Chapter 6
Concluding Observations and Suggestions Towards National Environment Policy

Economic growth which is humane as well as sustainable overtime is sustainable development. In early 1970s the Club of Rome, on the basis of earth's finite "carrying capacity" and "non-renewable natural resources" hypothesis had, put forward "limits to growth" thesis. However, Brundtland Commission's Report in late 1980s and World Bank's two World Development Reports of 1992 and 2003 have shown that sustainable development is a manageable economic growth model. Therefore, sustainable development objective should be a policy-determining input for all relevant macro-micro policies of the society, including the environment policy. As there is one planet the unifying objective of sustainable development is relevant for environment policy at all levels, viz. global, regional, national, state and local. Therefore, it has been often said that a global citizen has to think globally, but act locally.

This final chapter aims at providing concluding observations on the basis of analysis carried out in this study and suggesting several measures that India has to adopt for sustainable development. Section I briefly summarises the weaknesses of NEP 2006 as emerging through appraisal of the policy carried out in chapter 5. Section II short lists India's top-priority environmental-ecological issues and their management approach. Section III enumerates the feasible and
viable measures for India emerging through the discussion in the chapters 1 through 5. Section IV highlights ten uncontroversial principles of environment policy-making which are now popularly known as “The New Environmentalism”. (Steer Andrew. 1996: 4-7). Section V discusses an alternative approach to environmental decision-making. Here the focus is on Gandhian Approach. Final section i.e. section VI outlines the limitations of the present study and underpins the areas for further research emerging from the analysis.

Section : I Policy for Sustainable Development in India : Unfinished Agenda

WDRs’ framework of sustainable development aims at striking a balance between conflicting economic, ecological and social objectives by managing dichotomous relationship between economic growth and the environment. It also suggests to improve and strengthen the foundations of appropriate institutional network to enhance wholehearted participation of stakeholders in the economic growth based sustainable development process. In this context, the analysis carried out in this study especially in chapter 5 shows that NEP 2006 is an unfinished agenda.

NEP 2006 : The Unfinished Agenda

India’s struggle to realise MDGs by 2015, according to World Bank they are “future within reach”, is considered as the first step, a moderate but sound step towards breaking the “vicious circle of impoverishment” and gearing Indian economy on a sustainable growth path. If NEP 2006 is to be viewed in the context of WDRs framework of sustainable development, it is a half hearted attempt to balance
economic growth and the environment to achieve economic, ecological and social objectives. Therefore, NEP 2006 should be considered as the unfinished agenda.

It is a half hearted attempt because it seems it is a policy for the sake of policy. As we have observed in chapter 5 it lacks what is basically needed — a commitment for sustainable development and a concern for the environment — in the environment policy of India at this juncture:

(1) It lacks the much needed perception and perspective about “the environment” which is on one hand a policy determining input and on the other hand, its stability and sustainability are prerequisites for achieving the objective of sustainable development as well as the MDGs.

(2) It does not go beyond improving the existing environmental standards, project clearance procedures and environmental administration.

(3) It has no time frame, environmental-ecological priorities, detailed sectoral, cross-sectoral and sub-sectoral considerations, design for appropriate institutional network, and mechanism for whole hearted participation of people, civil society and NGOs. (World Bank Policy and Research Bulletin. 2000 : 1-5, and Herz Barbara.1989 : 22-25).

(4) In a globalised liberal economy like India, corporate sector has now to shoulder the very heavy “Corporate Social Responsibility” (CSR) which is now a common practice in developed countries. (IISD. 1993 and 2004, Holiday Chad et al. 2002, IIT Industries. 2004, Dias

(5) It has neither made reference to creation of “Environment Commission” (or such authority) as a regulatory body which has been demanded by Indian judiciary since long nor cared to suggest now widely tried innovative options like Green GDP, Natural Resource and Environmental Accounting and Auditing. (World Bank. 1995 : 1-10, Shechambo Fanuel. et al. 2002:1-8 and Lutz Ernst et al.1989:19-21).

(6) Traditional knowledge and wisdom with tribals, rural illiterate old guards, and rural professionals related to rain water harvesting, water recharging, medicinal plants and their applications, biodiversity conservation in arid, semi-arid zones, wetlands etc. are perhaps the most valuable assets. The NEP 2006 could have capitalised and unlocked the energy of these people for sustainable development, but the manner in which NEP 2006 suggests to manage traditional knowledge may commercialise these assets and marginalise the asset owners.

(7) It fails to recognis the fact that the NEP 2006 is not the only a macro economic policy that can contribute towards the cause of sustainable development. Other micro and macro economic policies, controls and regulations have a complementary role to play in this regard. Such policies and other measures need thorough revision in terms of integrating environmental concerns, but NEP 2006 does not emphasise this requirement at all.
(8) Last but not the least, NEP 2006 has not visualised the vital need for developing the “global partnership” for India’s sustainable development programmes. Developing “global partnership” is also one of the goals of MDGs (World Bank. WDR. 2003:193) and yet it did not attract the attention of NEP 2006! Looking to the nature and scale of sustainable development challenge that India faces today, it has to seek global support in terms of technical and financial help from international organisations and through other avenues as well. Here the major sources of assistance are: (1) World Bank, especially through Global Environment Facility, (GEF). (World Bank. 1991), (2) Asian Development Bank (ADB), (3) Donor countries like USA, Japan and Sweden etc., (4) Developed First World Countries including European Union through Clean Development Mechanism (CDM), and (5) International NGOs like OXFAM.

