



[Green growth]

Imperatives of Green Economics

Satish C. Shastri*

I. Introduction

Green courts, 'green justice', 'green economics', 'green market', 'green politics', 'green products', 'green laws', 'green building', green bio-fuel are some of the buzz words nowadays and myriad strategies have been adopted by the people, entrepreneurs, courts and world governments to achieve the objectives behind them. Today every policy of world governments and activities of private entrepreneurs are dominated by the imperatives of green economics. Rather it can be said that imperatives of green economics govern every aspect of our life. Globally, governments are combining to set direction, make policy, and exert pressure on businesses to take a leading role in lowering carbon emissions, which is the need of the hour. At the national level, government policies are determining energy strategy, fuel prices, transportation preferences,

aviation taxes, waste legislation and even the date for the humble incandescent light bulb to become obsolete. Therefore, the "International Decade for Action, 2005-2015", has been declared to promote the central importance of freshwater, quality of life, and other basic needs of the society for their survival and sustainable development.

The Seventh Goal of the Millennium Development Goals at the 2000 UN Millennium Summit refers to 'ensuring environmental sustainability'. The U.N Secretary-General Ban Ki-Moon has also suggested creating a global framework to promote green economics and development, besides establishing a roadmap for the future and agree on a timeline to create successor agreement to the Kyoto Protocol which is set to expire in 2012.¹ It is apt to observe that 'the world is on the cusp of a new age of green economics'.

Human development and technological advancements have ridden on the earth's natural resources and today, the state of affairs has reached the dark end of the spectrum. The Earth's resources natural, which took millenniums to develop, have been wiped out in less than a century. 'Every single aspect of the environment is being affected by human involvement. With little contribution to the betterment of the environment, the Earth is teetering on the edge of an environmental breakdown. With melting ice caps, rapidly changing environmental phenomenon, increased hurricane and earthquake counts, humans are fighting a battle to keep Mother Nature on their side.'¹ Every single aspect of the environment is being affected by human involvement. With little contribution to the betterment of the environment, the Earth is teetering on the edge of an environmental breakdown. With melting ice caps, rapidly changing environmental phenomenon, increased hurricane and earthquake counts, humans are fighting a battle to keep Mother Nature on their side'. During sixties there was a 'green revolution' to grow more crops to combat world hunger and deprivation, now we again need second 'green revolution' to protect and improve the environment through green technology. This technology is the product of Second Green Revolution which aims at keeping the Earth green by depending on sustainable and innovative technological advances.

The World Wildlife Fund's Living Planet Report (2008) has also issued a word of caution that 'Our global footprint now exceeds the world's capacity to regenerate by about 30 per cent. If our demands on the planet continue at the same rate, by the mid-2030s we will need the equivalent of two planets to maintain our lifestyles. And this year's report captures, for the first time, the impact of our consumption on the Earth's water resources and our vulnerability to water scarcity in many areas'.² It has further narrated that 'The ecological credit crunch is a global challenge. The Living Planet Report 2008 tells us that more than three quarters of the world's people live in nations that are ecological debtors --

* Dean, Faculty of Law, MITS (Deemed University) Lakshmagarh, Rajasthan, India.

¹ <http://www.igovernment.in/site/un-wants-framework-for-green-economies/>

² The W.W.F.'s Living Planet (2008), page 1

their national consumption has outstripped their country's bio-capacity. Thus, most of us are propping up our current lifestyles, and our economic growth, by drawing (and increasingly overdrawing) upon the ecological capital of other parts of the world'. And '(I)n the two generations since, the world has moved from ecological credit to ecological deficit'.

