey 2020 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.

Sl.No.	Name of the Wetland / Water Body	No. of Species	Number of Waterfowls
1	Chilika Lagoon	109	10.71lakh
2	Bhitarkanika Mangrove Wetland	105	01.18lakh
3	Hirakud Reservoir	93	0.98 lakh



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

7.4.2. Census of three Crocodylian species in Odisha during 2020

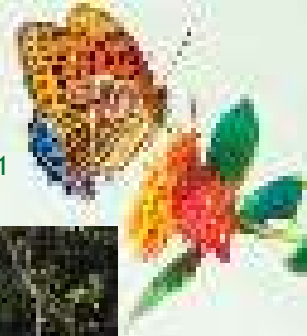
7.4.2.1. Saltwater Crocodile

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 1809 saltwater crocodiles were counted in the river systems coming under the jurisdictions of both Rajnagar and Bhadrak Wildlife Divisions during the current season 2020.

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'	>
2020	637	325	289	185	373	1809



Saltwater Crocodile in Bhitarkanika

7.4.2.2. Mugger and Gharial Crocodile

Gharial and Mugger Census in Mahanadi River Systems during 2020

The annual census of Gharial and Mugger Crocodiles in Mahanadi river systems was conducted by Satkosia Wildlife Division jointly with Mahanadi (Wildlife) and Athamallik 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 was suitably divided into seven census units and each unit was entrusted to a census party. The census results are as follows:



Gharial in Mahanadi



Muggur in Satkosia



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Location	Gharial	Mugger
Mahanadi river	3	52
Water bodies in Satkosia Wildlife Division	5	47
Water bodies in Athamalik Forest Division	0	14
Waterbodies in Mahanadi Wildlife Division	0	0
Total	8	113



Endangered Gharial in Satkosia Gorge

Mugger Census in the River Systems of Similipal Tiger Reserve during 2020

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 2020
West Deo River	57
East Deo River	04
Khairi / Bhandan River	06
Budhabalanga River	02
Khadkei River	03
Palpala River/Thaknaki River	01
Total	73



Mugger in Similipal

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	44
Outside Ghodahada reservoir	21
Total	65

Abstract of Mugger and Gharial census

Mugger crocodile

Location	No. of mugger sighted during 2020	No. of Gharial sighted during 2020
Satkosia	113	8
Similipal	73	–
Ghodahada	65	–
Total	251	8

7.5. Nandankanan Zoological Park

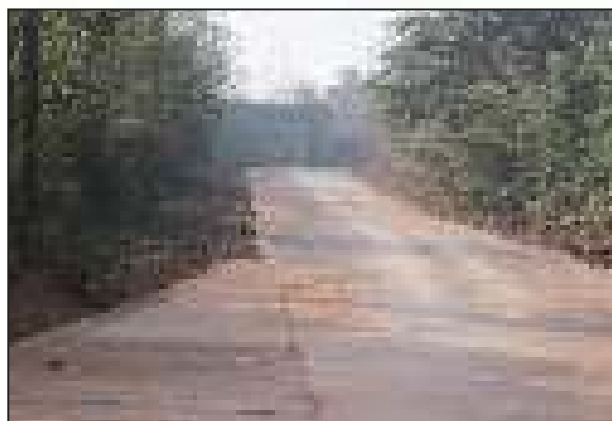
Nandankanan Zoological Park is one of the premier large Zoos of India located amidst beautiful natural surroundings and spreads over an area of 3.62 square kilometre. The Zoological Park was dedicated to public on 29th December, 1960. The undulating topography with natural moist deciduous forest, water 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.

7.5.1. New Facilities

7.5.1.1. Safari Bus Service Stop

This facility has been constructed over an area of 450 sqm having ticket counter, waiting room and cafeteria. Bus track of 1060 sqm area has been constructed in the bus stop premises with a provision of guard wall. Toilet facility has been provided for the visitors. The project was executed by BSNL with a cost of Rs 73.93 Lakhs. The facility was dedicated to visitors on 29th December, 2020.



7.5.1.2. Zoo Exit Pathway

This facility has been constructed on a flat ground over an area of 679 sqm to facilitate visitors exit directly to parking area. In addition to that a visitor aid kiosk was constructed near the exit path where three facilities are there i.e. cloak room, plastic bottle regulation centre and visitors' feedback. This kiosk constructed over an area of 1104 sqm. This project was executed departmentally from Nandankanan Society Fund with a cost of Rs 20.00 Lakhs. The facility was dedicated to visitors on 29th December, 2020.



7.5.2. Exchange & Procurement of Animals

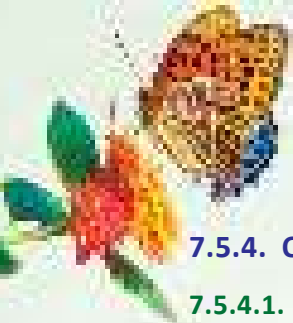
Serial No	Species received	Sex (M:F:U)	Zoo /Farm Name	Date of arrival
1.	Asiatic Lion	0:2:0	Kamala Nehru Prani Sangrahalaya, Indore	20.12.2020
2.	Gharial	2:1:0	Kamala Nehru Prani Sangrahalaya, Indore	20.12.2020
3.	Indian Grey Wolf	2:0:0	Kamala Nehru Prani Sangrahalaya, Indore	20.12.2020
4.	Indian Fox	0:1:0	Kamala Nehru Prani Sangrahalaya, Indore	20.12.2020
5.	Himalayan Black Bear	1:1:0	Aizwal Zoological Park, Mizoram	07.02.2021
6.	Asiatic Wild Dog	1:1:0	Aizwal Zoological Park, Mizoram	07.02.2021
7.	Asian Brown Tortoise	3:3:0	Aizwal Zoological Park, Mizoram	07.02.2021
8.	Assamese Macaque	1:1:0	Aizwal Zoological Park, Mizoram	07.02.2021
9.	Stump Tailed Macaque	3:3:0	Aizwal Zoological Park, Mizoram	07.02.2021
10.	Hippopotamus	1:1:0	Kamala Nehru Prani Sangrahalaya, Indore	27.09.2020
11.	Hippopotamus	0:2:0	Kanan Pendari Zoological Garden, Bilaspur	19.02.2021

7.5.3. Observation of Different Days

Besides observing different National and International Days, on first Monday of every month General Zoo Cleaning Day is being observed under Swatchha Bharat Mission, where all the staff of Nandankanan participates.

61st Foundation Day 2020





7.5.4. Other Activities

7.5.4.1. Translocation of Deer from Nandankanan Sanctuary to Chandaka Dampada Sanctuary

Till now 202 spotted deers have already been shifted to different locations within Chandaka-Dampada Sanctuary for better scientific management.



7.5.4.2. Virtual Tour and On-line activities

Virtual Tour of Nandankanan Zoo and State Botanical Garden, Online Animal Adoption programmes, online zoo education programmes like online quiz, painting, sharing memories of visitors of Nandankanan are worth mentioning initiatives so as to cope with COVID-19 pandemic situations.





7.5.4.3. Adopt-an-Animal Programme

Nandankanan Zoo is pursuing Adopt-an-Animal programme to mobilize resources for animal welfare. More than 270 individuals and organizations have adopted animals of Nandankanan pledging an amount of Rs. 70 lakhs. We are hopeful to generate Rs. 1 Cr within this financial year.



7.5.4.4. Plantation Programme



7.5.4.5. Release of Gharial Crocodiles into River Mahanadi at Satkosia Gorge

After fifteen months of pilot study, 7 transmitter tagged sub-adult gharials were released on 20th July 2019 and six number of transmitters tagged gharials of either sex (3M:3F) measuring 2.3m-3.3m released on 5th January 2021 from Nandankanan Biological Park. The revised strategy for recovery of Gharials in Satkosia-Gorge in its southern-most home is more conservation oriented. This includes the involvement of five forest divisions on either side of the river





HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

Mahanadi, implementation of rigid protection measures, declaration of 'No Fishing Zone' in 10 Kms of Satkoshia Gorge where present population of gharial is existing, spreading of awareness among local people, provision of compensation for the damaged fishing net and reward of Rs.1000/- for live Gharial caught. It is hoped that Gharials will be saved in the fabled Satkoshia Gorge with future releases as programmed in the ongoing ambitious scheme the "Species recovery of gharial *Gavialis gangeticus*, Gmelin in the river Mahanadi".

7.5.4.6. Plantation of Fodder species

500 numbers *Ficus* spp have been planted over 1.5 ha for supplement of fodder requirements of herbivores.



7.5.4.7. Renovation of Philodendron garden and Mughal garden at State Botanical Garden



7.5.4.8. Installation of Incinerator

Two Carcass disposal Incinerators (Solid Waste Management) have been installed having capacity of 100 kg/hr and 50 kg/hr capacity.

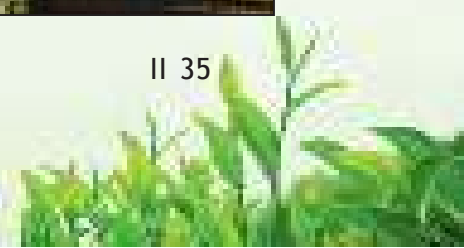




7.5.4.9 Animal enclosure renovation



7.5.4.10 New Signage installation



7.5.4.11. Beautification of Zoo

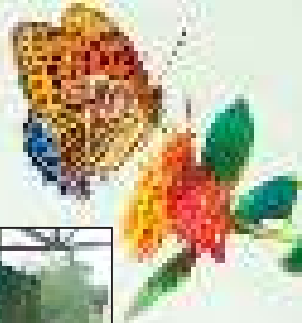


7.5.4.12. COVID-19 Management

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 04.10.2020 following proper COVID-19 guidelines for safety of visitors, employees and animals.



HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021



DEVELOPMENT OF ECO-TOURISM

8.1. Eco Tourism Policy

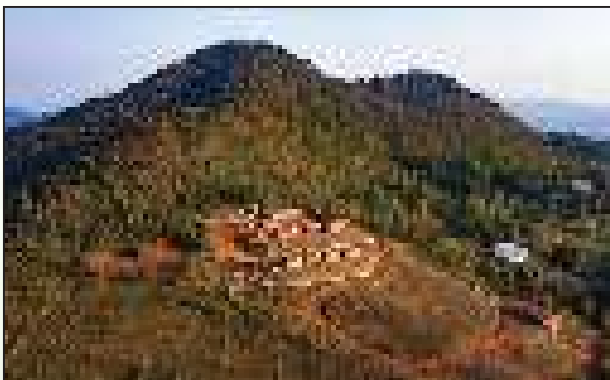
The State Government has approved the Ecotourism Policy and the Forest Department has been declared as the Nodal Agency for development of ecotourism in the state. The Scheme named as “Development of Eco-tourism” has been approved by the Government with financial implication of Rs.56.00 crore for a period 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.

8.2. Eco Tourism Destinations

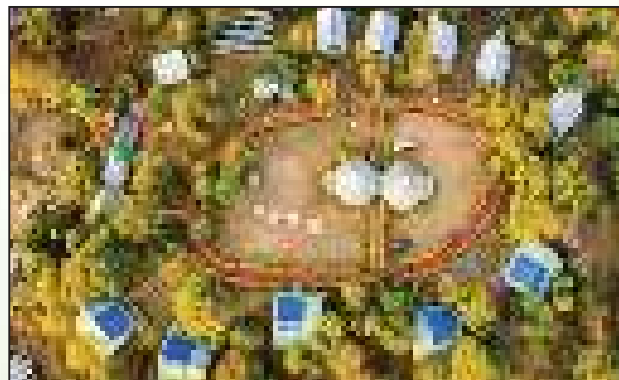
47 Ecotourism destinations have been created in different Forest and wildlife areas of Odisha covering 18 revenue Districts including important tribal areas of Mayurbhanj, Sundargarh, Malkangiri, Kandhamal, Bargarh, Nayagarh etc. 333 rooms have been created to accommodate 1010 number of Eco-tourists/day. 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 a 4 times increase in tourist foot fall i.e. from 11,500 tourists during 2016-17 to 46,019 tourists during 2019-20. The increase in revenue has also been encouraging i.e. from 157 Lakhs during 2016-17 to 685 Lakhs during 2019-20. Since 2016 the



Debrigarh



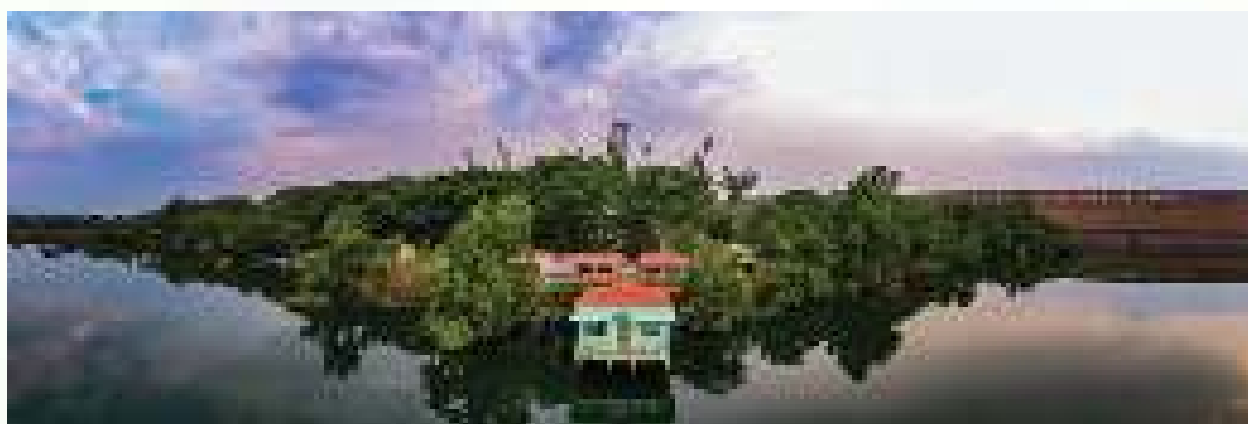
Daringibari



Chhotkei



Khandadhar



Chitrakonda

booking for all Ecotourism sites has been made online through www.ecotourodish.com (figure of tourists and revenue are derived from online portal).

8.3. 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 to 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	15,235 (13 safari Vehicles in 2 Ecotourism destinations)	46,019	685.00
2020-21 (figures till 20 th 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 the 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.

8.4. Employment Generation

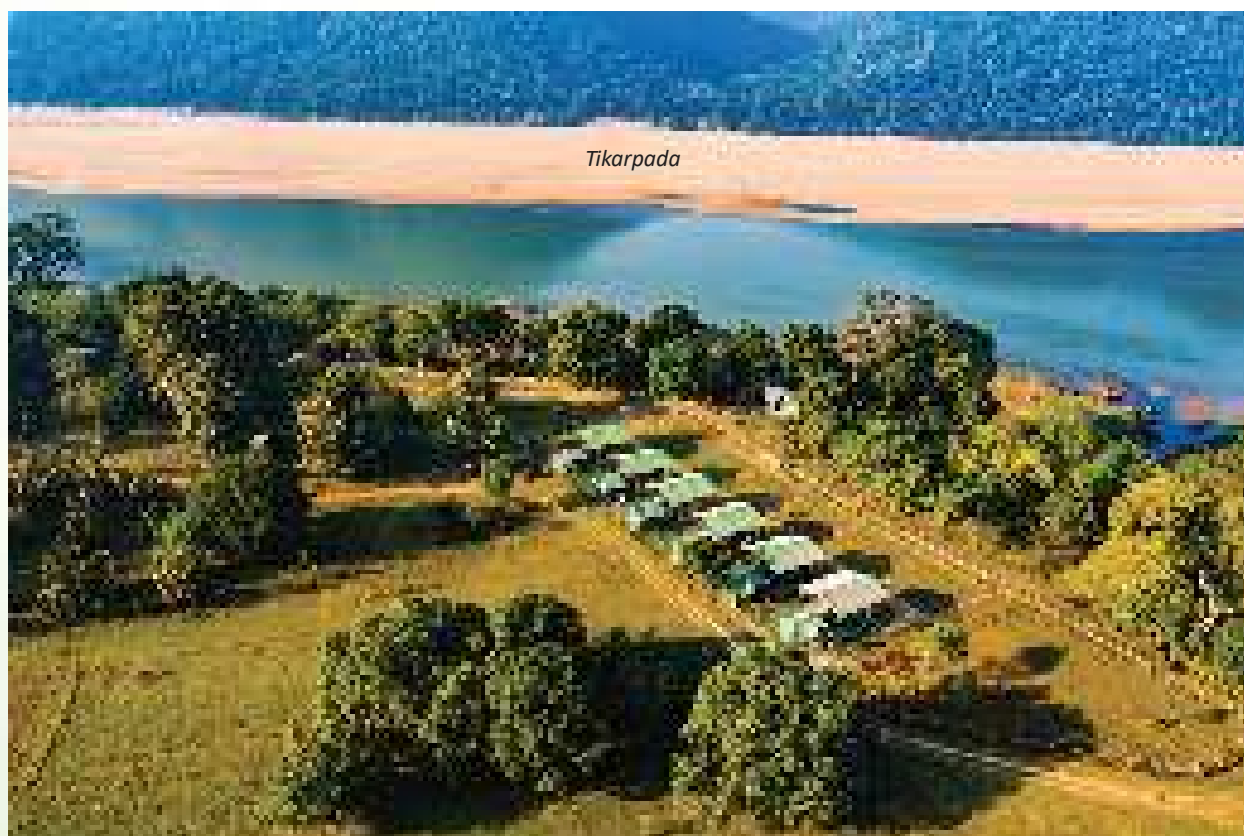
600 local community members are now managing 47 Ecotourism destinations all over the State & earning their livelihood with the majority of them being rural women and tribals. Gradually, more number of community members are getting enrolled in Ecotourism activities. Ecotourism has been an alternative income for them as earlier they 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 below to respective community accounts. The Forest & Environment Department Government of Odisha has notified the standard revenue sharing mechanism of Ecotourism destinations



(Govt. Letter Number- 6324 Dt.19.3.18)., as mentioned 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)

Revenue Sharing

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 %	



8.5. Facilities for Eco-tourists

Boating facilities have been created in 20 Ecotourism destinations like Bhitarkanika, Debrigarh, Nuanai, 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 are 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 Sovenirshops, 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 Hiraakud at Debrigarh

8.6. Promotions

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

8.7. 5T initiative of Govt. of Odisha

During the year 2019-20, Ecotourism was listed as one of the Transformational Action points (5T) 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 the next level.

