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Forest area as an indicator in the horizontal devolution formula of XV Finance Commission: Is it a good proxy?

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Abstract

Since the XII Finance Commission, awards have been made to the states for conserving forests, a global public good. The measure adopted for allocating funds has been the forest area. Three arguments have been provided by the Finance Commissions for making the award, namely conservation cost, opportunity cost and cost disability. The Finance Commissions have taken forest area (very dense and moderately dense) as a proxy for capturing these costs. Consequently, around one-third of the total award goes to just three states, namely Arunachal Pradesh, Madhya Pradesh and Chhattisgarh. The paper raises the important question of how appropriate is forest area as a proxy for the costs. It is seen that conservation cost or the cost of running a forest department by the state taken as equivalent to the staff strength, or revenue expenditure are poorly related to the forest area. The opportunity cost argument is difficult to justify as the mechanism of compensatory afforestation implemented through the Compensatory Afforestation Management and Planning Authority makes available resources for afforestation. It is seen that area afforested is more than that diverted despite poor utilization of funds allocated. Thirdly, the cost disability arising from the presence of forest area too does not hold as it does not increase in proportion to the forest area. Thus, the forest area-based award by the Finance Commissions suffers from severe infirmities and calls for a change.

Key Words: Global public good, devolution indicator, forest cover, cost of conservation, opportunity cost, cost disability

1. Introduction

"Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss" is goal 15 of the Sustainable Development Goals 2030 (UNDP, 2015). India is committed to fulfill this goal. Recognizing the importance of conserving forests and realizing that the costs of conservation fall on the state governments and the benefits accrue globally, the Finance Commissions have been awarding grants or tax shares to the states based on their forest shares.

The economic reasoning provided by the Finance Commissions is that there are three types of costs incurred by the States: cost of conservation, opportunity cost, and cost disability posed by the forest cover. In detail, conservation costs are associated with the size of the forest department maintained by the state governments. There are two ways to measure the size of the department; employee strength or its revenue expenditure. The concept of opportunity cost revolves around the potential development projects a state forgoes by preserving land for forest conservation. The quantum of forest area converted for non-forestry purposes is an appropriate indicator of such lost opportunities. Cost disabilities arise in response to the spending requirements of a state in proportion to its geographical area. Larger the forest cover, higher the costs incurred on conservation efforts. However, the Commissions do not discuss these three costs and how are they related to the area under forests in a state in any detail. This paper seeks to make a modest attempt at clarifying this issue and raise a few questions.

The paper argues that cost of conservation or the size of the Forest Department of a state does not bear a close relationship with its area under forests. Secondly, the opportunity for development lost due to conservation needs to be seen from the angle of the Forest (Conservation) Act, 1980 which allowed for

the use of forest land for non-forest use subject to a compensatory afforestation mechanism. This mechanism constituted the Compensatory Afforestation Fund Management and Planning Authority (CAMPA) which too does not bear a relationship with the extent of forest area. The existence of CAMPA questions the assumption of lost opportunity. Moreover, national programs like the National Afforestation Programme, the Green India Mission also contribute to afforestation. Thirdly, the argument that states have to be compensated to overcome the cost, or economic disabilities arising from the areas dedicated to forests needs to be seen from the perspective that geographic area is already an indicator in the horizontal devolution formula, inherently including its forest cover. These concerns raise serious issues regarding the justification of forest cover in the devolution formula of the Finance Commission award.

The paper is organized in seven sections. Following this introduction, Section 2 provides a description of the evolution of forest compensation through the Finance Commissions starting from the XII Commission. Section 3 discusses the size of the Forest Department of the state in relation to the forest area. It shows that the two do not bear too close a relationship. Section 4 presents the evolution of CAMPA, the area brought under afforestation and the funds flowing to the states under this programme. Again, they do not seem to bear a relationship with the forest area of the state. Section 5 is a discussion of NAP and Green Mission. Section 6 analyses the cost disability arising from areas dedicated to forests. Section 7 concludes.

2. Evolution of Forest Compensation through the Finance Commissions

The XII Finance Commission for the first time made an award of grants-in-aid for the maintenance of forests. They agreed with the contention of the states that the forests have become a burden

"subsequent to the restrictions placed by the Supreme Court on exploitation of forest wealth" (p. 184). They recognized that the forests are a national wealth and the country as a whole has a responsibility in preserving it. They recommended a grant of Rs 1000 crore, distributed among the states based on their forest area, as an additionality to the normal expenditure of the forest department.

One of the terms of reference of the XIII Finance Commission was to make recommendations regarding "the need to manage ecology, environment and climate change consistent with sustainable development". They argued that forests provide a wide variety of services and "these services, by their very nature, accrue beyond the boundaries of the state in which the forest lies. Although there are benefits that do accrue exclusively to the state, from forest produce and recreational services yielded by standing forests, there are national restrictions on timber felling which impose the costs of having land under forests exclusively on the state in whose jurisdiction it lies" (XIII Finance Commission, 2009, p.209). In their view the combination of benefit externalities and internalised costs clearly calls for federal compensation and they enhanced the grant to Rs 5000 crore.

