CHAPTER 4

CLIMATE CHANGE LAW AND POLICY

4.0 CLIMATE CHANGE LAW

The key driver behind the introduction of law on climate change mitigation has been the growing body of scientific evidence to support the proposition that a change of climate is taking place, resulting directly or indirectly from human activity and which is altering the composition of the global atmosphere in addition to natural climate variability. As the scientific evidence has mounted, the pressure for law-making has come from two principal directions: the development of global cooperative solutions, perhaps by way of regional actions as a first step (most notably the EU Emission Trading Scheme, but also the various US Schemes); and the introduction of national schemes, expressing leadership by example and a belief by some states that an incremental approach may yield some benefits. At both national and International levels, there has been a continuing tension between proposals for preventive action and resistance based on perceived negative impacts on competitiveness or economic development. For many sectors of industry, the uneven development of climate change law presents a significant risk of regulatory uncertainty.

4.1 THE BEGINNINGS: STOCKHOLM CONFERENCE

The earliest evidence of the need for collective action on climate change emerged from the Stockholm Conference on the Human Environment in 1972. It acted as a catalyst to developments in the United Nations (UN) for the next decade and beyond. In particular, it established the principle that the use of the Earth’s resources has to be regulated in line with the aim of maintaining developments opportunities.

The Stockholm Declaration and Action Plan defined principles for the preservation and enhancement of the natural environment, and highlighted the need to support people in this process. One of the decisions outlined in the Stockholm Declaration was the formation of the UN Environment Programme (UNEP). The concept of

sustainable development dates back a long way, but it was at the UN Conference on the Human Environment (Stockholm, 1972) that the international community met for the first time to consider global environment and development needs together. The Conference indicated that "industrialised" environmental problems, such as habitat degradation, toxicity and acid rain, were not necessarily relevant issues for all countries. In particular, development strategies were not meeting the needs of the poorest countries and communities. However, it was the pending environmental problems that dominated the meeting and led to wider public environmental awareness\(^2\).

4.1.1 Provisions of the Convention

The United Nations Conference on the Human Environment or the Stockholm Conference in 1972 was an convened under as UN's first major conference on international environmental issues globally in Sweden, and marked a turning point in the development of international environmental politics.

This Conference was attended by the representatives of 113 countries, 19 inter-governmental agencies, and more than 400 inter-governmental and non-governmental organizations; it is widely recognized as the beginning of modern political and public awareness of global environmental problems\(^3\). The Stockholm Declaration is the first document to explicitly recognise the right to a healthy environment, the declaration places great emphasis on protecting both species and their habitat.

The meeting agreed upon a Declaration contains 26 principles concerning the environment and development; an Action Plan with 109 recommendations, and a Resolution. One of the key issues addressed was the use of CFCs (halo alkanes), which seemed to be responsible for the depletion of the ozone layer. Global warming was mentioned, but in this matter nothing of substance was achieved at this Conference. Apart from increasing awareness of environmental issues among public and governments (for example, many governments subsequently created Ministries for the Environment and/or national agencies for environmental monitoring and

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\(^2\) Available at http://www.earthsummit2012.org/about-us/previous-summits/57-stockholm-1972, last accessed on 14/09/2012 at 6.00 am.

regulation), the Stockholm Conference laid framework for future environmental cooperation; led to the creation of global and regional environmental monitoring networks and the creation of the United Nations Environment Programme.

4.1.2 Summary of Key Provisions and Their Present Legal Significance

4.1.2.1 General Observations

The Stockholm Declaration consists of a preamble featuring seven introductory proclamations and 26 principles; and as diplomatic conference and as an instrument it is formally binding.

However, declaration include provisions which at the time of its adoption were either understood to already reflect customary international law or expected to shape future normative expectations with a strong human centric approach. At times Principle 1 of the Stockholm Declarations has been mistaken to imply a “human right to the environment”. The Stockholm formulation does indeed refer to a human’s “fundamental right to … adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being”. However, at the conference, various proposals for a direct and thus unambiguous reference to environmental human rights were rejected.

As a basic UNCED theme, “sustainable development” — commonly understood as development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” (Our Common Future) — runs like an unbroken thread through the Rio Declaration. However, sustainable development is also a strong undercurrent in the Stockholm Declaration, even though the WCED was not to coin the concept until several years after Stockholm. For example, Principles 1-4 acknowledge the need for restraint on natural resource use, consistent with the carrying capacity of the earth, for the benefit of present and future generations.

Stockholm placed the environment on the international agenda for the first time and set the stage for international actions over the course of the next twenty years—until

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4 Available at http://untreaty.un.org/cod/avl/ha/dunche/dunche.html, last accessed on 15/09/2012 at 6.30 am
Rio. From an international legal perspective, the 1972 conference's single most important achievement was the Stockholm Declaration, a non-binding statement of principles, "to inspire and guide the peoples of the world in the preservation and enhancement of the human environment." Principle 21, its most famous, held a state responsible for actions within its own borders that cross over those borders and harm another state; it has since become a binding international law. Institutionally, Stockholm's most impressive achievement was the creation of the United Nations Environmental Programme (UNEP), which today remains the world's primary international body that addresses global environmental problems from its headquarters in Nairobi, Kenya.¹⁵

4.1.2.2 The Prevention of Environmental Harm

Probably the most significant provision common to the two declarations relates to the prevention of environmental harm. In identical language, the second part of both Stockholm Principle 21 establishes a State’s responsibility to ensure that activities within its activity or control do not cause damage to the environment of other States or to areas beyond national jurisdiction or control. This obligation is balanced by the declarations’ recognition, in the first part of the respective principles, of a State’s sovereign right to “exploit” its natural resources according to its “environmental” (Stockholm) policies. While at Stockholm some countries still questioned the customary legal nature of the obligation concerned, today there is no doubt that this obligation is part of general international law. Thus in its Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons first, and again more recently in the Case concerning Pulp Mills on the River Uruguay,² the International Court of Justice expressly endorsed the obligation as a rule of international customary law. Moreover, the Pulp Mills decision clearly confirms that the State’s obligation of prevention is one of due diligence.

¹⁵ Available at http://www.ciesin.org/docs/008-585/unced-intro.html, last accessed on 14/09/2012 at 7.15 am
² Pulp Mills on the River Uruguay (Argentina v. Uruguay). Provisional Measures, Order of 13 July 2006. I.C.J. Reports 2006, p. 113
4.1.2.3 The Right to Development in Environmental Context

The characterization of the relationship between environment and development was one of the most sensitive challenges facing the respective conference. Initial ecology-oriented drafts circulated by western industrialized countries failed to get traction as developing countries successfully reinserted a developmental perspective in the final versions of the two declarations. Thus, after affirming that “both aspects of man’s environment, the natural and the man-made, are essential to his well-being” (preamble paragraph 1), Principle 8 of the Stockholm Declaration axiomatically labels “economic and social development” as essential. Today, economic development, social development and environmental protection are deemed the “interdependent and mutually reinforcing pillars” of sustainable development.

4.1.2.4 “Common but Differentiated Responsibilities”

While today the concept of “common but differentiated responsibilities” (“CBDR”) is accepted as a cornerstone of the sustainable development paradigm, it is also one of the more challenging normative statements to be found in the Rio Declaration which happened two decades after the Stockholm declaration. The Stockholm Declaration (Principle 23) expressly recognizes the relevance of different national developmental and environmental contexts for environmental standards and policies purposes. However, developing country status per se does not warrant a lowering of normative expectations.

4.1.2.5 Procedural Safeguards

Principles 13-15 and 17-18 of the Stockholm Declaration — rather modestly — emphasize the need for environmental and development planning. The absence of any reference in the Declaration to a State’s duty to inform a potentially affected other state of a risk of significant Transboundary environmental effects was due to the working group on the Declaration’s inability to reach agreement on such a provision. However, the working group did agree on forwarding the matter to the General

7 supra note 5
Assembly which, as noted, endorsed such notification as part of States’ duty to cooperate in the field of the environment. However, today given a consistently supportive international practice and other evidence, including the International Law Commission’s draft articles on Prevention of Transboundary Harm from Hazardous Activities, any such doubts would be misplaced. Principle 21 also is keen on understanding Transboundary understanding.

4.1.2.6 Environmental Liability and Compensation

Finally, The Stockholm Declaration calls for the further development of the law bearing on environmental liability and compensation for damages to environment. Stockholm Principle 22 refers to international law only, and no reference to national law was made. Notwithstanding these clear mandates, States have tended to shy away from addressing the matter head-on or comprehensively, preferring instead to establish so-called private law regimes which focus on private actors’ liability, while mostly excluding consideration of States’ accountability. Recent developments, however, when taken together, can provide a basic frame of reference for issues related to environmental liability and compensation, be that at national or international level. These developments include, in particular, the work of the International Law Commission, especially its draft Principles on Allocation of Loss in the Case of Transboundary Harm Arising out of Hazardous Activities; and the 2010 UNEP Guidelines for the Development of Domestic Legislation on Liability, Response Action and Compensation for Damage Caused by Activities Dangerous to the Environment. In this vein, therefore, it might be argued that today the expectations of legislative progress generated by the Stockholm and Rio Declarations have finally come to be realized, at least in large part. Due Credit has to be given to Rio Conference for including national laws as well and making it more concrete.

4.1.3 Shortcomings in the Convention and the Time After

One of the major shortcomings in the Stockholm convention is the absence of “Precautionary Principle” which was later debated in its counterpart in Rio as a result of European initiative. This initiative though couldn’t be concreted in Rio but now has attained a form of a common international law practice. The second major shortcoming of the act was the concept of public participation. It was felt that public
participation is one of the best methods and mechanism to tackle this ever growing menace and article 10 of Rio has rightfully filled this shortcoming.

The Stockholm has also failed to add the concept of National liability and compensation with focus only upon international regulations. The concept of adding Indigenous people was a brave and a vital step which the Rio has taken up and the most important and vital shortcoming which is present in Stockholm which was covered by Rio was explicit inclusion of woman in environment protection and conservation. The Rio was first conference in the world which specifically included women in mainstream development program.

Stockholm marked what is seen as a remarkable journey of its sorts. The first convention of environment flagged off a interesting aspect of law by giving birth to the concept of Environment conservation and sustenance of it, The 1987 Brundtland Commission also known as World Commission on Environment and Development (WCED), played a key role in uniting countries to pursue the doctrine of sustainable development. This was followed by the much spoken about Rio declaration of 1992 and the Millennium goals of 2000. The 2002 Johannesburg earth summit also famously known as Rio+10 also established the concept of the sustainable development and played a major role in conservation of the environment in the 21st century, The last of its sorts was the recently concluded Rio+20, which showcased the dedication of the nations for a more liveable environment. The main focus of Rio+20 was the construction of Green Economy and improving international coordination in the field of Sustainable Development. However, for more than a decade very little progress was made in applying these ideas. Indeed, with respect to climate change issues, little progress was made in developing a common response for an even longer period.

4.2 THE FORMATION OF IPCC

Although there were a number of intergovernmental conferences on climate change issues from 1979 onwards, it was not until 1988 that UNEP and the World

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8 The Principal initiatives were the WMO’s World Climate Conference in 1979 and the UNEP/WMO/ICSU Conference in Villach, Austria: “Assessment of the Role of Carbon Dioxide and of Other Greenhouse Gases in Climate Variations and Associated Impacts”.
Meteorological Organization (WMO) established the Intergovernmental Panel on Climate Change (IPCC)\(^9\).