'Earth Hour' recognized on March 27 for the last two years, where lights were put out for one hour in more than 4000 cities of the world, is a part of green strategy for sustainable green environment. The "Limits of Development" (1972)³ was the first serious attempt to re-orientate the problem towards its correct basis and recognised the true relationship between man-made environment and natural ecosystem. It was realized that 'economic' as such cannot be studied in isolation but in relation to natural environment and changed the thinking and approach of economic scientists. Due to the pressure of such developments, economic science too is being transformed by "Environmental Economics" or "Ecological Economics". Thus both-development and environment must join hands together. The term 'sustainable development' was coined to govern economic development and for the preservation and protection of natural environment. In other words it is a combination of economic development and protection of the environment. Thus this era witnessed the path from economic growth to sustainable development. The Stockholm Declaration of 1972 also laid emphasis on that development must be with the protection and preservation of the natural environment.⁴ And that effort must be made to reconcile the needs of development and the need to protect and improve the environment. It was also stated that nature conservation must given priority in planning for economic development.⁵

The movement for 'sustainable development'⁶ gained momentum with the publication of the World Commission on Development and Environment- 'Our Common Future' in 1987. The principle of sustainable development is based on the principles of inter-generational equity. The Commission Report also cautioned that 'goal of economic and social development must be defined in terms of sustainability in all countries-

³ Donella H. Meadows, Jørgen Randers, and William W. Behrens III, *Limits to Growth*, 1972, Universe Books, ISBN 0-87663-165-0, 1972 (First edition)

⁴ Stockholm Declaration, 1972 Proclamation no. 2- 'The protection and improvement of the human environment is a major issue which affects the well-being of peoples and economic development throughout the world; it is the urgent desire of the peoples of the whole world and the duty of all Governments.'

⁵ Principle 4

⁶ Sustainable Development means 'development that meets the needs of the present without comprising the ability of future generations to meet their own needs.' *Our Common Future* (1987) P.43; the notion of sustainable development, although not so named is reflected in Principle 2 of the Stockholm Declaration in 1972. It provides: 7 The natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate'.

developed and developing countries, market oriented or centrally planned'. It also requires meeting the basic needs of the society (food, clothing, shelter, jobs etc.) and extending to all the opportunity to satisfy their aspirations for better life. This all requires strong economic growth. Further economic growth and development obviously involves changes in physical ecosystem-in both renewable and non-renewable natural resources. In essence, sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development; and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations.

The United Nations Conference on Environment and Development (UNCED), 1992 was the hallmark in this respect. It emphasised that economic and social progress depends critically on the preservation of the natural resource base with effective measures to prevent environmental degradation. The UN summit focussed on three broad concepts: An "Earth Charter" covering a number of principles aiming at development and the protection of the environment, was the first focus for discussion. Secondly, "Agenda 21" was intended to be a global action plan for sustainable development; thirdly, developing countries demanded a substantial increase in new funding from developed countries to contribute to sustainable development in the South. Thus it was first a concentrated, concerted and cooperative effort on the part of world nations and delivered an agenda for sustainable development. The Earth Summit resulted in the following documents:

- o Rio Declaration on Environment and Development
- o Agenda 21
- o Convention on Biological Diversity
- o Forest Principles
- o Framework Convention on Climate Change (UNFCCC).

Both Convention on Biological Diversity and Framework Convention on Climate Change were set as legally binding agreements. India has ratified both the Conventions in 1993 and 1994 respectively; therefore India has also taken necessary steps to implement them by passing the Biological Diversity Act in 2002. It is to be noted that an important achievement was an agreement on the Climate Change Convention which in turn led to the Kyoto Protocol adopted on December 11, 1997. The main object of Kyoto Protocol was to achieve the 'stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system'.

The Rio Declaration stated that 'In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and

cannot be considered in isolation from it'; and that 'National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.'⁷ Further it advocated for 'Environmental impact assessment' and 'Precautionary principle' as instruments of sustainable development. Thus it can be said that this Rio Conference (Earth Summit) gave great impetus to the idea that economic growth has to adopt environmental principles to save the world.

To avoid misinterpretations of the meaning of such development, the Rio Declaration was supplemented by Agenda '21, the magnum opus of the Conference. Agenda '21, in other words "What must be done in the 21st century", is the systemic programme for mankind's sustainable development, the strategy for the new, qualitative development. Thus, after Rio insistence on unilateral economic growth is not just an outdated policy but one that is both illegal and unethical.