8.8. 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).

8.9. Benefits of Community Managed Nature Tourism

- ❖ Livelihood support to the forest dependent communities of the 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 with a holistic experience on forests, culture & traditions of the local communities. Eco guides, boatmen etc. who are employed in Ecotourism destinations are all locals and well 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 provide 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 Satkosia Sands Resort & Nature Camp at Badmul in Satkosia Tiger Reserve in Nayagarh District & Similipal Nature Camps in Mayurbhanj District have earned revenue of more than One Crore each year i.e during 2018-19 & 2019-20.



HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

- ❖ 60% of the community members engaged in all the 47 Ecotourism destinations of Odisha are women belonging to rural areas.



FOREST RESEARCH

9.1. 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 1936 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 Kandhmal 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. No	Item	Number of Existing Plots		Total	Area in Hectare		Total
		Bhubaneswar	Rayagada		Bhubaneswar	Rayagada	
1	Research Garden	10	9	19	393.6	409.90	803.5
2	Preservation Plot	14	03	17	551.8	140.0	691.80
3	Sample Plots	18	14	32	4.63	10.99	15.61
4	Hi-Tech Nursery	3	1	4	383.0	142.50	5.26
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	106	254			

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



9.2. 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:-

9.2.1. 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. Now focus is being made to collect seeds from plus trees of indigenous species.

9.2.2. 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.

9.2.3. PlusTrees:

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 it is decided to identify mother trees of 50 indigenous species in each Division by engaging research fellows with an intention to supply quality seeds for the Divisions.



9.2.4. Raising RT seedlings:

The large scale use of polypots 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



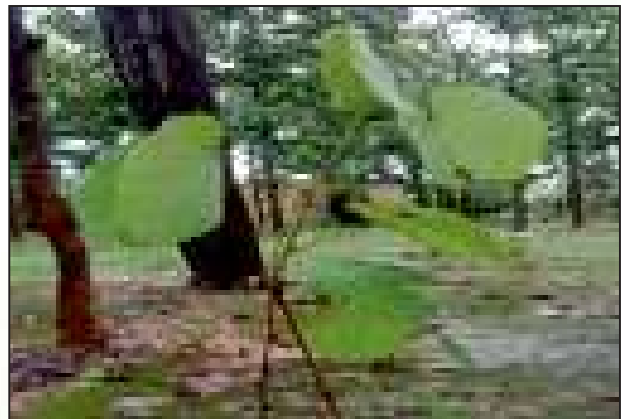


seedlings in hyco-pots permanently made for the purpose which are reusable and produces better quality planting material in comparison to polypots because of stronger root system of the seedlings.

9.3. Adaptive Research

9.3.1. 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 Siali 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. In the current year, the roulfea serpentinas have been introduced towards raising of NTFP species.





9.3.2. Intercropping of NTFP species in Bamboo Plantation:

In the current year, we have made trial of planting of Rauwolfia and Hill brooms 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.

9.3.3. Trial of Canes:

Planting technique for indigenous species of canes, have been tried at Pattanaikia Research Station. The species like Calamus strictus, Calamus longisetus, Calamus tenuis & Calamusviminalis are found to be established well. A conservation plot over an area of 0.5 ha is proposed to be established at Pattanaikia research garden by collecting various Cane species from inside and outside the state.

9.3.4. 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. Besides, one Upgraded Nursery has been 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 name 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

9.3.5. 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 Nakshyarta Vana area adding aesthetic value to it.

9.3.6. Arboretum:

There was an arboretum created during the year 1996 at Khandagiri RG with collection of 148 nos species and it was not maintained for last two decades. In current year the arboretum has been given new shape and brought to a presentable format by introducing 15 nos of new species for academic study of the forest scholars.

9.3.7. Medicinal Garden

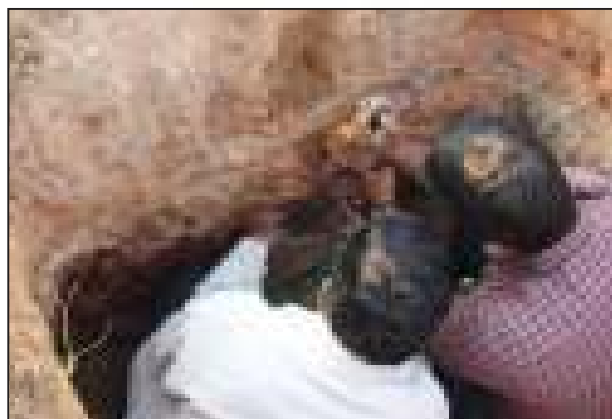
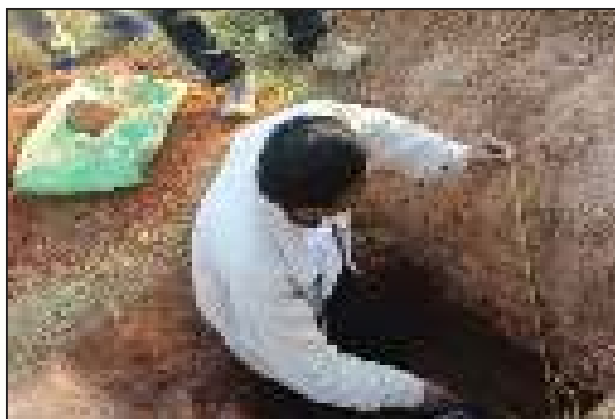
The medicinal garden created earlier has been renovated and stretches over 2.5 hect with 140 no of permanents beds and raising of 140 nos of medicinal species which meets the requirement of people of Bhubaneswar for supply of medicinal plants.



9.4. Silviculture Studies

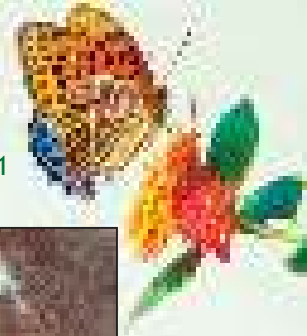
9.4.1. Soil Analysis of urban plantation and its growth study

There is no scientific study of soil profile of plantation raised by the forest department. In the current year the soil analysis has been made in different urban plantations raised by the Divisions throughout the State by collecting soil from different strata with a view to study the growth of forest species with the soil nutrients available in that area. So that a data base will be prepared for suitability of introduction of species in presence of different soil nutrient status.



9.4.2. RET Plantation

From the recent study by RPRC, it is revealed that some of the valuable forest species are under threat and unscientific exploitation of MFP from the trees makes them more vulnerable. Hence focus on conservation and propagation of some RET trees are being given by raising seedlings and creating trial plots in our RG/HTN. In the current year, the plantation of Phanphana, Ritha and Salai have been made in our RG and it is proposed to create large scale planting stock of RET species for supply to the divisions for its propagation in natural forests.



9.4.3. Live Hedge

Most of the plantation taken up by the department in the forests are susceptible to biotic interference and fire hazards. In order to give protection to the plantation and forests from the above factors, planting of Kanta baunsa and Agave have been introduced along the boundary of the RG/HTN to study its suitability for acting as natural barriers and live hedge for protection of the area, which can be implemented by the forest divisions for protection of the plantation and forests.

9.4.4. 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 twenty quintals. Raising of nursery in root trainers and mother beds (stump) was initiated for different indigenous species.



QRM Production

1. RT seedlings : 145000 nos
2. Stump : 1189040 nos

9.4.5. 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 96 varieties of Ficus plants and more than 50 species of Ficus bonsai in Khandagiri Research Garden over 3.0 hectare of land in the year 2018-19.



9.4.6. Data base of flora available in the state

In the current year, a digital data base of 2727 numbers of flora available in our state has been developed along with photos of different parts of the species so that in one click, we can acknowledge the various characteristics of a particular plant including its utility.

AFFORESTATION & PROGRAMME EXPENDITURE SCHEMES

10.1. Afforestation Activities

Year wise Afforestation activities taken up under different schemes from 2010-11 to 2020-21 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	98540	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	71698	140056.31	3558	339.26	212.48
2020-21 (up to 31.01.2021)	12486.07	94837.10	0	107323.17	4164.70	392.47	465.77

10.1.1. Increasing Green Cover in the State

The scheme was introduced in 2013-14 by subsuming 11 continuing plan schemes. A provision of Rs.3944.97 lakh has been made for the year 2020-21 for undertaking different afforestation activities. The components implemented under this scheme during 2020-21 are: Urban Plantation, Plantation of Medicinal Plants at Patrapada, all other major components of "IGC" such as Economic Plantation, Odisha Bamboo Development Programme, Bald Hill Plantation, Avenue Plantation, Agro-Forestry, Permanent Nursery, Plantation Programme within working plan areas as well as outside working plan areas, Increasing Tree Cover outside forest areas etc. which have been converged under MGNREGS during 2017-18.

10.1.1.1. 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.



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 2020-21.

10.1.1.2. 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 tranquillity and harmony in an ambience of religious atmosphere but to create



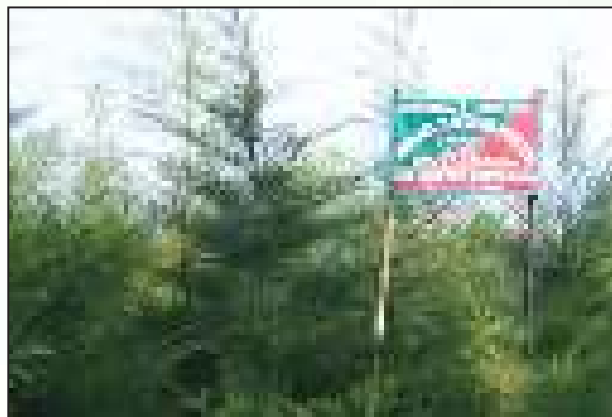


awareness on traditional herbal medicines among urbanites. It is an example of quality work by local stone carvers and stone masons drawing inspiration from the ancient structures.

A total budget provision of Rs.50.00 lakh has been made for maintenance and further improvement of Ekamravan at Bindusagar in Bhubaneswar during the year 2020-21.

10.1.1.3. Casuarina Plantation

Under this component the 2nd year maintenance of 80 hectare of casuarina Plantations raised during 2019-20 was taken up during 2020-21.



10.1.1.4. 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, tentra etc. in the suitable pockets of designated and notified forest areas. Sites having good 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 2020-21, Rs.354.51 lakh have been provided for implementation of this component under the Programme Expenditure scheme IGC for taking up 300 hectare of AR plantations and 2nd year maintenance of 570 hectare of AR plantations raised during 2020-21.



AR Plantation, Athagarh Forest Division



Nabarangpur Forest Division



10.1.1.5. 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.



Bald hill Plantations at Tasiguda

During 2020-21, Rs.351.97 lakh have been provided to implement the component under Programme Expenditure scheme IGC for taking up 70 hectare of Bald Hill plantations with 2nd year maintenance of 508 hectare of Bald Hill plantations.

10.1.1.6. 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. An amount of Rs.878.07 lakh has been earmarked for this purpose during 2020-21.



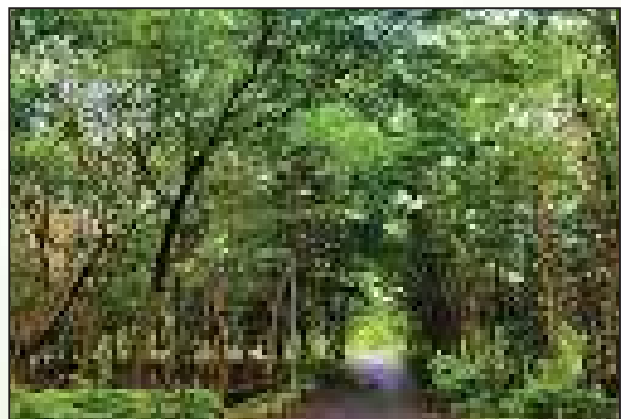
10.1.1.7. Urban Plantation

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.

2011-12 onwards almost all Urban Local Bodies



Urban Tree Plantation at Mukhiguda, Jaipatna Range, Kalahandi (S) Division



Urban Tree Plantation, City Forest Division



Rs.709.56 lakh have been provided to implement this component under the programme expenditure scheme “IGC” during 2020-21 for taking up 2nd year maintenance of 1.42 lakh saplings and plantation of 0.88 lakh saplings 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.

10.1.1.8. Raising & maintenance of Seedlings for Plantation & Distribution during 2020-21

During this year, 89.02 lakh 6 months old seedlings and 23.03 lakh 18 months old seedlings were raised, maintained, planted and distributed. Out of which, 36.11 lakh seedlings have been planted & distributed and balance seedlings of 75.94 lakh are being maintained under MGNREGS which will be planted & distributed during 2021 planting season. The above seedlings were raised towards plantation under different components of IGC during 2020-21 as well as for distribution. A sum of Rs.1299.38 lakh has been earmarked under this component.



Hon'ble Minister, Forest & Environment distributing saplings at Cuttack



10.1.1.9. Awareness Programme

Awareness programme is a key factor to involve more & more people in the plantation programme. During this year, seedlings were distributed to all beneficiaries at their door step through mobile vans. Besides, KIOSKS have been established in different places throughout the State. During 2020-21, 81 mobile vans have been engaged and 87 KIOSKS (Seedling Distribution





Center) were established. Also, wide publicity, awareness & motivation etc have also been conducted. An amount of Rs.23.06 lakh has been earmarked for this purpose.

10.1.1.10. Maintenance of Surplus Seedlings

During 2020-21, 23.03 lakh surplus seedlings raised under IGC due to non-taking up of plantations under MGNREGS have been maintained in the concerned divisions. There is a budget provision of Rs.335.14 lakh for maintenance of these surplus seedlings.

10.1.1.11. 3rd Party Evaluation of IGC

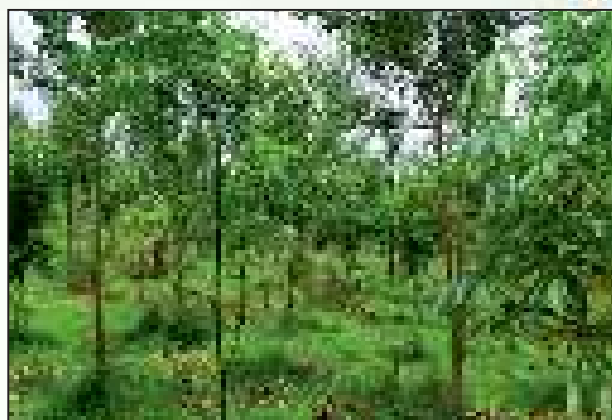
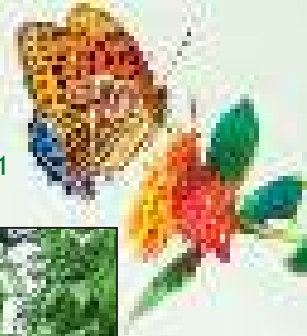
As per decision of the Mission Monitoring Committee under the Scheme "IGC", internal Evaluation and Audit are being conducted from time to time by the Monitoring & Evaluation cell established in the office of the PCCF & HoFF, Odisha as well as by Audit Team of Accountant General, Odisha. During 2018-19, 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. As per Term and Conditions, a sum of Rs.38.00 lakh has already been paid to IIFM, Bhopal during 2018-19. And the balance amount of Rs.38.00 lakh is to be paid to them after submission of final evaluation report.

10.1.1.12. Contingency

An outlay of Rs. 11.10 lakh has been provided for the year 2020-21 for contingency expenditure under the IGC Scheme.

10.1.2. 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 schme 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.



