Planning in India: where is natural resources in the Development Strategy?

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[Abstract: Neither the draft approach paper to the previous plan strategies nor the draft approach of Eleventh Five Year Plan of India (2007- 12) address natural capital as a sources of growth in the development strategy of Indian Planning . But, it is argued that the development or degradation of natural capital makes a big difference to the life of masses. Also, the theoretical model in development economics argues that if the disadvantages of resource and land limitations are very larger than the advantages of technological progress, it will cause the growth of income per worker falling. So, without any piecemeal development programme, sustainable development programmes that integrates natural capital with the continuous development process strengthening the links between environmental regeneration and economic growth needs to be addressed in the planning strategy of India through continuous and integrated programmes and the schemes.]

The Problem

Natural resources, especially, has a pivotal role in the livelihoods of rural people: predominantly the poor of the world depends directly on natural resources, through cultivation, herding, collecting or hunting for their livelihoods. Therefore, for the livelihoods to be sustained, the natural resources must be sustained (Rennie and Singh, 1996: 16,cited in Reddy et al., 2004:300). Natural resources are the basis for most rural

economic activities and therefore are especially important for poor people. Economic opportunities from sustainable use of natural resources can act as a catalyst in reducing poverty and improving food security (World Bank, 2005: 224). Improved natural resource management has increased soil fertility and water retention, reserved soil erosion, improved water management, maintained and/or improved biodiversity, reduced habitat destruction, and reduced deforestation. Sound community-based natural resource management optimizes the use of the natural resource base to enhance agricultural productivity goals, ensure long-term sustainability, and protect the livelihoods of poor and vulnerable families (ibid: 223).

In India, the overall estimate is that 33 per cent of the tribals earn their livelihood from forests and forest products (Sarmah and Rai, 2001:207). The World Bank Report (2006) indicates that forests offer vast potential for poverty reduction and rural economy growth in India while also supporting critical national conservation goals (World Bank, 2006: xiii). The Report also reveals that half of India's 89 million tribal people, the most disadvantaged section of society, live in forest fringe areas and forests have the potential to improve the livelihoods of forest dwelling people, particularly tribal people who are the most disadvantaged group in Indian society (ibid:2).Forest fringe households having more than 75 per cent households under BPL category earn over 60 per cent of their per capita net real annual income from forest source(Sarker and Das,2010:53). All forest fringe households under BPL category earn over 75 per cent of their per capita net real annual income from forest source (Sarker 2009:78).Common property resources (CPRs) are especially important in India in supporting subsistent farming via the sustenance provided to farm animals (Rao, 2001:55). Based on the data

from seven states in the dry tropical zone in India, Jodha (1986 and 1991) concluded that poor households secure up to 23 percent of their income, 84 per cent of their fuel supplies, and 84 per cent of their annual grazing needs and 196 days of employment from CPRs.

But neither the draft approach paper to the previous plan strategies nor the draft approach of Eleventh Five Year Plan of India (2007- 12) titled " Towards Faster and More Inclusive Growth " address this issue. As regards the draft approach of Eleventh Five Year Plan of India (2007- 12) is concerned, the 'source of growth' does not include natural capital, which is a major capital and a major source of livelihood of the masses in the Indian economy. As the approach paper mentions ' there are three broad sources of growth, namely, accumulation of physical capital, accumulation of human capital (i.e. labour) and increase in productivity due to technical changes i.e. technology(also cited in Hirway, 2006: 3465). But, it is argued that the development or degradation of natural capital makes a big difference to the life of masses (Ibid).

Environment comes into the discussion in the approach paper only when 'it is damaged by economic growth, and there is need to 'deal with environmental problems'. The draft paper mentions, 'Population growth increases the environmental load irrespective of the rate of economic growth. Rapid economic growth can intensify environmental degradation. The solution does not lie in slowing growth since slow growth also leads to its own form of environmental deterioration. With rapid growth we can have the resources to prevent and deal with environmental problems' (p.53). The approach paper also mentions, 'we must in the longer run, take recourse to the complementarities between environmental sustainability and human wellbeing' (p.8). But

the concept of sustainable development that integrates natural capital with the development process, that strengthens the links between environmental generation and economic growth, is totally out of the purview of the paper.