The IPCC is a scientific body. It reviews and assesses the most recent scientific, technical and socio-economic information produced worldwide relevant to the understanding of climate change. It does not conduct any research nor does it monitor climate related data or parameters.

Thousands of scientists from all over the world contribute to the work of the IPCC on a voluntary basis. Review is an essential part of the IPCC process, to ensure an objective and complete assessment of current information. IPCC aims to reflect a range of views and expertise. The Secretariat coordinates all the IPCC work and liaises with Governments. It is supported by WMO and UNEP and hosted at WMO headquarters in Geneva.

The IPCC is an intergovernmental body. It is open to all member countries of the United Nations (UN) and WMO. Currently 195 countries are members of the IPCC. Governments participate in the review process and the plenary Sessions, where main decisions about the IPCC work programme are taken and reports are accepted, adopted and approved. The IPCC Bureau Members, including the Chair, are also elected during the plenary Sessions. Because of its scientific and intergovernmental nature, the IPCC embodies a unique opportunity to provide rigorous and balanced scientific information to decision makers. By endorsing the IPCC reports, governments acknowledge the authority of their scientific content. The work of the organization is therefore policy-relevant and yet policy-neutral, never policy-prescriptive\(^10\).

4.2.1 Functioning of IPCC

The Intergovernmental Panel on Climate Change is a huge and yet very tiny organization. Thousands of scientists from all over the world contribute to the work of the IPCC on a voluntary basis as authors, contributors and reviewers. None of them is

\(^9\) Supranote 1

\(^10\) http://www.ipcc.ch/organization/organization.shtml#.UH0z8G-Tw4g last accessed on 16/10/2012 at 3.47 pm.
paid by the IPCC. The work of the IPCC is guided by a set of principles and procedures.

The Panel takes major decisions at Plenary Sessions of government representatives. A central IPCC Secretariat supports the work of the IPCC. The IPCC is currently organized in 3 Working Groups and a Task Force. They are assisted by Technical Support Units (TSUs), which are hosted and financially supported by the government of the developed country Co-Chair of that Working Group/Task Force. A TSU may also be established to support the IPCC Chair in preparing the Synthesis Report for an assessment report.

The Working Group I deals with "The Physical Science Basis of Climate Change", Working Group II with "Climate Change Impacts, Adaptation and Vulnerability" and Working Group III with "Mitigation of Climate Change". Working Groups also meet at the Plenary at the level of government representatives. The main objective of the Task Force on National Greenhouse Gas Inventories is to develop and refine a methodology for the calculation and reporting of national greenhouse gas emissions and removals. Besides the Working Groups and Task Force, further Task Groups and Steering Groups may be established for a limited or longer duration to consider a specific topic or question. One example is the Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA).

![IPCC Organising Structure](image)

**Figure 1: IPCC Organising Structure**

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11 Ibid 10
4.2.2 Reports of IPCC

A principal activity of the IPCC is to provide an assessment of the existing knowledge on climate change at regular intervals. The fourth of these assessment reports was published at the end of 2007. The first report was published in 1990 and was used by the Intergovernmental Negotiating Committee as the scientific basis for the United Nations Framework Convention on Climate Change (UNFCCC). Subsequently, the Second report in 1995 included socio-economic aspects of climate change and was influential in the negotiations on the Kyoto Protocol. The fourth Report built on previous work and declared with greater confidence that “the warming of the climate system is unequivocal”\(^\text{12}\). From time to time, special reports and technical papers have been produced by the IPCC on specific issues such as emission scenarios.

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\(^{13}\) http://www.ipcc.ch/publications_and_data/publications_and_data.shtml#.UH026m-Tw4g last accessed on 16/10/2012 at 4.00 pm
Although there was no universal agreement among scientists on the nature of the problem, the direction of thinking became very much clearer throughout the 1990s. The general thrust on the scientific argument is contained in the second assessment report of the IPCC, which states that “the balance of evidence suggests a discernible human influence on global climate”14. The IPCC indicated that the projected growth of greenhouse gases (GHGs) was likely to lead to increase in global temperatures ranging between 1C and 3.5C by the end of the next century. Generally, GHGs are not without positive effects upon the Earth’s climate. Without these gases, especially water vapour and carbon dioxide, the Earth’s surface would be cold that it would be impossible for human life to exist. Their function is to trap the infrared radiation reflected by the Earth’s surface, thus warming the surface and the atmosphere. Conversely, an excess of these gases in the Earth’s atmosphere would lead to a greater absorption of the infrared radiation, which in turn would increase global warming.

The importance and controversial role of the various IPCC reports throughout the 1990s should not be underestimated. At that time, the scientific community was not unanimously behind the conclusions in their assessment Reports. Some of the counter-arguments were that its results were based on the following:

- Insufficient data with respect to water vapour and the negative feedback effect of CO2 and aerosols, as well as the complicated role of the oceans as sinks for CO2;
- Ignoring the impact of CO2 emissions on increasing the growth rate of plants;
- Exaggerating the impact of anthropogenic (i.e. man-made) emissions on the global climate system;
- Unrealistic models and minimizing the uncertainty in data; and
- Arguments made by vested interests that create political, not scientific, assessments.

Nevertheless, a consensus began to emerge among policy makers that a problem did indeed exist. They seemed to have been won over partly by the increasingly

apocalyptic predictions of the IPCC and partly by the growing evidence of
temperature reduction in the atmosphere.\textsuperscript{15}

\section*{4.3 RIO CONFERENCE, 1992 (RIO +20)}

The United Nations Conference on Environment and Development (UNCED), which
was held in Rio de Janeiro, between 3-14 June 1992 resulted in the formulation of
various documents like Agenda 21, the Rio Declaration on Environment and
Development, the Statement of Forest Principles, the United Nations Framework
Convention on Climate Change and the United Nations Convention on Biological
Diversity. Rio Conference was not result of sudden realization by the globe
community that it is high time that they need to do something about the EARTH
which was not only burning because of Global Warming; but was also losing its
various treasures which it has been providing to the humankind since ages.

The UN being an all-encompassing global organization started various programmes
for sustainable development, though primarily the concept was not sustainable
development it had its phases which resulted in to concept of sustainable development
(intra generational and inter generation equity). The first step by UN towards it was in
1972, the United Nations Conference on the Human Environment held in Stockholm
which brought the industrialized and developing nations together to delineate the
‘rights’ of the human family to a healthy and productive environment. A series of
such meetings followed, e.g. on the rights of people to adequate food, to sound
housing, to safe water, to access to means of family planning.

The recognition to revitalize humanity’s connection with Nature, led to the creation of
global institutions within the UN system. This was followed by the International
Union for the Conservation of Natural Resources (IUCN) published the World
Conservation Strategy (WCS) in year 1980 which provided a precursor to the concept
of sustainable development. The Strategy asserted that conservation of nature cannot
be achieved without development to alleviate poverty and misery of hundreds of
millions of people and stressed the interdependence of conservation and development
in which development depends on caring for the Earth.

\textsuperscript{15} Supranote 1
In 1982, the WCS initiative culminated with the approval of the World Charter for Nature. The Charter stated that "mankind is a part of nature and life depends on the uninterrupted functioning of natural systems". This led to the establishment of, the World Commission on Environment and Development (WCED) in 1983 and, by 1984; it was constituted as an independent body by the United Nations General Assembly. WCED was asked to formulate ‘A global agenda for change’. In 1987, in its report Our Common Future, the WCED stated that "the environment does not exist as a sphere separate from human actions, ambitions, and needs, and therefore it should not be considered in isolation from human concerns. The environment is where we all live; and development is what we all do in attempting to improve our lot within that abode. The two are inseparable." These all lead to Rio Conference (EARTH SUMMIT) which we can say that was a follow up of Stockholm Conference. The spirit of Rio was captured by the expression “Harmony with Nature”. This was the introduction of Rio Conference; now when we talk about Rio+20 it was result of the UN General Assembly adopted a Resolution (A/RES/64/236) on 24th December 2009 agreeing to hold the United Nations Conference on Sustainable Development (UNCSD) in 2012 - referred as 'Rio+20' or 'Rio 20'. Rio+20 seeks three objectives: securing renewed political commitment to sustainable development, assessing the progress and implementation gaps in meeting already agreed commitments, and addressing new and emerging challenges. The Member States have agreed on the following two themes for the Conference: green economy within the context of sustainable development and poverty eradication, and institutional framework for sustainable development.

With this brief introduction of the topic we now proceed to various chapters of this project which include the analysis of the principles of Rio conference, the need for Rio+20 and its utility, the commitment of India towards its International Environmental Obligations followed by a conclusion.

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4.3.1 India and Its Commitment towards Environment

India has been very active in all the international forums relating to environmental protection and has signed all the multilateral agreements relating to the environment.

With a few exceptions. In 2002, India reaffirmed its commitment to sustainable development in the World Summit on Sustainable Development at Johannesburg. India is a part of 94 major multilateral environmental agreements (MEAs) as listed in Environment Treaties and Resource Indicators\textsuperscript{17}. Twenty major MEAs, in which India plays an active role, are listed as follows:

4.3.1.1 Nature Conservation

1) Ramsar Convention on Wetlands
2) Convention on International Trade in Endangered Species of Fauna and Flora (CITES)
3) The Wildlife Trade Monitoring Network (TRAFFIC)
4) Convention on the Conservation of Migratory Species (CMS)
5) Coalition Against Wildlife Trafficking (CAWT)
6) Convention on Biological Diversity (CBD)
7) International Tropical Timber Organization (ITTO)
8) United Nations Forum on Forests (UNFF)
9) International Union for Conservation of Nature and Natural Resources (IUCN)
10) Global Tiger Forum (GTF)

4.3.1.2 Hazardous Material

1) Cartagena Protocol on Biosafety
2) Strategic Approach to International Chemicals Management (SAICM)
3) Stockholm Convention on persistent organic pollutants (POPs)
4) Basel Convention on the Control of Transboundary Movement of Hazardous Waste and their Disposal

\textsuperscript{17} http://sedac.ciesin.columbia.edu/entri/countryProfile.jsp?ISO=IND, last accessed on 12/09/2012 at 6.00 pm.
5) Rotterdam Convention on Prior Informed Consent (PIC) for certain Hazardous Chemicals and Pesticides in International Trade

4.3.1.3 Atmosphere
   1) United Nations Framework Convention on Climate Change (UNFCCC)
   2) Kyoto Protocol
   3) Montreal Protocol (on Ozone Depleting Substances)

4.3.1.4 Land
   1) United Nations Convention to Combat Desertification (UNCCD)

4.3.1.5 Marine Environment
   1) International Whaling Commission (IWC)

This list of various conventions which India has signed shows the commitment of India towards protecting the Environment. Though at this juncture it is very difficult to provide the various liabilities which India need to fulfil but the purpose of mentioning all these conventions is just to so that our state is not sleeping over the matter of environmental protection, but active and vigilant enough to act and provide a wholesome environment. Now, when one refer to Indian judiciary which has been the source of keeping the government awake and providing them a tough time for not to ignore the matters of environmental concerns by its various judgments at different times to has laid down the policy which we followed in environment matters. The legal framework of India in respect of environment is also influenced by its international commitments to give few examples in the wake of the Stockholm Conference of 1972, which required states to adopt measures to protect and improve the environment. Post Stockholm, the 42nd amendment to the Constitution of India was made in 1976. Through this amendment, Article 48A was incorporated, whereby protection and improvement of the environment and the safeguarding of forests and wildlife became a part of the Directive Principles of State Policy. When we talk about Rio Conference impact on India’s legislative framework we can give example of the National Environment Tribunal Act, 1995 (Repealed) and the National Environment Appellate Authority Act, 1997 (Repealed) were enacted to give effect to the Rio
Declaration’s call upon States to develop national laws regarding liability and compensation for the victims of pollution and other environmental damages. These have been subsequently repealed and replaced by the new National Green Tribunal Act of 2010. Hence, to conclude we can say that India as a nation which follows socialistic approach and has ancient tradition of respect towards nature where rivers, mountains and animals are considered as god by its various legislations has ensured maximum possible protection to them while keeping pace with development programmes.