Plantations in City forest Division

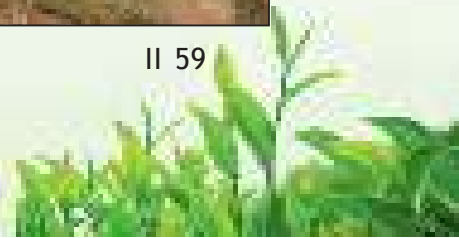
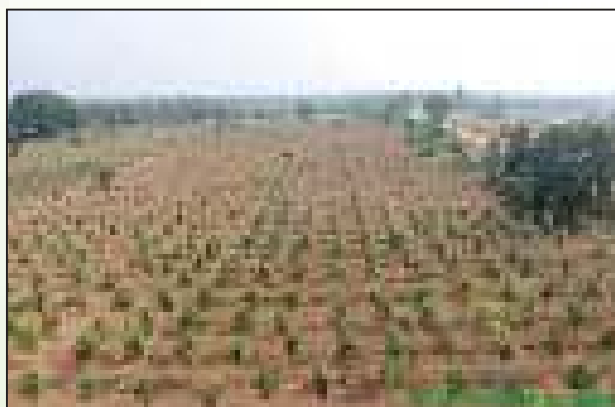
Besides, three respective GMM committees have been constituted in the Block, District and State level for monitoring, reviewing the GMM activities undertaken by different line departments for successful implementation of the mission in the state. Preparatory activities of the mission like identification 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.

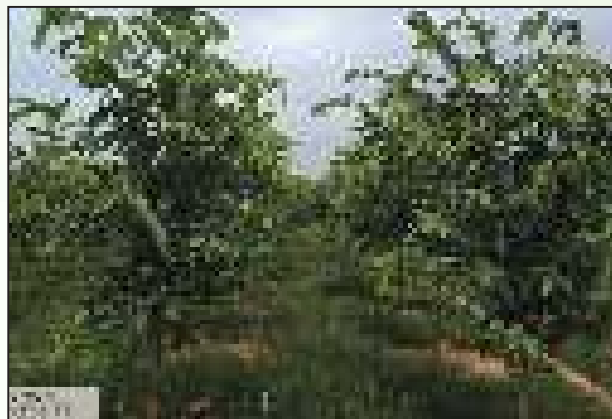
10.1.2.1. Achievement during 2018-19

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.

10.1.2.2. 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:





10.1.2.3. Plantations

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.

10.1.2.4. Achievement during 2020-21

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.

10.1.2.4.1. Awareness Programme

During 2020-21, seedlings were distributed to all beneficiaries at their door step through mobile vans. Besides, KIOSKS were established in main places. During this year, 165 mobile vans were engaged and 219 KIOSKS (Seedling Distribution Center) were established. Also, wide publicity, awareness & motivation etc have also been conducted. An amount of Rs.40.00 lakh has been earmarked for this purpose.



10.1.3. 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 2020-21 are:

10.1.3.1. Plantations under MGNREGS

During 2020-21, an area over 881 hectare of AR Plantations, 24,586 hectare of ANR with Gap Plantations and 3430 RKM of Avenue Plantations have been achieved under MGNREGS by planting 72.74 lakh seedlings of different species. There is a proposal for taking up of 15000 hectare AR, 35000 hectare ANR with gap Plantation and 5000 RKM of Avenue plantation during the year 2021-22.



10.1.3.1.1. Plantations of Forestry species in Private Land

Following stipulations / conditions have been made to implement this scheme:

1. The households identified for plantation should have job cards.
2. The households should come under para-5 of the schedule-I of the Act.
3. The consent of the households should be taken for plantation of forest species.
4. The plantation of forest species in individual land should be executed by the field staff of Forest and Environment Department as per MGNREGS guidelines.
5. The Department should ensure that the forest species have been planted in the land of concerned households.

During the year 2020-21, plantations over an area of 511 hectare of AR Plantations, 161 hectare of ANR with Gap Plantations have been achieved under MGNREGS.

10.1.3.2. Convergence of State Plan Schemes under MGNREGS

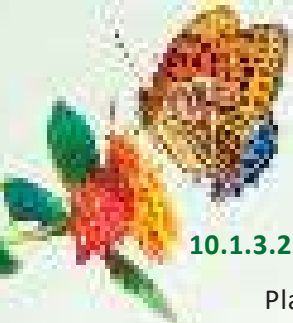
Since 2017-18, all state plan schemes have been converged under MGNREGS besides implementation of its own afforestation activities. The components of this scheme implemented during 2020-21 are:

10.1.3.2.1. Economic Plantation

An area over 605 hectare of AR plantations and 460 hectare of ANR plantations have been taken up by planting 11 lakh of economically important species (as mentioned in para 10.1.1.4) under MGNREGS. Further, there is a proposal of 2300 hectare of AR plantations which includes 2150 hectare Teak Plantations and 150 hectare Casuarina plantations to be taken up during 2020-21.

10.1.3.2.2. Odisha Bamboo Development Programme

An area of 526 hectare has been planted with 2.10 lakh bamboo species under MGNREGS.



10.1.3.2.3. Bald Hill Plantation

Plantations over 275 hectare of bald hills have been achieved with planting of 4.40 lakh seedlings.

10.1.3.2.4. Avenue Plantation

Avenue Plantation over 631 RKM has been achieved by planting of 1.58 lakh seedlings.



Avenue Plantation, Rajnagar WL Division

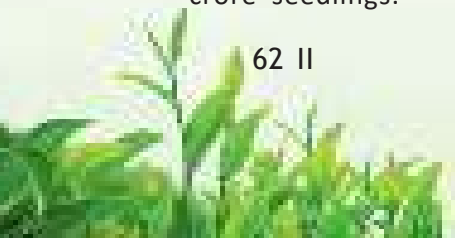
10.1.3.2.5. Maintenance of Permanent Nurseries

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. Every year, 1 crore seedlings are proposed to be raised and maintained as buffer stock zone of plantation activities.



10.1.3.2.6. Agro Forestry

Over 84.92 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, 18th January, 2017. For the year 2021-22, there is a proposal of raising and distribution of 3.00 crore seedlings.





10.1.3.2.7. Plantation Programme outside Working Plan Areas

AR plantations over 186 ha & ANR with Gap Plantation over 50 ha by planting 3.07 lakh seedlings have been achieved.

10.1.3.2.8. 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. However, the seedlings with free of cost have been provided to Government Schools / Educational Institutions and other Public Organizations. This has been implemented as per Govt of Odisha, F&E Department Letter No.1356 dated, 18th January, 2017.

10.1.3.2.9. Year wise Afforestation Programme under MGNREGS

The year wise afforestation programme taken up and the amount utilized under MGNREGS up to 2020-21 (up to 15.02.2021) 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 (up to 15.02.2021)	28615	4061	0	25836.00

10.1.4. 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.





HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

During 2020-21, AR plantations over an area of 625 hectare by planting 10.00 lakh seedlings have been achieved and there is also a target of 625 hectare AR Plantations for the year 2021-22.

10.1.5. Plantations under District Mineral Fund (DMF)

During 2020-21, 250 hectare AR, 1745 hectare ANR with gap plantation and planting of 2.08 lakh seedlings under Urban plantation have been achieved by planting 9.57 lakh seedlings in the mineral bearing affected districts of the State. The districts covered under this scheme are Rourkela, Cuttack, Bonai, Sambalpur, Keonjhar WL, Sundargarh, Angul, Keonjhar, Rayagada, Koraput, Dhenkanal and Jharsuguda.



10.1.6. Plantations in Railway land by South Eastern Railway

During 2020-21, AR plantation over an area of 70 hectare and ANR plantation over an area of 585 hectare have been achieved by planting 3.29 lakh seedlings with distribution of 1.00 lakh seedlings under CAMPA APO Wildlife.

10.1.7. Plantations under site specific conservation plan of CAMPA APO Wildlife

During 2020-21, ANR plantation over an area of 600 hectare has been achieved by planting 1.28 lakh seedlings. There is a proposal of plantation of 30 ha AR and 100 ANR with Gap Plantation during the year 2021-22.

10.1.8. Fodder Plantations under Wildlife & Central Plan Scheme

During 2020-21, AR plantations over an area of 498 hectare, fruit bearing & fodder species by planting 7.96 lakh seedlings have been taken up under the scheme. There is a proposal of 444 Ha AR Plantation during 2021-22.

10.1.9. Plantations under OFSDP-II

During 2020-21, AR plantation over an area of 1442 hectare, ANR with gap plantation over 10416 hectare by planting 48.23 lakh seedlings have been achieved under the project. There is a target of afforesting 20,218 hectare area by planting of 82.32 lakh seedlings for the year 2021-22.



10.1.10. Plantation under Ama Jangla Yojana (AJY)

There is a proposal of ANR with gap Plantation over 20,000 ha during 2021-22.

10.1.11. Plantations under State CAMPA

During 2020-21, AR plantations over an area of 1500 hectare, ANR with gap plantations over 39900 hectare, Bamboo plantations over 770 hectare, Bald Hill plantations over 875 hectare Compensatory Afforestation for AR plantation, ANR with gap and Bald Hill plantations over 87.46 hectare, 2635 hectare and 728 hectare respectively with planting of 22.37 lakh seedlings have been achieved under the State CAMPA. During 2021-22, there is a target for taking up of 5771 hectare AR & 38,798 hectare ANR with gap plantation.

10.1.12. 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 46 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), Mahanadi (WL), and STR (Baripada) divisions.

The SFDA is the implementing agency of two centrally sponsored schemes which are:

1. National Afforestation Programme (NAP)
2. National Mission for Green India (GIM)

10.1.12.1. National Afforestation Programme(NAP)

The National Afforestation Programme (NAP) is operated by the National Afforestation and Eco-Development Board (NAEB), Ministry of Environment and Forests as a Centrally



Plantation under NAP Baripada Forest Division



ANR Plantation Sunajudia VSS, Karanjia Division





HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

Sponsored Scheme. The objective of the scheme is to increase and/or improve Forest and Tree Cover for rehabilitation of degraded forests and other areas in participatory forest management processes for sustainable development and management of forest resources focusing on improvement in livelihoods of the forest-fringe communities, especially the poor.

The components under the scheme are as follows:

1. Planting /Regeneration:

Aided Natural Regeneration (200 plants/ha), Artificial Regeneration (1100 plants/ ha), Pasture Development / Silviculture (400 plants/ha), Bamboo Plantation (625 plants/ha), Planting of canes (625 plants/ha), Mixed Plantations of trees having MFP and medicinal value (1100 plants/ha) and Regeneration of perennial herbs and shrubs of medicinal value (2000 plants/ha).

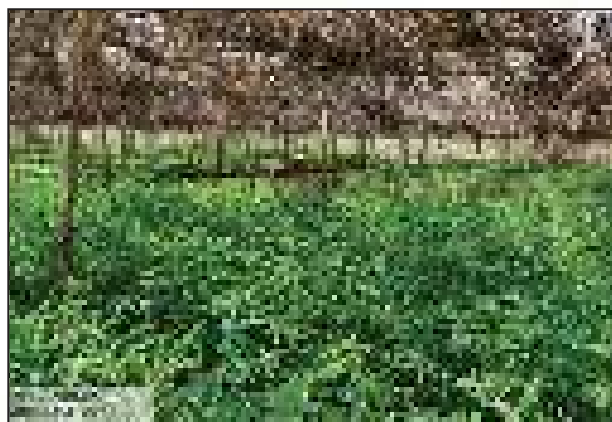
2. Other components:

1. Strengthening of JFM: Constitution of JFMC (per JFMC) and Micro-planning (per JFMC), 2. Awareness Generation, 3. Microplanning, 4. Fencing, 5. Soil & Moisture Conservation, 6. Entry Point activities, 7. Training & Capacity Building, 8. Value Addition and Marketing of Forest Produce, 9. Concomitant Monitoring & Evaluation, 10. Overheads, 11. Treatment of Problem Lands and 12. Use of Improved Technology.

The scheme is implemented by a three-tier institutional set-up, namely State Forest Development Agency (SFDA) at the State level, Forest Development Agencies (FDAs) at the forest division level involving Joint Forest Management Committees (VSSs/EDCs) at the village level for carrying out plantation and ancillary activities. The scheme is being implemented on 60:40 funding share between centre and state since 2015-16.



ANR Plantation in Baripada Forest Division



Nursery Kalahandi South Forest Division

The total cost of Rs.2193.45 lakh for the year 2020-21 has been sanctioned for taking up creation over 6335 hectare area and maintenance of 7753 hectare of last three years' plantations.

10.1.12.2. 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,

HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

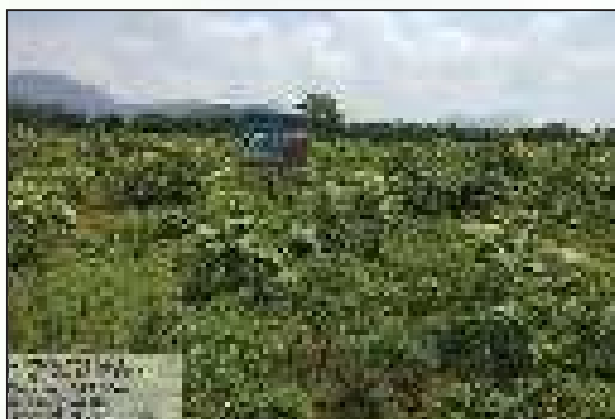


- to enhance carbon sequestration through increase of forest/tree cover along with provisioning services like fuel, fodder, timber & non-timber forest produces and
- increase the forest-based livelihood income level of 3 million households.

The scheme is being implemented on 60:40 funding share 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 under five divisions. Under the 2nd 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. The third project which has been started during 2019-20, advance work of 4670.75 hectare have been achieved under different components and alternate fuel energy devices have been distributed to 2600 households in the selected landscapes of fifteen divisions of the state.

Creation of 4670.75 hectare with 1st year maintenance over 5537 hectare have been taken up under APO 2020-21. The sanctioned outlay for APO 2020-21 is Rs.4721.987 lakh for implementation of the scheme.



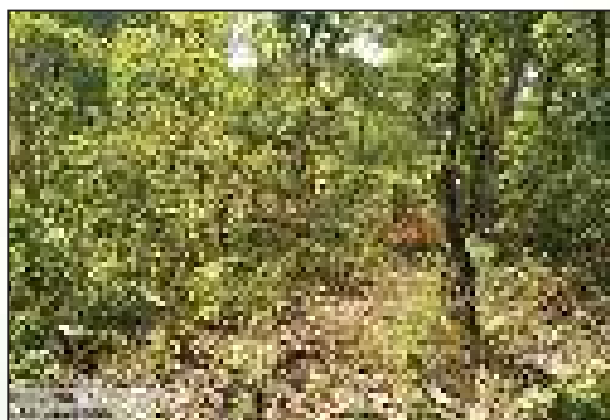
Plantation under GIM, Kalahandi North Forest Division



Nursery under GIM, Dhenkanal Forest Division



Nursery under GIM, Kalahandi South Forest Division



Plantation under GIM, Kalahandi South Forest Division



10.1.13. 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:

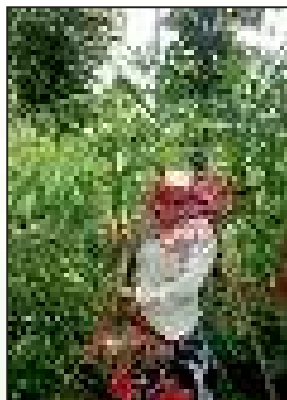
- (I) Establishment of nurseries
- (II) Bamboo plantation in farmer's land
- (III) Promotion of bamboo treatment and preservation units
- (IV) Market infrastructure
- (V) Skill Development Training programme
- (VI) Research development

10.1.13.1. Achievement so far

- ❖ Establishment of 15 numbers of Bamboo Nurseries through out the state of Odisha including 3 Hi-tech nurseries, 6 big nurseries, and 6 small nurseries
- ❖ 459 hectare of Bamboo plantations in farmer's land
- ❖ 590 hectare of Bamboo plantations in 18 divisions with planting of 2.50 lakh seedlings
- ❖ Farmer & artisan training organized at district level
- ❖ Workshops organized at division level
- ❖ Establishment of Bamboo Bazaar at Tellipali of Subarnapur division



Parli Nursery-Koraput Field Unit, OBDA



Nursery are Malkanagiri Big Nursery Under OBDA Field Unit, Koraput



- ❖ Establishment of Demonstration plot at Silviculture Garden, Bhubaneswar
- ❖ Promotion of Bamboo Treatment Preservation units

10.1.14. Forest Fire Prevention and Management (FPM)

The scheme is being implemented with a funds sharing pattern of 60:40 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 2020-21, a total outlay of Rs.668.35 lakh has been received for taking up above activities.

10.2. Programme Expenditure Schemes

10.2.1. 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





HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

2019-20, an amount of Rs.400.00 lakh has been provided for engaging 42 squads in 37 territorial forest divisions of the state.

10.2.2. Training Programme

An outlay of Rs.249.60 lakh has been provided during the year 2020-21 for taking up the following activities under the Programme Expenditure Scheme “Training Programme”.

10.2.2.1. 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.

10.2.2.2. 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.

10.2.3. 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 Canes,
- v) Development of agro-forestry models indifferent 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 2020-21.



10.2.4. 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 2020-21, the budget provision of 300 lakh has been made for construction of 12 quarters for ministerial staff of PCCF & HoFF, Odisha, Forest Martyrs Memorial inside RPRC Campus, Bhubaneswar, renovation of FRH (New Block) at City Forest Division, Division Office at Bargarh, residential building of DFO Khordha Division and entrance & exit gate of Aranya Bhawan, Office of PCCF & HoFF, Odisha, Bhubaneswar in addition to buildings of RCCF, Baripada, DFO Similipal South, Staff Quarters of Nandankanan including renovation of Residence and Office of DFO.