The XIII Finance Commission was aware that a national provision for compensatory afforestation and Net Present Value (NPV) payments was in place when land under forests was diverted to non-forest uses for industrial or other purposes. This was consequent to the Forest (Conservation) Act, 1980 and the Supreme Court judgement of 2002. The payments made in this regard were flowing into a Compensatory Afforestation Fund Management and Planning Authority (CAMPA) which released it to the states to meet the costs of their working plans. CAMPA flows are in the nature of compensation to states for diversion of forest land. XIII Finance Commission grants are for incentivizing the states to see the advantages of retaining land under forest cover.

Unlike the XII Commission which used the aggregate forest area, the XIII Commission developed a measure taking into account three factors. The share of forest area in the country falling in any particular state was the first factor. This has been further enhanced for those states where the share is greater than the national average. The enhancement serves to add a further compensation for the economic disability posed by forest cover. The entitlement of each state is further enhanced by a third factor which is the quality of the forest in each state as measured by density. The weights are progressively higher for area under moderately dense[1] and very dense[2] forest.

The XIV Finance Commission for the first time introduced forest area as an indicator in the horizontal devolution index assigning it a weight of 7.5 per cent. They argued that their terms of reference mandated them to give consideration to the need to balance management of ecology, environment and climate change consistent with sustainable development. Their belief that forest cover provides huge ecological benefits but there is an opportunity cost in terms of area not available for development and it is a fiscal disability led them to compensate the states for forest conservation. The XV Finance Commission more or less replicated the method followed by the XIV Finance Commission using the forest share (moderately dense plus very dense) but raised the weight from 7.5 percent to 10 per cent arguing that the increase in weight is a recognition of forest cover as a global public good that needs to be preserved and expanded. It too, like its predecessors, mentioned the cost disabilities arising out of the areas dedicated to dense forests. It referred to our international commitments (sustainable development goals) as well. Like the XIV Finance Commission it mentioned the cost of opportunity lost too.

[1] All lands with tree canopy density of 40 percent and more but less than 70 percent.

[2] All lands with tree canopy density of 70 percent and above

Table 1. Share of Forest Area, Geographic Area, and Population of Select States, XV Finance Commission

State	Forest Area%	Geographic Area%	Population%
Arunachal Pradesh	13.302	2.742	0.114
Madhya Pradesh	10.563	10.093	5.998
Chhattisgarh	10.112	4.426	2.110
Sub Total	**33.977**	**17.261**	**8.222**
Maharashtra	7.544	10.075	9.281
Odisha	7.345	5.098	3.466
Karnataka	6.580	6.279	5.046
Uttarakhand	4.598	1.751	0.833
Andhra Pradesh	4.103	5.334	6.985
Sub Total	**30.170**	**28.537**	**25.611**
Rest of the States	35.853	54.202	66.167
Total	**100**	**100**	**100**

Source: XV Finance Commission.
Note: Forest Area refers to moderately dense and very dense area.

As observed above the XV Finance Commission awarded 10 per cent of the total shareable taxes to the states as compensation for conserving forest area. As forest area (moderately dense and very dense) has been taken as the indicator for sharing the award among the states, more than one-third of the total gets awarded to Arunachal Pradesh, Madhya Pradesh and Chhattisgarh, the three states together accounting for around 17 percent of the geographic area and only around 8 percent of the total population of the states (Table 1). Another 30 percent of the divisible pool falling under this head goes to five states whose share in the geographic area is around 29 percent and share in the population around 26 percent. Rest of the states accounting for 66 percent of the population and 54 percent of the geographic area get only 36 percent of the divisible tax under this head. The fact that more than one-third the total resources awarded for conserving forests in India goes to just three states that account for only eight percent of the total population raises an important issue. Do they have the capacity to spend such large funds for the intended purpose?

Overall, the last four Finance Commissions have used forest cover[3] as an important indicator in the intergovernmental transfer of funds. Initially, the transfer was in the nature of grants-in-aid but the last two commissions have incorporated forest area as an indicator in the devolution formula. Total forest cover and dense forest covers have been variously used as a proxy for measuring the costs. Three types of costs have been mentioned, namely conservation cost, opportunity cost, and cost disability. But how exactly the forest area becomes a good proxy for the cost has not been explained in any detail opening up an area for investigation. The issue is of significance when we find that just three states obtain one-third the divisible pool devoted for this purpose.