4.3.2 Rio Declaration on Environment and Development 1992

<table>
<thead>
<tr>
<th>Provision</th>
<th>Keyword</th>
<th>Principle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Centre for Sustainable Development</td>
<td>Human Beings are the center of concerns for sustainable development.</td>
</tr>
<tr>
<td>2</td>
<td>States have sovereign right to exploit their own resources</td>
<td>According to international principles and Charter of United Nations, a) the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies and b) The responsibility to ensure that the activities within their jurisdiction or control do not cause damage to the environment of other states or the areas beyond the limits of rational jurisdiction.</td>
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<tr>
<td>3</td>
<td>Equitable development</td>
<td>Right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.</td>
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<tr>
<td>4</td>
<td>Environment is an integral part.</td>
<td>In order to achieve sustainable development and environmental needs of present and future generations.</td>
</tr>
<tr>
<td>5</td>
<td>Eradication of</td>
<td>All states and all of its people shall cooperate in the</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th></th>
<th>poverty</th>
<th>essential task of eradicating poverty as an indispensable requirement for sustainable development in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.</th>
</tr>
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<tbody>
<tr>
<td>6</td>
<td>Needs of developing countries</td>
<td>It should be given special priority. International actions in the field of environment and development should also address the interests and needs of all countries.</td>
</tr>
<tr>
<td>7</td>
<td>Spirit of Global partnership</td>
<td>States shall have common but differentiated responsibilities and should work with the spirit of global partnership to converse, protect and restore the health and integrity of the earth’s eco-system.</td>
</tr>
<tr>
<td>8</td>
<td>States to reduce unsustainable patterns of production</td>
<td>To achieve sustainable development and a higher quality of life for their people, states should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.</td>
</tr>
<tr>
<td>9</td>
<td>Technological Co-operation</td>
<td>It is necessary for sustainable development by improving scientific understanding through changes of scientific and technological knowledge and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies.</td>
</tr>
<tr>
<td>10</td>
<td>Participative approach</td>
<td>Participation of all concerned citizens at relevant level should be there.</td>
</tr>
<tr>
<td>11</td>
<td>State to enact effective environmental legislation</td>
<td>States shall enact effective environmental legislation keeping in mind the environmental standards, management objectives and priorities and also it should be such so has not to be of unwarranted economic and social cost to other countries in particular developing countries.</td>
</tr>
</tbody>
</table>
| 12 | Supportive and open international economic system | States should co-operate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries, to better address the problems of environmental degradation.  
a) Trade policies should not be arbitrary.  
b) Unilateral actions to deal with environmental challenges outside the jurisdiction should be avoided. |
<p>| 13 | National law for determination of liability and compensation for pollution victims | States shall develop national law regarding liability and compensation for victims of pollution and other environmental damage. States shall further co-operate to develop international law in this aspect. |
| 14 | Discourage environmental degradation | States should effectively cooperate to discourage or prevent its relocation and transfer to other states to any activities and substances that cause severe environmental degradation or are found to be harmful to human health. |
| 15 | Precautionary principle | States should apply the precautionary approach according to their capacities. |
| 16 | Polluter pays principle | National authorities should endeavor 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. |
| 17 | Inception of environmental impact | Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have significant adverse |</p>
<table>
<thead>
<tr>
<th>Code</th>
<th>Issue</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Natural disasters</td>
<td>States shall immediately notify other states regarding natural disasters or other emergencies that are likely to produce sudden harmful effects on the environment of those states. Every effort shall be made by the international community to help the states so afflicted.</td>
</tr>
<tr>
<td>19</td>
<td>Relevant information</td>
<td>State shall provide prior and timely notification and relevant information to potentially affected states on activities that may have a significant adverse Transboundary environmental effect and shall consult with those states at an early stage and in good faith.</td>
</tr>
<tr>
<td>20</td>
<td>Women’s participation</td>
<td>Women should play a vital role in environmental management and development. Their full participation is, therefore essential to achieve sustainable development.</td>
</tr>
<tr>
<td>21</td>
<td>Creativity of youth needs mobilization</td>
<td>The creativity, ideals and courage of the youth of the world should be mobilized to forge a global partnership in order to achieve sustainable development and ensure a better future for all.</td>
</tr>
<tr>
<td>22</td>
<td>People’s participation</td>
<td>Indigenous people and their communities, and either local communities, have a vital role in environmental and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.</td>
</tr>
<tr>
<td>23</td>
<td>Natural resources</td>
<td>The environment and natural resources of people under oppression, domination and occupation shall be protected.</td>
</tr>
</tbody>
</table>
Armed conflict

Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and co-operate in its further development, as necessary.

Peace and environment

Peace, development and environment protection are interdependent and indivisible.

Environmental dispute

States shall resolve all their environmental disputes peacefully and by appropriate means in accordance with the charter of United Nations.

Co-operation

States and people shall co-operate in good faith and in a spirit of partnership in the fulfillment of the principle embodied in this declaration and in further development of international law in the field of sustainable development.

4.3.3  2011 Durban Conference

The seventeenth Conference of Parties (COP 17) of the United Nations Framework Convention on Climate Change (UNFCCC) concluded at Durban International Convention Centre where 195 nations participated. It was decided that the Second Commitment Period would be operational in 2013. A Green Climate Fund (GCF) was launched to boost technology transfer and promote Clean Tech. World Bank will remain as the interim trustee. The concept of “Equity” found a place in future climate talks. India stood at the forefront of developing countries’ leadership particularly gaining strong support from the African Nations. India strongly put forth to go with the Bali Action Plan (long-term emission reduction, mitigation of climate change, adaptation, technological advancement and generation of financial resources) which should be implemented in the next two years and the Cancun Agreement to be operationalised with adequate funds and technologies as promised. India gained on the front of Equity along with Common but Differentiated Responsibility (CBDR) and secured 10 years of Economic Growth without Carbon containment.
4.3.4 Common but Differential Responsibility (CBDR)

Principle 7 of the Rio Declaration states:

“In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.”

The CBDR could be bifurcated in two features. One provides for the common responsibility, which breeds from the concept of common heritage and common concern of humankind, accentuating upon the duty of nation States to share the burden of environmental protection for common resources equally. The other feature comprises of differentiated responsibility, which lays emphasis on substantive equality: which means treatment of equal States equally and unequal’s as unequally on the parameters of material, social and economic circumstances, varying contribution in the global environmental pollution and difference in the financial, technological and infrastructural potential required to curb and curtail the prevailing environmental problems. The principle entails equitable allocation of the costs incurred in the due process of global environment protection and preservation.

4.3.5 Rio +20: An Optimistic Outlook

The Rio+20 conference held between 20-22 June, 2012 in Rio de Janeiro city of Brazil came with promising missions and values. The Secretary-General of the United Nations, Mr. Ban Ki-moon stated that the “conference was a success.” The UN Chief also considered the outcome document named ‘The Future We Want’ as a triumph of multilateralism. It is believed that the various governments, private organisations and civil society would conjointly operate to meet the visions of global prosperity coupled with sustainable development.

The conference rejuvenated the issues which were deliberated upon in the Earth Summit of 1992, also in Rio de Janeiro, wherein Agenda 21 which laid down the
blueprint of economic growth coupled with advancements in social equity and implementation of environment protection.

Rigorous deliberations were made on the numerous significant issues like the role of green economy in the achievement of sustainable development, the reinforcing of United Nations Environment Programme (UNEP), promotion of corporate sustainability reporting measures, shifting from the parameter of gross domestic product to other novel measures for assessing the well-being of a nation, financing for achieving sustainable development and controlling sustainable consumption and production. Nevertheless, matters pertaining to improvising gender equity, recognition of voluntary commitments to sustainable development, engagement of civil society and incorporation of scientific developments in the policy were also looked upon. The significance of Rio+20 rests in the affirmation of fundamental principles and renewal of essential commitments.19

The encompassing of actions like plantation of 100 million trees, empowerment of 5000 women entrepreneurs in green economy businesses operated in Africa and the recycling of 800,000 tons of polyvinyl chloride, one of those plastics in extensive usage.20

The UN Secretary-General, while emphasizing upon the initiative of “Sustainable Energy for All” stated that it is an expedient programme recording its success in less than one year of its inception.

Under this initiative, fifty governments of developing nations have undertaken to develop energy plans and programmes. Most of the developing nations are progressing towards or have completed the energy assessment and gap analyses in the respective sector.

Moreover, these nations are looking forward towards strategic reforms which will attract new investment and financial support. Commitments of over $50 billion have been promised by businesses and investors apart from enormous funding from the

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different governments, multilateral development banks, international and civil society etc.

The initiative will benefit over a billion of world’s population by means of enhancement of grid extensions and off-grid solutions, harnessing energy from renewable sources as well as increase the technology systems and the requires financing.21

Two Indian companies, Kolkata-based ITC Ltd. and Mumbai-based Hindustan Construction Company (HCC) were recognised for their sustainable practices in Rio+20.

4.3.6 Rio+20: A Critique

“The world is staring at financial recession on the one hand and environmental catastrophe on the other.”

Although the UN Secretary-General and the other officials boast the Rio+20 conference as a success, several environment activists and scholars criticize the outcome document as “weak and meaningless”. Even after two decades of the Rio Declaration, the world is enduring only on the path of reaffirming the principles, which need not be reiterated. The arrival of Rio+20 was ill-timed where the contemporary scenario witnesses economic fiasco in Europe, considered to be the “environmental missionary”; Eurozone is on the verge of a collapse and economic growth in such circumstances is a sine qua non for the European States, even at the cost of environment. The United States was facing an era of unemployment and Obama Administration was losing the ground, which it wished to ‘change’ at the presidential election times. US desired to get rid of a framework which imposes a pressure to take action against and curtail the contribution in the global environmental burden. Instead, the US government takes the defense of the framework being beneficial to India and China under the subterfuge of the principle of equity.22

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Another vital agenda in the conference was the establishing the concept of green economy and the usage of sustainable development goals (SDGs) as a performance appraisal mechanism against the green targets. Even this agenda faced a deadlock in light of the decline faced by rich countries and ascend witnessed by poor countries. The developed nations acknowledged the actions for environment protection as being a hurdle in their economic growth; on the contrary, the developing countries demanded growth which is equitable and sustainable. The commercialization and commoditisation of nature might facilitate a more greedy than a green economy.

4.3.7  India: Run Up To Rio

The National Environment Tribunal Act, 1995 (Repealed) and the National Environment Appellate Authority Act, 1997 (Repealed) were enacted to give effect to the Rio Declaration's call upon States to develop national laws regarding liability and compensation for the victims of pollution and other environmental damages. These have been subsequently repealed and replaced by the new National Green Tribunal Act of 2010. The Environmental Impact Assessment (EIA) Notification, 1994 under the Environment Protection Act of 1986 made EIA mandatory for 29 different activities, which was earlier necessary only for mega projects undertaken by the government and PSUs.