To achieve aim of sustainable development, which is the basis of green economics, it was declared that 'To achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies'.⁸ The 'precautionary principle'⁹ was also reiterated by the Rio Declaration. Chapter 30 of the Agenda 21 also suggested two imperatives to achieve sustainable development-(a) promoting cleaner technology¹⁰ and (b) promoting responsible entrepreneurship¹¹ which means improving the efficiency of resource use, reducing risks and hazards, minimizing wastes and safeguarding environmental qualities. Thus it not only encouraged cleaner technology with an emphasis on reuse, recycle and reduce the waste discharge per unit of economic output, but also to promote the number of entrepreneurs engaged in enterprises that subscribe to and implement sustainable development policies.

⁷ Principle 16; Emphasis supplied

⁸ Principle 8; Emphasis supplied

⁹ Principle 15-'In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation'.

¹⁰ 'There is increasing recognition that production, technology and management that use resources inefficiently form residues that are not reused, discharge wastes that have adverse impacts on human health and the environment and manufacture products that when used have further impacts and are difficult to recycle, need to be replaced with technologies, good engineering and management practices and know-how that would minimize waste throughout the product life cycle. The concept of cleaner production implies striving for optimal efficiencies at every stage of the product life cycle'. Chapter 20.5 of Agenda 21

¹¹ Chapter 20.17 of Agenda 21 - Responsible entrepreneurship can play a major role in improving the efficiency of resource use, reducing risks and hazards, minimizing wastes and safeguarding environmental qualities.

As a sequel to this, the Johannesburg Summit 2002 – the World Summit on Sustainable Development was held. It declared that 'poverty eradication, changing consumption and production patterns and protecting and managing the natural resource base for economic and social development are overarching objectives of an essential requirements for sustainable development'. It also provided the plan for the implementation of resolutions on sustainable development and declared that 'the three components of sustainable development- economic development, social development and environmental protection as interdependent and mutually reinforcing pillars. Poverty eradication, changing unsustainable patterns of production and consumption and protecting and managing the natural resource base of economic and social development are overarching objectives of, and essential requirements for, sustainable development'. This Summit also took note of the Millennium Development Goals of 2000 while formulating the strategies for sustainable development.

Therefore a holistic approach was adopted to implement the agenda. It considered that that the eradication of poverty is indispensable requirement for sustainable development; and participation of indigenous people and women must be made in decision making. Similarly emphasis was also given to health care services, primary education, to increase food availability and its affordability, availability and adequate drinking water, cleaner use of liquid and gaseous fossil fuels, environmentally sound energy services, Strengthen the contribution of industrial development to poverty eradication, to increase income -generating employment opportunities, cities without slums and sustainable natural resource management were considered the basis for sustainable development.

In the light of above background, it can be said that green economy is the part of the larger objective of sustainable development. Therefore imperatives of the sustainable development are the imperatives of green economy. The Green Economy in the context of Poverty Eradication and Sustainable Development is one of the key themes to be addressed by the UN Conference on Sustainable Development in 2012. Main focus of the Conference will be 'green economy in the context of sustainable development and poverty eradication' and the remaining gaps in the implementation of the outcomes of the major summits on sustainable development 2002 and addressing new and emerging challenges”.

II. What is Green Economics?

The term 'green economics' is of recent origin and it has become a popular and acceptable expression these days. But till this time the term does not have acceptable and universal definition. Economists, legal luminaries, political scientists and others attempted to define it, nevertheless it lacks unanimity. Some the these definitions are as follows-

'A methodology of economics that supports the harmonious interaction between

humans and nature and attempts to meet the needs of both simultaneously. The green economic theories encompass a wide range of ideas all dealing with the interconnected relationship between people and the environment. Green economists assert that the basis for all economic decisions should be in some way tied to the ecosystem'.

The Greek word 'Oikia' or house, is the root of both economics and ecology. Economic growth, progress and development are measured by indicators in Green Economics that describe them as forms of 'creation' mimicking the abundance of nature, not 'annihilation' of resources.¹² Profit, prices, markets and competition are regarded as incidental, rather than drivers of the economic system. Green Economics treats people (not labour power), the planet, nature, non-human species, and the biosphere as beneficiaries, not just resources or economic factors of production.¹³ The aim is to ensure that they are all as well-off following an economic transaction as they were before it.¹⁴

Following is the working definition of green economics of UNEP:¹⁵

'A system of economic activities related to the production, distribution and consumption of goods and services that result in improved human well being over the long term, while not exposing future generations to significant environmental risks and ecological scarcities'.