3. Forest Area (Dense) as a Proxy for Conservation Cost

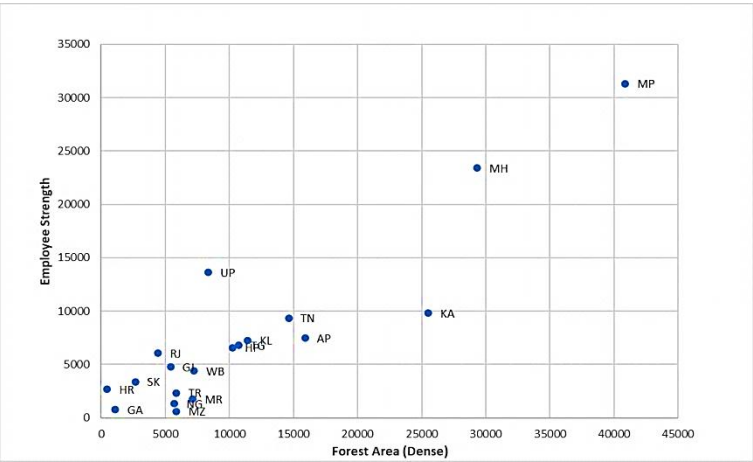
Out of the three costs of maintaining forest cover, beginning with conservation cost it may be argued that such a cost is that of maintaining a forest department by the state governments. The cost would, then be proportional to the size of the department which could be conceived in two ways, either as employee strength of the department, or its revenue budget. As the Finance Commissions used forest cover as a proxy for cost, it is necessary to analyse whether either of these bear a relationship with the forest cover.

Although the XII Finance Commission had recommended that the states have to present a staff appendix (list of staff strength with salary outgo) along with the annual budget, we could not find such an appendix in the budget papers of many states. All the southern states had such an appendix but not the states of

[3] Forest Cover refers to all lands more than one hectare in area, with a tree canopy density of more than 10 percent irrespective of ownership legal status and land use. Such lands may not necessarily be a recorded forest area. It also includes orchards, bamboo and palm. Tree cover comprises of tree patches outside the recorded forest area exclusive of forest cover and less than the minimum mappable area (1 ha).

many other regions. In the absence of budget appendix, two other sources were also studied, namely annual report and administration report, of the forest departments of the states. A few states did not have any of the three sources mentioned above. We could only obtain data for altogether 19 of the 28 states on the staff strength of the Forest Department that too for different years. Data on revenue expenditure are, however, easily available from the Reserve Bank of India. Data on forest area with its components – very dense, moderately dense etc., - are readily available in the Finance Commission reports as well as India State of Forest Report regularly brought out by the Ministry of Environment and Forests, Government of India.

Figure 1. Forest Area (Dense) in Relation to Staff Strength of Forest Department of Indian States



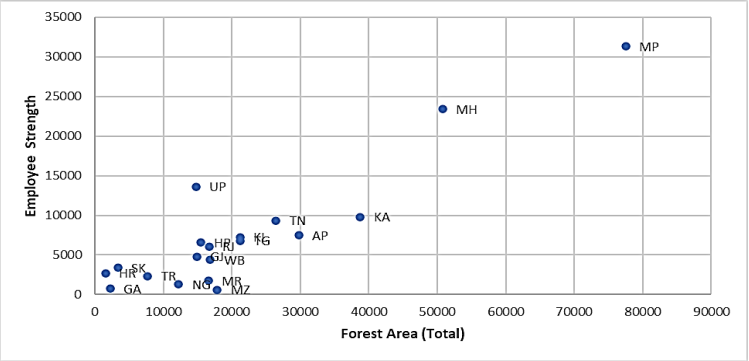
Source: XV Finance Commission; Staff Appendix, Annual Administrative Reports of various state governments from 2017-2022.

Note: Area in sq. kms. Area refers to the year 2022. Staff strength pertains to one of the years between 2017 and 2023.

It may be seen from Figure 1 that although there is an overall faint positive relationship between the two variables there is no sign of the employee strength rising uniformly with the forest area (dense). Firstly, for forest area below 7500 sq. kms the size of the department varied from 770 in Goa for forest area less than 1200 sq, kms. to 6062 for forest area of around 4500 sq. kms in Rajasthan. Secondly, as forest area rose from around 10,000 sq. kms. to 25,000 sq. kms. the staff strength rose from 6500 to close to 10,000. And Maharashtra reported more than 23,000 forest department staff for around 29,000 sq kms of dense forest, that is more than double the number of forest staff of Karnataka for an increase of forest area of around 4,000 sq kms. Madhya Pradesh, however, showed a proportionate increase in staff strength compared to Maharashtra. The pattern is almost the same when total forest area is used instead of forest area (dense) as may be seen from Figure 2. Thus, hardly any clear relationship between forest area – dense or total - and staff strength of the forest department could be observed based on the information from the 19 states.

The other measure of size of the Forest Department considered here is the revenue expenditure. The data on revenue expenditure are readily available for all the states and are comparable. The scatter plots of data on revenue expenditure and forest area (dense) as well as total area are presented in Figures 3 and 4. As is evident from Figure 3, the scatter is all over the place and the residuals from a trend line are large suggesting that the relation between the two variables is positive but faint. In fact, a regression with forest area as an explanatory variable could explain only around one-third the total variation in size that is revenue expenditure. Thus, it may be inferred that forest area is a poor proxy for size of the Forest Department.