A major amendment to the EIA notification was made in 2006 making an EIA mandatory for environmental clearance for a number of activities and industries and lay down procedure that requires public participation in the process (giving effect to an important Rio principle).

There have been a number of amendments to the EIA Notification, 2006 with the latest amendment in 2009. Other important legislation pertaining to the environment includes the Motor vehicles Act, 1988, which recognizes the need to arrest vehicular pollution. The Bio-Medical Waste (Management and Handling) Rules were notified in 1998.

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23 Ibid.
Post Rio, environmental principles, such as precautionary principle, polluter Pays principle, public trust law doctrine, inter-generational equity and absolute liability came to be accepted in India as part of Article 21 (Right to Life) of Indian Constitution in a number of judicial pronouncements by the Supreme Court namely Indian Council for Enviro-Legal Action v Union of India\textsuperscript{25} and Vellore Citizens’ Welfare Forum v Union of India\textsuperscript{26}. The ruling in Vellore Citizens’ case was reiterated very recently by the National Green Tribunal in May 2012 during the proceedings under Jan Chetna and Anr. v MOEF and Ors.\textsuperscript{27}

Though a large chunk of the legislation governing the environment in India has been enacted prior to Rio, the Supreme Court, in interpreting the provisions, has shown reliance upon the Rio Principles, as well as on the need for careful balancing of the different pillars of sustainable development. To cite an example, the Forest (Conservation) Act of 1980 has as its objective arresting of further deforestation and conserving forests. The Supreme Court, in the case of Shri Bhagawati Tea Estates Ltd v. Government of India\textsuperscript{28} held that the restrictions under the Act were not absolute and the objective of the Act (forest conservation) has to be reconciled with the livelihood issues of forest dependent marginalized communities.

This phase also continued to be characterized by priority to environmental concerns and saw a number of secondary legislations being framed under the Environment Protection Act, including the Municipal Solid Wastes (Management and Handling) Rules, 2000; the Recycled Plastics Manufacture and Usage Rules, 1999; the Manufacture, Storage and Import of Hazardous Chemical (Amendment) Rules, 2000; the Batteries (Management and Handling) Rules, 2001; the Ozone Depleting Substances (Regulation and Control) Rules, 2000; and a series of notifications delegating power to state River Conservation Authorities to deal with water pollution. The Noise Pollution (Regulation and Control) Rules, 2000 were notified under the Environment (Protection) Act.

\textsuperscript{25} AIR 1996 SC 1446
\textsuperscript{26} AIR 1996 SC 2715
\textsuperscript{27} Appeal No. 22 of 2011, National Green Tribunal
\textsuperscript{28} AIR 1996 SC 209
The Right to Information Act, 2005 enacted with the objective to promote transparency and accountability in the working of public authorities, empowers the ordinary citizen of the country to play an important role in establishing good governance and functional democracy in the country.

The National Rural Employment Guarantee Act, 2005 is a premier legislation to mitigate the unemployment in the nation. A fairly recent legislation is the Gram Nyayalayas Act, 2009, which has been enacted to provide for the establishment of the Gram Nyayalayas at the grass roots level for the purpose of providing access to justice to the citizens at their doorstep.

Principles inculcated in Agenda 21 of the Rio Declaration found their space under judicial pronouncements in P.K.Koul v Estate Officer & Anr. 29 Thilakan v Circle Inspector of Police 30 and Soman v Geologist 31.

Rio+20 witnessed ambitious visions for a global sustainable development drive. India, being at the forefront of developing countries, accomplished to retain the Common but Differential Responsibility (CBDR) principle. Such retention provides a ray of hope in the outcome document of the conference, namely “The Future We Want”.

4.4 KYOTO PROTOCOL

The Protocol to the United Nations Framework Convention on Climate Change, agreed to in December 1997 at Kyoto in Japan, envisages legally binding steps to achieving reductions in greenhouse gas emissions (GHG’s). Many of these heat trapping gases are produced by carbon intensive industries, so implementation of the Protocol will impact upon the energy industry. Some of the impacts will be positive, creating opportunities for new products and services to assist companies that need to reduce their greenhouse gas emissions (through trading schemes and investment funds). Other impacts are likely to be negative, such as those affecting electricity generating companies that rely upon coal and oil for much of their power generation, or heavy industry and manufacturing industries that use coal or oil in their heating systems as

29 Writ.Petition No.15239/2004
30 AIR 2008 Ker 48
31 2004 (3) KLT 577
well as those industries that are energy intensive. The legal implications of all of this are often unclear amid a welter of policy statements about sustainable development and energy conservation. It is not known exactly who is going to enforce these agreements and how. It is also unclear when we can reasonably expect to see them having an effect and in which countries. Moreover, the highly political character of the negotiations among the parties and the very public conflicts between the USA and the EU on the Kyoto provisions has the effect of clothing the subject in considerable uncertainty about its practical relevance. Yet the heart of the Kyoto Protocol is its legally binding character, its core idea being that without this element of multilateral legal constraint the sovereign states of the globe are unlikely to make any significant progress in addressing the problem of climate change. Amid the considerable body of scientific data, the shifting sands of negotiating positions and the complex economic arguments over methods of implementation, the simplicity of this feature cannot be overstated. Legal constraint on the exercise of sovereign power is an essential element in the solution of the climate change problem, and Kyoto is the first — and far from perfect step — in the development of a legal response on a multilateral basis. Surprisingly, therefore, little has been written on the diverse legal aspects of Kyoto, with observers restricting themselves to a description and preliminary analysis of the provisions contained in the Protocol itself. Perhaps the debate has been inhibited by the absence of ratification. In 1998 the members of the SERLAAG began a research project into the legal dimension of climate change, taking the element of legal constraint developed in the Kyoto Protocol as its starting point but looking beyond this to what the legal consequences might be at national and regional level, noting that several Governments are already exploring legal measures prior to ratification, often in co-operation with industry and other stakeholders. The participants in the project included leading academic lawyers from many different countries around the world. The working assumption of the team was that even without ratification of the Kyoto Protocol legal measures would be taken at the national and in some cases the regional level to address climate change issues. On this basis they examined the Kyoto principles and their practice in a number of different contexts to produce a report on the current state of this legal dimension with particular reference to the international energy industry. No matter that many of the measures taken so far have the

32 Many of the contributions to this book are based upon papers originally presented at the 14th SERL.
character more of ‘soft’ law rooted in policy and voluntarism than hard law with legally binding and enforceable obligations. The aim has been to stimulate thinking and research among those working in the field of climate change studies by arguing that the legal dimension is worthy of study now, even before agreement has been reached on the form and content of a binding multilateral instrument.

4.4.1 The Problem

The social and economic impact of greenhouse gases has become a major international concern. It is one of a number of contemporary environmental issues that requires a common effort if it is to be tackled effectively. A multilateral legal instrument has been developed to provide a framework for such efforts. The Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) envisages legally binding steps to achieving reductions in greenhouse gas emissions. Since many of these gases are produced by carbon intensive industries, it is certain that implementation will affect the energy industry, but less clear to what extent. It is too early to say which industries will be most affected clear remains to be seen whether, on balance, the effects will be more negative than positive or vice versa. However, despite the current uncertainties in the negotiations about the form and structure of a multilateral instrument, three developments suggest that a momentum has been achieved for practical action:

Firstly, a growing number of companies are taking action on their own initiative, especially to promote emission reductions through limited, usually internal schemes. They include General Motors, Ford, BP Amoco, Monsanto, Shell, Vattenfall, Boeing and IBM. The US chemicals company, DuPont has said it will cut its GHG emissions from 1990 levels by 2010 while keeping energy use flat, and will source 10 per cent or its global energy use in 2010 from renewable resources.\(^{33}\) This is supplemented by concerted initiatives which through green rating and public awareness mechanisms further encourage industry to become More GHG responsible.\(^{34}\) As a result, it is becoming necessary to explore the initiatives that are being taken by the larger energy

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Biennal Conference on Energy and Natural Resources Law at Hong Kong, April 2000.

\(^{33}\) “Financial Times”, Haze of Contention Masks Path to a Deal, 26 October 1999.

\(^{34}\) See, e.g., the initiatives by CERES
producers and users. Emissions trading schemes have also been developed by some companies. This is not to deny that some companies such as those organised in the so-called Global Climate Coalition in the USA, remain strongly opposed to the climate change instruments contained in the Protocol.

Secondly, national and international governmental bodies and associations have begun to take positive steps to address the negative effects of climate change. UNCTAD has assisted in the launch of the International Emissions Trading Association. Its members include the Australian Stock exchange, the International Petroleum Exchange, Lloyd's Register, Shell, BP-Amoco, Statoil and Tokyo Electric power. It is reviewing the establishment of a global emissions market by 2008 as implied by the Protocol. The World Bank set up a trial emissions trading scheme in January 2000 called the Prototype Carbon fund. The Japanese Ministry of International Trade and Industry has established a company to monitor emissions trading and the EU has been considering the creation of an internal trading system for GHG emissions in the foreseeable future.

Finally, the post Kyoto meetings of the parties to the Convention (known as COP-4 COP-5 and COP-6) convened at Buenos Aires, Bonn and the Hague respectively, have generated a momentum for action by international co-operation that appears likely to survive the setback of COP-6 and US Government opposition to the Kyoto instrument. Public attitudes are moving towards acceptance of the need for specific measures by many of the participating governments. Indeed, sonic governments have already taken steps to implement the Kyoto requirements.

4.4.2 The United Nations Framework Convention on Climate Change (UNFCCC)

The UNFCCC has been the centerpiece of the international communities’ effort to combat the serious global environmental challenge, since its adoption at the 1992 Earth Summit in Rio de Janeiro, Brazil. Under the FCCC the Parties commit

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35 Natsource, a New York investment group
themselves to stabilize GHGs ‘at a level that would prevent dangerous anthropogenic interference with the climate system’. The countries listed in Annex I of the FCCC (the industrial countries) agreed to work to return GHGs to 1990 levels and to demonstrate a reversal in the trend toward growing emission before the year 2000. The Conference of Parties (CoP) meets annually as the governing body of the FCCC and deals with the issues related to it.

The origins of the FCCC lay in changing assessments of scientific evidence. While the concept of global warming was developed in the 19th century, it was not until 1998 that the United Nations Environment Programme (UNEP) and the World Meteorological Organisation (WMO) established the Intergovernmental Panel on Climate Change (IPCC). The IPCC was given the task of assessing current knowledge on these issues, predicting impacts and proposing responses.

4.4.3 The Kyoto Protocol

The third Conference of Parties (COP-3) at Kyoto marked a significant step forward in the UNFCCC process. With the conclusion of a Protocol to the FCCC in December 1997, the UNFCCC process moved in a distinctly practical direction. The Kyoto imposes legally binding commitments, and offers radical new mechanisms, to combat climate change.

4.4.3.1 The Main Features

- Signatories to the Protocol have undertaken to make a legally binding commitment to achieve its objectives.

- The developed countries listed in Annex I to the Convention have each signed up to a binding individual emission limitations target to be achieved by the years 200-12. Collectively the Protocol provides for differentiated Annex I targets which amount to an average reduction of 5.2%. This affects six greenhouse gases.  

