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Developmental Disability Index for Hill States in India

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Hill states in India are uniquely situated in terms of the large amount of land area designated as forest land in these states. Although these states derive substantial local benefits from the forest ecosystem services they also tend to face certain developmental disadvantages. In economic terms, these can be conceptualised as opportunity costs – for not being able to use the land in alternative use that would yield the highest marginal economic value for it.

The economic rationale for this is that forest ecosystems provide a range of services, many of which are either 'intangibles' or 'non-marketed' and thereby do not lend themselves to easy quantification using available valuation techniques and tools. Also, the forest ecosystem services accrue at different scales – international, national, and local, implying substantial uncompensated positive externalities. The net economic value of maintaining forested land in its present state of use is therefore likely to be much less than in alternative use. There has been some progress on addressing this challenge through inter-governmental devolution of funds and other policy measures, which can at best be termed partial compensation measures.[1]

Another challenge in this context is the need to protect and conserve forests, wildlife, and other biodiversity, besides restricting the land use choices and causing developmental disadvantages, which adversely affect the unit cost of providing public services. The cost of providing public services also varies across states/regions due to geographic location, variable climatic conditions, and terrain. Referred to as 'cost disabilities' they arise from factors that are considered exogenous to a state's control, therefore it is argued that states need to be compensated through an additional allocation[i]. In a number of developed countries such cost disabilities are in-built in the design of intergovernmental grants. In India, however, most central government schemes and central government supported schemes do not take these costs into account.

This paper[ii] addresses this by constructing a cost disability index in provision of developmental infrastructure e.g. roads, railway, bridges, air connectivity, health and education related infrastructure, power, and telecommunication.

Yet another challenge faced by hill states is the poor state of developmental infrastructure reflected in widening gaps when compared with non- hill states. The environment and forest clearances have been identified as the largest source of delays in development projects. This study attempts an analysis of the relevant legislation, rules and procedures, to identify specific measures to speed up the process of environmental and forest clearances.

Factors contributing to 'cost disability' in forested areas of hill states *vis-à-vis* non-hill states and/or non-forested areas in hill states can be identified as: Cost escalation in terms of time and institutional costs due to legal requirements and federal restrictions; difficult terrain, extreme climate; higher technological and material requirements for meeting specific rules and regulations, and coping with variable climatic conditions; need to minimise damage to forest ecosystems and environment; higher costs of transporting materials and supplies through difficult terrain.

In constructing an index that captures the developmental/ opportunity cost of maintaining forestlands and increase in unit costs of providing public services the following is taken into account:

Component 1: Endowment effect (geographical factor):

Component 1 = **{FCAi/GAi}/ {FCA/GA}**

- FCA=Forest Cover Area(km²)
- GA=Geographical Area(km²)

Component 2: Transaction costs (topographical factors and federal regulations):

Component 2= **[HTi]*[IDPRi]**

- HTi=Proportion of land under hilly terrain
- IDPRi= Infrastructure Deficit (Power Index + Road Index+ Tele density Index)

Component 3: Performance effect (Conservation factor):

Component 3= **ADFCi/ADFC**

- ADFCi={DFC1 i+DFC2 i}/2
- DFC1 i= [Change in the TDF of the state(2007-09)]/[Value ofstate TDF in 2007]
- DFC2 i={[Change in the TDF of the state(2005-07)/Value of state TDF in 2005]

TDF is Total Dense Forest Area

The index is thus calculated as a summary measure of the three components. Different formulations can be obtained by using different weights for these components. The index for each state can be subsequently used for ranking states after normalization.

The index values demonstrate that there is a case for devolving funds to states based on the higher transaction costs.

A contentious issue in this context is the choice of policy option for compensation. Various considerations including low technical and governance capacities of the state have led to reservations about general grants or even project based grants in India. There seems some merit in this argument. However, it would be unfair to use this argument to undermine the need for compensation to hill states. Thus creating an "infrastructure and technology fund" for hill states for creating and upgrading strategic developmental infrastructure and for development/sourcing of hill sensitive technology for improving the productivity of resources and boosting the environmental and developmental performance of the hill states is proposed.

However, the need for such a fund should reduce overtime, so that eventually the compensation for provision of environmental services could be linked entirely to a comprehensive index of environmental externalities/ performance.

Suggestions to streamline and speed up the approval process system include:

- Continuous updating of crucial data and information
- Comprehensive planning for overall development of an area/city (medium to long-term perspective) encompassing infrastructure development schemes across different sectors to optimize space utilization, the most scarce resource for forested hill states
- Training for relevant agencies for preparation of FCA, 1980 cases, and dedicated specialised groups/missions in states and in MoEF for preparation and scrutiny of cases
- Introducing a system of periodical compliance report to identify gaps and recommend appropriate processes, checks and balances, technical and compliance training and e-governance needs to plug systemic and other flaws.

1. Provision of Rs. 5000 crore by the XIII Finance Commission and the NPV charged for use/diversion of forestland for non-forestry purposes.

i. Reschovsky Andrew (2007), "Compensating Local Governments for differences in Expenditure Needs in a Horizontal Fiscal Equalization Program", in Intergovernmental Fiscal Transfers: Principles and Practice, ed. Robin Broadway and Anwar Shah, Public Sector Governance and Accountability Series, Washington DC, The World Bank, pages 397-424.

ii. Pandey Rita and P Dasgupta (2014), Developmental Disability Index for Hill States in India, Working Paper No. 134, National Institute of Public Finance and Policy, New Delhi.