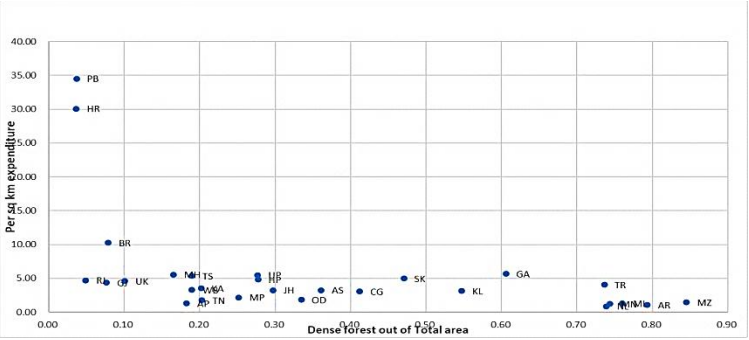
Figure 2. Total Forest Area in Relation to Staff Strength of Forest Department of Indian States



Source: XV Finance Commission; Staff Appendix, Annual Administrative Reports of various state governments from 2017-2022.

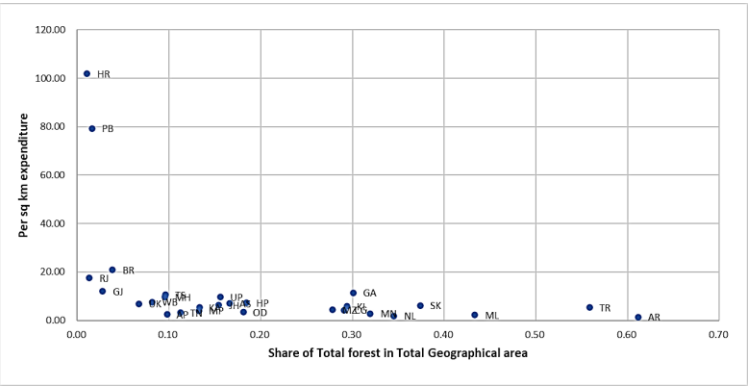
Note: Area in sq. kms. Area refers to the year 2022. Staff strength pertains to one of the years between 2017 and 2023.

Figure 3. Forest Area (Dense) in Relation to Per Sq.Km Revenue Expenditure of Forest Department of Indian States, 2022



Source: XV Finance Commission; Reserve Bank of India - State Finances: A Study of Budgets (2023)
Note: Area in sq. kms. Area refers to the year 2022. Revenue Expenditure in Rs. lakh and refers to 2022-23.

Figure 4. Total Forest Area in Relation to Per Sq.Km Revenue Expenditure of Forest Department of Indian States, 2022.



Source: XV Finance Commission; Reserve Bank of India - State Finances: A Study of Budgets (2023)

Note: Area in sq. kms. Area refers to the year 2022. Revenue Expenditure in Rs. lakh and refers to 2022-23.

To bring home the point with an illustration Kerala may be compared with Arunachal Pradesh. Arunachal Pradesh has a forest cover (dense) of 61 per cent in its total geographical area and the revenue expenditure per sq.km corresponds to Rs.1.39 lakhs. Similarly, Kerala spends Rs. 5.84 lakhs for maintaining 29 per cent of its forest area (dense) in total area. Although Arunachal Pradesh has almost five times the forest area of Kerala the former state spends only around Rs. 45 crores (in absolute terms) more than Kerala. In terms of total forest area, the multiple is slightly lower at around 3.5. Whichever measures are taken the size of the Forest Department bears hardly any relationship with the forest area. Below a certain level of forest area a minimum size of Forest Department seems to hold, and increase beyond that level is not proportionate with the forest area.

Overall, it may be concluded that forest area (dense) and total forest area are poorly related to the size of forest department whether taken as employee strength or revenue expenditure of the department. Hence, there is hardly any justification for taking forest area as a proxy for conservation cost.

4. Opportunity Cost

The Forest (Conservation) Act, 1980 ruled out the use of forest land for non-forestry purposes. The argument of the Finance Commissions is that the preservation of forests implies that there is an opportunity lost for development. In the words of the XIV Finance Commission: "We acknowledge the immense ecological advantages of maintaining substantial forest cover. Yet, we must not overlook the significant opportunity cost incurred when these lands are set aside, unavailable for other economic pursuits." (XIV Finance Commission, 2014, p.107). The states have to be compensated for lost opportunity as they are bearing this cost for the global good. First and foremost, it may be noted that the Act did not prohibit the use of forest area; it did allow for non-forestry use subject to payment for compensatory afforestation. Hence, it is necessary to take a close to look at the extent of forest area used for non-forestry activities and the compensatory mechanism at work in recent years.