- Most important of all is probably the inclusion of so-called flexible mechanisms of JI, CDM, and ET. These are market-based mechanisms which

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38 FCCC Article 2
39 CO2, CH4, N2O, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride.
can be used by industrialized countries to lower their compliance costs. The CDM was a real surprise and emerged from the negotiations very much at the last minute. Included for similar reasons was a limited category of carbon sequestration activities or sinks.

- No quantitative commitments are included for developing countries, reflecting the guiding principle of common but differentiated responsibility, under which the industrialized countries are required to take the lead in measures to combat climate change.

The protocol proposed three principle mechanisms to assist the Annex I countries to meet their emission targets. These were-

1) **Joint Implementation**\(^{40}\)

The process that JI refers to has the effect that Annex I parties may trade among themselves Emission Reduction Units (EMR) resulting from projects aimed at reducing the anthropogenic emissions by sources or enhancing anthropogenic removals by sinks of greenhouse gases in any sector of the economy of the other Annex I parties. This is subject to a number of conditions however. Such projects have to provide a reduction in emission or an enhancement of removals by sinks additional to any that would otherwise occur. Newly planted forests, for example, act as ‘sinks’ by absorbing CO2 from the atmosphere. These projects also require the approval of the parties involved in the project. The ERUs may not be acquired if such action is not in compliance with the obligations under Articles 5 and 7. Finally the ERUs are to be supplemental to domestic actions for the purposes of meeting commitments under Article 3.

The term JI is not in fact adopted in Article 6 of the protocol but has become commonly used as convenient shorthand. In practice, JI like other mechanisms, raises a host of difficult issues that have to be resolved if further guidelines for implementation are to be developed.

\(^{40}\) Article 6 of Kyoto Protocol
2) **Clean Development Mechanism (CDM)**

Article 12 sets out a mechanism to assist parties not included in Annex I to achieve sustainable development and attain the goal of the Convention. The CDM under Annex I requires countries to receive GHG credits or Certified Emission Reductions (CER) by sponsoring actual GHG offset projects or other actual technology transfer in a developing country. The credits acquired by this process effectively increase the tons the acquiring country may emit above its Article 3 ‘assigned amount’. Parties not included in Annex I as a result receive benefits from project activities which result in CERs. However, in addition, the CDM was intended to aid those parties to Annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3 of the Protocol.

The executive board supervises the CDM to assist those developing countries who are especially vulnerable in meeting the costs of adaption. Other provisions of the protocol relevant in this respect are:

- Non Annex I parties will benefit from the project activities even if a project does not yield CERs because the project must be initiated first.
- Annex I parties can use the CERs to contribute to their compliance with a part of their targets.
- CERs must be certified by operational entities to be designated.
- Modalities and procedures are to be elaborated.
- Participation in the CDM is voluntary and may involve public and private entities.
- CERs obtained during the period from the year 2000 up to 2008 can be used towards compliance in the first commitment period (2008-12)

It may be noted that CERs will be additional to the overall assigned amount for Annex I. The details of the Annex I commitments are still to be worked out. For the energy sector, this mechanism has potential for limiting the impact of the protocol on its profitability.
3) Emissions Trading (ET)

Annex I parties are allowed participation in ET in order to fulfill their commitments. It means that, an Annex I party may transfer the ‘amount assigned’ (the amount of emissions of the Party is allowed to emit during the commitment period) to another Annex I party. In this way, a developed country may emit during the commitment period) to another Annex I party. In this way, a developed country may purchase GHG credits or allowances from another developed country that has not utilized its assigned amount of emissions set by the Protocol (target-based credits’). For the purpose of verification and accounting, the COP is required to set guidelines, principles, modalities, rules ensuring accountability for ET. The energy sector is so far the most affected sector with respect to the ET schemes.

Some occurrence of ET can be traced to USA and Australia. In the former, the aim is to reduce acid rain and ground level ozone. In the case of Australia, a private emissions trading market has been established through the Sydney Futures Exchange. The national and company sectoral initiatives help in the emergence of the ET schemes in Europe.

However many questions have emerged regarding the implementation of the ET-

Some of them are:

- What will be the stance of the existing regulatory mechanisms if the ET is introduced?
- Will it be right to make a trading permit a transferable property?
- How should the allocation of trading permits be carried out and in an international market, how will it be achieved?
- Is there a possibility to ensure low cost, transparent and efficient emission trading?
- How to ensure verification of greenhouse gas emission?
- How will the compliance with international emission trading regime be ensured?
An important thing to note here is that, though new mechanisms have been developed, yet the implementation still remains a question. All the three mechanisms require a great deal of work on them for them to be effective.

A question also arises regarding the participation of the developing countries. The participation of the developing countries remains a very important aspect, as they are the major contributors of GHGs by 2010 so that lone efforts by the developed/industrialized countries will be inadequate to deal with the problem. In the practical scenario, such cases represent a situation where there may be problems of implementation even where the legal obligations have been accepted by the governments. This results from a weak legal and institutional framework as well as a high degree of centralization and low scope of inputs from the industry. In addition to the problems in the framework, the priority given to the climate change is usually low, given other economic and financial demands of a country. The examples of such countries are China and Nigeria.

This represents an unsatisfactory result for the implementation of long term schemes. The presence of controls for the Annex I countries will result in the relocation of the industries, from the developed to the developing countries. However, with its certain drawbacks for the developed countries, it seems to be an attractive deal for developing countries. By export quotas they could earn hard currency income. The general sentiment by the participating countries is that the Kyoto needs to be worked on.

This is because some article such as Article 17, gave wide discretion to the states, even though the basic ideas were those which most of the participants agreed to.

The Kyoto could have a socio economic impact if it is ratified and complied with. It would be instrumental in bringing about a transformation in the way in which energy is produced and used.

4.4.4 Post-Kyoto Developments

The post-Kyoto negotiations are the high level talks in which several countries have attempted to reduce global warming by limiting the green house emissions. Even though lot of countries ratified the convention, there were several problems regarding
the implementation of the scheme. Several developments took place time to time between 1998-2012. Now in December 31st, 2012 the first commitment period is going to expire.

Three meetings of the parties UNFCCC were convened between 1988 and 2000. The first, COP-4, was convened on November 2, 1998 at Buenos Aires, Argentina. It concluded with the adoption of a ‘Buenos Aires Action Plan” establishing deadlines for finalising work on the Kyoto mechanisms, compliance issues and policy measures. The issues to be addressed in the work programme included the following:

- Financial mechanisms for assisting developing countries to respond to the challenges related to climate change;
- Further work on policies and measures introduced by the European Union(EU) later at the Conference;
- Development and transfer of technologies;
- Rules governing the Kyoto flexible mechanisms with priority on the Clean Development Mechanisms;
- An undertaking to discuss supplementary, ceilings, long term convergence and equity issues.

The Parties a four year deadlock on the issue of technology transfer. The Conference decision outlined a process on how to overcome the barriers to the transfer of environmentally sound technology. On compliance, Parties reached a common understanding that a strong and comprehensive regime is needed to ensure an effective implementation of the Kyoto Protocol. On financial arrangements, countries that were to receive further support from the Global Environment Facility (GEF) to plan concrete measures for adaptation.

At the COP-5 meeting in Bonn in November 1999, further progress was made albeit of a modest character. Areas of disagreement were clarified but not tackled at that

\[41 \text{ Details are available at the website of the Secretariat: http://www.unfccc.int Last accessed on 17/09/2012 at 4.50 pm} \]
stage. The Parties agreed that the next meeting should be held in November 2000, where some difficult subjects would be tackled and hopefully resolved.

In the event, the COP-6 meeting in The Hague proved to be a serious setback to early ratification of the Protocol. The discussions ended without any agreement being reached. The failure to agree on any matters of importance in The Hague turned out to be a turning point in the climate change negotiations. It has triggered a process of review by all parties that includes everything from negotiation positions of governments to design and structure of Kyoto regime itself.

There are several probable reasons for the collapse of talks in The Hague in November 2000.42 The principle reason was the inability to find a compromise between the US and the EU on the issue of the absorption of greenhouse gases by reservoirs or sinks. A proposal tabled by the US that countries should receive credits for carbon absorption from all managed lands under Article 3.4 met with strong opposition from the EU and the G-77. Since almost all lands are ‘managed’ in the US, a full crediting as proposed would have had the effect of eliminating the US requirement to reduce emissions. A way out of this was to negotiate additional activities that could be counted towards the calculated emissions targets. However, it proved impossible to reach agreement was procedural. The UNFCCC’s multilateral decision-making process was stretched to the limit by the scale and complexity of issues that were being addressed in The Hague. Attempts by the chairman, Jan Pronk, to innovate in the negotiating process did not meet with success nor with wide-ranging approval. The relative absence of developing countries such as China and India from negotiations43 has also been viewed as weakness, not least by limiting the chances of wider acceptance of any agreements reached by Annex I countries. The next steps in the specification of legal mechanism for combating climate change are therefore, at the multilateral level, shrouded in uncertainty. Ironically, this

43 Christian Egenhofer and Jan Cornille, ‘Reinventing the Climate Negotiations: An analysis of COP-6’, www.ceps.be Last Accessed on 17/09/2012 at 6.15 pm
development comes at time when the consensus in favour of legally binding measures is greater than ever in public opinion.

The Hague meeting was the high water mark for constructive engagement by the US in the Kyoto process. By mid 2001 all indications were that the Bush Administration was unlikely to continue the process of multilateral negotiations that were essential to the conclusion of a legally binding agreement. Structural differences had appeared between the approaches of the US and the EU that appeared difficult to bridge. However, this has encouraged some parties such as the EU, Russia and Japan to consider ways of reaching agreement so that the Protocol is eventually ratified, retaining its legal core of binding obligations upon the parties, but without at least in the first instance, and the participation of the US. For the EU, as an organisation based upon a regional treaty whose aim is deeper integration and which has focused upon the development of a common currency and other common measures to benefit the bloc’s interests, such a new approach would not require a major change in mindset. This is in stark contrast to that of the US which by this time appeared more committed than ever to unilateral solutions to its policy concerns in environmental matters. These developments do not lead inevitably to the conclusion that the Kyoto process has no future, only that its future is likely to be less global in its reach in the near term.

4.4.4.1 February 2007, Washington Declaration

On February 16th 2007, a non-binding declaration took place in which G8+5 group of leaders agreed to the principle of cap-and-trade system that would apply to both industrialised and developing countries. It was expected to start from 2009.

4.4.4.2 33rd G8 Summit

Again a non-binding communiqué was issued by 33rd G8 summit on June 07th, 2007 in which it was announced that all the G8 nations would aim to half the CO2 emissions by 2050.

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Also the nations would try to make additional agreements to achieve the goals outside the United Nations.

Further it was agreed to give financial support for climate protection projects in developing countries.\(^46\) This step was welcomed by Prime Ministers of United Kingdom and France, Tony Blair and Nicholas Sarchozy. But it was blocked by US President, George Bush saying that countries like India and China should also make such kind of commitments.

4.4.4.3 2007 UN General Assembly plenary debate

On July 31st, 2007 the first plenary session was organised in which scientists and businessmen were included and 100 nations spoke regarding climate-related problems.