It has rightly been pointed out that 'a division of economics that focuses on the correlation between economics and the environments, specifically how each effects one another. The foundation of green economics suggests that all decisions related to the economy should be made with the environment in mind. Green economics focuses more on the value that the policies provide outside of material possessions'.¹⁶

ECO Canada defines the green economy as, 'The aggregate of all activity operating with the primary intention of reducing conventional levels of resource consumption, harmful emissions, and minimizing all forms of environmental impact. The green economy includes the inputs, activities, outputs and outcomes as they relate to the production of green products and services'.¹⁷

¹² Goldsmith, E. (2005) *Rewriting Economics*, www.greeneconomics.org.uk as cited in Kennet & Heinemann, *Green Economics: Setting the scene- Aims, context, and philosophical underpinning of the distinctive new solutions offered by Green Economics*, Int. J. Green Economics, Vol. 1, Nos. 1/2, 2006, pp. 68-102 at 74.

¹³ Ibid at 74.

¹⁴ Ibid.

¹⁵ UNEP, "Global Green New Deal – An Update for the G20 Pittsburgh Summit", (UNEP, 2009); Based on the report, UNEP published a Policy Brief in March 2009, which sets out three objectives for a Global Green New Deal (GGND): economic recovery, poverty reduction, and reduced carbon emissions and ecosystem degradation.

¹⁶ www.businessdictionary.com/definition/green-economics.html

¹⁷ ECO Canada, *Defining the Green Economy*, P. 3, 2010; <http://www.eco.ca/pdf/Defining-the-Green-Economy-2010.pdf>

Yet another view is that 'Green economists perceive nature as being extremely valuable and seek to maintain it. Supporters of this branch of economics are concerned with the environment and believe that actions should be taken to protect nature and encourage the positive coexistence of both humans and nature. Emphasis is placed on creating value through quality rather than on accumulating material items and money'. Still there is a lack of consensual and universally acceptable definition of the term green economics.

A cursory study of above definitions will reveal that the concept of a green economy has evolved from a regulationist perspective of "greening" a "brown" economy to one that focuses more on driving economic development and job creation with green investment, production, trade, and consumption. This has contributed to the increasing environmental awareness and growing market demand for environmentally friendly and environmentally enhancing products and services. Therefore it can be said that a green economy is a vehicle. It is expected to deliver three types of outcomes:

- 1) new sources of income and jobs;
- 2) low carbon emissions, reduced use of resources, and reduced generation of waste and pollution; and
- 3) contributions to broader societal goals of sustainable development, social equity, and poverty reduction.

As a result of above discussion it can safely be concluded that concept of green economics is the product of post-industrialisation era and is the product of the evolving idea that 'qualitative development is more important than quantitative development'. It is a shift of focus from money and material 'to qualitative development,... and dematerialization of economic life, which depend on an ecological restructuring which would make information, like money and matter, simply a means to the end of serving human and planetary need'.¹⁸ The evolving concept of green economic underlines that potential for human and ecological development in key sectors of the economy. It identifies real post-industrialism as an egalitarian, knowledge-based economy in which human and environmental need are prioritized, instead of money and material as they are confined to a role as means of economic development, not the ends. Thus it is a new social movement redefining wealth keeping in view the restructuring the ecology.

III. International Green Economics

The three international conferences mentioned above were instrumental in creating

¹⁸ Brian Milani, *Designing The Green Economy*, The Postindustrial Alternative to Corporate Globalization, Rowman & Littlefield, Lanham MD 20706

awareness in the world about the need and importance of the application of principles of preservation and protection of natural environment in the field of globalization and consumerism. These principles underline that all the policies of economic and social development, in private and public sectors, must be viewed and reviewed in the light of principle of sustainable development. To restructured and revamped the natural environment, which has been destroyed by unprecedented, unscientific and unbridled use of natural resources, is the call of time/urgent requirement to save mankind from the brink of disaster. Keeping these things in view, myriad international Conventions, Declarations, Protocols have been adopted. Some of the significant ones are as follows-