As per the Forest (Conservation) Act, 1980 prior approval of the Central Government is required to use forest land for any non-forestry purpose. As per the information available on the portal of the Ministry of Environment, Forest and Climate Change called PARIVESH a total number of 5111 project proposals had been received by the Central Government during June 2017 to July 2022 of which 4,318 proposals involving 92,658.50 hectares of forest land had been approved for non-forest use of forest land as per the provisions of the Forest (Conservation) Act, 1980. It may be noted that only around 15 percent of the proposals got rejected and the area approved for conversion was more than

90,000 hectares during the last five years (Table 2). Thus, it may safely be asserted that hardly any significant opportunity is lost owing to the non-availability of forest land for development purpose.

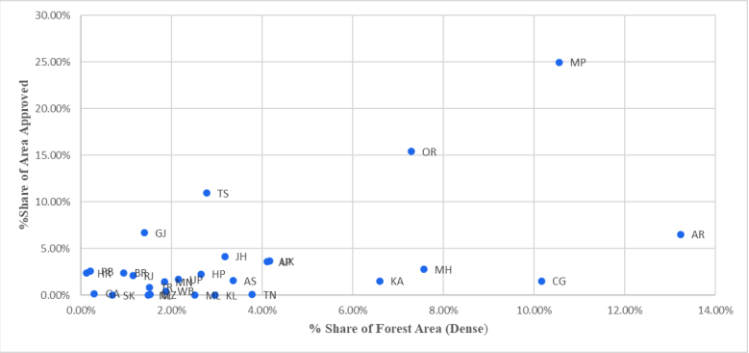
Table 2: Environment clearance proposals for deforestation approved during June 2017-July 2022

S. N.	Category of the Proposals	No. of proposals approved	Area approved (in Ha.)
1	Approach Access	551	69.44
2	Canal	5	13.70
3	Defense	34	11037.42
4	Dispensary/Hospital	7	53.48
5	Drinking Water	70	679.87
6	Encroachments	1	1.25
7	Forest Village Conversion	16	1942.80
8	Hydel	47	5609.71
9	Industry	44	311.84
10	Irrigation	128	16662.28
11	Mining	160	18262.77
13	Optical Fiber Cable	5	1.57
14	Others	953	4813.83
15	Pipeline	46	77.16
16	Quarrying	11	38.62
17	Railway	134	5245.28
18	Rehabilitation	11	154.40
19	Road	1559	17836.93
20	School	19	48.10
21	Solar Power	1	1.00
22	Sub Station	10	45.99
23	Thermal	5	95.32
24	Transmission Line	460	9194.16
25	Village Electricity	36	420.52
26	Wind Power	5	41.06
	Total	4318	92658.5
Source: Rajyasabha Unstarred Question no.1812, 22/12/2022.			

The forest area used for non-forestry purposes had it not been approved for conversion could be assumed as an indicator of the opportunity lost in these states. Then, the question is, whether forest area (dense) taken by the Finance Commission could be

used as a proxy for the opportunity lost. It would be an appropriate proxy if the area approved bears a close relationship with the forest area (dense). A scatter plot of the share of the state in total area approved for conversion and the share of forest area (dense) presented in Figure 5 shows that they hardly bear a relationship. For the 22 states who account for less than 4.2 percent of forest area each the forest area share approved for conversion varied from 0 to 11 percent. For the other six states, forest area share varied from 6 to 14 percent and share of area approved for conversion from 1.5 percent to 25 percent. In fact, three states – Madhya Pradesh, Odisha and Telangana – accounted for 50 percent of the forest area approved for conversion suggesting that the use of forest area for non-forestry purposes by states has little to do with the extent of forest area held by them. It is largely a function of the mineral resource-based development practiced by the states. Thus, forest area is a poor proxy of opportunity cost.

Figure 5. Forest Area Approved for Conversion (%) in Relation to Forest Area (Dense%), Indian States.



Source: Rajyasabha Unstarred Question no.1812, 22/12/2022; XV Finance Commission.

It may be of interest to investigate whether the conversions of forest land led to a fall in the forest cover. India's current forest cover stands at 21.71 percent of its total geographic area, a significant statistic in the context of its ambitious environmental

policy introduced in 2018. Over the years, India has implemented various regulations and acts aimed at safeguarding its forest and ecosystems. In 2007, India State of Forest Report by the Forest Survey of India reported a forest cover spanning 69.09 million hectares accounting for 21.02 percent of the geographic area. The increase during the last 14 years is of the order of 3.31 percent or 0.69 percent points of geographic cover.