Any such exercise which fails to attribute approximate values to environmental inputs and to recognise its critical role in promoting meaningful economic growth will result into an unfinished agenda. This happened in the case of NEP 2006. Task of planning and programming the sustainable development of India asks for a more comprehensive approach to NEP and economic growth promoting strategies and policies.

**Environmental Action Plan**

For developing countries, Environmental Action Plan (EAP) is perhaps a relatively easy approach to adopt for planning and programming sustainable development. “Environmental Action Plans go beyond traditional assessments and general policy recommendations, formulating specific actions needed for the implementation of these policies. In effect, they provide framework
for integration of environmental considerations into the country's overall economic and social development, cutting across all sectors and involving national and local officials, as well as academic experts, non-governmental organisations (NGOs), and international agencies. However, this approach may not necessarily be suited for all nations, for many a more thematic approach – forestry, conservation, dry land management – may be just useful, particularly where there is clear need to concentrate on one set of environmental issues". (Christoffersen Lieif. 1989.26:9).

As early as 1989 some of the African countries like Madagascar and Lesotho, and Mauritius with the help of World Bank assistance developed their own EAPs and started implementing and monitoring them on their own as well as with the help of UN's various sister concerns in case of a need. At that time Ghana, Rwanda and Guinea were on their way to finalise their EAP. Even the countries in the eastern region of Europe preferred to have their own EAPs developed in early 1990s through the support of the World Bank and the European Union. (Steer Andrew.1996:5). India could also have benefited a lot by developing an overall EAP or theme based EAP with the assistance of World Bank. What constrained India to opt for such an easy option rather than waiting till 2006 for the unfinished agenda – NEP 2006 ?

Section : II India's Top-Priority Environmental-Ecological Issues: Near Term, Medium Term and Long Term Management Approach

Realisation of sustainable development objective (or goal) for a developing country like India requires at least a time frame of 20 to 25 years. So in a near term the strategy will be to start with addressing top-priority environmental-ecological issues. On the basis of analysis
carried out in chapters 3 and 4 it will be possible to short list such priority issues for India. Unfortunately NEP 2006 has overlooked or ignored this matter. Such short listing exercise will help Planning Commission in designing eco-friendly growth strategies for the ensuing Eleventh Five Year Plan (2007-2012) of India.

(i) Looming Water Crisis

Severe water crisis is a top-priority global environmental issue that compelled UN to launch an action plan – International Decade for Action : Water for Life 2005-2015. (UN.2005). The basic strategy to manage this renewable natural resource crisis is simple, as Kofi Annan puts it: “Making Every Drop Count” – conserve even a drop of water because it is life. This is the way water scarcity can become manageable.

India’s present as well as anticipated water crisis is not primarily because of water scarcity, i.e. due to nature’s curse, but it is because of utter management failure. Denyer Simon’s paper: “India : Water Everywhere but None to Drink” (2004) shows that lack of safe drinking water due to degraded quality of water and failure to manage geographically equitable distribution of water are at the root of India’s water crisis. John Briscoe who has prepared World Bank report on “India’s Water Economy : Bracing for a Turbulent Crisis” (2005) underpins government’s failure as under: “There is virtually no country in the world that lives with a system as bad as you have here.” (Terra Daily. 2005). Here, the system has a reference to government’s “widespread complacency about water.”

So the first and foremost step towards risk aversion of anticipated severe water crisis is to revise National Water Policy 2002 thus integrating hydrological, environmental and eco-system’s concerns.
Basic strategy will be same as UN action plan – “Making Every Drop Count”. (TERI.2004). In short run, increasing water conservation and water tables by rainwater harvesting and check dams is possible only through enhanced people’s participation via voluntary organisations in India. TERI considers this partnership as “Partnership for Change”. (TERI.2004). So far the performance of NGOs in this partnership for change has been encouraging in India.

In fiscal regime, perverse subsidies—explicit and implicit subsidies need immediate rationalisation in terms of environmental and ecological constraints. Water rates – water cess and irrigation charges – are relatively low to promote water conservation and finance the maintenance of the available water infrastructure as well as the cost of administration. There is an imperative need to make them more effective by reasonable increase therein and by opting for differentiated water rate structure. (Smith William J. et al. 2004 and Shah Tushaar et al. 2003).

World Bank’s report on India’s Water Economy observes: “Water conflicts – between states, between cities and farmers, between industry and farmers, and between farmers and the environment – are becoming endemic at all levels”. (World Bank. 2005 : 8). Federal polity and the present constitutional arrangements are responsible for such conflicts. There is an urgent need to change the present Constitutional arrangement to make water a critical natural asset and water resource management a Union subject. Panchayats, Urban Local Bodies and States have a crucial role to play in water resource management in India. But it is possible only when there is correspondence between their functional responsibilities and revenue resources. In this context, appropriate changes are required to reduce vertical fiscal imbalance.
Heterogeneous sub-national units, heterogeneous in terms of their fiscal capacity and resource potential create the problem of horizontal fiscal imbalance in the federal set up that we have. Suitable federal transfer mechanism is still to be evolved in India to care of the vertical and horizontal fiscal imbalances. It should be noted here that resource constraint for sub-national units in India is one of the reasons for natural resource management failure in India. Private sector, especially corporate bodies are increasing their involvement in shouldering Corporate Social Responsibility and so they must encouraged to work as partners with NGOs.