United Nation Secretary-General Ban Ki-moon urged Member States to work together, stating that the time had come for "decisive action on a global scale", and called for a "comprehensive agreement under the UNFCCC process that tackles climate change on all fronts. In closing the conference UN General Assembly President Haya Rashed Al-Khalifa stressed upon urgency of situation and said that the “longer we wait more we have to pay”.\(^47\)

The day after the session ended, the UN launched its new climate change web site detailing its activities relating to global warming.\(^48\)

4.4.4.4 2007 Vienna Climate Change Talks and Agreement

The round of climate change talks under UNFCCC was concluded on August 31st, 2007 in which it was agreed on key elements on international response on climate change. A key feature to this talk was that it was agreed that energy efficiency should decrease emissions at low cost. Also the talks set the stage for the 2007 United Nations Climate Change Conference held in Bali in December 2007.


\(^{47}\) “Secretary-General Challenges World Community To Tackle Climate Change Head-on”. United Nations. 2007-07-31. Retrieved 2007-08-03.

4.4.4.5  2007 United Nations Climate Change Conference in Bali

In this Conference, negotiations on successor to Kyoto Protocol, was focused into. In this conference it was agreed for a road-map, timetable and "concrete steps for the negotiations" with a view to reaching an agreement by 2009.\(^9\)

4.4.4.6  September 2009 United Nations Secretary General's Summit on Climate Change

It was held on 22nd September 2009, in which Head of State and Government were invited to build the political momentum for Copenhagen Conference.

4.4.4.7  2009 United Nations Climate Change Conference in Copenhagen (COP-15)

Following preparatory talks in Bonn (in Germany), Bangkok and Barcelona, the 2009 conference was held in December 2009 in Copenhagen, Denmark, and the treaty succeeding the Kyoto Protocol had been expected to be adopted there.\(^{50}\)

At the Conference, delegates approved a motion to take note of the Copenhagen Accord of December 18, 2009. The Copenhagen Accord recognises the scientific case for keeping temperature rises below 2°C, but does not contain commitments for reduced emissions that would be necessary to achieve that aim.\(^{51}\) One part of the agreement pledges US$ 30 billion to the developing world over the next three years, rising to US$ 100 billion per year by 2020, to help poor countries adapt to climate change. Earlier proposals that would have aimed to limit temperature rises to 1.5°C and cut CO2 emissions by 80% by 2050 were dropped. An agreement was also reached that would set up a deal to reduce deforestation in return for cash from developed countries.\(^{52}\)


\(^{50}\) Climate deal sealed by US U-turn, BBC NEWS, Science/Nature

\(^{51}\) Oliver Geden (2010), What Comes After the Two-Degree Target?, German Institute for International and Security Affairs (SWP) Comments 19

4.4.4.8 2011 United Nations Climate Change Conference

This conference was held from 28th November to 12th December 2011 in which it was agreed that there should be legally binding treaty to limit carbon emissions comprising all countries. It will be prepared by 2015 and will take effect on 2020.

This area covers each country’s policy on Kyoto implementation, the legal instruments favoured or under consideration ranging from environmental agreements to energy taxes, enforcement mechanisms, joint implementation plans and legal steps taken to stimulate renewable sources of energy.

4.4.5 Developing Countries

The position of the developing countries is important in the approach chosen to climate change in the Kyoto regime. Essentially, action by them is conditional upon effective implementation of emissions reduction commitments by the industrialized states, and upon the provision of financial resources and the transfer of technology from the developed countries. Yet, it is crucial that the developing countries are on board any strategy for tackling climate change problems since many of them will become significant producers of green house gases in the near future.

INDIA

Like developing countries are facing the dual burden of climate change and globalization, the same way is India because it is a developing country. Currently, the topmost priority for India is economic development and poverty alleviation. Meeting these national imperatives would certainly create pressure on energy demand, which would lead to increased carbon emissions. Energy is needed for economic growth, for improving the quality of life and increasing opportunities for development. Some 600 million Indians do not have access to electricity and about 700 million use biomass as primary energy resource for cooking. Ensuring a regular supply of clean energy is essential for nurturing inclusive growth, meeting the millennium development goals and raising India’s human development index. The biggest challenge facing our country is that besides ensuring energy security of the nation, India also needs to
India's primary energy use is projected to expand massively to deliver a sustained GDP growth rate of nine per cent through 2031-32, even after allowing for substantial reduction in the energy intensity. It has been estimated that for India the CO2 emissions will continue to grow for some time, because there is a need to increase the currently low per capita levels of energy use to support growth and reach the Millennium Development Goals. Most of the available projections indicate that India's CO2 intensity per unit of GDP is likely to continue to decline through 2030-2050.

4.5 NATIONAL ACTION PLAN FOR CLIMATE CHANGE

"Without a careful long-term strategy, climate change may undermine our development efforts, with adverse consequences, across the board, on our people’s livelihood, the environment in which they live and work and their personal health and welfare. It is also a challenge which encompasses the interests of both present and future generations. We have the moral responsibility to bequeath to our children a world which is safe, clean and productive, a world which should continue to inspire the human imagination with the immensity of the blue ocean, the loftiness of snow-covered mountains, the green expanse of extensive forests and the silver streams of ancient rivers. This is a world which we hold in trust, a world which has created and nurtured life for countless generations." - Prime Minister - Dr. Man Mohan Singh
The National Action Plan on Climate Change is India’s efforts towards addressing climate change. It outlines a number of steps to simultaneously advance India's development and climate change-related objectives of adaptation and mitigation. The plan seeks to identify measures that promote the developmental objectives of the nation and also prepare the nation to climate change. The NAPCC has set out 8 missions as the way forward in implementing the Government’s strategy and achieving the objectives. The focus of these missions is on “promoting understanding of climate change, adaptation and migration, energy efficiency and natural resource conservation.” The 8 national missions are, The National Solar Mission; The National Mission for Enhanced Energy Efficiency; National Mission on Sustainable Habitat; National Water Mission; National Mission on Sustaining the Himalayan Ecosystem; National Mission for a Green India; National Mission for Sustainable Agriculture; National Mission for Strategic Knowledge of Climate Change.

4.5.1 National Solar Mission

The national solar mission or the Jawaharlal Nehru National Solar Mission is an initiative of the Government of India to promote solar based energy to ensure sustainable development. Solar energy will contribute to the global efforts to curb the menace of climate change. In launching India’s National Action Plan on Climate Change on June 30, 2008, the Prime Minister of India, Dr. Man Mohan Singh stated:

“Our vision is to make India’s economic development energy-efficient. Over a period of time, we must pioneer a graduated shift from economic activity based on fossil fuels to one based on non-fossil fuels and from reliance on non-renewable and depleting sources of energy to renewable sources of energy. In this strategy, the sun occupies centre-stage, as it should, being literally the original source of all energy. We will pool our scientific, technical and managerial talents, with sufficient financial resources, to develop solar energy as a source of abundant energy to power our economy and to transform the lives of our people. Our success in this endeavour will change the face of India. It would also enable India to help change the destinies of people around the world.”

Last Accessed on 15/09/2012 at 7.00 pm
As India is a tropical country it can cash onto the availability of sunshine, which is available for longer hours in order to generate energy. India has great potential as an energy source. In most parts of India, clear sunny weather is experienced 250 to 300 days a year. The annual global radiation varies from 1600 to 2200 kWh/m², which is typical of the tropical and subtropical regions. The average solar insolation incident over India is about 5.5 kWh/m² per day. Just 1% of India's land area can meet India's entire electricity requirements till 2030. The solar mission will cater to effective distribution of energy to the grassroot levels. The mission aims at tapping the newer, reactor based technologies that could enable setting up megawatt scare solar power plants across the country. Another aspect of the Solar Mission would be to launch a major R&D programme, which could draw upon international cooperation as well, to enable the creation of more affordable, more convenient solar power systems, and to promote innovations that enable the storage of solar power for sustained, long-term use.

According to the National Action Plan on Climate Change, The National Solar Mission would be responsible for:

- the deployment of commercial and near commercial solar technologies in the country;
- establishing a solar research facility at an existing establishment to coordinate the various research, development and demonstration activities being carried out in India, both in the public and private sector;
- realizing integrated private sector manufacturing capacity for solar material, equipment, cells and modules
- networking of Indian research efforts with international initiatives with a view to promoting collaborative research and acquiring technology where necessary, and adapting the technology acquired to Indian conditions;
- Providing funding support for the activities foreseen under (1) to (4) through government grants duly leveraged by funding available under global climate mechanisms, and earnings from deployment of research sponsored by the

55 Ibid 54
56 Ibid 54
Mission. Policy and Regulatory measures for promotion of solar technologies would also be enhanced as common to all renewables based technologies.

The national solar mission intends to adopt latest technology to tap the abundant solar energy in India. Like,

- **Solar Thermal Power Generating Systems (STPG) or Concentrating Solar Power (CSP):** use concentrated solar radiation as high temperature energy source (> 500°C) to produce electricity. STPG technologies are now on the verge of significant scale commercialization.\(^{57}\)

- **Photovoltaic generation:** In photovoltaic generation, solar energy is directly converted to electricity using a semi-conductor, usually a silicon diode. However, while there are other semi-conductors (e.g. cadmium telluride) that may be used for power generation, most of them are at various stages of R&D.\(^{58}\)

### 4.5.1.1 Implementation of the Plan

About 84 MW worth of existing projects have been selected for migration to the JNNSM as of 25 July 2010, of which solar PV accounts for 54 MW and solar thermal the rest. The selected projects are in the states of Maharashtra, Punjab and Rajasthan.\(^1\) The goal of the JNNSM for solar PV for the year 2010–11 is 150 MW, which includes 54 MW of migrated projects. The remaining 350 MW out of the 500 MW of target set for phase I for solar PV will be sanctioned in the year 2011–12.\(^59\) The plan is sought to be implemented by the JNNSM in three phases spanning the remaining period of the Eleventh Plan and first year of the Twelfth (up to 2012–13) as Phase 1, the remaining four years of the Twelfth Plan (2013–17) as Phase 2, and the Thirteenth Plan (2017–22) as Phase 3.\(^60\) At the end of each plan there will be an evaluation report prepared. As per the JNNSM, plans have been made to ramp up capacity of grid connected (33 kV and above) solar power generation (solar PV and CSP) to 1,000 MW within three years, that is, by 2013; and an additional 3,000 to 9,000 MW by

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\(^{57}\) Ibid 54

\(^{58}\) Ibid 54


\(^{60}\) http://www.unsd2012.org/index.php?page=view&type=99&nr=9&menu=20 last accessed on 13/09 2012 at 10.20pm
2017 through the mandatory use of a renewable purchase obligation by utilities backed with a preferential tariff. This capacity is planned to reach 20,000 MW installed power by 2022 or more, based on an enhanced and enabled international finance and technology transfer. The target for off-grid applications has been set at 1,000 MW by 2017 and 2,000 MW by 2022.\textsuperscript{61}

The mission seeks to involve solar project developers, National Thermal Power Corporations, NTPC Vidyut Vyapar Nigam and state nodal agencies. the solar project developers will sigh power purchase agreements with NVVN which will be subject to the tariff rates set out by the nodal agencies. the NVVN will be responsible for formulating guidelines and ensuring its effective implementation.

4.5.1.2 International Law and Solar Mission

National Solar Mission - marred with controversy and inefficiency: The biggest controversy plaguing the mission are the guidelines requiring the solar developers to use the PV project modules from small and medium manufacturers in India. The developers refer source modules by accessing the competitive global market. These guidelines have also been subject to severe criticism from the United States of America and the EU countries.\textsuperscript{62} While local content requirement is part of many investment policies, it appears to be against the principles of General Agreement on Tariffs and Trade (GATT) as well as Agreement on Trade Related Investment Measures (TRIMs) as it accords less favorable treatment to foreign investors.\textsuperscript{63} In addition to this the objectives of the mission are unclear and the actions are not aligned with the development needs. No proper consultation was conducted before the mission was formulated.