One of the reasons India has not lost forest cover despite allowing its use for non-forestry purposes is the introduction of a compensatory mechanism by amending the rules of Forest (Conservation) Act, 1980 in 1988 and 2003 as a mandatory requirement for obtaining clearances for forest conversion. Under this provision, the user agency seeking clearance would need to "compensate" for the forest loss by either establishing or maintaining a plantation of an equivalent area or by depositing funds with the Forest Department to facilitate afforestation. The evolution of this concept was influenced by the Supreme Court's directives, which were initiated in the T.N. Godavarman Thirumulpad case. These directives ultimately shaped the current framework of compensatory afforestation. According to this framework, the user agency is now obligated to pay the full "value" of the biodiversity content and environmental services of the forest area being diverted, in addition to their afforestation efforts.

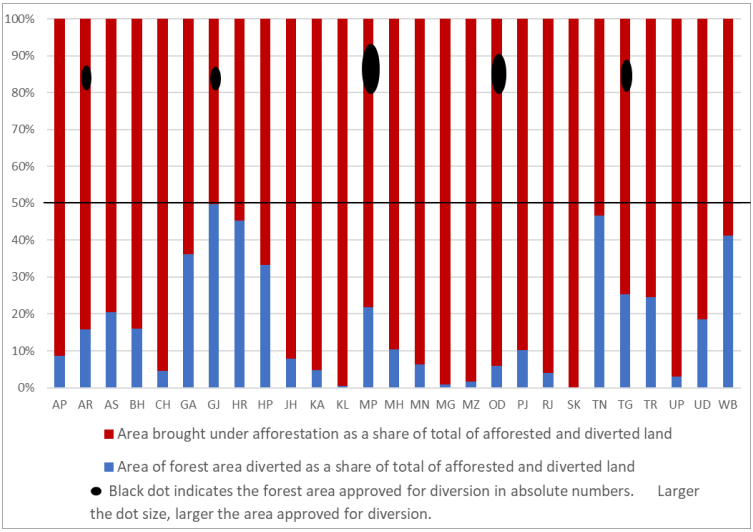
In 2004, Compensatory Afforestation Fund Management and Planning Authority (CAMPA) was notified by Ministry of Environment and Forests. Subsequently, in 2006, ad-hoc CAMPA was constituted by the Supreme Court. Due to certain inadequacies in the implementation of compensatory afforestation, some NGOs had approached the Supreme Court for relief. The Court on 10th July, 2009, permitted ad-hoc CAMPA to release a sum of about 1000 crores per year for the next 5 years in proportion to 10% of principal amount pertaining to the respective state/UT. The guidelines and the structure of

state CAMPAs were also directed in the same order. In 2014, the Court permitted state governments to constitute state CAMPAs to use the funds for afforestation and conservation.

While examining the forest area diverted for various developmental projects including industry, mining, and infrastructure from 2017 to 2022, the data indicates a positive trend. Contrary to the expectations of increased diversion for non-forestry purposes and its implications, there has been a significant uptick in afforestation efforts facilitated by CAMPA funds during this period. From Figure 6, it is evident that in all the states, area brought under afforestation is significantly higher than the forest area diverted for non-forestry purposes. The afforested area under CAMPA funds out of the total of afforested and diverted forest land, accounts to more than 50% in each state during 2017 to 2021.

One should also keep in mind that the diverted area in absolute numbers differ among states. It is important to note that the maximum forest diversion took place in Madhya Pradesh (18,741 Ha.), followed by Odisha (11,565 Ha.), Telangana (8,206 Ha.), Gujarat (5,030 Ha.) and Arunachal Pradesh (4,896 Ha.) as indicated by the black dots varying in size. Consider Arunachal Pradesh and Gujarat having the same share of forest area approved for diversion (roughly 7 percent of total). However, the former has a higher proportion of afforested area than diverted as seen from Figure 6. This clearly indicates that Gujarat is more in need of diversion for its development compared with Arunachal Pradesh with lower needs.

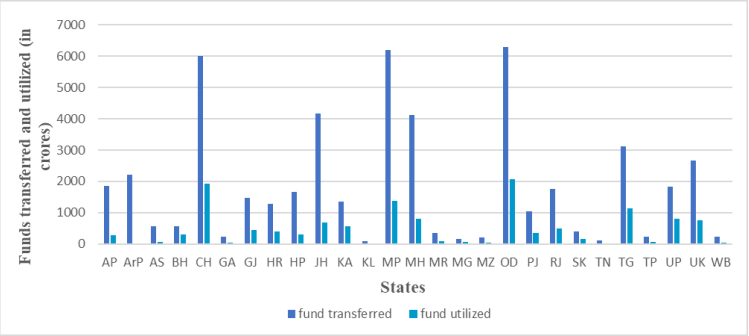
Figure 6: Area Afforested vs Diverted Forest Area in 2017-21



Source: Rajyasabha unstarred question no. 1812, 22/12/2022; Rajyasabha unstarred question no.2437, 24/03/2022

These afforestation efforts under CAMPA can also be supported by the observation of increase in forest area since 2003 as per 'India State of Forest' reports of various years. Particularly, the significant increase in forest cover from 2019 attributed to the Supreme Court's order in the same year directing the central government to utilize the funds of about Rs 54,000 crores lying with the compensatory afforestation fund demonstrates the potential effectiveness of CAMPA in mitigating the opportunity cost associated with forest diversion.