WTO and IMF prescribe water privatisation and conservation and optimal utilisation of water through water pricing. As such “the UN has recognised access to water as basic human right, stating that water is a social and cultural good not merely an economic commodity”. The solution proposed and pushed by such world agencies may work only in developed countries where efficient water markets are developed to take care of this natural capital and people are well off to buy water. This approach of commodification of water may not work well in India but deprive millions of people who are eagerly waiting to have access to sustainable safe drinking water and sanitation security. So at present this is not a feasible option at this juncture. (Sampath Amita et al. Undated: 1-19).

In long term the project of interlinking of Indian rivers can be rewarding mainly for two reasons: (a) It may help to have geographically more equitable distribution of water and (b) Water tables in different parts of India can improve remarkably. Building up an appropriate water infrastructure in the context of this project is a challenge: (a) Financing of such a project requires huge investment and that is possible through financial help from international
organisations and agencies and (b) Such a project has hydrological, environmental and transboundary water sharing related implications. (Bandyopadhyay Jayant et al. 2002, Ahmad Reaz. 2004, and Tiwari Rakesh 2005). So India has to proceed with utmost care and effective planning.

It should be noted that resources either finite or renewable, or either scarce or a free good are supposed to be conserved, enhanced and optimally utilised in a sustainable manner and for that effective and efficient resource management is a necessary condition. Therefore, India needs an “Integrated Water Resource Management” i.e. “Water Efficiency Plan”. (GWP. 2002 and Torkil Jonch – Clausen. 2004).

(ii) Sustainability of Agricultural Sector

In India now agricultural sector works more under man-made pressures and constraints. Urbanisation and industrialisation swallow productive agricultural land. Soil is degraded due to run-off water, pollution and practices adopted by farmers since the Green Revolution in India. Terms of trade have more or less remained against agricultural sector and therefore it is known as a diminishing return sector. However, it still is a vital segment of the Indian economy and sustainability of this sector matters.

As we have seen in chapter 4 section I, Indian agriculture sector’s resilience potential is weakening and so is its sustainability. NEP 2006 has shown that the subsidy regime is the culprit for most of the environmental-ecological problems in India. So the focus should be on rationalising the subsidy regime: (a) Subsidies in water, power,
energy, fertilizer and pesticide sectors should be gradually reduced to zero to prevent farmers from pursuing practices induced by Green Revolution and (b) Incentives framework promoting eco-friendly and agro-climatically suitable sustainable cropping pattern, social forestry and medicinal plants must be adopted. Genetically Modified crops-plants and bio-technological development need careful scrutiny through appropriate bio-safety regime. Common Property Rights and Responsibilities deserve careful attention to avoid the “tragedy of commons”. Development of animal husbandry and “appropriate technology” based agro-based industrial development would motivate farmers to switch over to eco-friendly cropping patterns, organic farming and social forestry. Urban sprawl and industrialisation are commonly known potential dangers for farm sector of India and therefore, the government should revise National Industrial Policy in this context at the earliest. There is a dire need to frame and adopt an eco-friendly urbanisation policy. In the context of MDGs the regions with low agricultural productivity may be due to lack of assured irrigation water, arid and semi arid zone and desertification, require careful attention. Eco-friendly Special Economic Zone (SEZ) strategy and the agro-climate specification based or oriented suitable afforestation programmes may prove blessings in disguise.

(iii) Energy-Environment Nexus

Energy-Environment nexus is easy to understand but difficult to manage in a sustainable manner. Energy including power is an equally important multiple use renewable or non-renewable input for accelerating economic growth. It can positively contribute to realisation of MDGs and achieving environmental sustainability.
But as UN observes: "Energy production, distribution and consumption has many adverse effects on the local, regional and global environment including indoor, local, regional air pollution, local particulates, land degradation, acidification of land and water, and climate change. Cleaner energy systems are needed to address all these effects and to contribute to environmental sustainability". (UN. Energy. 2005:1). UNDP extends strong support to developing countries to develop and implement sustainable energy generation projects/programmes which work cost effectively with local community support and locally available resources and appropriate technologies. (UNDP.2005).

In India during 1985-95 decade it has been observed that the rate of growth of power and energy (coal, oil and natural gas) sectors' demand/usage have remained much higher as compared to GDP growth rate. Besides, as compared to energy the demand for power has increased almost at an exponential rate during this period. As such, in 1995 the power deficit was 12 percent of total generation capacity in India and the deficit was managed through "on-site" power projects known as Captive Power Projects installed and operated by private units those who were facing uncertainty about power supply. (Shukla P.R. et al. 1999 and Shukla P. R. et al. 2004a).