10.2.5. Survey & Utilization of Forest Resources

10.2.5.1. 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 2020-21.

10.2.5.2. Working Plan

Working Plan is the most important referral document for all subsequent plans of execution in Forest Department. As Working Plans of 34 Forest Divisions have been either expired / to be expired shortly, preparation of new Working Plans & approval of the same from the Ministry are the immediate needs of the Department. Enumeration, stockmapping, estimation of growing stock, maintenance of boundary, procurement of maps and toposheets published by Survey of India are under process for the preparation of new Working Plans.

An out lay of Rs.200 lakh has been provisioned in Annual Plan 2020-21 for taking up the works.

10.2.6. Forest Conservation, Development and Regeneration

10.2.6.1. Working Plan

The main objective of the scheme is to carry out all working plan prescriptions & preparation of Working Plans. An out lay of Rs.400 lakh has been provisioned for Annual Plan 2020-21 for taking up the works.

10.2.6.2. Forest Consolidation

The components like demarcation and survey of new forest blocks, Protected Reserve Forests, clearance of boundary of proposed new forest blocks, construction of boundary pillars, have been implemented with a total outlay of Rs.15.00 lakh during 2020-21.

10.2.6.3. Regeneration

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



10.2.6.4. Sowing and Planting

Activities like procurement and treatment of seeds and raising seedlings there of in nursery bed have been taken up under this scheme with a total budget provision of Rs.33.01 lakh during the current year 2020-21.

10.2.6.5. Protection from Fire

A Fire Control Room at the State Forest Headquarters has been established & made fully functional round the clock 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 2020-21 under this component.

10.2.7. Drift and Waif wood and Confiscated Forest Produce

This scheme includes components like salvage of seized timber of Undetected (UD) and Offence Recorded (OR) cases. The total budget provision of Rs.32.00 lakh has been provided during this year for implementation of the scheme.

10.2.8. Forest Produce Sold to Consumer and Purchasers

Salvaging of naturally fallen trees like cyclone damaged as well as seized timbers of Undetected (UD) and Offence Recorded (OR) cases are undertaken under this scheme. The total outlay of Rs.59 lakh has been provided for 2020-21 to implement the scheme.

10.2.9. Departmental Working of Forest Coupes and Depots

10.2.9.1. Departmental Working of Timber

The component of this scheme is demarcation and marking of Forest coupes and Car Timber working as per Working Plan prescriptions. The total budget provision of Rs.180.00 lakh has been provided for 2020-21 works.

10.2.9.2. Departmental Working of Bamboo

Silviculture operations in bamboo coupes like cutting of high stumps, 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 2020-21 with a total outlay of Rs.20.00 lakh.

10.2.10. Information, Education and Communication

This scheme has been introduced with an aim to disseminate information on entitlements & processes by creating awareness among the beneficiaries and the implementers for receiving optimum results. Celebration of World Forestry Day, Forest Department Activity based programme titled as “**BANADARSHAN**” in Door Darshan Odia are telecasted. The total outlay of Rs.20 lakh has been provided for 2020-21 programme.

10.2.11 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 2019-20 relocation of village from Similipal Tiger Reserve of erstwhile Karanjia Division to outside of sanctuary at Saleibeda village under Thakurmunda Block has been carried out. In the current year, an amount of Rs.3.12 lakh has been provided for relocation of villagers of Hadgad Sanctuary.



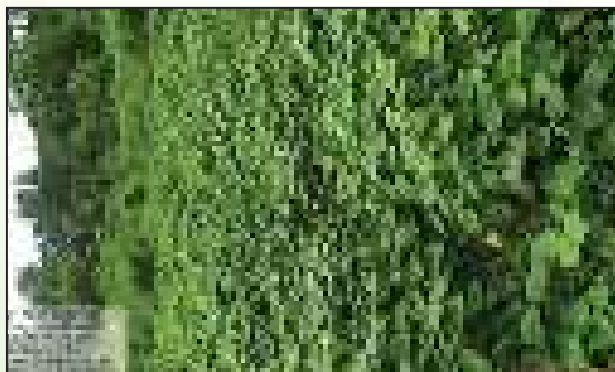
STATE MEDICINAL PLANTS BOARD, ODISHA

11.1. 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, use, cultivation and marketing of medicinal plants 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.

11.2. Achievement during 2020-21

- In order to create awareness on cultivation of Guduchi (*Tinospora cordifolia*), 2 lakh saplings have been raised in 12 Forest divisions for distribution to various stakeholders. Besides, distribution of a brochure in Odia language titled “Guduchi Amruta Tulya Oushadhi”, release of a short documentary film, wall painting and arrangement of workshops are the major initiatives under the National Medicinal Plants Board (NMPB) sponsored *Tinospora* campaign programme.
- NMPB has also approved the proposal of SMPB for establishment of the Medicinal Plants Conservation and Development Area (MPCDAs) in Biodiversity rich Mandargiri RF of Angul Forest division over an area of 200 hectare with the financial assistance of Rs. 40.00 Lakh for a period of 5 years. This would be an in-situ resource augmentation ensuring sustainability of medicinal plants.
- A training programme on “Doubling farmers’ income through cultivation of Medicinal Plants and raising of Quality Planting Materials (QPM) & market linkage” has been conducted by Jeypore Forest Division with the technical support from M.S Swaminathan Research Foundation, Jeypore. Around 90 participants including traditional healers, vaidyas, medicinal plants cultivator and forest officials have attended the programme.
- NMPB has proposed for implementation of VRIKSHA AYUSH project which is to be undertaken by SMPB from the next financial year. Preparatory initiatives such as identification of beneficiaries, availability of QPM are under progress.



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

12.1. 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 state CAMPA has formulated ten Annual Plans of Operations (APOs) so far starting with APO 2009-10. The last one is APO 2020-21 which is being implemented from April 2020.
- ❖ Since inception of State CAMPA in 2009, ten number of APOs have been implemented in utilizing Rs.3038.17 Crore against receipt fund of Rs.2644.15 Crore from Adhoc CAMPA, Rs.600 Crore from the State Budget upto APO 2019-20 and Rs.803 Crore during APO 2020-21.
- ❖ Further, a total sum of Rs.5933.98 Crore has been received from National Authority and kept in RBI to meet the expenses against forthcoming APOs.

12.2. Achievement up to APO 2019-20

12.2.1. Afforestation Activities

The following interventions under various afforestation components have been achieved.

- Regeneration of Degraded Bamboo Forests over 70,950 hectare
- Creation of ANR over 20,400 hectare
- Block Plantation over 2000 hectare
- Bamboo Plantation over 2000 hectare
- Avenue Plantation over 76 RKM
- 2nd Year maintenance of ANR over 84930 hectare
- 4th Year maintenance of ANR over 93121 hectare
- 4th Year maintenance of Bamboo Plantation over 10088 hectare
- 2nd Year maintenance of bald Hill over 1000 hectare
- 4th Year maintenance of Bald Hill over 1000 hectare
- Site specification Compensatory Afforestation (CA) and Penal Compensatory Afforestation (PCA) etc. include 526.64 hectare of Block Plantation, 2689 hectare of ANR, 314.73 ha. Bald Hill, 1.5 time safety zone, 10 time tree plantation, SMC etc. Block

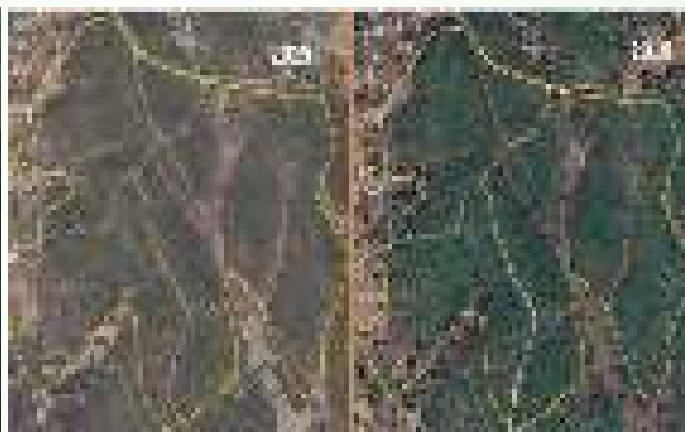
HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

20.79 hectare, ANR 1661.56 hectare, Bald Hill 155.75 hectare and leftover Compensatory Afforestation ANR 4.48 hectare, ANR without gap 93.17 hectare and Canal Bank Plantation over 31.1 RKM.

- Maintenance of old plantations taken up under CA PCA.



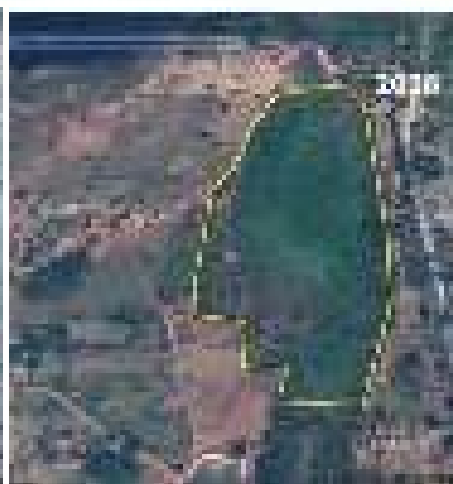
Block Plantation Tikilipada PRF APO 2009-10 in Bamra WL Division



ANR Plantation 2019-20, RaiDihi DPF 50 ha. Under APO 2017-18 in Sundargarh Division



Bald Hill Plantation at Jhalkusum APO 2011-12 Khariar Division



Compensatory Afforestation Baliatota RF CA Plantation over 45.636 ha. Bonai Division



12.2.2. 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
- 282 vehicles provided for protection duties

12.2.3. Infrastructure Development

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

- Construction of 30 range Officer's Quarters, 75 Forester's Quarters & 200 Forest Guard's Quarters,
- Construction of 137 Culverts and 234 Causeways and
- Maintenance of 1000 KM Forest Road

12.2.4. 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 till 2019-20.

12.2.5. Other Programmes

Other programmes include the following activities:

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

12.3. Highlights for APO 2020-21

The CAMPA Annual Plan of Operation 2020-21 is being implemented since April, 2020 with financial outlay of Rs.803.61 Crore which has been approved by the State Level Steering Committee in the meeting held on under the Chairmanship of Chief Secretary of Odisha.



The APO 2020-21 is summarized below.

12.3.1. Afforestation Activities

- Regeneration of Degraded Bamboo Forests over 75000 hectare
- Creation of ANR over 40000 hectare
- Creation of AR Plantation 1500 Ha.
- Creation of Bamboo Plantation @400 Plnts. in 1000 Ha.
- Baldhill 1000 Ha.
- SMC Work 6650 Ha.
- 2nd Year maintenance of Bamboo Plant. 1930 ha.
- 2nd year maintenance AR Plant. 2000 Ha.
- 2nd Year maintenance of ANR 20100 Ha.
- 3rd year maintenance of ANR over 85430 Ha.
- 3rd year Maintenance of Bald Hill over 1,000 hectare
- 2nd Year maintenance of Avenue Plantation over 76 rkm.

12.3.2. 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.
- 282 vehicles provided for protection duties.

12.3.3. Infrastructure Development

- Infrastructure and logistic arrangement in 282 number of Ranges
- 35 Range Officer's Residence, 100 Forester's Quarters & 200 number of Forest Guard's Quarters
- Construction of 93 number of Culverts and Causeways
- Repair and maintenance of 1000 km. Forest road.
- Maintenance of 39 Permanent and Mega Nursery.
- Tubewell 132 nos
- Boundary wall 15000 rmt.

12.3.4. Special Project

- Creation of Orchidarium 1 site
- Creation of Miyawaki Plnt. 4 hectare
- Protection & conservation of Pure strand & RET Species 799 hectare



12.3.5. Wildlife Management

- Management of Wildlife (Rs.156.42 cr) 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.

12.3.6. Other Programmes

- Ama Jangal Yojana (Rs.72.00 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.
- Construction of “State Forest Academy”

12.3.7. 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).

12.3.8. Status of Compensatory Afforestation as on September 2020

Sl. No.	Description	Forest Land (Ha.)	Non-Forest Land (Ha.)	Total (Ha.)
1	Target as per stipulation for Compensatory Afforestation	37413.846	38158.320	75572.166
2	Achievement under Compensatory Afforestation	34260.413	33567.815	67828.228



FOREST INFORMATION TECHNOLOGY AND GEOMATICS CENTRE (FITGC)

13.1. FIT & Geo-matics Centre

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

13.2. Aim & Objectives

The primary objectives of the Centre are to:

- develop, upgrade and maintain web based Management Information System/ GIS for Forestry Sector in the state of Odisha,
- undertake geospatial survey of all Forest Blocks and land parcels recorded or deemed as forests using RS, GIS and DGPS survey,
- 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),
- procure, install, commission and maintain Computer/Server/ Network hardware and software system in the Forest Headquarters, all GPS/ GPS PDA equipment used in the department,
- and guidance to field units there of,
- monitor Forest Cover Change periodically and land based forestry activities using Remote Sensing and GIS Technologies,
- procure, install, commission and maintain 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.

13.3. Steps undertaken

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

13.3.1. 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 having all dynamic WebPages hosted in the server placed at FITGC, Forest Headquarters, Odisha.

13.3.2. Digital monitoring of forestry activities

Geo-ICT based digital monitoring of forestry activities like 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





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Right Act inside notified forest blocks. Online monitoring by the administrators has been done in the website <https://odishaforestgis.in>. Using OFMS (Odisha Forest Management System) from the website consolidated reports are generated on progress of Nursery, Afforestation & SWMC activities, Vanamahotsava celebration, Site selection, details of Forest fire mitigation etc. Online monitoring on progress of Afforestation work programme for the year 2020-21 has been done successfully and polygon data of the current year plantation has been uploaded in OFMS.

In the official website: www.odishaforest.in, updated data on activities like raising of seedlings, plantation progress, tall seedling planting, seedling distribution details etc. has been made available for public viewing/ assistance.

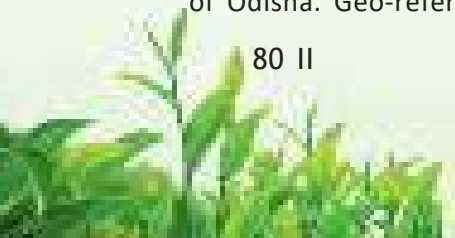


13.3.3. Digitization of Forest Blocks of the whole state of Odisha

Digitization and geo-referencing of 4402 forest blocks of area about 43, 67,208.97 ha from 1:50000 scale topo sheet based management maps have been completed. 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. Now preparation of management boundaries of all these Forest Blocks is in progress which is being done as a part of the Working Plan Exercise for 34 Forest Divisions at ORSAC.

13.3.4. 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 12 Forest Divisions of all the Circles 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 Sq. KM 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. Forest-Revenue Joint Verification has been completed in 1506 forest blocks (9855.65 sq. km) and FRJVC clearance has been obtained for 931 forest blocks (5074.26 sq. km). Of these FRJVC cleared forest blocks DGPS survey has been completed for 525 forest blocks (2732.22 sq. km) and quality check has been completed for 379 forest blocks (1889.16 sq. km) by ORSAC.



DGPS Survey going on in the Forest Blocks

13.3.5. Wi- Fi LAN System in Aranya Bhawan

Wi- Fi LAN has been established in the office of PCCF & HoFF, Odisha with enterprise UTM system on high availability and content filtering with 44 Wi-Fi Access points. The whole office is provided with internet over Wi-Fi at a bandwidth of 175 Mbps through a dedicated leased





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line connection from Software Technology Park of India (STPI), Bhubaneswar. The bandwidth is digitally divided and dedicated bandwidth is provided to the servers installed in the Data Centre of AranyaBhawan.

13.3.6. Development of mobile apps under 5T initiatives of Govt. of Odisha

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

- KYFL @ Odisha (Know Your Forest Location in Odisha):** Under 5T 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 5T 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) 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.





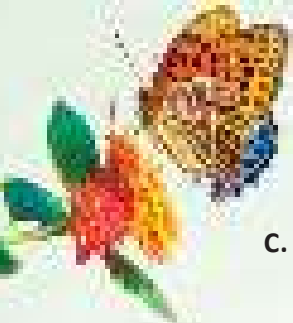
13.3.7. Customized GAGAN Enabled GPS PDA devices for Forestry Management

1200 numbers of GAGAN enabled GPS PDAs have been procured and customized as per the need of the Forest Department. The earlier used GPS devices were not customized according to our need and there were no default lock settings for features such as time stamp and datum. Further these also do not detect SBAS GAGAN signals which decreases the accuracy. These devices have been provided to all the Ranges of the State @ four devices per Range. Twenty-two numbers of applications have been developed in the GPS PDA devices for field use. Android application All the applications developed have few things in common i.e. they are captured in offline (no network) Mode through GPS signal through the device and data is uploaded using internet to the servers after coming back to office from the field using Wi-Fi or Mobile Data. All the applications have facilities in which Geo tagged photographs can be taken with Date and Time. In the details shown, one can exactly know the geospatial details such as latitude longitude, District, Circle, Division, range, Section, Beat etc. All above details are available in the web view/web interface of the portal www.odishaforestgis.in. The captured details are also shown over bing maps, bhuban 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. The system was officially launched in the Month of August 2016.

