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An analysis of the growth pattern of forest produces in Chhattisgarh

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Abstract
The present paper attempts to examine the production and collection pattern of forest produces from 2014-15 to 2019-20 in Chhattisgarh state. Forest plays a dominant role in socio-economic development of any state, it provides livelihood, shelters and employment for the rural people. In this paper the authors made an effort to analyse the present status of the forest in Chhattisgarh and the trends in production of forest produce wherever it was minor or major forest produces. The study shows that there is continuous decline in the production of both minor and major forest produces after the particular time frame throughout the study period. The government of Chhattisgarh and concern authorities have to take effective initiative for sustainable growth of forest resources.

Keywords: Forest produces, MFPs, NTFPs, NWFPs, classification of forest

Introduction
Nature has generously blessed Chhattisgarh with abundant blessings. More than 44 percent of the total area of the state is forest area. The state is the third largest state in the country in terms of forest cover. In these forests, forest life is inhabited in the dense forest of trees ranging from Sal, Teak to many species. There are many minerals in the womb from iron, coal to gold and diamond. Efforts are also being made continuously to increase the protection and coverage of forests. The government has set a target of planting about seven crore saplings this year under the "Harrier Chhattisgarh Abhiyan".

The forest headquarters of Chhattisgarh state is in Bilaspur. The total number of forest divisions in the state is 32. A total of 427 forest villages are notified under the forest areas of the state. Reserved forest accounts for 43.13 percent of the total forest area in the state.

About 50 percent of the villages in the state are within a radius of 5 km from the forest boundary, the inhabitants of which are mainly tribals. Forests are the main source of livelihood for the economically backward tribals. The state government is purchasing 31 types of forest produce including Tendu leaves, Mahua, Sal seed from tribals at support price.

About seven crore man-days of employment are generated every year from forestry works. Villagers get minor forest produce and other facilities worth about Rs 2000 crore from forests. Forests have a special place in the sustainable and all-round development scenario of Chhattisgarh.

The geographical area of Chhattisgarh state is 1,35,191 square kilometres, which is 4.1 percent of the country's area. The forest area of the state is about 59,772 square kilometres, which is 44.21 percent of the state's geographical area. The third rank in the country is in terms of forest cover.

Review of Literature
Talukdar *et al* (2021) in their study found the varieties of NTFPs available in the study area, but their way of extraction from the forest is unsustainable leading to root cause of declining the species. Illegal destruction of forest and unsustainable way of harvesting NTFPs should be strictly regulated by the forest department.

The study of D.P. Malik and Sunil Dhada reveal that the area under forests registered a decline over the period.

Hlaing *et al* (2017) the results of the study have shown that the natural forest in the Katha District plays a significant role in rural people's livelihood, serving as the main source of

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primary and secondary income for rural households.

The study of Satheesh Kumar and P. Jayashree shows that the initiation of new forest development strategy in India based in part on new-wood forest resources, has attracted international. It is now widely recognized that Non-Timber Forest Products (NTFPs).

Objectives of the Study
The present study deals with the following points-
1. To assess the status of forest in Chhattisgarh state.
2. To analyze the trends in collection and production of forest produces.

Data and Analysis
The key source of the data for the present study the publication of Directorate of Economic and Statistics Govt. of Chhattisgarh has been used from 2014-15 to 2019-20. Various other government publications such as Forest Survey of India, Van Vibhag annual report of Chhattisgarh etc. were also consulted for the analysis of data, graphical and tabulation methods have been used.

Classification of Forest
For the administrative purpose India, forest-wise, is divided into three types-
1. **Reserved Forest:** Reserved Forest is that forest which is under the direct supervision of government wherein the common people are not allowed to extract the resources from it. Currently 53% of total forest area falls under this category.
2. **Protected Forest:** These forests are looked after by the government and local people are allowed to collect forest produce while cattle can graze without causing serious damage to forest. It occupies about 29% of total forest area of the country.
3. **Unclassified Forest:** It is unclassified forest and there is no restriction over cutting trees and cattle grazing. 18% of the total forest area is in this category.
4. **Revenue forest:** The land allotted under forest right act 2006 is known as revenue forest land.