At present, half of the burden of power sector is on the coal sector followed by hydropower sector, natural gas, nuclear power sector and renewable energy sector. Coal-fired power generation units mostly looked after by State Electricity Boards (SEBs) and Central Government agencies are responsible for more than 50 percent of carbon emissions in India. Energy sector, along with power sector,
critically supports agriculture, transport, domestic sector and to some extent industrial sector for their energy requirements. Therefore, overall economic growth performance is critically dependent on energy-power sectors’ accelerated growth.

It should be noted that the Tenth Five Year Plan envisages to double GDP growth rate in the next decade. This will without fail exert severe pressure on power-energy demand in near term. In this context, power-energy demand management without constraining accelerated economic growth process and that too with “cleaner energy system” which have a very high potential to break environment-energy nexus is a very big challenge for India. And therefore, this is also a top-priority environmental issue for our country.

Some experts are more skeptical about sustainable economic growth with cleaner energy systems. (TERI and GTZ. 1997). Some approach this issue philosophically and some in an innovative manner. As these approaches can help us in devising suitable energy-power sector strategy for India we should have a brief account of these approaches.

(a) USA and EU consider natural gas and atomic power as cleaner energy options for near term. (Smith Douglas W. et al. 2002). But Byrne John et al. believe that these options are not “beyond pollution and risk in a greenhouse world”. They suggest to look for energy efficiency through appropriate technologies as Korea which is practicing them since 1990s. “Less Energy, Better Economy” is the basic guiding principle for Korea’s sustainable energy policy. (Byrne John et al. 2000 and Young – Doo Wang et al. 2002).
(b) Falwin Christopher insists for an alternative "Energy Economy for the Twenty-First Century" where energy consumption is minimised overtime. (Falwin Christopher. 2000).

(c) Droege Peter suggests to evolve a "New Pattern of Human Settlement" in an era of climate change where urban development is based on minimum energy-power needs. (Droege Peter. 2000).

(d) Dunn Seth propagates for a safe and eco-friendly renewable alternative source of energy – Hydrogen Gas. Hawai’s successful practice is the main source of inspiration for him. (Dunn Seth.2001).

(e) “Powerdown strategy” as suggested by Heinberg Richard (2004) asks to sacrifice the present conspicuous consumption based materialistic life style. This is necessary because oil and natural gas are after all finite-non renewable resources.

(f) Ultimately people’s concern for sustainable development matters. Therefore, they must be productively involved in building up “sustainable communities”. Therefore, on the basis of such practices in USA Byrne John suggests to promote “sustainable community” at local level. (Byrne John. ed.2001). On the basis of China’s experience of “Bio-energy Systems”, CEEP suggests to bank upon such renewable eco-friendly energy source. (CEEP. 2004 and Zhou A. 2002).

India’s power sector is not only dependent heavily on coal-fired power plants, the main source of carbon dioxide emissions but also characterised by heavy losses in transmission and distribution, tariff well below the average cost of production, power generation capacity
problem, power reliability and frequent blackouts. (Shukla P. R. et al. 1999:ii and Mukhopadyay K. et al. 2005:1). Concerns for (a) management of widening power demand-supply gap in an eco-friendly manner and (b) reduction in Carbon dioxide emissions to targeted level by 2015 encouraged government to opt for power sector reforms. Reforms are related to (a) Corporatisation of SEBs, (b) Unbundling of SEBs by separating SEBs into generation, transmission and distribution companies, (c) Privatisation of power-energy sector, and (d) Regulatory reforms which will gear, guide and govern power sector through Central Electricity Authority (CEA) and Central Electricity Regulatory Commission (CERC). (Shukla P.R. et al. 1999. Box 1 :3). Studies trying to evaluate the impact of reforms on energy intensity, energy efficiency, choice for alternative technologies and carbon emissions have shown encouraging results. However, to realise the full potential benefits of these reforms follow-up short term, medium term and long term measures are needed. (Shukla P.R. et al. 2004 and Mukhopadyay K. et al. 2005).

Lasting solutions for India to balance economic growth, energy – power sector and the environment – opting for environmentally benign and cost-effective technologies as well as fuel-mix and reliance on renewable sources energy like hydro-electricity, solar, wind power etc. require a longer time frame. But even for that measures have to be initiated from today itself.

At present, power-energy policy’s focus is on privatisation of this sector and regulatory reforms. There is a need to revise this policy with due concern for the environment. It will be interesting to know that at present many agencies and departments at Central and State level governments oversee the operationalisation of this policy.
(US Department of Energy. Undated) : The Ministry of Petroleum and Natural Gas, the Ministry of Coal, the Ministry of Non-Conventional Energy Sources, the Ministry of Power, the Ministry of Shipping Transport, the Ministry of Environment and Forests, the Department of Atomic Energy, the Parliamentary Committee on Energy, the Central Electricity Regulatory Commission, SEBs, and the Atomic Energy Commission etc. But we do not have an effective co-ordination and governance mechanism. This needs to be evolved. Fiscal measures and regulatory reforms at this juncture should promote conservation and efficient use of energy. Leakages and losses of power in transmission and distribution should be reduced to zero.