13.3.8. Odisha Forest Management System (OFMS) mobile applicationis made available in both Google play-store and App-Store

There are 22 modules in OFMS, which are as follows:

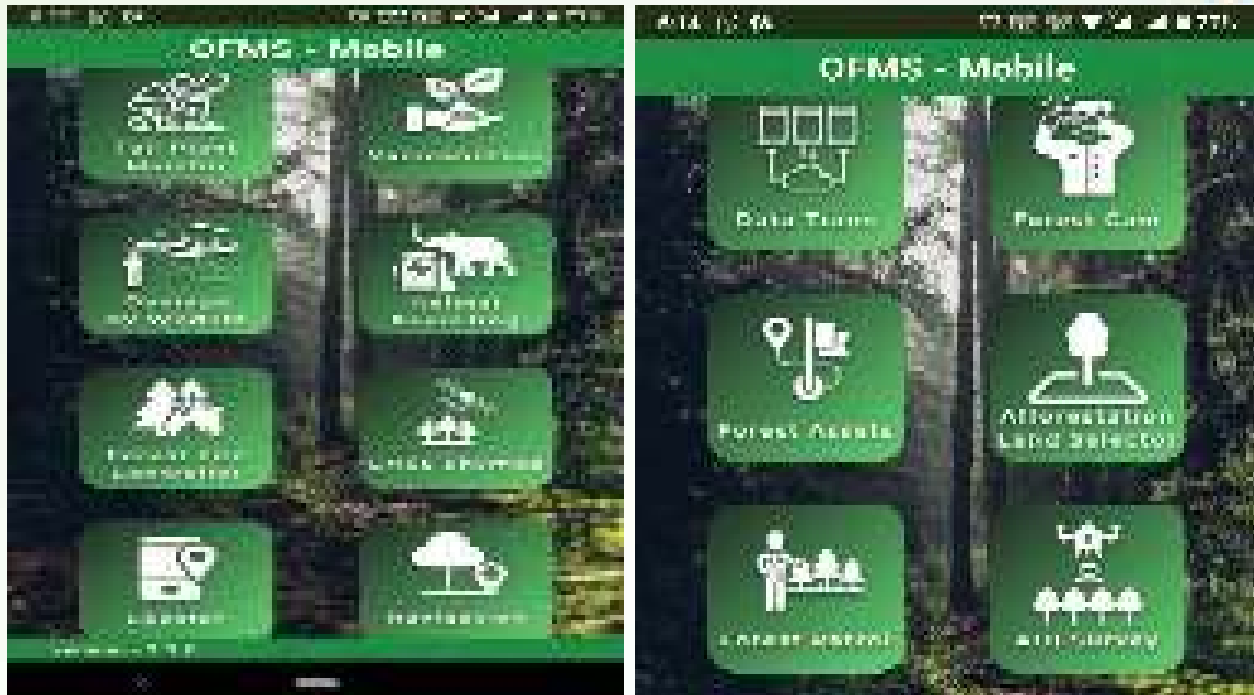
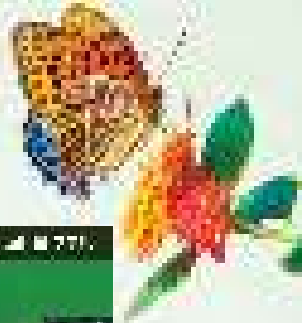
- A. Forest Assets:** This module is used to map any asset geospatially to project it on map with images. Assets include all types of Plantations, Nurseries, buildings, Rest sheds, Roads, Waterbodies etc.
- B. Afforestation Land Selector:** This application helps for selection of new Afforestation sites by the field staffs using recent Forest Canopy Density during verification in in the field.



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- C. **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.
- D. **AOI Survey:** This module helps in survey of a new area of interest.
- E. **Field Presence:** This module is for attendance of the field staff, which captures the location details along with photographs.
- F. **Forest Land Survey:** 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.
- G. **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.
- H. **Forestry Inspection:** Forest officer digitally captures the inspection report in the field.
- I. **Tree Felling & Salvage:** Reporting on illicit felling of tree & salvage of tree are made.
- J. **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.
- K. **Threats to Wildlife:** Wildlife vulnerability is captured.
- L. **Forest Encroachment:** Forest land encroachment survey is carried out with the help of this module.
- M. **Tall Plant Monitor:** Monitoring of tall tree plantation in habitation areas.
- N. **Vanmahotsav:** Using this module Vanmahotsava sites are reported along with number of participants & photographs.
- O. **Damage by Wildlife:** This module is used for reporting Wildlife Depredation.
- P. **Animal Reporting:** Animal sighting is reported along with Death & Injury.
- Q. **Forest Fire Controller:** Reporting of day to day fire incidents received from FSI portal to the field and feedbacks reporting from field are simultaneously carried out using this application.
- R. **GNSS Skymap:** This one functioning as GPS aids is used for tracking and arriving at any desired location.
- S. **Locator:** This is used for knowing the present location.
- T. **Navigation:** Functioning as GPS aids, this is used for tracking and arriving at any desired location.
- U. **Data Trans:** This is used to sync the captured data from field to FITGC Server.
- V. **Forest Cam:** This is used to take photographs.





Twenty two Modules in FITGC Odisha Forest Management System

Online monitoring through website <https://odishaforestgis.in>.

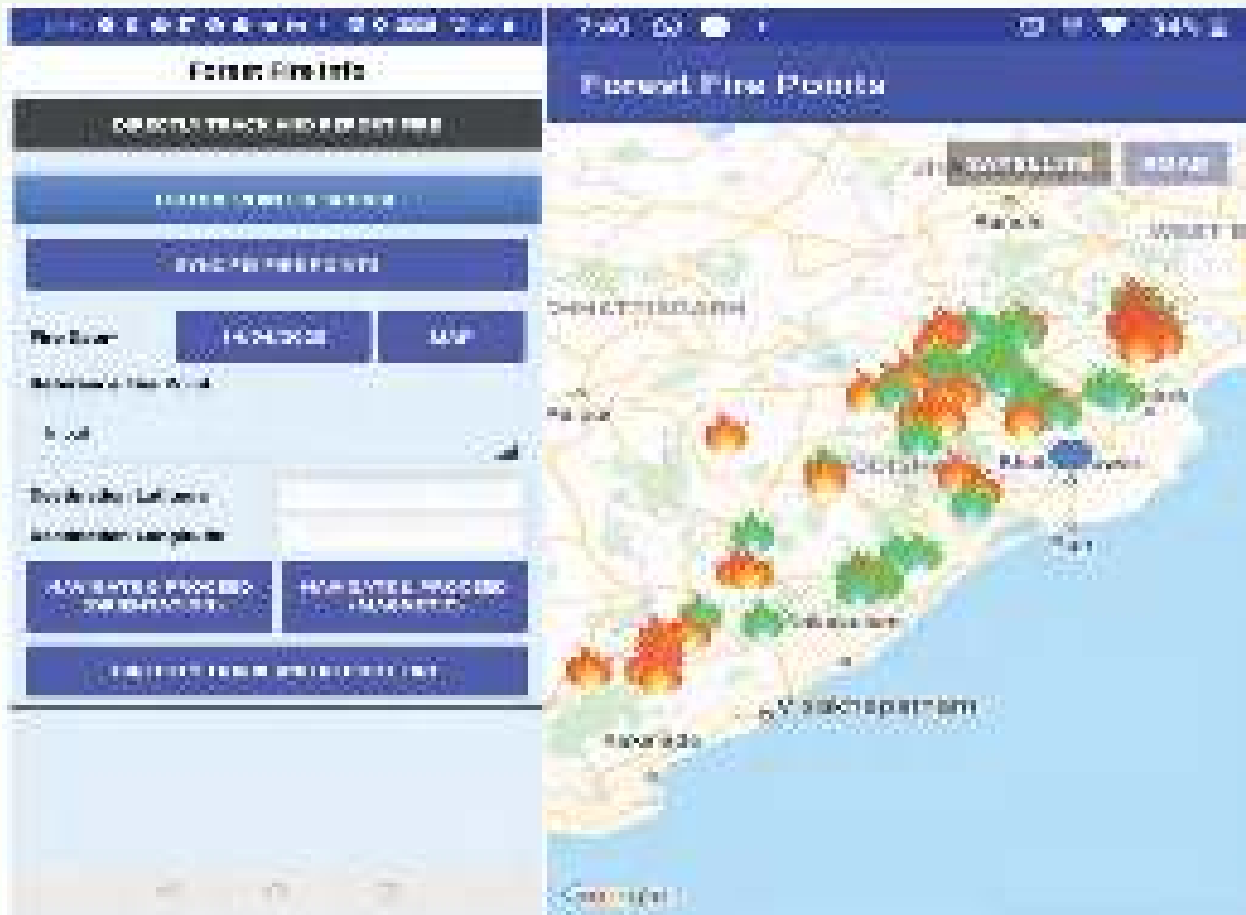


13.3.9. Monitoring of Forest Fire:

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 syncs 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. The 31680 number of fire incidences detected during 2018 has been reduced to 19,787 in 2019 further it has been reduced to 11088 during 2020. Similarly, the area of 9730 ha affected due to fire during the year 2018 has been reduced to 7161 ha in the year 2019 and 6070 ha during 2020 fire season.



(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 map showing red spot and green spot depicting responded fire point and non-responded fire point)

13.3.10. Setting Up of a Server Room

A modular and integrated data centre was created in the Forest IT and Geomatics Centre in January 2016. This is 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 DGPS Survey, website of the office of the PCCF, Odisha and PCCF, Kenduleaves, Seasonal Staff HRMS & KL Accounting System of Kenduleaves Wing are hosted. Similarly, Networking Infrastructure is being upgraded for better cyber security with Next Gen 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.

13.3.11. Sourcing and creation of in house manpower for IT & GIS activities

This office has selected Foresters/Forest Guards having B.Tech or IT Background and given them specialized training on computers, server and network management at Central Tool room and training Centre (CTTC), Bhubaneswar. Three candidates have been deployed at the head



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office level and others are serving for IT initiatives at the Circle/ Division level. Steps are being taken each year to train field IT Savvy Staff on applications developed by Forest IT and Geomatics Centre so that they would act as the master trainers for their respective units.

13.3.12. 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 have been taken to develop mobile application for the above purpose.

13.3.13. Annual Maintenance Contract and Purchase of IT equipment

This Centre is taking 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.

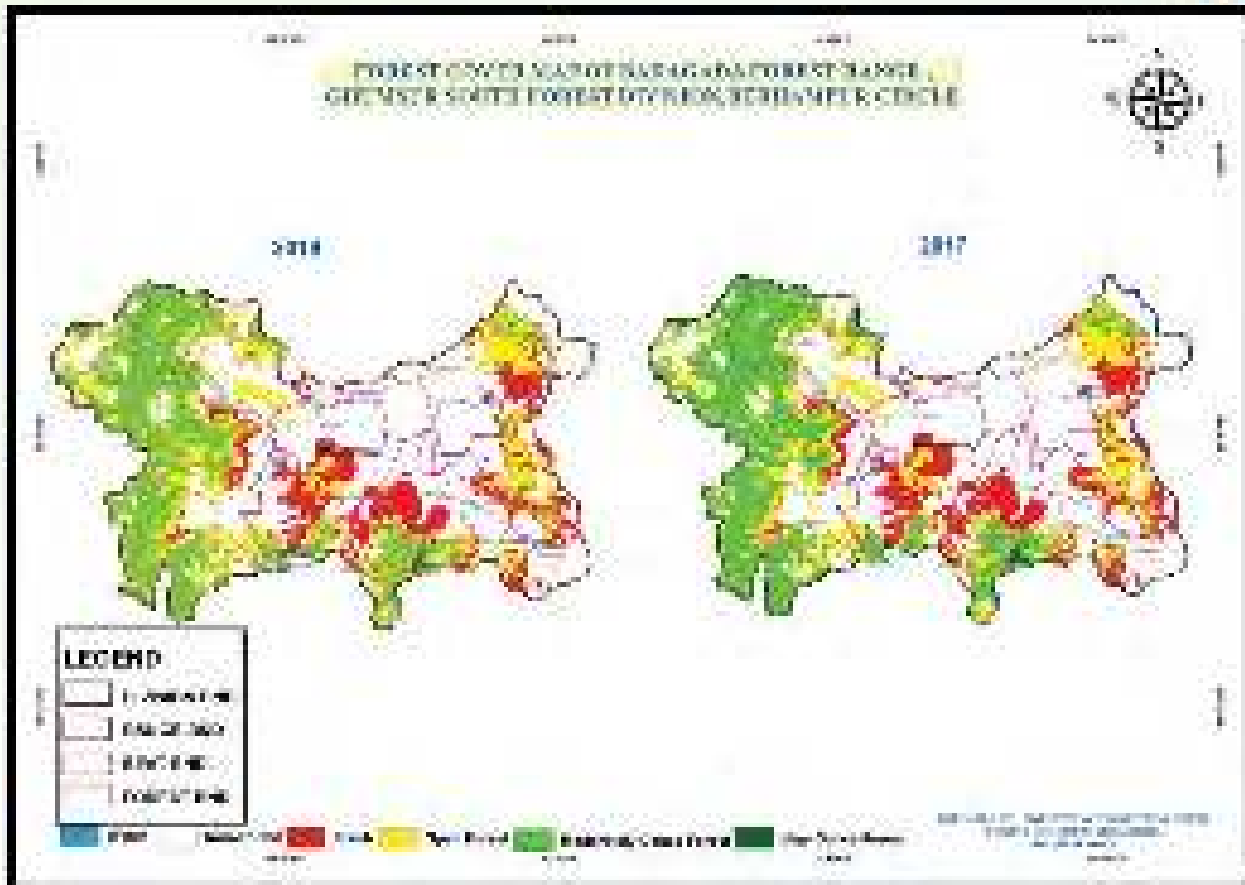
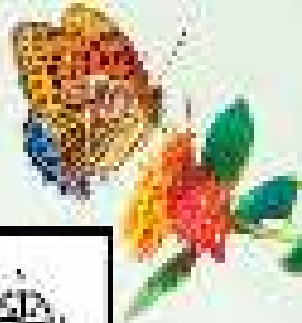
13.3.14. Video Surveillance System in the Office of the PCCF, Odisha

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



Monitoring of Water body and Nursery in different years





Monitoring of Forest Cover change between 2017-2019



OBSERVATION OF IMPORTANT DAYS

14.1. List of Observation days

There are so many events which are observed annually at international, national and state level so as to raise public awareness about values, importance and significance of natural resources like forests, wildlife, wetland etc. Few of them are listed below:

- | | |
|--|----------------------|
| 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 |

14.1.1. 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 has grown remarkably since then.



World Wetland Day 2021

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.

14.1.2. World Wildlife Day - 3rd March 2020



14.1.3. World Pangoline Day 2021



14.1.4. World Forestry Day - 21st March

The World Forestry Day was established in the year 1971 at the 23rd General Assembly of European Confederation of Agriculture. And it was decided to be celebrated as an annual event celebration on 21st of March by the United Nations Food and Agriculture Organization. World Forestry Day was established in the Conference of States members of Food and Agriculture Organization by voting to establish it. This event was originated in a well planned manner to give support in contributing towards the public awareness about the importance of the forests.

International Day of Forests was first established in the year 2012 on 28th of November to be celebrated on 21st of March every year by the decision of the United Nations General Assembly by uniting the two international commemorations; the World Forestry Day and Forest Day.

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.

Similarly, the day has been observed and celebrated every year in the state with an aim to meet the above objectives.

14.1.5. 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.

14.1.6. 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.

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.

14.1.7. 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.

14.1.8. 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.



Vanmahotsav 2020



Tree plantation by Hon'ble Justice, Odisha High Court in presence of Collector, Cuttack

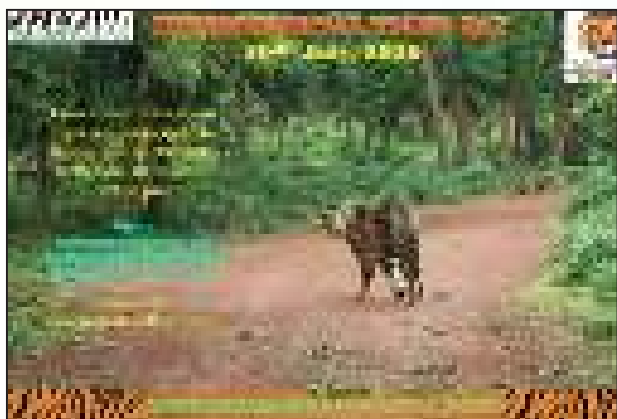




Vanamahotsav Celebration at Nandankanan

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.

14.1.9. International Tiger Day

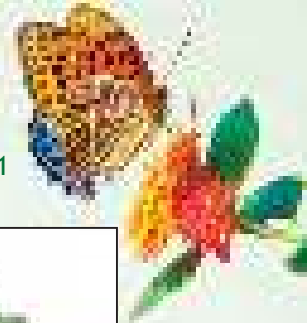


14.1.10. World Elephant Day - 12th August

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.