4.5.1.3 National Mission for Enhanced Energy Efficiency

The National Mission for Enhanced Energy Efficiency (NMEEE) is a part of the National Action Plan on Climate Change providing for ecological sustainability. The

\textsuperscript{61} http://www.planningcommission.gov.in/plans/planrel/fiveyr/7th/vol2/7v2ch19.html, last accessed on 10/09/2012 at 10.45 pm

\textsuperscript{62} http://articles.economictimes.indiatimes.com/2012-03-31/news/31266631_1_trade-related-investment-measures-local-content-requirement-wto last accessed on 16/09/2012 at 10.30 pm

\textsuperscript{63} Ibid 62
striving need under policy is reducing energy consumption by adopting energy
efficient measures in various sectors. It deals with basic four goals of enhancing
energy savings with cost effective measures, focusing upon future energy savings,
promoting energy efficient appliances, developing energy savings mechanism and
creating awareness about the same, etc. The implementation of policy is handled by
the Ministry of Power (Union) and Bureau of Energy Efficiency (BEE). The central
cabinet has approved the plan w.e.f 2010-2011 with a budgetary sanction of 235.38
crores.

4.5.1.4 Provisions of Statute

The Energy Conservation Act, 2001 is the pioneering statute in energy efficiency
governance policy in India. S.14 provides for energy improvements targets in
comparison to current energy intensity. S. 3 provides for establishing BEE which is
executive authority to implement the Act. The statute also provides for penalty in case
of contravention of Act by industries, etc. S. 18 and S. 15 respectively provides
powers of Central and State Govt. to pass directions to execute the Act. In case of
disputes under the Act, it can be referred to Appellate Tribunal and appeal from such
Tribunal’s decision can also be made to Apex Court u/s. 45.

4.5.1.5 Judicial Approach

In Kapil Gupta v. Union of India, the High Court of Delhi had dealt with the energy
efficiency and cost effectiveness of CFL’s bulbs wherein certification of quality of
6000 hours set under S.14 of bureau of Indian Standards Act, 1986 was challenged on
the grounds of arbitrariness. The Court struck down the plea holding that in interest of
environmental need, energy efficient appliances are eco friendly and although might
be quite costly if provides good quality are to be promoted and Court shall not
interfere in such policies.

Furthermore, in Tata Power Co. Ltd. v Maharashtra Electricity Regulatory
Commission, the question before the Tribunal was whether to allow the power

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64 Section 48 of Energy Conservation Act, 2001
65 Section 30 of Energy Conservation Act, 2001
67 Decided on 31 August, 2012 in Appeal No. 17,18,19 of 2011 by Appellate Tribunal for Electricity.
purchase costs demanded by the petitioner against the respondent (disallowed by the respondent). The Tribunal examined the Energy Conservation Act, 2001 and held in favour of petitioners that the function of petitioner i.e.: distributor licensee does not include end use efficiency and the end consumers are responsible for the energy efficiency and conservation of energy due to which the costs determined by the petitioners must be allowed.

4.5.1.6 International Law

The United Nations Framework Convention on Climate Change had considered the vulnerability assessment and accordingly in light of international need for energy efficiency and better ecology, Govt. of India in 2007 assessed the environmental impact and understood the importance of energy conservation and efficiency which can reduce pollution and cleaner energy could be implanted in accordance with international standards.

4.5.1.7 Comparative Study

In UK, Energy Conservation Act, 1981 provides regulations for energy consuming appliances for low energy consumption and state grants are provided for energy conservation schemes to promote it and allied enforcement and penalty mechanisms are provided in the law for better implementation.

In Denmark, Energy 2000 Plan of Action provides for dual goals of lesser damage to environment and energy system consistent with sustainable development whereby broadly, efficient energy production, cleaner sources of energy, savings in consumption, etc has been considered.

Whereas in Japan; Use of Energy Act, 1979 sets up standards for rational use of energy through constant surveillance and improvement mechanisms with penalties for non compliance of Act.

4.5.1.8 Shortcomings

The Indian statute and policy focuses only upon industry sectors for energy efficiency due to which the scope is narrowed. Secondly, the penalty prescribed under the 2001
Act is not deterrent and effective due to which noncompliance is easily forgiven. Thirdly and most importantly, the Indian policy assumes that reducing inefficient use of energy will save energy but focus shall be upon renewable sources of energy which are eco-friendly which must be promoted and incentives must be provided.

4.5.1.9 Suggestions

In light of rising fuel and electricity prices in India, renewable sources of energy shall be promoted and incentives must be provided for the same with subsidies so that rather than using less sources of energy, proper eco-friendly sources of energy must be used disregard with its quantity of usage for energy conservation.

4.5.2 National Mission on Sustainable Habitat

The National Mission on Sustainable habitat aims to make cities sustainable through energy efficient constructions, proper management of solid waste, promotion of public transport for better urban planning and recycling for cleaner environment.

4.5.2.1 Provisions of Statute

The relevant statute relating to above targets in India could be Energy Conservation Act, 2001 whereby efficient and low consuming energy appliances can be used in buildings in urban locations for better energy conservation. Further, to manage solid waste disposal, Management of Municipal Solid Waste (Management and Handling) Rules, 1999 has been notified by Central Govt. for proper treatment of solid waste.

For effectively dealing with natural disasters, Disaster Management Act, 2005 has been formed wherein Chapter 5 of the Act provides for measures to be taken by Central and State Govt. for disaster management. Under S. 44, National Disaster Response Force has been created whose task is to respond effectively to disaster in any part of the nation. Furthermore, duty has been casted upon the Govt. department and in case of failure to response to disaster, offences would be registered and concerned Govt. officer would be penalized. Even Companies and Corporate

68 Section 56 of Disaster Management Act, 2005
bodies are also covered for breach of duty and they are liable for commission of offence.\textsuperscript{69}

4.5.2.2 Judicial Approach

In \textit{Almitra H. Patel v Union of India}\textsuperscript{70} and \textit{Dr. B.L. Wadehra v Union of India}\textsuperscript{71}, the Supreme Court analyzed the waste management laws and directed the authorities for scientific and proper disposal of waste. Thereby, strict implementation was sought for by levying charges on wrongdoers who would pollute the public places.

In landmark case of \textit{MC Mehta v Union of India}\textsuperscript{72}, PN Bhagwati J. held that a national policy is required whereby hazardous waste and chemicals have to be located in population scanty areas where there would be lesser risk to human sustainability.

4.5.2.3 International Law

The International law is not fully developed on issue of sustainable habitat but certain components of Indian policy can be found separately under international law. For example, waste disposal has been dealt by Royal Commission on Environmental Pollution\textsuperscript{73} wherein it recommends for waste incineration which would play a vital effect in future development of waste disposal. However, it was criticized that such incineration techniques leads to air pollution and focused was to be achieved on waste minimization.

Further, the United Nations Convention on Control of Transboundary Movements of Hazardous Waste and their Disposal (Basel Convention, 1992) proposed for consent (written confirmation) of importer country where waste is dumped and if exporter of waste doesn’t get required permissions and still continues the dumping activity, then a criminal offence has to be registered.

As far as urban transport is concerned, International Energy Agency, 2006 Report provides that transport energy use amounted to 26 \% of world energy use and

\textsuperscript{69} Section 58 of Disaster Management Act, 2005
\textsuperscript{70} 2000 (2) SCC 679
\textsuperscript{71} 1996 (2) SCC 594
\textsuperscript{72} 1986 (2) SCC 176
\textsuperscript{73} 17\textsuperscript{th} Report in May, 1993.
resulting to 23% of emission of world pollution. Due to this, the condition is alarming which needs immediate attention of the global community\textsuperscript{74}.

4.5.2.4 Comparative Study

In USA, sustainable construction standards are made by the US Department of Energy for sustainable building and construction wherein exhaustive criteria are provided such as using appliances with energy stars, increasing the green cover in the residential areas, promoting renewable sources of energy, water conservation, recycling products, etc. This plans leads to national changes and uniformity in construction buildings and recycling ultimately benefiting green environment. With regard to waste disposal and sustainable habitat, USA passed Solid Waste Disposal Act, 1960 to deal with solid waste disposal problem.

In UK (regarding waste management), European Community Treaty\textsuperscript{75} provides for prevention of waste at source through proper design of products and waste has to be disposed at the country of origin. Furthermore, the Control of Pollution Act, 1974 passed comprehensively by UK deals with various regulatory and control measures for waste disposal. The 1975 ‘Framework Directive’ has been developed in Europe which provides for treatment of hazardous waste. Later, the regulations were replaced by Waste Management Licensing Regulations 1994 for better enforcement and uniform policy in Europe.

4.5.2.5 Suggestions

The sustainable habitat policy is of broadest scope wherein various urban development schemes such as water conservation, storm water management, waste disposal, energy conservation in urban infrastructure, sewage system, urban transport, etc have been targeted. But, the shortcomings of above mission lies in heavy and bulky requirement of execution which would require huge amount of funds from public exchequer, human resource, planning, time, etc. Due to this, the focus must be shifted on completion of projects gradually on a constant basis wherein time-period must be stipulated. In addition to this, the existing legal system and mechanisms

\textsuperscript{74} \url{www.un.org/esa/sustdev/csd/csd14/escwaRIM_bp1.pdf}, last accessed on 02/09/2012 at 04.00 pm.
\textsuperscript{75} Article 174(2)
related to agendas mentioned above under sustainable habitat must be made flexible to bear the modern changes proposed under the present scheme.

4.5.3 National Water Mission

4.5.3.1 Framework of Law on Water in India

The subject of water in the Constitution is in Entry 17 of the List II (State List) of Seventh Schedule subject it is subject to Entry 56 of the Union List. Entry 56 however only provides for inter-state rivers and so the field in which the Union can legislate is limited. So, every states have its own system of laws prevailing in the state.

- Central Laws

The Centrals Laws relating to water are Northern India Canal and Drainage Act, 1873, Inter-States Water Disputes Act, 1956, River Boards Act, 1956, and Water (Prevention and Control of Pollution) Act, 1974

- State Laws

Many states have passed laws relating to ground water and irrigation systems. Some of the state laws on ground water are Kerala Ground Water (Control and Regulation) Act, 2002, Karnataka Ground Water (Regulation for protection of sources of drinking water) Act, 1999, West Bengal Ground Water Resources (Management, Control and Regulation) Act, 2005, etc.


4.5.3.2 International Framework

The international framework is limited with respect to water. India has treaties with its neighbors with respect to distribution of water resources. Farakka treaty,\textsuperscript{76} Treaty on Sharing of the Ganges Waters at Farakka, New Delhi, 12 December 1996, 36 Int’l Leg. Mat. 519 (1997)
on the Law of the Non-navigational Uses of International Watercourses, New York, 21 May 1997 (India is not signatory to this convention), Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Ramsar, 2 February 1971 are some of the codes which from an international framework on water.