The table below shows the growing trend of these forests

Table 1: Classification of forest

Sr. No.	Forest Type	Years					
		2014-2015	2015-2016	2016-2017	2017-2018	2018 -2019	2019-2020
1.	Reserved Forest (In Sq. Kms.)	24234	24232	22275.47	24043.32	24038.89	24037.11
2.	Protected Forest (In Sq. Kms.)	20036	20036	21816.21	20033.82	20032.82	2033.82
3.	Unclassified Forest (In Sq. Kms.)	502	496	497.60	487.60	497.60	497.60
4.	Revenue Forest (In Sq. Kms.)	18383	18375	18583.53	18562.27	18464.72	18498.76
5.	Total Forest Area (In Sq. Kms.)	63155	63141	63172	63137.01	63035.03	63067.29

Source: Directorate of Economics and Statistics Govt. of Chhattisgarh, 2015-20.

The above table shows the growth pattern of different types of forest from year 2014-15 to 2019-20 in Chhattisgarh state. The reserved forest initially decreased then starts increasing till 2017-18, which is having the highest value. Thereafter it starts declining. The protected forest remains constant initially then noted increment in the year 2016-17, thereafter it remains slightly constant. The unclassified forest starts from higher figure then starts decreasing and remains slightly constant throughout the years. The revenue forest has been decreased in 2015-16 then reached to highest figure in 2016-17, then shows downfall in 2017-18 after that it starts increasing till end. The overall growth pattern of the total forest area follows same trend as revenue forest but has been decreased in 2018-19.
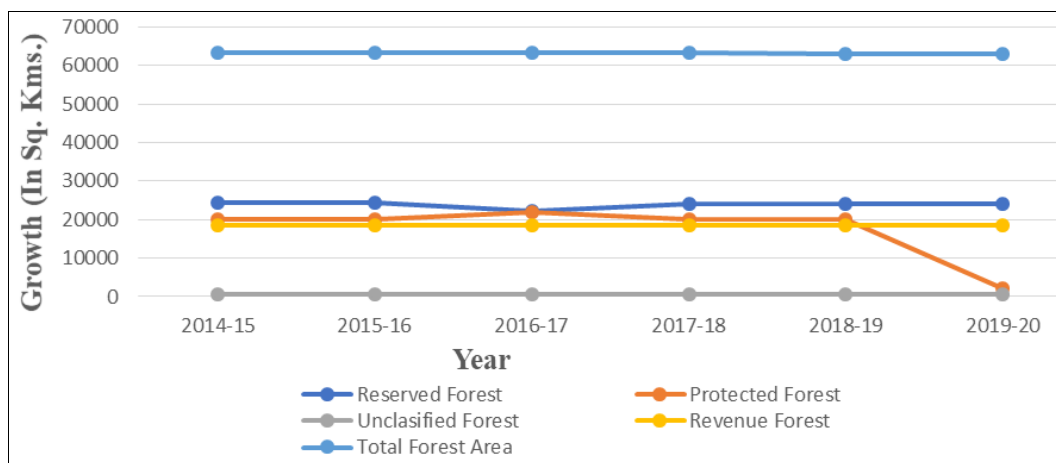

Fig 1: Growth pattern of the Forest

Plant Based Classification of Forest
Chhattisgarh is famous for its Sal forests, the entire state is the area of main Sal forests, Sal has been declared as the state tree of the state, Sal trees are found on about 40.56% of the total forest area of the state. Teak forests are found in scattered small parts in Chhattisgarh. The expansion of teak forests in the state is about 9.42% parts of the total forest area. These forests are spread in Bijapur, Bhopalpatnam, Kota, Ambagarh, Raigarh, Saraipali and Narayanpur tehsils in the state. Many species of trees and shrubs are found in mixed forests. Tendu, Bija, Saja, Tinsa, Bel, Amla, Mahua, Khaira, Neem, Peepal, Banyan, Tamarind, Ber, Semal, Kusum, Palash etc. are found in mixed forests.

Table 2: Plant Based Classification of Forest

Sr. No.	Forest Type	Year					
		2014-2015	2015-2016	2016-2017	2017-2018	2018 -2019	2019-2020
1.	Sal Forest (In Sq. Kms.)	24244.88	24244.88	24244.88	24244.88	24244.88	24244.88
2.	Sagon Forest (In Sq. Kms.)	5633.13	5633.13	5633.13	5633.13	5633.13	5633.13
3.	Mixed Forest (In Sq. Kms.)	26018.38	26018.38	26018.38	26018.38	26018.38	26018.38
4.	Unclassified Forest (In Sq. Kms.)	3876.01	3876.01	3876.01	3876.01	3876.01	3876.01

Source: Directorate of Economics and Statistics Govt. of Chhattisgarh, 2015-20.

The above table shows that the throughout this period (from 2015-20) there is no any changes in all types of forest. The growth in these types of forest remains stagnant.