In rural India, non-conventional sources of energy – biogas, solar and wind power – are fast becoming popular. At the global level and in India, there are a number of quotable successful examples that show how people’s participation has had a miraculous impact. (World Summit on Sustainable Development. 2002, CEEP. 2004, and Zhou A. et al. 2002). In short run, the prospects are bright in promoting these cleaner and cost-effective technologies–techniques. (Venkata Raman P. ed. 1997). IREDA has worked well in the areas of Bio-energy, Solar Thermal and Wind energy. (IREDA. Undated). With the help of NGOs, this agency can assist us in catering to the needs of the rural power requirement in an environment friendly manner. (Dutta Soma et al. eds.1997). In urban areas energy deficit management is a top-priority issue. Baillargeon Pierre et al. (2003) have shown that energy demand side management can effectively take care of energy deficit. Transport and industrial sectors are responding to the regulatory reforms and trying to increase energy efficiency, decrease energy intensity and carbon emissions. Fiscal measures should provide encouraging incentives for such behavioural responses.
Pollution – air, water, land and noise pollution is a fall out of the very economic process of growth. So now the environmental issue is how to limit the pollution level to earth’s carrying capacity related to “sink” i.e. eco-systems’ capacity to absorb and/or recycle the pollutants to maintain natural balance between the environment and living organisms on planet earth. As negative externalities do not recognise local, state, national and regional boundaries, pollution therefore becomes a global environmental issue and to address it successfully global citizens have to think globally but act locally. So as a part of “common responsibility”, India is co-operating in biodiversity conservation as well as in achieving the targeted level of reduction in CO₂ emissions and in the use of ozone depleting substances.

As we have seen in chapters 3 and 4, the energy, agriculture, transport and industrial sectors as well as the urban household sector (especially through solid wastes disposal) are the mainspring of air, water, noise and soil pollution in India. We have also seen that the systems of ambient standards and their enforcement and cleaning polluted river stretches are working satisfactorily in India. Besides, other measures – (a) structural reforms tried in power-energy sector, (b) promotion of cleaner fuels like CNG/LPG and lead free petrol, and cleaner fusion (euro standards based) technology, and (c) reducing use of ODS and increasing use of safer alternatives of ODS – are accelerating the process of reduction in air and water pollution remarkably. Still green revolution induced agricultural practices persist. Bio-safety mechanism is not strengthened enough to promote
indiscriminate use of eco-friendly Living Modified organisms or Genetically Modified crops/plants. NEP 2006 suggested measures that will promote eco-friendly agricultural practices.

The issue of urban solid wastes disposal, looking to its present scale and nature, is one of the top-priority environmental issues of India, but no serious attention is paid to it. With acceleration of rate of growth of urbanisation and urban sprawl as well as the expanding "ecological footprints" of urban cities, this issue will aggravate beyond management. (Toepfer Klaus. Undated : 3). At present, there are no additional sites to dump the wastes, and the manner in which we dump the solid wastes today is hazardous in a number of ways: loss of productive land, soil-water degradation, air pollution, public health costs etc. Besides, within the urban pockets, slums – stinking hells – are spreading like wild fire. This is an added dimension of the urbanisation and pollution issues. (UNEP. Undated). In solid wastes the contribution of industrial sector is considerable. (Matthews Emily et al. 2000, Nath K.J. 1984, Planning Commission. 1995, Gupta S.K. 2001, TERI.2001).

In developing countries, the strategy to handle this problem is based on Reduce (consumption and wastes), Reuse (same material where it is possible) and Recycle. Life Cycle Analysis provides guidelines to streamline the production of goods and service with enhanced potential of reduce, reuse and recycle. Natural resource accounting, auditing and reporting can help us a lot in handling waste management problem at firm level. In India, there is a scope to generate wealth from the waste. (Banwarilal et al. eds. 2005
and Rana Ashish et al. (Undated). Rana Ashish et al. also show how modeling for environmental policy can help in solid wastes management given the constraint of wastes disposal sites. (Rana Ashish et al. Undated).

Other environmental–ecological issues analysed in chapters 3 and 4 are equally important issues that need careful attention in planning and programming of sustainable development of India. We have short-listed and focused on only four issues because they need top-priority in their management. It's time to act now or otherwise failure to manage them may result into irreversible damage to our life supporting eco-systems and environmental–ecological sustainability. Besides, the costs in terms of socio-economic aspiration and human well-being will be very high.

Section : III Feasible and Viable Agenda for Action

"Sustainability is a necessary but not sufficient condition for sustainable development. The letter warrants a delicate balance of policies and priorities that are aimed at social, environmental and economic development. In all these, ensuring the resilience of the eco-system remains a fundamental requirement". (Rao P. K. 2001:366). Likewise, National Environment Policy, most suitable NEP is a necessary condition but not a sufficient condition for sustainable development of India. There are certain "fundamental requirements" which are capable of enhancing the overall strength and effectiveness of NEP to realise the basis objective. These requirements are related to a set of actions/measures which are feasible and viable too.
These measures have emerged through the analysis carried out in chapters 3 through 5. Some of the measures are possible to initiate in near term while some measures can be initiated in medium term. However, they provide a network to support NEP operationalisation in the most effective manner. In earlier analysis, we have discussed them at length here we will briefly enumerate them. They are as under:

(1) All relevant micro-macro economic policies and development strategies should be revised incorporating environmental-ecological concerns. The short/medium run objective should be realisation of MDGs and eventually they should lead to sustainable development of India.