1. Convention Concerning the Use of White Lead in Painting, Geneva, 1921
2. Convention Concerning the Use of White Lead in Painting, Geneva, 1921
3. Vienna Convention on Civil Liability for Nuclear Damage, Vienna, 1963
4. Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water, Moscow, 1963
5. Phyto-Sanitary Convention for Africa, Kinshasa, 1967
6. Convention Concerning Protection Against Hazards of Poisoning Arising from Benzene, Geneva, 1971
7. Convention on the Prohibition of the Development, Production as Stockpiling of Bacteriological (Biological) and Toxin Weapons, and on Their Destruction, London, Moscow, Washington, 1972
8. Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (as amended), London, Mexico City, Moscow, [Washington], 1972
9. Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington, 1973
10. Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington, 1973
11. Convention Concerning Prevention and Control of Occupational Hazards Caused by Carcinogenic Substances and Agents, Geneva, 1974
12. Agreement on an International Energy Programme, Paris, 1974
13. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, Geneva, 1976

14. Convention Concerning the Protection of Workers Against Occupational Hazards in the Working Environment Due to Air Pollution, Noise and Vibration, Geneva, 1977
15. Convention on Long-range Transboundary Air Pollution, Geneva, 1979
16. Convention Concerning Occupational Safety and Health and the Working Environment, Geneva, 1981
17. Vienna Convention for the Protection of the Ozone Layer, Vienna, 1985
18. Convention Concerning Occupational Health Services, Geneva, 1985
19. Convention Concerning Safety in the Use of Asbestos, Geneva, 1986
20. Montreal Protocol on Substances that Deplete the Ozone Layer, Montreal, 1987
21. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, Basel, 1989 and its protocol of 1999
22. Convention Concerning Safety in the Use of Chemicals at Work, Geneva, 1990
23. Convention on Environmental Impact Assessment in a Transboundary Context, Espoo, 1991
24. United Nations Framework Convention on Climate Change, New York, 1992
25. Convention on Biological Diversity, Rio de Janeiro, 1992
26. Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, Paris, 1993
27. Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment, Lugano, 1993
28. Convention Concerning the Prevention of Major Industrial Accidents, Geneva, 1993
29. The Energy Charter Treaty, Lisbon, 1994; and Energy Charter Protocol on Energy Efficiency and Related Environmental Aspects, Lisbon, 1994
30. Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on Further Reduction of Sulphur Emissions, Oslo, 1994
31. Convention Concerning Safety and Health in Mines, Geneva, 1995
32. Kyoto Protocol to the United Nations Framework Convention on Climate

Change, Kyoto, 1997

33. Convention on Access to Information, Public Participation in Decision- Making and Access to Justice in Environmental Matter, Aarhus, 1998
34. Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, Rotterdam, 1998
35. Cartagena Protocol on Bio-safety to the Convention on Biological Diversity, Montreal, 2000
36. Stockholm Convention on Persistent Organic Pollutants, Stockholm, 2001
37. International Treaty on Plant Genetic Resources for Food and Agriculture, Rome, 2001
38. World Health Organization Framework Convention on Tobacco Control, Geneva, 2003

Thus the plethora of conventions and protocols make it clear that the World States are much concerned about making the economics green. These are some of the steps adopted create awareness about the adverse effects of the brown economics and a pressing need to adopt clean and green technology in all developmental activities. Further the 'brown' economics must be replaced by 'green' economics' to save present generation sand its progeny. As per principles of green economics the polluting industries and developmental activities have to take on and employ the clean and green technology for production or they have to cease to operate. The espousal of clean and green economics cannot be delayed or denied as it involves high production cost. We have to reiterate that 'no development at the cost of environment' is the bottom-line.