Natural Capital in Development Economics

One of the major factors of economic development is natural resources. Economists like Jacob Viner, William Baumal and Arthur Lewis have provided great importance to natural resources of a country for its development. In his classical argument Malthus (1798) exemplifies that natural resources, pollution and other environmental considerations are critical to the possibilities for long-run economic growth. As the amounts of oil and other natural resources on earth are fixed, any attempt to embark on a path of perpetually rising output will eventually deplete those resources, and must therefore fail. As an influential modern statement of these concerns, Meadows, Meadows, Randers, and Behrens (1972) argue that ever-increasing output may generate an ever-increasing stock of pollution that will bring growth to a halt. Even Romer(2001) examines the issue of how(ibid) environmental limitations affect long- run growth(p.36).While extending his growth analysis in a baseline case , he also includes natural resources(R) and land(T) along with capital(K), labor(L) and effectiveness of labor(A)in his Cobb-Douglas production function model(ibid:37-39). The model shows that resource and land limitations can cause output per worker to eventually be falling. In recent history, the advantages of technological progress have outweighed the disadvantages of resources and land limitations. But the model apprehend that if the disadvantages of resource and land limitations are very larger than the advantages of technological progress , it will cause the growth of income per worker falling(ibid).

While examining the economic sustainability of natural resources, Solow (1986) points out, "A society that invests in reproducible capital, the competitive rents on its current extraction of exhaustible resources, will enjoy a consumption stream constant in time … an appropriately defined stock of capital-including the initial endowment of resources - is being maintained in tact". The Solow growth model, as our starting point to the analysis of long-run economic growth, stresses on two fundamental issues of sustainability – initial stock of natural capital is being maintained in tact and the stream of consumption is constant over time. A situation in which capital, output, consumption and population grow at constant rates – called balanced growth path , both these two fundamental issues will be maintained.

Once the economy is in steady state, the rate of growth of output per worker depends only on rate of technological progress and technological progress can lead to sustained growth of output per worker. According to Solow model, only technological progress can explain persistently rising standards. But it is argued that if externally determined technological progress drives growth and technology is roughly speaking a public good, available to all countries after some lag, it seems that all countries ought to be observed to grow at close to the same rate. But nothing like that shows up in the data empirically. The divergence might be explained by difference in national characteristics or what Solow calls 'stock of capital including the initial endowments of resources' – which, in turn, explains why countries are able to take advantage of the exogenous technical progress differently.

Some substitutability of two factors – labour and capital – is possible in the production function of Solow model, but according to Solow, "stock of capital –

including the initial endowments of resources – is being maintained in tact". It usually implies strong sustainability i.e., natural capital – all gifts of nature including renewable and non renewable energy and material resources, clear air and water, nutrient and carbon cycles, and bio-diversity – cannot be substituted either by human capital or by man-made capital.

The economics of renewable natural resource exploitation like forest , water relates to sustainability of renewable natural resource. It leads to the normative issues about how society should exploit it efficiently over time so that the stock of renewable natural resource might be sustainable. Renewable resource stocks are those which grow through reproduction. In renewable resources, a steady state may be reached where the rate of biological growth equals the harvest rate

How does an economy face a choice between an optimum rate of consumption over time and a sustainable rate? As may be seen in figure1, the optimum path of the consumption over time (essentially, that which maximize the discounted value of all future consumption) starts to fall after some period 'f'. Clearly, it is not sustainable, since people living after time will be worse off than people living before 'f'. So the problem of f arises from the point intragenerational equity (fairness within a current time period). But sustainable path of consumption emphasizes livelihood, assets, or capital, as the basis for sustainable improvement of people's livelihood for now and future without undermining the natural resource base. It is only possible at the concept of sustainable development that integrates natural capital with the development process that strengthens the links between environmental generation and economic growth.