(2) Environment Commission as insisted by the Indian judiciary is inevitable for India. It will work like an environmental authority. It will help in preparing Environmental Action Plan for India and in its effective implementation and monitoring of environmental progress through appropriate indicators. (World Bank. 1995).

(3) A nodal agency to help Environment Commission, Planning Commission and governments at various level to seek international co-operation and support is needed. It will on one hand help the government to finalise the bilateral and international agreements, protocols, conventions related to international trade, investment, management of global common etc. and on the other hand help in seeking funds, project, technology transfer from international agencies and donor countries.

(4) Among eco-friendly groups, certain political parties and environmentalists, the adjective "Green" is popular: (a) Green
Development Economies (Blackman Allen et al. 2001), (b) Greening the National Accounts (Lutz Ernst and Mohan Munasinghe 1991, Steer Andrew and Ernst Lutz 1993, Lutz Ernst ed. 1993, Jan van Tongeren et al. 1993, Maler K. G. 1991, Munasinghe Mohan ed. 1993 and NRTEE. 2003), (c) Green Auditing (World Bank 1995), (d) Greening the Budget (Seung Rae Kim 2005 and TERI. 2004), and (e) Greening Industry (World Bank 2000). Not rhetoric but appropriate changes in “Greening” national accounts, natural resource accounting and auditing, budgets and industrial policy measures are needed in India at this juncture. It’s high time India opts for such green practices. Such practices measure progress towards sustainable development and also show the areas of policy failure.

(5) As we have seen Environment Action Plan (EAP) is an easy way to integrate environmental-ecological concerns in all projects, plans and policies. Experience of some of the African and some of the European countries is encouraging. Under the stewardship of Environment Commission, with the help of Planning Commission, TERI and CSE, NGOs and State governments India should prepare short, medium and long term environment action plans.

India is a federation of multiple state and local units. The variations among them – the variations in terms of factor endowment, level of economic development, economic structure, socio-economic backwardness, agro-climatic nature, environmental-ecological status, fiscal capacity and needs, willingness and ability to initiate and adopt to change, and administrative capacity – are remarkable. In this context, macro EAP should be a meaningful
aggregation of state and local unit EAPs and the process of planning and programming EAP should start from “below”. So India needs states’ EAPs as well local level EAPs consistent with national EAP. (Agarwal Anil et al. 1990, Golley Frank et al. eds. 1999, Green Victoria. 2002, Sinha Subrato. 2000, Nijkamp Peter et al. 1990. and Nijkamp Peter. 1997).


(7) Building up sound data base needed for sustainable development planning and programming should be top-priority requirement for India.
All these feasible and manageable measures do not require huge infrastructure and lumpy investment. NGOs, CSE and TERI with the support from Planning Commission and Environment Commission can effectively assist the government in this mission. Of course, in the remaining assignments central government has to play a pivotal role.

Section: IV Basic Principles of Environmental Policy Making

Sustainable Development has been considered “a quiet revolution underway during the 1990s as environmental sustainability has gradually become an important theme in policy-making around the world”. (Steer Andrew.1996:4). World Bank’s environmental portfolio was initially focusing and financing urban-rural pollution and country’s institutional capacity building for addressing environmental issues related projects. Now, World Bank’s portfolio is rich and diverse encompassing all the issues promoting sustainable development. This is because now the developed and developing economies have deviated from the traditional policies related to economic growth to the policies aiming at sustainable development. This qualitative shift in the focus of policy-making is named as “a new environmentalism” by Andrew Steer. (1996 :5).

Under the new environmentalism, the environmental policy-making is primarily governed by “TEN” basic principles uncontroversial principles that emerged from the experience of World Bank in managing environmental portfolio. Now most developed and developing countries prefer to adhere to these principles in
environmental policy-making, for example, EU Countries, OECD member countries, Chile and Mexico, South Africa and other African countries, Ukraine and Azerbaijan, Philippines..... These principles are as under:

(1) Set priorities carefully. Because intensity and incidence of environmental-ecological issues, and financial resource crunch ask for balancing conflicting claim on limited financial resources and environmental inputs. The task of setting priority is complex and not so easy.

(2) Make every unit of money count. Policy measures are supposed to be cost and time effective. World Bank provides the classic illustration of Ukraine where net cost of reducing carbon emissions was negative. This is because the benefits of measures taken were so large to cover the total costs. (Steer Andrew. 1996:5.6).

(3) Harness “win-win” options. This is necessary to manage trade-offs and to strike a balance between economic growth and the environment. This task is equally difficult and therefore a challenging assignment for the government. In the context of environment and natural resource management in a sustainable manner, choice of “win-win” options among policy alternatives and for a given policy choice among alternative instruments is as such a case-specific exercise, and that should be carried out with utmost care. (Hatch Michael. ed. 2005, Bohm P. and Russell C. 1985, Maler K.G. and M. Munasinghe. 1996, Munasinghe M and Cruz W. 1995, and Repetto R. 1986).