IV. Indian Scenario

India has been a participatory and signatory to all the international declarations and most of the conventions and protocols. It has also signed the legally binding Conventions like Convention on Biological Diversity and Convention on Climate Change. It may also be mentioned that the then Prime Minister of India- Mrs. Indira Gandhi was the first premier to address the 'First International Conference on Human Environment' held at Stockholm in 1972. As a result of Indian initiation in these international events, a range of laws¹⁹ have been passed by the Indian Parliament to implement these international Conventions and

¹⁹ E.g. The Water (Prevention and Control of Pollution) Act, 1974; the Air (Prevention and Control of Pollution) Act, 1981; the Environment (Protection) Act, 1986; the Factories Act, 1948; the Public Liability Insurance Act, 1991; the Forest (Conservation) Act, 1980; the Biological Diversity Act, 2002; the Mines and Minerals (Regulation and Development) Act, 1947; the Prevention of Food Adulteration Act, 1954;

Protocols. To deal effectively with some specific/special aspects of environment some Rules have also been notified by the Central Government.²⁰ Importance of these lies in the fact that two Articles 48-A²¹ and 51a (g),²² have been incorporated in the Constitution of India. These two Articles have conferred duties of the 'State' and the citizens of India respectively-constitutional duty of the State and fundamental duty of the citizens. In *Intellectual Forum, Tirupathi v. State of A.P.*,²³ Justice AR. Lakshmanan declared that

"This court has often faced situations where the needs of environmental protection have been pitched against the demands of economic development. In response to this difficulty, policy makers and judicial bodies across the world have produced the concept of "sustainable development". This concept, as defined in the 1987 report of the World Commission on Environment and Development (Brundtland Report) defines it as "Development that meets the needs of the present without compromising the ability of the future generations to meet their own needs". Returning to the Stockholm Convention, a support of such a notion can be found in Paragraph 13... Subsequently the Rio Declaration on Environment and Development, passed during the Earth Summit at 1992, to which also India is a party, adopts the notion of sustainable development.

...What this Court should follow is a principle of sustainable development and finds a balance between the developmental needs which the respondents assert, and the environmental degradation..."

Thus the concept of sustainable development also finds support in the other decisions of the Supreme Court.²⁴ In many cases the Court has demonstrated that environment has to be protected in spite of the fact that a substantial amount of money had been spent on development activity.²⁵

The Supreme Court has stated that right to healthful and pollution free

²⁰ E.g. the Environment (Protection) Rules, 1986; the Hazardous Waste (Management, Handling and Transboundary Movements) Rules, 2008; Bio-medical (Management and Handling) Rules 1998; the Ozone Depleting Substances (Regulation and Control) Rules, 2000; Batteries (Management and Handling) Rules, 2001; Environment Impact Assessment Notification, 2006; the Coastal Regulation Zone Notification, 2011

²¹ Article 48-A: The State shall endeavour to protect and improve the environment and to safeguard the forest and wildlife of the country.

²² Article 51a (g): It shall be the fundamental duty of every citizen of India ...to protect and improve the natural environment including forests, lakes, and wildlife and to have compassion for living creatures.

²³ AIR 2006 SC 1350

²⁴ *M.C. Mehta v. Union of India (Taj Trapezium Case)*, (1997) 2 SCC 653, *State of Himachal Pradesh v. Ganesh Wood Products*, (1995) 3 SCC 363; and *Narmada Bachao Andolan v. Union of India*, (2002) 10 SCC 664

²⁵ *Virender Gaur v. State of Haryana*, (1995) 2 SCC 577, (in this case the Court directed to demolish the constructed structure to maintain environment of the area.); *Intellectual Forum, Tirupathi v. State of A.P.*, AIR 2006 SC 1350 (In this case declared that 'right to shelter does not seem to be so pressing under the present circumstances so as to outweigh all environmental considerations.'

environment is within the penumbra of article 21 (Right to life²⁶) and declared that 'Article 21 protects right to life as a fundamental right. Enjoyment of life and its attainment including their right to life with human dignity encompasses within its ambit, the protection and preservation of environment, ecological balance free from pollution of air and water, sanitation without which life cannot be enjoyed. Any contra acts or actions would cause environmental pollution. Environmental ecological, air, water, pollution, etc. should be regarded as amounting to violation of Article 21. Therefore, hygienic environment is an integral facet of right to healthy life and it would be impossible to live with human dignity without a humane and healthy environment. Environmental protection, therefore, has now become a matter of grave concern for human existence. Promoting environmental protection implies maintenance of the environment as a whole comprising the man-made and the natural environment. Therefore, there is a constitutional imperative on the State Government and the municipalities, not to injure or to ensure and safeguard proper environment but also an imperative duty to take adequate measures to promote, protect and improve both the man-made and the natural environment'.²⁷ The Court while invoking the principle of sustainable development has explained that there are other ingredients and part of it like Polluter pays Principle, Precautionary Principle, Public Trust Doctrine, and intergenerational equity.²⁸