Figure 7: Transfer and utilization of CAMPA funds in 2019-2022



Source: Loksabha unstarred question no. 5179, 03/04/2023

The data on CAMPA fund transfer and utilization shown in Figure 7 suggests that out of the total funds transferred for the afforestation program of the states, none of the states fully utilized even half the allocated amounts, except for Bihar (54% of the fund is utilized). Especially poor is the utilization of CAMPA funds by Arunachal Pradesh, Madhya Pradesh and Chhattisgarh the large recipients of Finance Commission awards. This clearly shows that there is a surplus amount in the CAMPA funding which remains underutilized. Despite severe underutilization of funds afforestation targets have been more than met in all the states.

The analysis of this section suggests that there is hardly any ground to say that states have lost development opportunity by not being able to use forest land for non-forestry purposes. Sizable forest areas are being diverted for various purposes. Simultaneously afforestation and conservation have led to increase in the forest cover. The utilization of CAMPA funds is low, especially by those states who are awarded large funds by the Finance Commission, leaving unutilized funds for afforestation purpose. Hence, it is doubtful whether there is any ground for

allocating more funds for this purpose by the Finance Commission.

5. National Afforestation Programme and Green India Mission

In addition to the CAMPA funds devoted for afforestation, numerous centrally sponsored schemes also seek to carry out afforestation. This section presents the progress made in two major schemes.

National Afforestation Programme (NAP) was operationalized in the year 2000 after merging four centrally sponsored afforestation schemes of the Ministry of Environment and Forest, namely Integrated Afforestation and Eco-Development Projects Scheme (IAEPS), Area Oriented Fuel wood and Fodder Projects Scheme (AOFFPS), Conservation and Development of Non-timber Forest Produce including Medicinal Plants Scheme (NTFP), and Association of Scheduled Tribes and Rural Poor in Regeneration of Degraded Forests(ASTRP). The scheme was being operated by the National Afforestation and Eco-development Board as a complete centrally sponsored scheme (Press release, GOI, 2019).

One of the eight Missions set forth in the National Action Plan on Climate Change (NAPCC) is the National Mission for a Green India, commonly referred to as the Green India Mission (GIM). It was formed in February 2014 with the objective of safeguarding nation's biological resources, associated livelihoods and the security of food, water, and livelihoods. In addition to responding to climate change through adaptation and mitigation strategies, it strives to maintain, restore, and enhance India's shrinking forest cover. The objectives encompass increased forest/tree cover and improved quality of forest cover in millions of hectares of forest/non-forest lands, improved ecosystem services including biodiversity, carbon sequestration, and hydrological services, along with provisioning services like fuel, fodder, and timber and non-timber forest produces and increased

forest-based livelihood income for households living in and around forests. To facilitate planning and execution at the cluster/landscape unit level, a multidisciplinary team from the government and NGOs is entrusted the task (National Mission for Green India, ISTI Portal).

A unified approach to the allocation of resources, allows for better coordination and management of the combined efforts. The increase in budget allocation from Rs. 160 crore in 2020-21 to Rs. 220 crore in 2021-22 indicates a heightened commitment to the cause of afforestation and sustainable development. The combined allocation for NAP and GIM in 2018-19 is just Rs 176.94 crore later it increased to Rs 220 crores in 2021-22. Similarly, the expenditure increased from Rs 176.73 core in 2018-19 to Rs 200.13 crores in 2021-22 (Table 3).

Table 3. The budget allocation for NAP and GIM from 2017-18 to 2021-22 (Rs in crore)

Year	Budget allocated*	Expenditure*
2017-18	NAP= 80 GIM=47.80	NAP= 80 GIM= 46.99
2018-19	176.94	176.73
2019-20	193.63	193.63
2020-21	160.00	158.04
2021-22	220.00	200.13
** Combined allocation and expenditure of NAP and GIM* *Source: Ministry of Environment, Forest and Climate Change - Posted On: 03 FEB 2022 by PIB Delhi*		

Based on the analysis of CAMPA in the previous section and NAP in the present section it may safely be concluded that extant schemes offer enough funding for afforestation of the forest area diverted for non-forestry use and new afforestation. It is seen that afforestation more than compensates the area diverted and the fund utilization is much lower than the allocation, especially

by large forest holding states who got larger awards from the Finance Commission.

6. Cost Disabilities due to Large Area

All Finance Commissions since the Tenth have used geographic area as a criterion in the horizontal devolution formula. The argument provided is that larger area calls for greater expenditure requirement for providing comparable public services to comparable population, differently called cost disabilities. But it may not lead to proportional increase in cost as even the smallest geographic area will incur some minimum cost. Thus, the Finance Commissions justify assigning a floor of 2 percent share to those states with less than 2 percent of the total geographic area. The XV Finance Commission has continued this practice of setting the 2 percent floor for 12 of the 28 states each of whose geographic area share is below 2 percent. Setting a floor leads to adjustment of the shares of other states proportionately.