(4) Use market instruments where feasible.
(5) Economise on administrative and regulatory capacity. Adoption of ISO 14000 standards, incentives for production and consumption of “Ecolable” goods and services, and adhering to “Good Practice Guidelines” for ecolables, as suggested by NEP 2006 (pp. 44-45) may significantly ease the administrative, regulatory and fiscal burden of the government.

(6) Work with the private sector, not against it. Developed countries have effectively channelised private finance and significant support in the name of “Corporate Social Responsibility” to streamline environmental concerns into development strategies. Under Kyoto Protocol “Clean Development Mechanism”, multinational corporations of the developed world are willing to support the financing of eco-friendly projects. In this context, now India has ample scope to mobilise support of the private sector in environmental management. (Holiday Chad et al.2002, CCRT. Undated, and Gupta Shreekant. 2003).

(7) Involve citizens thoroughly.

(8) Invest in partnerships that work.

(9) Remember that management is more important than technology. Good governance matters in sustainable development efforts.

(10) Incorporate environment from the start.

Ten principles outlined above promote “a new generation of environmental policy-making around the world” and that is “a quiet revolution”. “But this revolution in environmental management is not complete”, the “agenda” is still “unfinished”.
Same is true about India’s environmental management, the agenda is still unfinished. As we have seen, there is a case for revision in NEP 2006 along with other macro policies and now the government will take care of these “ten” principle is policy-making.

Section: V Alternative Approach to Environmental Decision-Making: Gandhian Approach

Recognising the inherent limitations of traditional approaches to environmental decision-making, US Environmental Protection Agency (EPA) had developed a new an alternative approach known as MIRA: Multi-Criteria Integrated Resource Assessment approach in the late 1990s. (Stahl Cynthia H. et al. 2002). MIRA is a superior approach as compared to the available traditional approaches. It is a technical jargon that needs sound data base and team work of experts from various disciplines like the geologists, hydrologists, ecologists, toxicologists, economists, sociologists, and statisticians.... and asks for time and money which are both scarce for a developing country like India. Besides, it is still evolving and not a full proof approach. Then what? The alternative is the Gandhian approach to environmental decision making.

Gandhian Approach

For Mahatma Gandhi, economic planning especially planning from below is instrumental in realising the goal of human wellbeing “unto this last” in a self reliant village economy – his dream of “Gram Swaraj”. His approach to decentralised democratic planning is based on (a) set of principles like Voluntary Poverty i.e. Simple living and
High thinking, Bread Labour Theory and Trusteeship, (b) set of values like Means justify Ends, Individual Freedom, Equality, Self Sufficiency, Self Esteem and Empowerment, and Esteem for Labour, and (c) set of institutions like Participatory Grass-root Democracy, Co-operation not Competition, Small Scale Gram Udhyog (industrial and service unit), appropriate technology based on environmental-ecological justice, and security, and production by masses.

Because of simple living, there is no scope for materialistic conspicuous consumption and increasing scale of industrialisation and urbanisation which are at the root of aggravation of pollution and wastes. Due to self reliant village economy, there are no avenues open for expanding "ecological footprints" oriented environmental-ecological unsustainability. Trusteeship and appropriate technology assure conservation and enhancement of natural capital which are now considered as the most-important component of Nation's Wealth. Human well-being "unto this last" within generation and with generations as well as Self esteem are the fair rewards for all citizens—citizens of Gram Swaraj and our planet earth in the Gandhian approach to economic planning. No fear of "overshoot and collapse" based doomsday is a bonus to mankind in the Gandhian approach.

The probable confusion about the Gandhian principle of "Voluntary Poverty" needs to be clarified at large. Principle of voluntary poverty does not suggest that "stay poor forever" or do not improve "quality of life" with the best possible things available presently in the materialistic world. What he insists is that it should be "unto this last". This means the "poorest of poor" is empowered enough to have easy access to the best possible things available in the market. So his emphasis is on "Equity" and "Sarvodaya" and not on so called "Voluntary poverty". So he has recognised the dynamics of
economic development and human well-being. He was against the "State" like Karl Marx and centralised planning so Gunnar Myrdal considered him as a "Radical Liberal". (Myrdal Gunnar. 1973: 234-265).

Perhaps, because of all these reasons Khoshoo T.N. in his edited book considers Mahatma Gandhi as an apostle of applied human ecology. (Khoshoo T. N. ed. 1995). The book, on one hand presents Mahatma Gandhi’s views on the environment, elaborates on them to show that the views are as relevant today as they were earlier, and on the other hand, emphasises the need for a creative synthesis between rural development under a local government and industrial development at the macro level.

"Small is Beautiful" Schumacher’s (1973) classic work based on the Gandhian ecological and economic philosophy is recognised as a bible for “appropriate technology”. Appropriate technology provides work which is creative and non-exploitative so it promotes self-reliance. It also promotes preservation, conservation and regeneration of natural capital and the environment by enhancing compatibility with nature. It also promotes decentralisation of economic activities and economic power. As it works with limited locally available resources and with the support of the local stakeholders, it is a viable option as well as approach to sustainable economic growth especially at local or community level.