Forest Produce

Forest produce is defined under section 2(4) of the Indian Forest Act, 1927. Its legal definition includes timber, charcoal, caoutchouc, catechu, wood-oil, resin, natural varnish, bark, lac, myrobalans, mahua flowers (whether found inside or brought from a forest or not), trees and leaves, flowers and fruit, plants (including grass, creepers, reeds and moss), wild animals, skins, tusks, horns, bones, cocoons, silk, honey, wax, other parts or produce of animals, and also includes peat, surface soil, rocks and minerals etc. when found inside or brought from a forest, among other things.

Forest produce can be divided into several categories. From the point of view of usage, forest produce can be categorized into three types: Timber, Non-Timber and Minor Minerals.

Forest Produce- Main

Under the main forest produce mainly woods are included, 13 species have been included in the category of timber in the state, out of which 6 species are nationalized including Bija, Saja, Sal, Teak, Shisham and Khair etc.
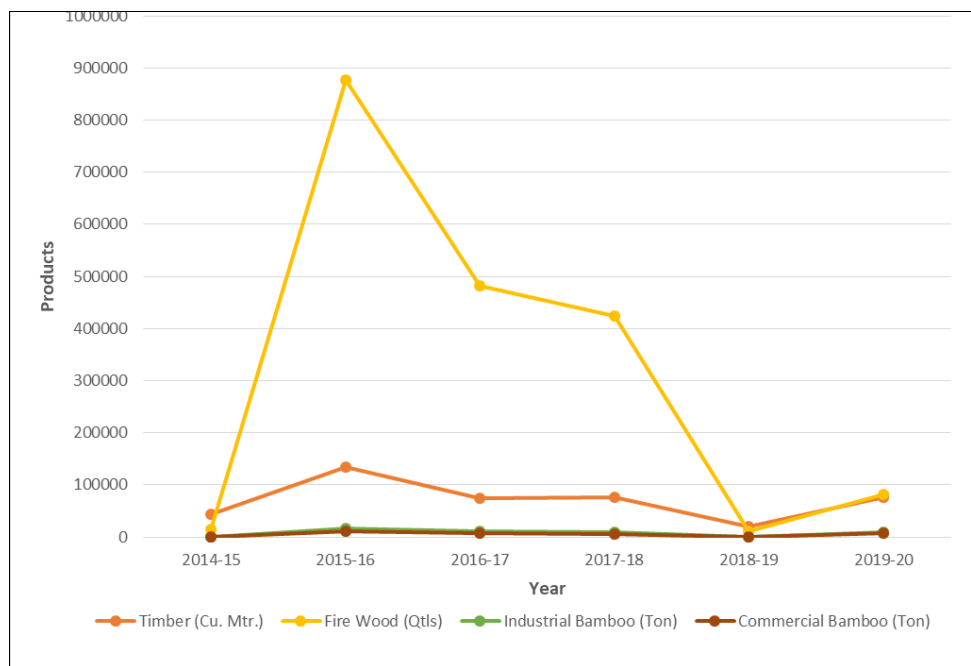

Fig 3: Forest Produce-Main

Table 3: Forest Produce-Main

Sr. No.	Forest Produce	Year					
		2014-2015	2015-2016	2016-2017	2017-2018	2018 -2019	2019-2020
1.	Timber (Cu. Mtr.)	42916.82	134981	73465	75553	20428	75336
2.	Fire Wood (Qtls)	13979	877315	482250	424235	11798	81807
3.	Industrial Bamboo (Ton)	497.56	16511	11024	9118	684	8218
4.	Commercial Bamboo (Ton)	599.25	10705	7573	6286	637	7319

Source: Directorate of Economics and Statistics Govt. of Chhattisgarh, 2015-20.

The above table reflects the quantity of main forest produce during 2014-15 to 2019-20. The production of timber produce has been increased in 2015-16 then gradually decreased in successive years, thereafter has increment in 2019-20. The other main forest produce are follows same trends as timber products.
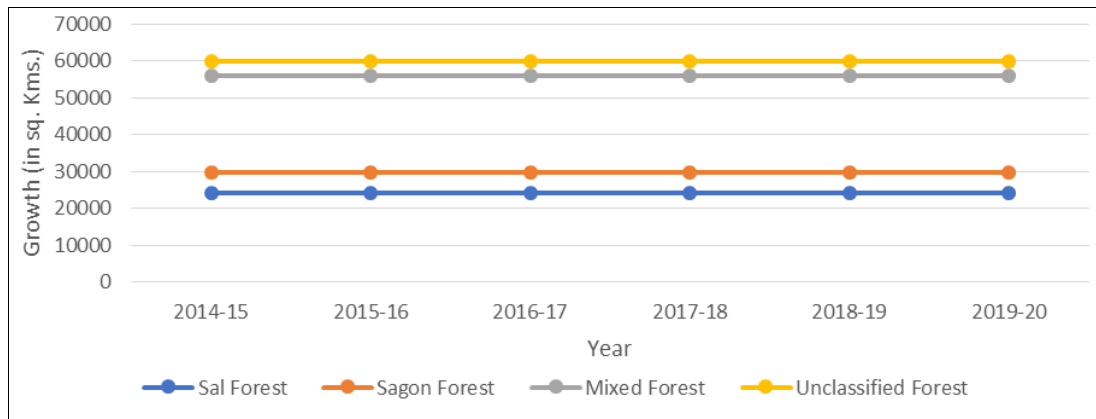
Fig 2: Growth Trends in Plant Based Forest