14.1.11. Wildlife Week - 2nd to 8th October

Wildlife Week is celebrated all over the country in the month of October from 2nd to 8th 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.



TRAINING, RECRUITMENT AND AWARDS

15.1. Training Programme

The Forest staff 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.

15.2. 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.

But due to spread of COVID 19 during 2020-21, the inside and outside training programmes of officers & front line staff are reduced and conducted through online virtual mode.

15.3. 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.

15.3.1. 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 following training courses are conducted in the college.

- i. Induction Training for Forest Range Officers
- ii. Refresher Courses for Front line staff & Forest Officers like Forest Range Officers & Assistant Conservator of Forests under State Plan (HRD)
 - One week thematic course sponsored by Director Forest Education, Dehradun for 47 front line staff (Deputy Ranger, Forester, Forest Guards) as well as for Forest Range officers have been conducted through online virtual mode during 2020-21 at OFRC, Angul.

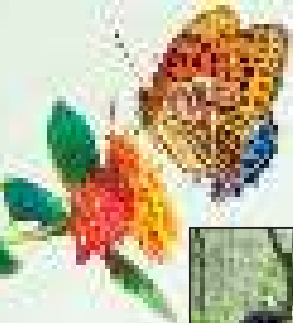


- One 3 days online refresher course on Nursery Technique has been imparted to 24 numbers of frontline staff during 2020-21.

15.3.2. Nicholson Forester Training School, Champua

Nicholson Forest Training school was established in the year 1927 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.





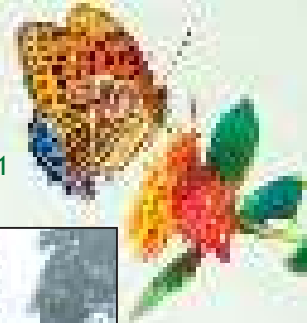
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15.3.3. Forester Training School, G. Udayagiri

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.





15.3.4. 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.



Trainees at Similipal with DFO Similipal South Division doing dung count exercise



Trainees at Medicinal Garden, Patrapada with DFO, City Forest Division



Trainees doing COVID duty at CRP Square BBSR



Independence Day Observation in FTS, BBSR



15.4. Recruitment

The vacancies in the various cadres are being filled-up either through the direct recruitment or through promotion as prescribed in the Rule. During 2019-20, the Government proposal for recruitment of 25 Assistant Conservator of Forests (ACFs) and 42 Forest Rangers has been moved to Odisha Public Service Commission (OPSC).

Besides, necessary action has been initiated to fill up 806 number of Forest Guard posts under direct recruitment quota.

In respect of filling up of vacancies of Ministerial Staff, decision has been taken to fill up 16 Junior Assistants in the Common Cadre of Forest Heads of Department, 9 Junior Clerks in the Circle Cadre & 150 Junior Clerks in the Division Cadre and the same will be filled up very soon through the concerned recruiting authorities.

15.5. 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 away for outstanding performance in plantation/afforestation work. These awards are given in district level functions 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 management.



KENDULEAVES

16.1. Organizational Set up

The Kendu Leaf was nationalized in the year 1973 by Govt. of Odisha. Since then Kendu Leaf achieved a major role in the livelihood of poor adivasi and socio-economic backward people of western Odisha. The Kendu Leaves Organization is headed by the Principal Chief Conservator of Forests (KL).

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

- 2316 permanent staff and 16533 seasonal staff are involved in Kenduleaf working.

16.2. Kendu Leaves Trade in Odisha

The collection, processing, baggaging and storage of Kenduleaves are executed by the Forest Department. The marketing of Kenduleaves is entrusted to the Odisha Forest Development Corporation Ltd. For kenduleaf work, Working Fund Advance is arranged by OFDC Ltd. & the establishment cost is borne by Government. Kenduleaves Development Board (KLDB) is the Apex policy making body since 2014 under the Chairmanship of Hon'ble Chief Minister Odisha similarly Kenduleaves Coordination Committee (KLCC) under the Charimanship of Chief Secretary, Government of Odisha is vested with management of Kenduleaves operation.

16.3. Kendu Leaves Operation in the State

The Kendu Leaves operations like bush cutting, repair and maintenance of Phadies, procurement, drying and storage of Kenduleaves and processing and binding have been carried out as per the schedule. These provide employment to rural poor during the peak summer and livelihood support to the poor. These include about 7.54 lakh Pluckers, 18223 Binders mostly belonging to weaker sections of the society and largely of women. About 60.185 lakh person days of employment are generated for these Operations during the lean season of employment i.e. summer months.





16.4. Phadies/ Collection Centres

There are about 7434 Phadies (Collection Centres) spreading over 22 districts (except 9 coastal districts) for procurement of Kendu Leaves from pluckers. There are about 1078 Central Godowns for storage of Kendu Leaf bags. The kenduleaf of the Balangir District is treated as the best Kenduleaf through out India.





16.5. Phal and Process System

Odisha is the only state where phal and process System of Kenduleaf Management are being practised. Nearly 3 lakh quintals of Kendu Leaves are produced in the State.

16.6. Kendu Leaves Welfare Activities

- A remarkable achievement of the KL Organization is that all the enrolled pluckers have opened bank accounts/postal accounts and their bonus dues of Rs. 27.65 crore at the rate of 25% of Kerry procurement cost have been credited directly to their respective Bank Accounts.
- An incentive award of Rs. 4.08 crore has been disbursed through online payment to the Binders and Seasonal Staff at the rate of 5% of wages earned.
- For the crop year 2020, a sum of Rs. 119.57 crore towards Procurement Price and Rs. 27.03 crore towards bush cutting have been disbursed through respective bank account of the pluckers and binders and 60.185 lakh man-days have been generated.

16.6.1. Kenduleaf Pluckers & Binders Welfare Trust

- In case of death or Full disability of a member, a Compassionate grant of Rs. 1 lakh has been provided to the nominee/ legal heir with effect from 1-Dec-2016 which has been increased to Rs.2 Lakhs for 2019 crop.



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- Marriage assistance at the rate of Rs. 25,000/- for daughters of pluckers and binders (for two daughters only) is being made available through their Welfare Trust Fund. Rs. 29.69 crore as marriage assistance have been released till date for marriage of 8074 number of daughters of KL Pluckers and Binders.
- Provision for Kerry procurement cloth @ Rs.200/- per piece to each plucker in every 2 years, Head cap @ Rs.100/- each with water bottle, chappal, mosquito net and blanket are being supplied to pluckers and binders.
- Medical assistance up to Rs. 2 lakhs to meet the cost of medicines for major diseases like heart operation, treatment of cancer, kidney failure treatment, gallbladder treatment are being made available to the pluckers and binders through their Welfare Trust Fund.
- Educational scholarship is being provided to the children (maximum 2 children) of pluckers and binders for higher education. Rs. 59.78 crore as educational scholarships have been released for higher education of 45,188 number of children of KL Pluckers & Binders.

16.6.2. Kenduleaf Seasonal Staff Welfare Trust

- An amount of Rs. 1.00 lakhs is provided to the Seasonal Staff as Compassionate grant for death and full disability, from Seasonal Staff Welfare Trust Fund with effect from 1st December 2016 which has been increased to Rs.2 Lakhs for 2019 crop.
- Medical assistance up to Rs. 2 lakhs to meet the cost of medicines for major diseases like heart, kidney and gallbladder is being made available to the Seasonal Staff Welfare Trust through their Welfare Trust Fund.
- Educational scholarships to the children (maximum 2 children) of Seasonal Staff for higher education are being provided since 2018 KL crop year. An amount of Rs. 1.16 crore disbursed among 485 students.
- Provision of Rs.3.25 Crore has been made for payment of Gratuity to the Seasonal staff as their retirement benefit.





ODISHA FORESTRY SECTOR DEVELOPMENT SOCIETY

17.1. 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 Project Director, OFSDS is the Member Secretary of both the committees.

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

Odisha Forestry Sector Development Project was initially formulated and implemented for a period of 7 years from 2006-07 to 2012-13. 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 alleviating 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. 559.69 Crore (13,937 JPY million) and Government of Odisha contribution of Rs. 100.12 Crore (492 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 31st March, 2015. The reimbursement claim has 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, Kandhamal, Keonjhar, Koraput, Rayagada and Sundergarh covering 14 Forest and Wildlife divisions namely, Angul, Parlekhamundi, Phulbani, Baliguda, Koraput, Jeyore, Rayagada, Deogarh, Keonjhar, Bono, Rourkela, Satkosia (WL), Balasore (WL) and Bhadrak (WL).

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

The Odisha Forestry Sector Development Project-Phase-II, a 10 year project with total cost of Rs. 1000.30 crore is being implemented with the financial assistance of Japan International Cooperation Agency (JICA) through Odisha Forestry Sector Development Society. The project is being executed in 14 Forest/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 1200 Joint Forest Management Committees (Vana Surakshya Samitees).





17.3.1. Objectives, Project Outlay & Components

The broad objective of the project is to enhance the forest ecosystem along with the sustainable livelihood improvement of forest fringe people. Project is designed to have the preparatory year in the 1st year and next five years being implementation period. The Project Outlay for the 10-year project period is summarized below. The Government of Odisha's share/ contribution towards the project cost includes among other things, administrative expenditure for the implementation of the project in respect of PMU and 12 forest divisions and 2 Wildlife divisions of the state.

The broad outlays for various project components are given below:

COMPONENTS	OUTLAY (Rs in Crore)
ELIGIBILITY PORTION – JICA loan	
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
Total	848.6
NON_ELIGIBLE PORTION – State Share	
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
Total	151.7
TOTAL (A+B)	1000.3

17.3.2. Key Works undertaken through-out the Project

The project is being implemented in JFM mode with active involvement of 1200 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 for engagement of partner NGOs at the level of each implementing Divisions (DMU). Moreover, there is a provision for engagement of two 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. There are also other provisions like Capacity Development of various stakeholders at different levels including the partner NGO's on various technical and managerial matters covering project implementation and promotion of income generating activities for enhancement of income of 3600 Women self-help Groups.

COMPONENTS	TARGETS
Sustainable Forest Management – JFM Mode	
ANR Plantation	51000 Ha.
Block Plantation	6000 Ha.
Drainage Line Treatment	1500 Ha.
Fire Protection	1710 km
Sustainable Forest Management Plan – Non-JFM Mode	
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

17.3.3. Progress of Activities

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

17.3.3.1. Preparatory work

403 VSSs from Batch-III & IV FMUs (Ranges) from 12 Project Divisions have been taken up for implementation under OFSDP during 202-21. Survey, Demarcation and Posting of pillars across the assigned area of 403 VSSs have been completed. Moreover, Micro Plan preparations in all 403 VSSs are completed.

17.3.3.2. Sustainable Forest Management Plan

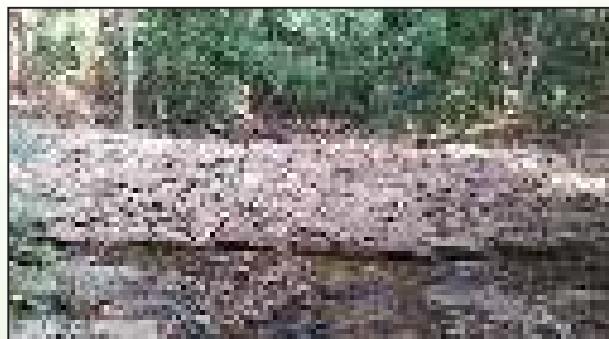
Under this component, OFSDP-II has made the following progress in 2020-21.

Activities	Batch	Component	Target (in Ha.)	Achievement (in Ha.)	Status of Progress
Drainage Line Treatment (DLT)	2020-21 (422 VSS of Batch-II)	DLT (JFM) DLT (Non-JFM)	530 270	530 270	Completed Completed
Assisted Natural Regeneration (ANR) & Artificial Regeneration (AR)		ANR AR	17273 1442	17273 1442	Plantation Completed (48.23 lakh seedlings planted)
Fire line Creation and Maintenance		Sustainable Forest Management	603 Km	603 Km	Completed
Consolidation and Demarcation of Forest Boundaries			669 Km	669 Km	Completed
Farm Forestry	355 VSSs of batch-I		1833 ha	1833 ha (includes 4432 community beneficiaries)	Completed (12.17 lakh seedlings planted)
Establishment of High tech Nurseries		Required seedlings have been raised in 6 Hi-tech Nurseries for under taking plantation under OFSDP-II for 2021-22 in Athamallik, Baripada, Ghumsur (North), Sambalpur, Subarnapur & Sundergarh Divisions.			

SMC WORK



GHUMUSUR (NORTH) DMU



GHUMUSUR (SOUTH) DMU

HI-TECH NURSERY



Hi-Tech Nursery developed in Ghumusur South DMU

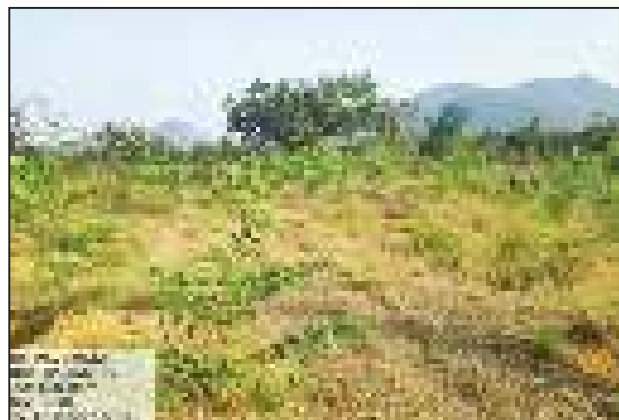


Hi-tech Nursery developed in Athamallik DMU

PLANTATIONS IN 2020-21



SUNDERGARH DMU



GHUMUSUR - SOUTH DMU

17.3.3.3. Sustainable Biodiversity Management

Under this component two Wildlife Divisions viz. Bamra and Rajnagar have been selected.

Satoyama Initiatives

SATOYAMA model has been initiated in 10 EDCs of Badarama Wildlife landscape under Bamra (WL) Division. Activities taken up under Satoyama Initiatives during 2020-21 are as below:

- Removal of invasive weeds in 3 EDCs is completed.
- Avenue Plantation has been taken up in 7 EDCs covering 4.5 kms.
- 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.



HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

- 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 has been planned to be covered in 10 EDCs.

Eco-system based Conservation Management of Bhitarkanika Area

- National Centre for Sustainable Coastal Management (NCSCM), Chennai has been engaged for development of Long-term Scientific Monitoring Plan for Ecosystem based Conservation of Bhitarkanika Conservation Area.
- Draft Health Report Card for concurrent monitoring of BCA 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.

VSS BUILDING-CUM-IGA FACILITATIONS CENTRE



Junani VSS building built under OFSDP-II in Subarnapur DMU

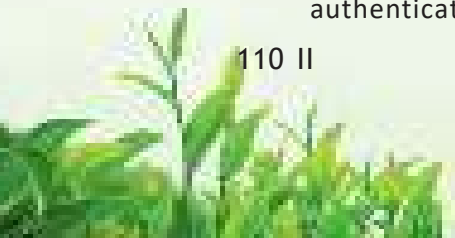


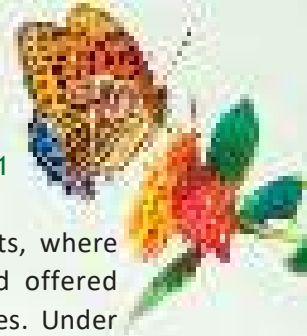
Sarapanka VSS building built under OFSDP-II in Ghumusur (South) DMU

17.3.3.4. Livelihood improvement

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 459 VSSs of Batch-I and Batch-II of OFSDP-II. Construction in 721 VSSs of batch-III & IV are under progress.
- VSS wise product authentication has been completed in all 777 VSSs of Batch-I & II. Identification of product clusters initiated in all Project Divisions based on product authentications.





- During the pandemic of COVID-19, all the Divisional Forest Management Units, where OFSDP-II is under implementation generated total 10.12 lakh man days and offered direct livelihood support to the poorest and the most dependent communities. Under OFSDP-II, till December 2020, 3.28 lakh members have been benefitted in 777 VSSs and Rs. 10157.85 lakhs have been mobilized in 12 Divisions.
- During the FY-2020-2021, from April till December, Rs.3948.25 lakhs have been mobilized through convergence with different Departments viz. Agriculture, Horticulture, Panchayati Raj & Drinking water, W&CD, SC&ST Development, Fisheries & ARD, F&E etc. benefitting 1,10,527 households and 2,33,271 beneficiaries.
- Three Sal leaf Clusters have been identified in Baripada, Rairangpur and Karanjia Divisions and construction of Cluster Buildings in the above identified Clusters have been initiated.
- Community Development activities and different Income Generating Activities (IGAs) have been facilitated in 777 VSSs through inter-sectoral convergence with the line Departments during 2020-21.
- Annual Action Plan 2020-21 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 each Division 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.