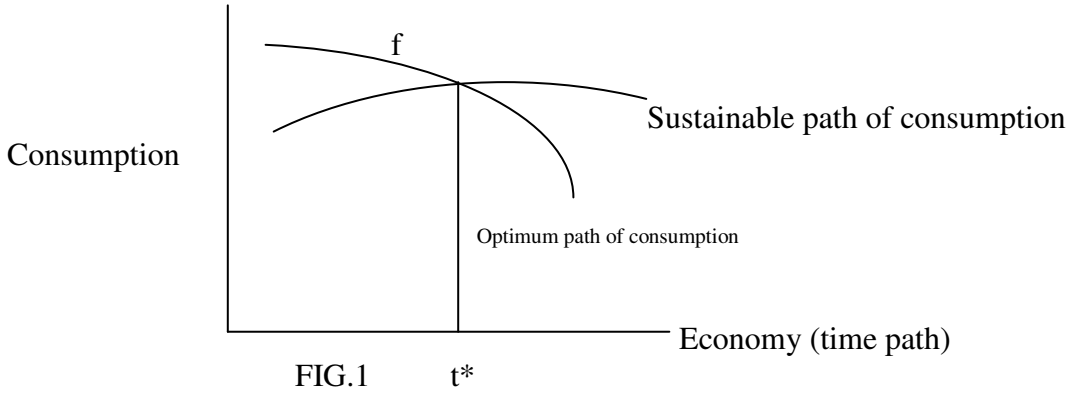

FIG.1

Note: In this simple economy, optimum (Consumption) reaches a peak at t^*

Although the basic Solow model includes only physical capital and does not try to explain the efficiency of labour, human capital is analogous to physical capital in many ways – human capital, like physical capital, raises our ability to produce goods and services (Mankiw, 2005: 214). How is initial endowment of resources, according to Solow, maintained in tact in the growth process? As mentioned earlier, the divergence of growth in the Solow model might be explained by difference in national characteristics or what Solow calls 'stock of capital including the initial endowments of resources' – which, in turn, explains why countries are able to take advantage of the exogenous technical progress differently. In this perspective, to continue the growth process, there should satisfy two fundamental issues of sustainability - initial stock of natural capital is being maintained in tact (strong sustainability criterion) and the stream of consumption is

constant in time (although this abstracts from the problem of fairness within a current time period / intra-generational equity), natural capital ultimately enters into the growth process, because in an agrarian economy, like India, rural livelihoods are intricately linked with the access of rural people to natural resources such as , land , water and biotic resources . A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base (Carney, 1998: 4).

Livelihood Assets

About how to improve the effectiveness of government poverty reduction schemes, the sustainable (SL) approach provides a coherent framework within which multi-sectoral activities can be placed, and ties in closely with the new guidelines of the ministry of Rural Development, Government of India (GOI, 1994) . It provides new ways to address poverty issues beyond the traditional method of employment generation and target group programmes. As the basis for sustainable improvement of people' livelihoods, it emphasizes livelihood assets in terms to five capital assets –natural, physical, financial, human and social –identified in the framework (Carney ,1998; Davis, 1996 ; Reddy et al. , 2004). Participatory initiative in natural resource management programmes such as water development, water lands development, joint forest management, coastal zone development, typify this approach.

These five capital assets are conventionally associated with a stock, whereas there are many aspects of the five assets that are akin to flows in the dynamics of livelihood operations. A better understanding of these concepts can be gained by looking at them in relation to entitlement theory (Sen , 1982 , 1985 ; Scoones , 1998). The livelihood

assets, in this perspective, can be seen as a capability or a potential that can be deployed to undertake, or be 'invested in ' livelihood activities. But they are not uniform in character: for example, under natural capital, access to food fodder, fuel wood are dependent on the flow of these resources through the cycle of community forest management, whereas social capital can take the form of the network of social relationships among individuals, families, communities and states that have potential to influence the viability of livelihood activities. From this perspective, livelihood capital will accumulate where the potential to which the household, the community and the state have an entitlement increases.

But, with regard to the growth of financial capital is concerned, financial capital is ultimately employed in accumulation of physical capital, human capital, technology and the investment in natural resources (measured in terms of changes in access to or improvements in land, water, and other common pool resources). Similarly, as social capital is an attribute of an individual in a social context (Sobel, 2002:139), the growth of social capital depends on the 'institutions, relationships, attitudes and values that govern interactions among people and contribute to economic and social development' (WORLD BANK, 2002: 2). These attributes come into being by the nature of participation, type of participation and the process of participation of the local communities in the management of natural resources and common activities. Kenneth Arrow (1999) argues that social capital shares the temporal aspect of physical capital but does not require material sacrifice (cited in Sobel, 2002: 144). Communities that have high network of social relationships have high growth of social capital and they are more successful in managing irrigation projects, water supply and sanitation projects and many

other infrastructural projects including common pool resources (CPRs) and common activities. It is argued that while the poor have little access to other capital assets, they often do have substantial social capital, such as social networks and connections through membership of organization, clientelism, and so on, which allow them to weather subsistence crises and might even afford them the possibility of capital accumulation and a way out of poverty (Ray, 2006: 462).

Admittedly, as an engine of economic growth, natural capital is also an important source of growth of Indian economy as other capital assets. Most importantly, as the growth of financial and social capital assets, the growth of natural capital does not ultimately depend on the source of growth of other capital assets. As natural capital is a major source of capital and a major source of livelihood of the majority of the people of Indian economy, it is also an important source of growth of Indian economy as physical capital , human capital and technology . But the draft approach paper of Eleventh Five Year Plan of India (2007- 12) fails to include natural capital into it as a source of growth. So, without any piecemeal development programme, sustainable development programmes that integrates natural capital with the continuous development process strengthening the links between environmental regeneration and economic growth needs to be addressed in the planning strategy of India through continuous and integrated programmes and the schemes.