Forest Produce- Minor

Minor Forest Produce (MFP) is also known as Non-Timber Forest Produce (NTFP) or Non-Wood Forest Produce (NWFP). Minor Forest Produce (MFP) means the produce from various forest species in the form of fruits, seeds, leaves, barks, roots, flowers and grasses etc., including entire plant of medicinal herbs/shrubs. The forest of Chhattisgarh is very rich in these MFP. There are many MFP species of commercial importance in the state.

The collection of minor forest produce is done by the primary minor forest produce committees and forest committees under the control of the forest department, minor forest produce contributes a lot to the income of the state. minor forest produce, bamboo tendu leaves (of the country 17%), acacia, tamarind, mahua, amla, saja, gum, harra, bahera, lac, chironji, anjan, sal seed, safflower seed, charota seed, bark, dhavda, nagar motha, bull etc.Tendu leaf based beedi industry is in Bilaspur, Raipur, Surguja, Bastar, Kanker district. It is noteworthy that Chhattisgarh gets 17% of the total tendu leaves of the entire country, Khair is produced in Surguja district.

Table 4: Minor Forest Produce

Sr. No.	Forest Produce	Year					
		2014-2015	2015-2016	2016-2017	2017-2018	2018 -2019	2019-2020
1.	Collected Tendu Leaves (Lakh Std. Bags)	14.27	13	13.61	17.10	14.85	15.05
2.	Sal Seed Collected (Qtls.)	1.26	1.12	0.28	1,231	1224.68	61618.74
3.	Harra Collected (Qtls.)	34188.51	57120	3087.760	125.87	1802.77	4072.00
4.	Gum (Dhawda, Khair, Babool) (Qtls.)	-	-	7.50	28.00	-	-
5.	Gum Kulloo (Qtls.)	40.27	40.27	4.00	3.00	-	0.69
6.	Lac (Ton)	-	-	135	2693	2252	357.50

Source: Directorate of Economics and Statistics Govt. of Chhattisgarh, 2015-20.

The above data represents the quantity of minor forest produce collected during 2014-15 to 2019-20. The collection of tendu leaves decreases from 2014-15 to 2016-17 then gradually increased in 2017-18 then reduced in next year afterward shows increment in 2019-20. The collection of Sal seeds steadily declines till 2016-17 then gradually increases in successive years. Harra collection has been increased in 2016-17 then starts reducing till 2018-19 further noted increment in 2019-20. The Gum (Dhawda, Babool, Khair) was only collected in 2016-17 and 2017-18, the rest years it remains nil. The Gum Kulloo collection is constant in 2014-15 and 2015-16 then starts decreasing. The lac collection was initially nil then gradually rises in 2017-18 later starts declining.

Results and Discussion

Initially all forms of forest area in Chhattisgarh state had higher area but at some time frame it started declining gradually. It seems that either forest area has deforested continuously or being converted into non-forest areas i.e. for the purpose of agriculture, residetial or industrial etc. So, we can say that common people, respective authorities and government have to take deep concern towards it. Because forest has not only environmental aspects but it also has denizens of animals and economic aspects for people those depends on it.

On the other hand the plant based classification of forest shows that there is no growth in the area of different types of plant based forest that is it remains constant. Which is also not a good indication for development of forest.

The overall collection and production pattern of both minor and major produces reflecte an increment during the final years of study period. Which indicates constructive changes towards the collection and production of the forest resources.

Conclusion

In conclusion we can say that the reduction in forest area ia a matter of concerns for everyone and forest produces needs sustainable development to comply with impending the essentials of all aspects.

A part from this current data shows that the chhattisgarh hold first rank in purchasing of minor forest produces during the pandemic.

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