As the basic objectives and principles of NEP 2006 are in conformity with the Gandhian approach to environmental-ecological decision making, why not to find out the areas where the Gandhian methodology can work well? Why not to tailor down at least local level EPAs on that line of thinking and approach? (Agarwal Anil et al. eds. 1989 and Guha Ramchandra. 1995).
Section: VI Limitations of the Study and Areas for Further Research

To work on a theme, “Environmental Policy for Sustainable Growth of Indian Economy” under persistent uncertainty about National Environment Policy (NEP) 2006, dearth of relevant literature with respect to India and reliable data related constraints makes such an assignment a difficult task for an individual researcher as if handling a case of dynamic optimisation.

When work on this topic started, the draft NEP 2004 was available to proceed with the assignment. It was expected that NEP will be finalised any time after December 2004. Because of lack of transparency on part of the Ministry of Environment and Forests (MoEF) and the uncertainty about the nature and shape of final NEP, by and large, the approach of the study as well as its content and analysis remained of a tentative nature. Ultimately NEP 2006 was approved by the Cabinet on May 18\textsuperscript{th}, 2006. But it did not become a part of the common knowledge of the citizens of India because of lack of transparency on the part of MoEF. Only by surfing its website, it came to notice that draft NEP 2004 had been adopted as NEP 2006. And this made the assignment at hand easy.

As up to May 2006, there was no NEP for India. There was dearth of environment policy related relevant appraisal and empirical literature which could be useful as a baseline for such a study. Besides, lack of reliable data was a serious constraint making the task of this study relatively difficult. So by and large, the study has relied on secondary data available through CSE and TERI research projects’
reports, studies done by agencies like World Bank, UNDP, UNEP, US-EPA, SIDA etc. Besides, some research works on MDGs, performance of energy, agriculture, transport sector, on pollution management as well as the Annual Reports of various ministries at the Centre and Five Year Plans were useful in procuring data. Naturally, such data are project-specific and case-specific as well as scattered so utmost care is required to employ them for this kind of study. Therefore, most of the observations and findings about the nature, causes and impact of the environmental issues are approximation of the reality in India. So the prescriptions that have emerged through the analysis of the issues are of a tentative nature and are supposed to be guidelines for managing our environmental issues and for planning and programming sustainable economic growth for Indian economy.

As we have seen NEP 2006 is a half-hearted attempt and an unfinished agenda. Its appraisal is more of an academic nature. So most of the measures suggested are focusing more on the revision of NEP 2006 rather than the appropriate economic growth strategies, suitable policy-mix and the design of a policy aiming at sustainable growth of India. The approach paper to the Eleventh Five Year Plan (2007-2012) aims at “faster and inclusive economic growth”. So still the focus is more on acceleration of economic growth to realise MDGs rather than on sustainable economic growth in India. As no more details about the objectives, economic growth strategies and the approach to balance economic growth and the environment in context of the Eleventh Plan are available, it constraints us to evaluate medium-term sustainable growth strategy of India and to suggest appropriate changes therein.
So far the potential for further research in the area of balancing economic growth and the environment is concerned, the canvas is wide enough. However, in the context of the present study following areas can be enumerated which need careful concern on a priority basis:


(2) Robust data base is perhaps the weakest link in our environmental governance. Recognising the critical role of relevant data base in decision-making at all levels, now World Bank has a website http://www.worldbank.org/environmental/data where one can get at a single source environmental data which were formerly available in (a) “Little Green Data Book” and (b) “Country Environmental Factsheet”. (World Bank. 2006:56). In India, various agencies do collect data, but in their own way and for their own administrative needs. Research on building up sound data base, on World Bank line meaningfully useful in sound environmental decision making, is needed. It should be also easily available to all stakeholders.

(3) Good environmental governance through effective Environment Management System (EMS) can be rewarding for India especially to economise on administrative and regulatory capacity as well fiscal burden on the government and to enhance effective participation of all
stakeholders. In this context, EMS can be build up relying on MBIs of environment policy and Institutional Network. Therefore, the following two areas deserve research priority: (a) Role and Relative Efficiency of MBIs and (b) Framework of Institutional Network.

(4) Development of Environment Action Plans (EAPs) – local, state and national level EAPs which are feasible, viable and encouraging the stakeholders in decision-making, implementing, monitoring and in case of need, revision of these plans.

(5) Appropriate policy-mix for sustainable economic growth of Indian economy.

(6) In economics of environment policy, the Environmental Kuznets Curve (EKC) is a popular hypothesis of testing. Testing of EKC for various sectors of Indian economy is a potential area of research. Ecological areas where damage is irreversible, research study should focus on such areas and try to explore how far such relationships can be helpful in designing appropriate strategy to handle such cases. (Deacon Robert et al. 2004 and 2004a).

(7) In the context of “Green Parties” and “Green Politics”, Political Economy of Environment Policy of India is a possible area of further research.

However, most of the further research areas enumerated above require team work, strong financial and institutional support. CSE, TERI, IWMI-TATA and NGOs as well some international agencies like World Bank, UNDP, UNEP, IIISD, IIED, SIDA and OXFAM can meaningfully extend strong support in such research projects.