In *M.C. Mehta v. Union of India*,²⁹ the Court ordered for the dismantling the environmentally unsound hot plant and to install new hot plant with clean technology for carpeting the air strips of Indira Gandhi Airport. Similarly in *A.P. Pollution Control Board v. Prof. M. V. Nayadu*,³⁰ the Court did not permit the Constructed industry to work as there was likelihood of contamination of water of two lakes situated near the city -Hyderabad. These are some of instances where 'brown' economy was not permitted to work and green economy was preferred in spite of the fact that considerable money was spent on the work. The message given is that one has adopted green technology, may be he is required to spend more on it. In Ganga Pollution case³¹ the closed down all the ternaries operating without treatment plants near Kanpur and discharging their untreated effluent in the river. They were ordered for the installation of treatment plant before reopening the units. Similarly in *Taj Trapezium case*³² the Supreme Court directed to either to close the industries or shift to gas or shift outside the trapezium area of the Historical monument-Taj Mahal.

²⁶ see *Subhash Kumar v. State of Bihar*, (1991) 1 SCC 598

²⁷ *Virender Gaur v. State of Haryana*, (1995) 2 SCC 577; also see *A.P. Pollution Control Board v. Prof. M.V. Nayadu*, (2001) 2 SCC 718

²⁸ *Karnataka Industrial Area Development Board v. C. Kenchappa*, AIR 2006 SC 2038; *Vellore Citizens' Welfare Forum v. Union of India*, Forum, (1996) 5 SCC 647; *M.C. Mehta v. Kamalnath*, (1997) 1 SCC 388; *Indian Council for Enviro-Legal Action v. Union of India*, (1996) 3 SCC 212

²⁹ AIR 1999 SC 2367

³⁰ (2001) 2 SCC 718

³¹ *M.C. Mehta v. Union of India*, (1988) 1 SCC 471

³² *M.C. Mehta v. Union of India (Taj Trapezium Case)*, (1997) 2 SCC 653

In the first and unique case relating to environmental degradation and ecological imbalances- Rural Litigation and Entitlement Kendra v. State of U.P.,³³ the prohibited and regulated the quarrying of lime mines though it was required for purifying the steel used in manufacturing the armaments. It was also declared that development and environment will go hand in hand and there cannot be development at the cost of environment.

V. Indian Policy and Planning

Indian legislation relating to environment seems old but performing well in containing and controlling the pollution from the industries and trying maintain the Indian environment green. Low emission is one of the imperatives of green economics. On a per-capita basis, India is one of the lowest Green house Gas (GHG) emitters in the world. Its emission of 1.18 tonnes of CO₂ equivalent per capita in 2008 was nearly one-fourth of the corresponding global average of 4.38 tonnes.³⁴ However, India is highly vulnerable to climate change, and has a strong interest in having a fair and equitable global agreement for minimizing the risk of climate change. India has already announced that it will reduce the emissions intensity of its GDP by 20-25 percent over the 2005 levels by the year 2020, through pursuit of proactive policies. India's Twelfth Five Year Plan, to be launched on 1st April, 2012 will have, as one of its key pillars, a low carbon inclusive growth.³⁵ Various strategies have been evolved to the low carbon strategies for power, transport, industry, buildings and forestry sectors to achieve the target of GHG emission intensity reduction in 2020 for both 8 and 9 percent real GDP growth. These strategies includes (a) incentive strategy, (b) The development and introduction of green technology is an essential element of any low-carbon strategy, (c) Policies should facilitate coordination so to reduce transaction costs in the implementation of mitigation strategies, (d) review of mitigation policies in pricing the fossil fuel. Laws relating to forests, industries, air pollution, and other developmental activities aim at to produce low emission of carbon or green house gases (GHGs).³⁶ In other words GSHs are known as 'carbon footprints'.³⁷ The main influences on carbon footprints include population, economic output, and energy and carbon intensity of the economy.