Mushroom cultivation activities under IGA facilitation programme of SHGs in Samabalpur Division



Convergence Activity for community with ITDA, Karanjia in Karanjia Division

17.3.3.5. Livelihood Resource Centre (LRC)

- A special cell has been established in the PMU as Livelihood Resource Centre (LRC) to facilitate IGAs and promote sustainability of cluster based business models.
 - Guideline on Operationalizing Livelihood Resource Centre and business plan of (LRC) has been developed.



HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

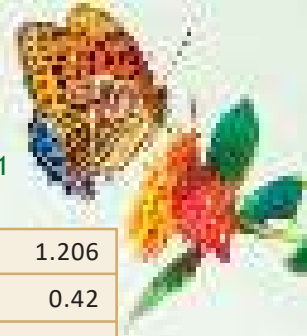
- Guideline for utilization of funds on different activities under LRC has been developed.
- 3 product clusters have been identified and works under progress in Baripada, Karanjia and Rairangpur Divisions.

17.3.3.6. Capacity Development

- Annual CB Plan 2020-21 for all stakeholders of OFSDP-II has been prepared following the approved Capacity Development Framework.
- 96 numbers of training on nine different themes have been conducted covering 6086 beneficiaries during 2020-21 (Up to Dec, 2020).

17.3.4. CONVERGENCE UNDER OFSDP-II (APRIL TO DECEMBER 2020)

Department	No of Beneficiaries	No of Households	Amount Mobilised in Convergence (Rs in Lakhs)
Bank	823	763	56.26
Corporate	90	90	0.04
Dept of Energy	113	32	0.63
Dept of Industry	246	239	52.36
Health & FW Dept.	8785	5265	21.13
Horticulture Dept.	10603	9874	163.60
Irrigation	1436	494	47
Labour Deptt.	179	49	16.93
Ministry of Food Production	168	302	2.81
Ministry of Women and Child Development	15068	3895	26.03
MORD	1681	600	27.54
NGO	4433	2762	8.62
NHAI	33	33	3.51
Panchaytiraj & Drinking water	99103	40227	2376.16
Revenue & Disaster Management	145	135	3.71
RWSS	370	110	55.45
SC & ST Dev. Dept.	14396	10930	361.75
Skill Devt.	60	60	0.05
Social Justice Gol	10	2	0.1
Soil Conservation Dept.	5767	1713	245.87
SSA	200	46	5
Urban Development	1311	801	12.13
Fisheries and ARD Department	4460	3097	98.06



ORMAS	709	704	1.206
OFSDP-II	1253	813	0.42
TDCC	473	473	2.30
MGNREGS	150	150	7
Agro industry Jharsuguda	10	10	0
Odisha Livelihood Mission	106	106	23.27
Agriculture & Farmers' Empowerment	5540	4115	60.74
District Mineral Foundation	23	23	0.76
Ministry of Petroleum and Natrual GAS	157	115	0.96
Forest & Environment	52135	20679	222.77
Women & Child Development	331	331	35.60
NCFE, Govt. of India	50	50	0
Health & FW Dept.	1040	535	1.04
NABARD	84	84	0.71
Social Security & empowerment of Person with Disabilities	3	3	0.015
Other	487	277	14.74
Forest & Environment	1440	679	1.25
Odisha Livelihood Mission	342	342	37.37
RSETI	420	420	2.00
Agriculture Dptt.	38	38	1.5
Grand Total	2,34,271	1,11,466	3998.37

17.4. Ama Jangala Yojana (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 alternative livelihoods for the forest fringed communities in the state. AJY envisages strengthening of the community based institutions for protection of forest and creation of alternate livelihood opportunities to reduce pressure on forests. The tenure of the project is six years (2016-17 to 2021-22).

The project has reached out to 4,605 VSSs of 22 Divisions, out of which 885 VSSs of 22 Division brought under the fold of AJY during the current year only.

In addition to this, about 14,025 women SHGs have been linked to various income generating activities under AJY. In spite of Covid 19 pandemic situation, the project could be able to mobilize INR 7429.1 Lakhs through convergence with other Departments under different Schemes, benefitting about 4,65,597 persons during this year.





17.4.1. Progress of activities

All the activities carried out through Ama Jangala Yojana can be broadly classified into 4 categories.

1. Community mobilization and institution building activities
2. Forestry activities
3. Capacity building initiatives and
4. Livelihood promotion activities



PRA Exercise at Bardangua VSS in Patna FMU, Keonjhar Division



Venn diagram during PRA at Siraguda VSS of Umerkote Range, Nabarangpur Division



17.4.1.1. Community mobilization and institution building activities

Community mobilization, as an essential component of Ama Jangala Yojana has been completed in 885 new VSSs brought under the fold of Ama Jangala Yojana during the current year. PRA & Micro-planning, VSS meetings, awareness campaigns on various aspects of forest protection and conservation have been conducted in all 885 new and 3720 old VSSs.



EC meeting at Malibramhani VSS, Angul Division



Meeting of Uttei Milk Cooperative Society, Ambagaon facilitated by Kalahandi-N Division

17.4.1.2. Forestry Activities

(i) Survey, Demarcation & Pillar posting

Survey and demarcation are the preparatory activities under AJY Scheme following site selection, especially where new VSSs have been taken up. Each VSS is assigned with treatment area, where Assisted Natural Regeneration (ANR) activities are taken up. As on 31st December 2020, survey, demarcation and pillar posting works have been completed in 42,051 ha of treatment area in all new VSSs under 22 Forest Divisions.



Pillar posting at Muniguda VSS, Boipariguda FMU of Jeypore Division



Pillar Posting at Khutiguda VSS, Dabugam Range of Nabarangpur Division



(ii) Assisted Natural Regeneration (ANR) & Block Plantation

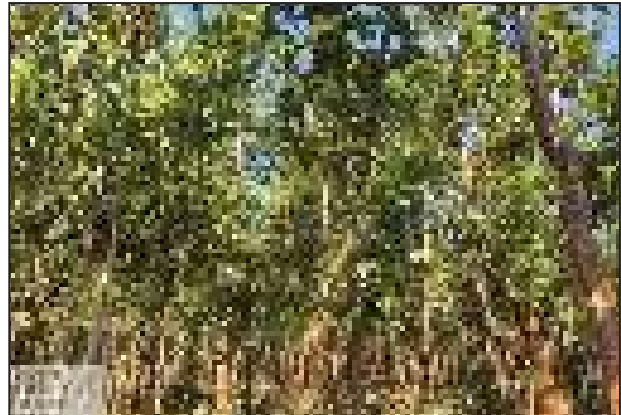
ANR (without gap plantation) of 22,887 ha in 522 VSSs belonging to 22 AJY Divisions was proposed during 2020-21. By December 2020, ANR (without gap plantation) is complete in 19,145 ha of assigned forest land in all 522 VSSs. The work is under progress on war footing basis in rest of the areas. Moreover, preparatory works such as nursery raising and site selection for ANR (with gap plantation) in 20,000 ha of land belonging to 453 VSSs (under 18 Forest Divisions) have already been started. In addition to this, 4th year maintenance of block plantation in 1005 ha under 12 Forest Divisions (87 sites) have also been carried out during this year.



ANR (Silvicultural Operations) in Balibahal VSS, Pallahara FMU of Deogarh Division



Block plantation (4th year) at Bagmunda VSS, Kalahandi-N Division



After Silvicultural Operations- Raidiha VSS, Keonjhar Division



Nursery preparation for AR plantation, Balibahal VSS, Deogarh Division



Nursery work at Padarguda VSS under Guppteswar FMU, Jeypore Division



(iii) SMC Activities

Soil Moisture Conservation activities such as Loose Boulder Check Dams (LBCD) and staggered trenches have been undertaken in the assigned areas of 19,711 ha belonging to 20 Divisions.



LBCD at Balibahal VSS, Deogarh Division



LBCD at Kankarimal VSS, Kalahandi (S) Division

(iv) VSS Buildings

There was provision for construction of 165 numbers of multipurpose VSS buildings in the villages under AJY during last year. Construction of 98 numbers of VSS buildings was completed during last year. 67 VSS buildings have been completed this year and handed over to the communities.



Thakurpali VSS Building, Barkote FMU of Deogarh Division



Kasili VSS Building, Rayagada Division

17.4.1.3. Capacity building initiatives

Capacity Building Training programs have been carried out for implementation of AJY activities, such as Survey and Demarcation, Community Mobilization, PRA tools and Micro Plan preparation, GIS Mobile Application and Soil Moisture Conservation Measures. Capacity Building Training programmes, both under project components and convergence have been conducted at PMU as well as field level involving 98,520 participants, covering 4,605 VSS and 4,336 SHGs.



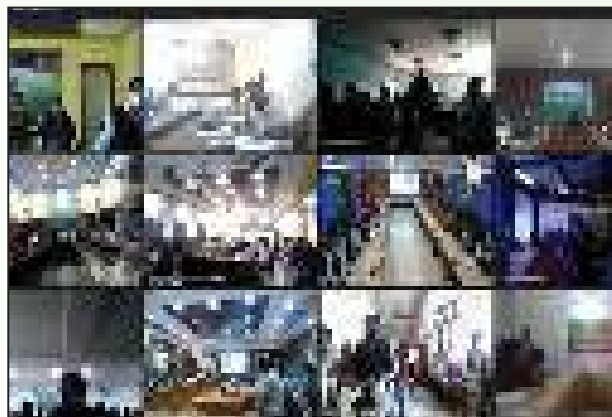


HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

In addition to this, a two-day virtual capacity building training for the FMU and DMU level staff has been organized by the PMU, OFSDS on 29th and 30th December, 2020 in which participants from 22 AJY Divisions have participated.



Capacity Building Training (CBT) for DMU and FMU level staff, organized by PMU of OFSDS on 29-30th December, 2020



Participation of AJY Divisions in the CBT for DMU and FMU level staff, organized by PMU of OFSDS



Participation of Rairakhol Division in the CBT for DMU/ FMU level staff organized by PMU of OFSDS

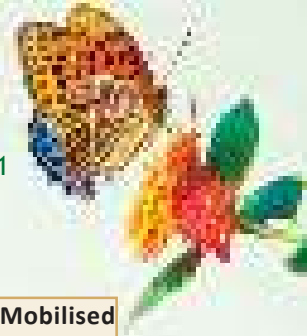


Participation of Kalahandi-N Division in the CBT for DMU/ FMU level staff organized by PMU of OFSDS

17.4.1.4. Livelihood promotion and Convergence initiatives

Inter-sectoral convergence to ensure the livelihood opportunities for the forest dependent communities so as to reduce their dependence on forests is one of the core objectives of Ama Jangala Yojana. 14,025 numbers of women SHGs in AJY operational area have been linked to various income generating activities through convergence. In spite of Covid-19 pandemic situation, the AJY teams could be able to mobilize INR 7429.1 Lakhs through convergence with other line Departments under different Schemes, benefitting about 4,65,597 persons during this year. Additionally, AJY team has accomplished many activities pertaining to community infrastructure development and livelihood improvement for the benefit of the local communities.



**(i) Convergence Under AJY for the Year 2020-21 (Up to December 2020)**

Type of Works/Activities undertaken through Convergence	Departments involved	No of Beneficiaries covered	Amount Mobilised in Lakhs
Input subsidy under Agriculture & Horticulture	Agriculture Dept. & Horticulture Dept.	168617	458.93
Linkage for Poultry, goat rearing and pisciculture support	Animal Husbandry & Fisheries Dept.	7846	54.45
ANR/AR Plantation (MGNREGS support)	PR Department	3291	49.92
Construction of community Assets/ infrastructure through MGNREGS	PR Department	25954	497.50
Distribution of Mosquito nets/ Solar equipments /Blanket/Chullah /Phenyl/ Masks/ Ration	Health & Family Welfare, Mission Shakti	15481	25.07
Drinking water & Irrigation	RWS & S, Irrigation	85829	2539.06
Rural Electrification	Energy	691	7.64
Human Health Camp	Health & Family Welfare	14637	113.11
Livelihood Promotion	Dept. of Agriculture, Dept. of Horticulture, Mission Shakti (WoCD)	27708	274.06
LPG Connection/Refilling	Petroleum & Natural Gas	18513	92.13
Mission Shakti	Mission Shakti (WoCD)	245	15.05
Village Road Construction & Repair- MGNREGS	Panchayati Raj & DW Department	53886	1139.80
Skill Development & Entrepreneurship Trainings	Ministry of Skill Development	80	0.80
Social welfare scheme (Pension, Labor card etc)	Panchayati Raj & DW Department, Labour Dept	18598	144.06
Toilet/Sanitation (Swachh Bharat Mission)	RWS & S	8166	101.73
Construction of Individual House (PMAY/Biju Pucca Ghar)	Panchayati Raj & DW Department	2985	1694.41
Soil and Moisture Conservation works through MGNREGS	Panchayati Raj & DW Department	12,060	192.92
Others (Apiculture, NTFP Processing etc)	Department of MSME/ Khadi Board/ KVIC	1010	28.45
Total		4,65,597	7,429.10



(ii) Division wise Convergence under AJY for 2020-21 (Up To December 2020)

Divisions	No of Beneficiaries Covered	Amount mobilised (in Rs Lakhs)	Divisions	No of Beneficiaries Covered	Amount mobilised (in Rs Lakhs)
Angul	112205	3455.95	Keonjhar W/L	116	3.53
Balasore	0	0.00	Khariar	4133	7.81
Balliguda	2712	256.18	Koraput	40496	985.25
Bamra	861	29.11	Malkangiri	4699	173.80
Bargarh	381	1.84	Nabarangpur	719	1.25
Bolangir	26270	271.88	Paralakhemundi	6441	77.16
Bonai	542	24.46	Phulbani	5806	147.52
Deogarh	32616	450.58	Rairakhola	22635	446.46
Jeypore	1152	9.29	Rayagada	19384	445.45
Kalahandi (N)	12905	63.79	Rourkela	3338	102.54
Kalahandi (S)	148547	86.84	Satkosia W/L	345	2.14
Keonjhar	19294	386.30	Total	4,65,597	7,429.10



Solar operated drinking water supply point through convergence at Balidihi VSS, Barkote FMU of Deogarh Division



Convergence with PKVY for pot manure preparation by SHG members, Palam VSS of Malkangir Division



Animal Vaccination Camp through convergence at Remala Sahi VSS, Barkote FMU of Deogarh Division



Red Chilli cultivation through convergence with ITDA at Mendhiakani VSS, Deogarh Division



Cooperative office-cum-milk collection centre of Uttei Milk Cooperative Society through convergence with OMFED, Kalahandi (N) Division



Vegetable Cultivation through convergence with Horticulture Dept., Kadopada VSS of Bamra WL Division

One of the mandates of the project is to assist in energy conservation so as to reduce the dependency of local communities on forest for their energy needs. Provisioning of LPG to the households and refilling has been made through Pradhan Mantri Ujjwala Yojana (PMUY). OFSDS is playing a pivotal role, as a facilitator, in implementation of this scheme.

(iii) OMBADC Approval on Livelihood Promotion in 5 Forest Divisions under Ama Jangala Yojana

OMBADC has approved the livelihood project in 5 Forest Divisions namely Rourkela, Bonai, Deogarh, Keonjhar and Keonjhar (WL) involving 27 Ranges of 3 Districts of Sundargarh, Keonjhar, and Deogarh. The duration of the project is for 5 years, starting from 2020-21 to 2024-25. The approved project proposed to benefit about 69,890 households by directly benefitting 1,55,478 ST and 23,766 SC individuals. This would also increase income opportunities for other group of people through related services in sectors spanning Education (including training for Skill Development), livelihood promotion through Handloom, Textiles and Handicrafts, Panchayatiraj and Drinking Water etc.

REGIONAL PLANT RESOURCE CENTRE

Regional Plant Resource Centre (RPRC), Bhubaneswar, an autonomous Research and Development (R&D) Institute of Forest & Environment Department, Govt. of Odisha, has been taking all efforts to showcase its various R&D activities primarily through implementation 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. RPRC has implemented various research programmes under financial support from Forest and Environment, Government of Odisha, RKVY, Science & Technology, Govt. of Odisha, other apex central funding agency like DBT, NMPB, Govt. of India, which were prioritized to address issues pertaining to conservation and bio-resource utilization relevant to Odisha state.

During the year 2020-21, the Center initiated and maintained advance line of research focusing the prioritized 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 bio inoculant for forest species, useful secondary metabolites from fungi, micro-propagation of forest species, plantation crops and endangered plants. A total 8 external funded, 16 state plan funded projects have been implemented during the year 2020-21, engaged around 40 research fellows, published 15 research papers, trained 5 M.Sc. Biotech students for their PG degrees.

The activities undertaken during the current year 2019-20 are given below

18.1. Development of bio inoculant for Growth and Development of important Forest species using native micro flora

The microbial bio inoculants /bio fertilizers would reduce the cost of chemical fertilizers involved in plantation programs, improve the native soil fertility and sustainability thereby provide economic benefits. Experiments on native micro flora have been carried out that exhibited positive effect on growth and establishment of *Dalbergia latifolia* under pot culture conditions. Application of native microbes and the development of microbial consortium will be useful for the development of nursery technology for this tree species.