The argument of cost disabilities has been applied in the case of forest area by the XIV Finance Commission as well as the XV Finance Commission. They say that there are cogent arguments that this criterion is needed as a reward for overcoming cost disabilities arising from area dedicated to dense forests. But unlike setting a floor in the case of geographic area no floor has been set for forest area. That is the reason for arriving at the peculiar situation of 8 percent of population receiving 34 percent of the forest award. Instead, if forest funds were devolved to states on the basis of adjusted geographic area share, then it would result in the three states of Arunachal Pradesh, Madhya Pradesh and Chhattisgarh receiving around 15 percent of the total which is less than half the share obtained on the basis of forest share. The next group of five states would receive about five percent points less than what they would receive going by the forest share. Although the variation among the states within this group is wide and bears hardly any relationship with the forest

area share, they seem to be proportionate to the population share. The rest of the states would receive almost close to their population share that is about 25 percent points higher than what they would receive going by forest share (Table 4). It may be of interest to ask the following question in this context: How does it compare with the size of the forest department in terms of revenue expenditure?

Table 4. Share of Forest Area, Adjusted Geographic Area, and Population of Select States, XV Finance Commission

State	Forest Area (Dense) %	Adjusted Geographic Area (XVFC)%	Revenue Expenditure %	Population %
Arunachal Pradesh	13.302	2.350	3.315	0.114
Madhya Pradesh	10.563	8.651	7.767	5.998
Chhattisgarh	10.112	3.794	7.906	2.110
Sub Total	**33.977**	**14.795**	**18.988**	**8.222**
Maharashtra	7.544	8.636	13.097	9.281
Odisha	7.345	4.370	4.476	3.466
Karnataka	6.580	5.383	5.212	5.046
Uttarakhand	4.598	2.000	6.328	0.833
Andhra Pradesh	4.103	4.572	1.804	6.985
Sub Total	**30.170**	**24.961**	**30.917**	**25.611**
Rest of the States	35.853	60.244	50.095	66.167
Total	**100**	**100**		**100**
Source: XV Finance Commission.				

Turning to the revenue expenditure of the Forest Department, it is already seen in Figures 1 to 4 above that there is a certain minimum size for the department irrespective of the forest area.

That gets reflected in the share of the 'rest of the states' accounting for about 36 percent of the forest area spending more than 50 percent of the revenue expenditure of all states (Table 4). The five states accounting for 30 percent of the forest area spend about 30 percent of the total revenue expenditure. And the three states with the largest forest area share spend around 19 percent of the total. It is evident that neither forest area nor adjusted geographic area do a good job as a proxy for capturing the variation in revenue expenditure. The measure of forest area provides funds more than proportionately to large holders and adjusted geographic area less than proportionately. Hence, neither can be a good proxy for cost disabilities arising out of forest area.

7. Conclusion

In India, state governments conserve forests for global good. The Finance Commissions since the XII have begun awarding grants or tax shares to compensate the costs of preservation of forests. They consider three costs in making the awards, namely cost of conservation, opportunity cost, and cost disability arising out of forests. The indicator used for making the award is the forest cover (moderately dense and very dense). The paper argues that forest cover is not a good proxy for the costs involved.

Conservation cost of forests is related to the size of the Forest Department of the states. Size measured in terms of staff strength of the department, or revenue expenditure does not show a proportionate rise with the forest area. Opportunity cost, or the loss of opportunity for development owing to the restriction imposed by the Forest (Conservation) Act, 1980 needs to be read along with the compensatory afforestation programme. It is seen that forest diversion applications have largely been approved, compensatory funds have not been utilized to the full, and afforestation has led to increase in the forest cover. This calls into question the argument of opportunity cost. Lastly, cost disability argument has been used in including adjusted geographic area in

the horizontal formula, the adjustment being that of setting a floor. A similar floor has not been set when it comes to disability arising out of forest cover. Most importantly, forest area is already part of the geographic area used in the devolution formula. Including forest cover as a separate criterion for devolution is misleading because it results in double counting the same geographic area. This approach unfairly amplifies the importance of forest cover, leading to disproportionate awards to states with large forest areas, without adequately reflecting the true costs or benefits. Thus, it is difficult to justify the inclusion of forest cover as a proxy for cost of conserving forests.

Conserving forests is an important function carried out by the states for achieving SDGs. Compensating states for this activity is undoubtedly justified. However, the issue lies in choosing an appropriate proxy for determining compensation. Forest cover – whether dense or total – is a poor measure because it does not accurately reflect the costs incurred by the states. Instead, an index based on revenue expenditure might be a more effective measure, as it directly relates to the actual costs borne by the states for forest conservation efforts.

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