³³ (1985) 3 SCC 614; 431

³⁴ India is the world's sixth largest emitter of carbon dioxide with its present share in global emissions estimated at 6 per cent.

³⁵ 'Low Carbon Strategies for Inclusive Growth- An Interim Report' (May 2011), Planning Commission. Government of India, New Delhi

³⁶ Basically Carbon dioxide, Methane, Nitrous Oxide, and Chloro- fluoro Carbon gases are known as Green House Gases

³⁷ It is the total emission of GHGs caused/produced by an organization, event, product or person. The carbon footprint is a subset of the ecological footprint and of the more comprehensive Life Cycle Assessment (LCA). An individual's, nations, or organization's carbon footprint can be measured by undertaking a GHG emissions assessment.

It is to be noted that India has also evolved alternative strategies for the mitigation of carbon footprints through the development of alternative projects, such as solar energy, wind energy, hydro-electric power, energy from municipal waste or Goobar, or reforestation for reducing carbon footprint and this is often known as 'Carbon offsetting'. In Kyoto Protocol of 1997 the signatory nations agreed to bring their emission down to an average of 5.2 per cent below the 1990 level under the Kyoto Protocol by the year 2012. Under the scheme entities in developed countries could sponsor projects in other countries – projects that could absorb / reduce greenhouse gases and consequently obtain carbon credits, which they could then trade. This is being done by producing low GSHs emission. And low emission can be traded to one who is producing such gases but not meeting the required standards of low emission of these gases. Accordingly the Central Government constituted the National Clean Development Mechanism (CDM) Authority for the purpose of protecting and improving the quality of environment in terms of the Kyoto Protocol. There are many instances where Indian institutions have traded their carbon credits to foreign institutions. It is expected by 2012 market of carbon trading will flourish and would reach to more than 40 billion Euros (\$58 billion) from 22 billion Euros in 2006.³⁸

The Gujarat Fluorochemical Ltd. is one such company, duly permitted/approved under the CDM of the U.N. Framework for Climate Change Convention (UNFCCC) and involved in carbon trading. This company can trade internationally and can be used as a compliance tool under the Kyoto Protocol as well as several other trading markets like the EU Emissions Trading Scheme. According to World Bank estimates, India is expected to take in \$100 million annually by trading in carbon credits and Indian companies are expected to corner at least 10 per cent of the global market in the initial years.

Poverty eradication and population control are also concomitants of the green economics. These two have also been advocated by the Millennium Development Goals, 2000 Agenda 21 of the Rio Summit of 1992.³⁹ The Government of India has launched many programmes to eradicate poverty which contributes to population explosion and pollution, such programmes include passing of the Mahatma Gandhi National Rural Employment Guarantee Act, 2005. Indian government has also come out with the National Population Policy in 2000 with an aim to stabilize the population. It consists of comprehensive and multisectoral coordination of planning and implementation between health and family welfare on the one hand, along with schemes for education, nutrition, women and child development, safe drinking water, sanitation, rural roads, communications, transportation, housing, forestry development, environmental protection, and urban development.

³⁸ Carbon Trading 101, www.chillibreeze.com/articles_various/Carbon-trading.asp

³⁹ According to the new World Bank's estimates on poverty based on 2005 data, India has 456 million people, 41.6% of its population, living below the new international poverty line of \$1.25 (PPP) per day. The World Bank further estimates that 33% of the global poor now reside in India. Moreover, India also has 828 million people, or 75.6% of the population living below \$2 a day, co

Recently Mr. Jai Ram Ramesh, Union Minister of Environment and Forest, has declared that the central government is going to establish a National Environmental Appraisal and Monitoring Authority, which shall be an autonomous body and will scrutinize and recommend its observations to the Ministry of Environment and Forest for final approval. This is a sincere effort of the government to implement international decisions.

Thus, there is a clarion call to espouse the clean and green technology and to rigorously execute the imperatives of green economics in their true spirit. We have to act before it is too late.