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



18.2. Morph taxonomic characterization and documentation of fungi of Odisha

Odisha endowed with wealth of diversified resources including heavy metal mine, mangroves, good and huge forest cover, very long sea coasts which develop a most suitable habitat for fungi and attained opportunity for multifarious diversity. More than 300 no. of fungi have been segregated to prepare a “Compendium of fungi of Odisha”



Different morphological types of fungi of Odisha

18.3. Production, purification and evaluation of useful Endophytic fungi

Endophytic fungi have been reported as potential candidate for the production of various secondary metabolites and exploited in different agriculture, food, pharmaceutical and health care industries. A fungal endophyte has been studied for the production of secondary metabolite and further evaluation for its anticancer properties. Besides, endophytes isolated from different banana cultivars were tested against *Meloidegryne icognita* (nematode) and two bacterial strains having nematocidal properties were under process for the field trial.

18.4. Mass production of selected medicinal plants of Odisha through tissue culture and other conventional methods

Many of the medicinal plants of the state of Odisha exhibit some sorts of problems in their natural propagation and require an alternative method such as tissue culture. To overcome this, efficient tissue culture methods are being developed for *Celastrus paniculatus*, *Litsea glutinosa*, *Mesua ferrea*, *Paederia foetida*, *Saraca asoca*. Meanwhile a reliable method has been developed for the production of planting materials of *Paederia foetida*.



Multiplication stage of Paederia foetida. and Shoot initiation in Saraca asoca



HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

In another research programme, 6000 Amrita "*Tinospora cordifolia*" saplings have been produced through stem cuttings and delivered the same to Sambhav (NGO) of Kendrapara district for distribution to farmers. Besides, *Paedaria foetida* (1000nos), *Piper longum* (100) and *Bacopa monnieri* (300) plants were also raised.



Saplings of *Tinospora cordifolia* and *Paedaria foetida*

18.5. Harnessing the potential of traditional knowledge based medicinal plants for identifying SARS- CoV2 compounds

Twenty medicinal plants growing in Odisha have been selected, which could possibly be used for the treatment of COVID-19. Extracts from leaves and/or stems of these plants are being processed for testing against the SARS – CoV-2 virus.

18.6. Studies on therapeutic validation of phytochemicals from rare and important medicinal plants useful to treat Alzheimer's disease

A study has been conducted towards findings of phytochemicals useful for treatment of Alzheimer's disease using various medicinal plants like *Geophila repens*, *Pterocarpus marsupium* and *Piper trioicum*. Strategic approach has been initiated to establish the lead findings such as cholinesterase inhibitor for the treatment of Alzheimer's disease through therapeutic validation.

18.7. Regulation on banana fruit ripening process to enhance its shelf life

The protein-protein interaction studies were performed for annotated proteins from four different samples, considered in this study. Based on the results, several proteins such as regulatory, signalling, sugar, hormonal regulation and cell wall metabolism related proteins were tightly interacting in a network mode during the ripening process in banana. The knowledge obtained through this study would be highly useful for selecting the right candidates and utilize them in controlling ripening and also to enhance fruit shelf-life in banana.



Figure-2. Depicted image represents the SDS-PAGE profiles of 90-DAF (pulp and peel) and 12-DAR (pulp and peel). Lane 1 represents the marker protein ranging from 6.5-200 KDa. 150 µg of protein samples were loaded in each lane. 1 and 2 represents 90-DAF pulp and peel. 3 and 4 represents protein samples from 12-DAR pulp and peel tissues of the banana fruit.



18.8. Developing micro-propagation methods for endangered forest trees species *Pterocarpus santalinus*, *Anogeissus latifolia*, *Santalum album* and *Desmodium oojeinense*

Since conventional regeneration process is difficult, tissue culture has been opted as alternative method of mass propagation. Various vegetative explant sources were considered for the micro-propagation of both *Santalum album* and *Desmodium oojeinense*. In both the species, shoot bud induction was seen after 10-days of inoculation with nodal segments on basal medium, basal medium supplemented with 1.0 and 1.5mg/l BAP.

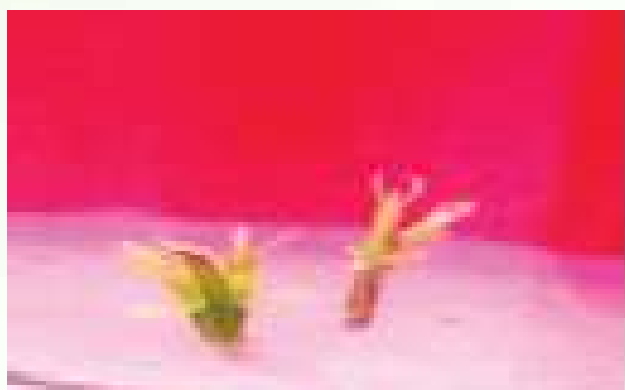


Figure 1A: the *Santalum album* explants with newly formed axial shoot buds after 20-days of culture on 1.5mg/L BAP supplemented medium



Figure 1B: Shoot bud growth on subcultured explants of *Desmodium oojeinense* after 20-days of culture on 1.5mg/L BAP supplemented medium

18.9. Mass production and evaluation of local banana varieties of Odisha

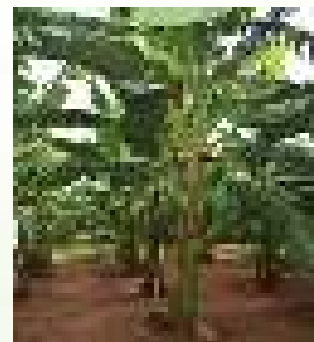
In order to carry out various studies on tissue culture banana, a banana mother block has been established with Champa, Patakpura, Bantala and Yagambi. Besides, suckers of Champa, Patakpura and Bantala were collected from Puri, Khordha, Jagatsinghpur and Keonjhar of Odisha for initial tissue culture. Experiments are being carried out for development of suitable protocol for mass propagation of banana and also to study the effect of antioxidants during different stages of banana Tissue culture for the varieties Champa and Patakpura to avoid lethal browning. Plantlets of different varieties were transferred to Nursery from Banana Tissue Culture Laboratory for experimental work as well as sale purposes. Banana cv. Gaja Bantal fruit and pseudo-stem are being subjected to nutrient analysis.



Different stages of TC Banana



TC Banana Plants at RPRC Nursery



Establishment of TC Banana Mother Block at RPRC

18.10. Standardization of various macropropagation methods of useful wild edible fruits of Odisha

Propagation trial has been initiated with 10 no of target species viz. *Antidesma ghaesembilla*, *Carissa carandas*, *Carissa spinarum*, *Ehretia microphylla*, *Cordia dichotoma*, *Eugenia roxburghii*, *Polyalthia suberosa*, *Glycosmis pentaphylla*, *Toddalia asiatica*, *Ziziphus oenoplia*. Out of above 10 species, 9 species were propagated following different methods of vegetative propagation like girdled stem cuttings (black taping), micro stem cutting, juvenile stump cutting, root cuttings and wildling. So far, all together more than 600 saplings have been raised and studied for their hardening and adaptation for suitable domestication.



Saplings of *Glycosmis pentaphylla* and *Eugenia roxburghii*

18.11. Evaluation and characterization of pectin in selected wild edible fruits of Odisha

Optimization and characterization of pectin in target wild edible fruit species viz. *Ficus auriculata*, *Citrus medica*, *Limonia acidissima*, *Phyllanthus embelica*, *Diospyros malabarica* and *Syzygium cumini* have been carried out. Pectin yield ranged from 5% to 27%. The highest pectin yield was recorded in *Citrus medica* i.e 27% whereas lowest pectin yield was recorded in *Limonia acidissima* i.e 5%. Further analysis of pectin components with reference to galacturonic acid and uronic acid are being carried out using advance instrumentation technique i.e. through FTIR spectroscopy.

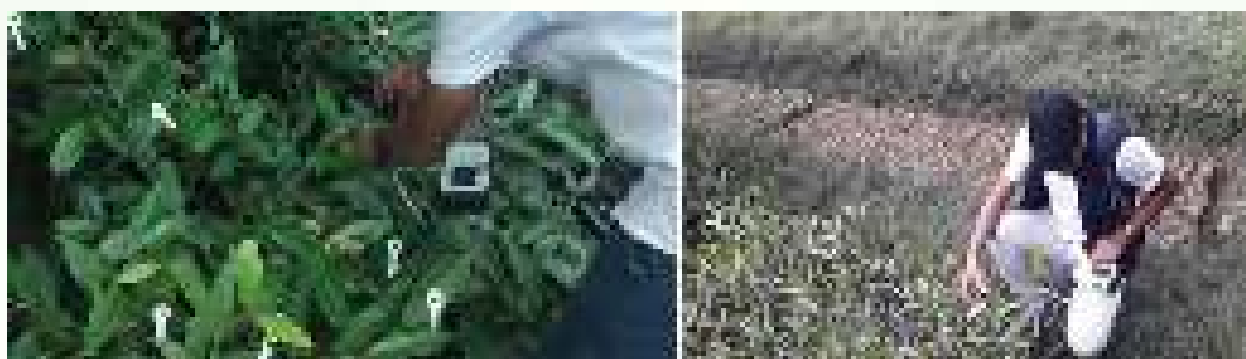


Pectin from *Citrus medica* (Bada limbu); *Diospyros malabarica* (Kendu), *Ficus auriculata* (Raja dimiri)



18.12. Re-introduction of rare and endangered mangrove spp. *Heritiera fomes* and *H. littoralis* in protected areas of Odisha coast

To create and enhance awareness amongst stakeholders on mangrove biodiversity conservation, promote social, ecological & economical benefits of the state, very important rare and endangered mangrove species *Heritiera fomes* (sundari) and *Heritiera littoralis* (dhala sundari) are being propagated, hardened for re-introduce in protected coastal areas of Odisha. So far, more than 1500 saplings of *Heritiera fomes* and 100 saplings of *Heritiera littoralis* have been raised and studied (morpho-physico-chemical) for their hardening process against varied salt-stress under captive shade-net house condition. Currently, hardened saplings are being subjected to re-introduce in different suitable sites of Bhitarkanika for their adaptation studies.



Comparative growth analysis of Heritiera spp. grown in RPRC and Bhitarkanika before re-introduction

18.13. Propagation and reintroduction of endangered species of Odisha

In order to achieve mass production and subsequent reintroduction of endangered plants of Odisha, different propagation methods are being adopted for *Oroxylum indicum*, *Cordia macleodi* and *Symplocos racemosa*. Seed propagation for *Oroxylum indicum* vegetative propagation for *Cordia macleodi* and *Symplocos racemosa* have been achieved and seedlings/saplings are being raised for conservation.

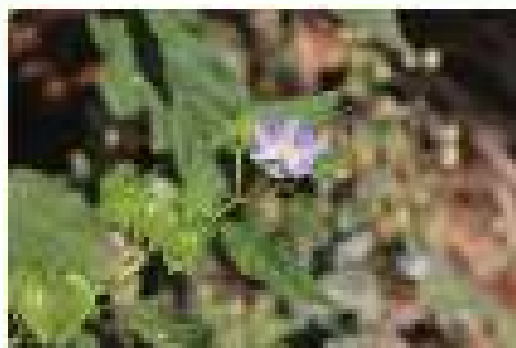


*Conventional propagation of planting materials of *Oroxylum indicum* and *Cordia macleodi**



18.14. Taxonomic revision of the genus *Physalis*, *Datura*, *Capsicum* and *Nicotiana* (*Solanaceae*) in Eastern Ghats of India

Systematic, morphology, taxonomy and ethno botany of *Physalis*, *Datura*, *Capsicum*, *Withania*, *Lycianthes*, *Nicotiana*, *Nicandra* and *Cestrum* from the Eastern Ghats were carried out on the basis of fresh samples collected from the field trips and analysis of existing relevant herbarium specimens. So far, *Lycianthes neesiana*, *Withania coagulance* and *P. angulata* var. *pendula*, are newly reported from Odisha as well as Eastern Ghats of India and also described two more new species from the genus *Cestrum*.



Nicandra physalodes (L.) Gaertn

18.15. Other major activities carried out during 2020-21

- 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)
- iv. Establishment of display huts in the nursery
- v. Strengthening of peripheral compound wall damaged during Cyclone Fani.



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.

19.1. 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, Muggarmukh 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 6780 M. to 7,440 m. through dredging. Now dredging activities are under progress.



19.2. 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.



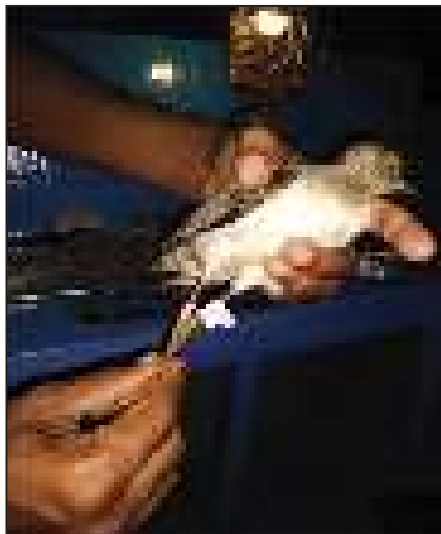


HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

Table 1: Bird Population at Chilika wetland from 2016-2021

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

CDA in association with BNHS, Mumbai has been carrying out the ringing of birds in Chilika lake.



Irrawaddy Dolphins are the flagship species of the lake. The population inhabiting the Lake is perhaps an isolated population and thus raises many crucial ecological questions about long-term genetic variability, population viability and long-term survival etc. The 4th flora and Fauna survey including census of Irrawaddy Dolphin in Chilika Lake was conducted during January 2021 by Chilika Development Authority from which the population in the four sectors of Chilika Lake arrived at 155.



19.3. Fishery Resource Development

CDA has been continuing to monitor the fishery resource assessment from 33 landing center and Two Go downs, 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 2019-20 was 11786.52 MT, 4134.83 MT and 305.41 MT respectively. CDA carried out the eviction of the net gherries inside the lake in association



with the District Administration, Puri.

19.4. Socio Economic Development

Various socio-economic activities like improvement of peripheral roads to Chilika Lagoon, development of small fish landing centres, providing solar lights to the peripheral villages of the lagoon, strengthening the embankments, construction of community halls, renovation of tanks at different villages etc have been carried out. To facilitate communication to the island people of Chilika lagoon, a mechanised Ferry service has been commissioned between Satapada and Janhikuda



Ferry operation between Jhanikuda & Satapada

benefiting more than 70000 people especially those living in particular Krushna Prasad block of Puri district and drastically reducing the road length between Berhampur and Puri.

19.5. Development of Fish Museum at WRTC, Barkul

The fish Museum at Wetland Research & Training Center (WRTC) was developed to showcase the fish species of Chilika lake at an estimated cost of Rs. 29,70,700.00 (Rupees twenty nine lakhs seventy thousand seven hundred only), with financial support under National Programme



HIGHLIGHTS OF ODISHA FORESTRY SECTOR - 2021

for Aquatic Eco-system (NPCA) programme of Ministry of Environment, Forest & Climate Change (MoEF&CC), GOI and also Odisha Government. A total of 81 fish species have been showcased in the Chilika Fish Museum.

19.6. Centrally Sponsored Scheme- NPCA- Conservation & Management of Ansupa Lake

The Government has released funds of Rs. 112.88 lakh including the Central and State share.

The total expenditure incurred during the 2020-21 was INR 129.79 Lakhs

- De-weeding by introducing imported weed harvesting machine.
- Composting of harvested weeds.
- Fishery resources development and fish stock assessment.
- Development of eco-garden at Ansupa including development of parking space by erecting chain link mess finishing; Development of nature trail with provision of display board, furnishing to the newly constructed camp office, etc.
- Construction of Watch Tower at an estimated cost of INR 35.00 Lakhs.
- Construction of Ticket Counter-cum-Community Waiting Room with Basic Amenities at an estimated INR 15.00 Lakhs.
- Construction of Boundary wall and Retaining Wall.
- Construction of Selfie Point and Wooden Watch Tower and 3 thatched Ethnic Look waiting rooms.



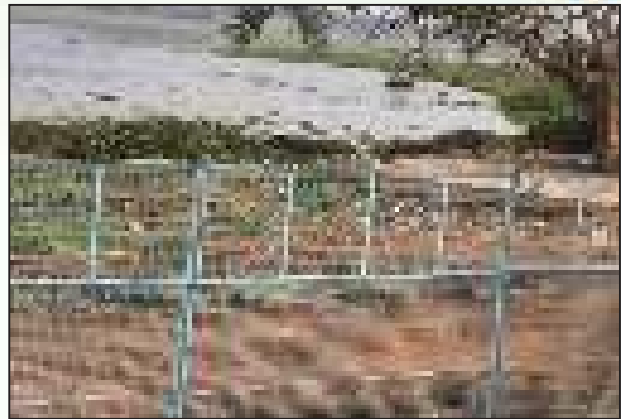
Inauguration of Watch Tower by Hon'ble Minister Forest & Environment, Government of Odisha on 29.01.2021



Ansupa Watch Tower



Retaining Wall along the Lake



Boundary Wire mesh Fencing



Maintenance and Beautification of existing boundary wall



Thatched Waiting Room with Ethnic Look



Ticket Counter-cum-Waiting Room with Basic Amenities



Selfie Point inside the Eco-Park





Decomposing the Harvested Weeds



Manual Deweeding in Ansupa lake