REFERENCES

Arrow, K.J. (1999): 'Observations on Social Capital', in P. Dasgupta and I

Serageldin, eds. **Social Capital: A multifaceted Perspective**, Washington, DC: World Bank.

Carney, D. (eds.) (1998) : '**Sustainable Rural Livelihoods'**, London ,DFID .

Das, N. and D. Sarker(2010): 'The Framework of household Model under Joint Forest Management Programme: A Study of Forest Dependent Households', ***The Indian Economic Journal*** ,Vol. 57, No. 3,October-December,pp.44-71.

Davies,S.(1996) : '**Adaptable Livelihoods'** ,London ,Macmillan .

GoI (1994): 'Guidelines for Watershed Development', ***Ministry of Rural Development***, Government of India, New Delhi, October

Hirway, I. (2006): "Where Is Gender in Eleventh Plan Approach Paper?" **Economic and Political Weekly**, Vol. XLI No. 32 August 12-18,2006 .

Jodha, N. S. (1986): **'**Common Property Resources and the Rural Poor in Dry Regions of India', **Economic and Political Weekly**, Vol. 21, pp.1169-81.

Jodha, N. S. (1991): **'**Rural Common Property Resources: A Growing Crisis', **International Institute of Environment and Development,** London

Ray. (2006): 'Rural Poverty and Development Strategies in Latin America', **Journal of Agrarian Change**, Vol.6 No. 4, 455-508,October.

Malthus, T.R.(1798): ' *An Essay on the Principle of Population , as It Affects the Future Improvement of Society*, London:J. Johnson

Mankiw,N.G.(2005): ‘ **Macroeconomics’,** Worth Publishers , New Work , Fifth Edition .

Meadows, D.H.,D.L. Meadows,J.Randers, and W.W.Behrens, III.(1972) ‘*The Limits to Growth*, New York: Universe Books.

Rao, J.M. (2001**) : ‘**Whither India’s Environment ? in S.N. Chary and V. Vyasulu (eds.), ***Environmental Management***, Macmillan .

Reddy, V.R., M.G. Reddy, S. Galab, J. Soussan and O. Springate-Baginski (2004): ‘Participatory Watershed Development in India: Can it sustain Rural Livelihood?’ ***Development and Change***, 35(2).

Rennie, J.K. and N. Singh (1996): ‘***Participatory Research for Sustainable Livelihoods’***, Winnipeg: International Institute for Sustainable Development.

Romer,D.(2001): ‘ *Advanced Macroeconomics; Second Edition*’, McGraw-Hill International Edition, Economic Series, Singapore.

Sarker,D.(2010): ‘Sustainable Rural Livelihoods under Joint Forest Management Programme: Some Evidence from West Bengal,India’, ***Artha Vijnana***, Vol. LI, No. 1,March,pp.59-84.

Sarmah , D. and S. N. Rai(2001): “Forest Resource Management in India :Role of State and Its Effectiveness’, in S.N. Chary and V.

Vyasulu (eds.), ***Environmental Management***, Macmillan

Scoones, I (1998): 'Sustainable Rural Lidelihood ; A Framework for Analysis', IDS Working Paper 72 Brighton: Institute of Development Studies, University of Sussex

Sen, A (1982): ***Poverty and Famines: An Essay on Entitlement and Deprivation,*** Oxford Clarendon Press

Sobel, J. (2002): 'Can We Trust Social Capital?', **Journal of Economic Literature** , Vol. XL: 139-154, March.

Solow, R.M. (1986): 'On the intergenerational allocation of Natural Resources', ***Scandinavian Journal of Economies,*** 88: 141-9.

World Bank (2002): 'Social Capital: From Definition to Measurement' in C. Grootaert and T. V. Bastelaer (eds.) ***Understanding and Measuring Social Capital: A Multidisciplinary Tool for Practitioners***, The World Bank, and Washington, D.C.

World Bank (2005): Agriculture Investment Sourcebook: **Agriculture and Rural Development**, Washington, D.C.

World Bank (2006): ' *India: Unlocking Opportunities for Forest-Dependent People'*, The World Bank, Agriculture and Rural Development Sector Unit, South Asia Region, Oxford University Press, New Delhi.

Government of India(2006): '*Towards Faster and More Inclusive Growth :An Approach to the 11th Five Year Plan*', Planning Commission, Yojana Bhawan , New Delhi, December