4.5.3.3 Policy National Water Mission

Under the National Water Mission of the Ministry of Water Resources, some of the specific action points which are planned to be completed in a time bound manner are as follows:

- Comprehensive water database in public domain and assessment of impact of climate change on water resources
- Promote citizen and state action for water conservation, augmentation and preservation and Expeditious formulation of river interlinking projects
- Focused attention on over-exploited areas through Intensive rainwater harvesting and groundwater recharge programme in over-exploited and urban areas.
- Increasing water use efficiency by 20 percent by recycling, improving supply system, water audit and introducing water positive technologies.
- Promote basin-level integrated water resources management and periodical review of National Water Policy.

4.5.3.4 National Water Policy, 2012


- Some of the Central Features of the Revised Draft National Water Policy, 2012 are as follows: The Preamble sets the framework for the policy, including the present scenario, concerns, and basic principles of water

resource management. This mentions the interdependence of all elements of the hydrological cycle, and of the need for equity.

- The framework law emphasises the need to manage water under public trust doctrine and recommends the modification of existing acts that give proprietary rights over groundwater.

- The policy lays a great stress on adaptation to climate change. This section mentions variability in water resources, the need to experiment with cropping patterns, and describes dams and flood embankments as coping strategies.

- The section on enhancing water available for use lays heavy stress on large centralized engineering both while estimating water availability and while determining a strategy for future use. Inter-basin transfers, ‘integrated watershed development activities with groundwater perspectives’ for increasing land and water productivity are some of the initiative in the Policy.

- Water audit, institutional arrangements for demand management, reuse and recycle are considered under the section on demand management and water efficiency.

- The section on water pricing states that beyond basic needs, water is to be treated as an economic good and priced accordingly. Differential pricing for basic needs, volumetric pricing, incentives for recycling water and the establishment of a state water regulatory authority are the measures suggested in the draft.

- The policy also envisages Conservation of river corridors, water bodies and infrastructure, Project planning and implementation which concerns itself with the speedy execution of projects through concurrent monitoring by the State and the Centre. Similarly, it recommends that hydropower projects should be planned with provision of storage. This ignores the several studies and testimonies that prove that storage-based hydroelectricity projects are catastrophic to earthquake-vulnerable and biodiversity-rich areas like the Himalayas.
- The policy makes way for Strategies and Mechanisms for Management of flood and drought, Institutional arrangements for developing mechanisms to resolve water disputes within the states and at the national level and developing bilateral agreements while maintaining national interests with neighboring countries.

- The section on Database and information system recommends that the National Water Board create and monitor the implementation of a plan of action based on the water policy.

4.5.3.5 Recent Case Laws

The Supreme Court has laid down a landmark judgment relating to Interlinking of Rivers Programme in India in “In Re: Networking of Rivers”\(^78\). The programme is pending since a long period of time in India. The Supreme Court issued a writ of Mandamus directing the Union of India to constitute a Committee to be called a “Special Committee for Inter-linking of Rivers” and exhaustively laid down the members of the Committee. The Supreme Court also found that Interlinking of Rivers was part of the National Water Policy.\(^79\)

The Court held that primarily there was unanimity between all concerned authorities including Centre and a majority of State Governments, with exception of one or two, that implementation of river linking would be very beneficial. The court relied on a plethora of reports to reach its finding\(^80\).

In Pepsi Co. India Holding Pvt. Ltd. v State of Maharashtra\(^81\), the Supreme Court referring the National Water Policy held that the Corporation was well within its limits to increase the rate of water supplied to Pepsi Co. to 10 times. The Corporation has the power to levy revised rates of water.

\(^{78}\) (2012) 4 SCC 74
\(^{79}\) Ibid, Para. 8
\(^{80}\) report of the national commission to review the working of the constitution, department of Legal Affairs, Ministry of Law, New Delhi, 31\(^{st}\) March 2002
\(^{81}\) AIR 2011 SC 3316
In Gujarat Forest Producers and Forest workers Union v State of Gujarat, the question before the High Court of Gujarat was whether forest and irrigation sectors can be classified as industry for the purpose of Industrial Disputes Act, 1947. The Court referred to the National Water Policy, 2002 which stated that water in India was considered as a natural resource, a national asset and a basic human need and not an economic good. Thus, the court held irrigation sector cannot fall within the term ‘industry’. The Court in India has referred the National Water Policy in few other cases as well.

4.5.3.6 Comparison of Water Policy of India with United States

The U.S Congress had enacted the Nation Water Commission Act, 1973 to review national water resource problems, making such projections of water requirements as may be necessary and identifying alternative ways of meeting these requirements—giving consideration, among other things, to conservation and more efficient use of existing supplies, increased usability by reduction of pollution, innovations to encourage the highest economic use of water, inter-basin transfers, and technological advances. The stress of U.S. Water Policy is more on Pollution as compared to India. The United States incorporates economic concepts such as ‘polluter pay principle’ and full-cost pricing in its policy on water. It treats water as an economic good whereas India still subsidizes water for industry and farmers. A suggestion to treat water as an economic good and withdrawing subsidy was taken back from the National Water Policy, 2012 due to intense opposition. There is private participation in the distribution network in United States whereas it is absent in India. Economic principles such as PPP are not taken into account in India for pricing of water neither do they find a place in the water policy. United States Water Policy lays a stress on more initiative by the federal government where the Constitution is strictly federal. In India, water is a subject under Entry 17 of State List but it is subject to Entry 56 of the Union List.

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82 2004 GLH (24) 302
83 Ibid, Para. 5.2
85 Hereinafter referred to as PPP
4.5.3.7 Limitations

A major Limitation is in a democracy especially like India is that the government always has to give in to the populist opinions. The privatization of the water distribution system in the country would have revolutionized the sector like privatization in the electricity sector has done in many states of India. Privatization of telecom as well as aviation sectors has reaped huge benefits for the consumers. Also, the government has failed to take into account principles such as PPP in the pricing of water beyond basic human needs. The government is at the forefront of making policies but the implementation has been absent. Important projects like Inter-Linking of Rivers have remained dormant since decades now. It is high time the government wakes up from its deep slumber.

4.5.4 National Mission For Sustaining The Himalyan Ecosystem

4.5.4.1 Mission Objectives

The primary objectives of the mission include:

- Building Human and Institutional capacities on climate change related aspects
- Network knowledge institutions and develop a coherent database on all knowledge systems
- Detect and decouple natural and anthropogenic global environmental changes and project future trends on potential impacts
- Assess the socio-economic and ecological consequences of global environmental change and design appropriate strategies for growth in the economy of the region
- Study traditional knowledge systems for community participation in adaptation, mitigation and coping mechanisms
- Evaluate policy alternatives for regional development plans
- Create awareness amongst stakeholders in the region
• Develop regional cooperation to generate a strong knowledge and database for policy interventions.\(^86\)

The mission is launched with the objectives to evolve management measures for sustaining and safeguarding the Himalayan glacier and mountain eco-system. The mission recognizes that an understanding and awareness should be created about the recession of the Himalayan glaciers as Himalayan glaciers are a key source of many perennial rivers in India.

The mission seeks to coordinate the efforts of climatologists, glaciologists and other experts and exchange information with the South Asian countries and countries sharing the Himalayan ecology. By this way, it envisages a strong database of knowledge and policy interventions.

The mission plans to provide incentives to community organizations and panchayats for protection and enhancement of forested lands, to maintain two-thirds of the area under forest cover in order to prevent erosion and land degradation and ensure the stability of the fragile eco-system.

4.5.4.2 Judicial Approach

The case laws relating to the protection of the Himalayan Ecosystem are few. However, whenever possible, the judiciary has not abdicated its function of protecting the Environment. The cases highlight the importance of the Himalayan ecosystem for the country and also depict how fragile the ecosystem is. In Matri Sadan v Himalayan Stone Crusher Pvt. Ltd\(^87\), the Himalayan Stone Crusher Company was running its activities of crushing stone boulders and mining from the nearby flowing stream of Ganga in the outskirts of town Haridwar. The court observed that in spite of the fact that the mining activity was at a short distance of surrounding villages as well as the area of the Rajaji National Park besides being close to the flowing current of National river Ganga, still the owner of this Crusher could remain successful in procuring

\(^86\)http://www.nicra.icar.in/nicrarevised/images/Mission%20Documents/NMSHE _June_2010.pdf Last accessed on 11/09/2012 at 6.30 pm

\(^87\)2011 (2) UC 1236
license from the concerned authority to establish and run the same ignoring the several guidelines

Under the garb of running the crusher and lifting the boulders, the crusher-owners started to dig the floor and banks of National river Ganga. The court then aptly elaborated the effect of the stone crushing activity on the Himalayan Ecosystem which clearly shows why the ecosystem is extremely fragile. The Court observed:

- Due to consistent digging and mining in the Ganga by the crusher including, the Ganga has become deepened, as a result of which the millions of acre of surrounded land has lost its water level which has been gone deep with the result that irrigation activities through borings, tube wells in the agricultural surrounding fields have been very adversely affected. Even Hand pumps in the surrounding rural areas to provide drinking water to the common people had been without water in their borings.

- The stone crushing has caused large scale air pollution in the area because has destroyed the agricultural activity in the area and the orchids of mangoes and other fruits. As a result, farmers have been forced to sell their lands at cheap prices.

- The high noise pollution has a deleterious effect for the wild animals, which are amply populous in the surrounding jungles as well as Rajaji National Park and by this noise pollution they are forced to make their way in the standing agricultural crops to ruin the same.

- The heavy vehicles transporting the boulders have heavily damaged the bridge through which they pass and which had been constructed to save the area from the flood in the Ganga River. If the bridge was ruined then it could have caused a great insecurity at the time of flood in Ganga river.

- The illegal mining which was the result of the closely located crusher had caused soil erosion in a very large area running parallel at the edges of flowing Ganga. The sand erosion had reduced the agricultural land and destroyed the forest to make all nearby villagers landless. The surrounding forests which
were enriched with the trees of "KHER" and "SHISHAM" had been adversely affected due to the irresponsible mining activities.

- The stone crushing was against Mining Policy, 2001\(^{88}\) that the Crushers should be at least 5 Kms away from any Aabadi, School or college, hospital, temple and Ganga.

The Rural Litigation and Entitlement Kendra v State of Uttar Pradesh\(^{89}\) case again involved illegal mining of limestone near the area of Mussorie. The Supreme Court had specially observed that it is necessary that the Himalayas and the forest growth on the mountain range should be left uninterfered with so that there may be sufficient quantity of rain. The top soil may be preserved without being eroded and the natural setting of the area may remain intact\(^{90}\). The Court had observed that deep forests on the lower hills had caused congenial conditions for good rain\(^{91}\). The Court while appreciating the NGO remarked that it is the fundamental duty of every citizen to protect the environment under Article 51A of the Constitution\(^{92}\).

4.5.4.3 Limitations Observations

The Mission does little to tackle the specific activities which cause a lot of harm to the Himalayan Ecosystem. The Himalayan Ranges are replete with minerals and are subjected to a lot of illegal mining. The Mission does not contain any specific objective to deal with the problem of mining in the area. Also, it is a well-known fact that there is a lot of corruption which takes place in giving away licences for mining and until, the problem is resolved, the Mission will be of little\(^{93}\).

The Mission makes a lot of provision for the gathering, networking and co-ordinating the knowledge about the Himalayan Ecosystem, the climate change effect on the glaciers of the Himalayas etc. However, there is little which science provides to overturn the effect of global warming on the ice glaciers. The courts have recognised

\(^{88}\)As amended by the Government on 05.11.2007
\(^{89}\) AIR 1987 SC 359; Kiakri Devi v State of Himachal Pradesh 1993 (1) Shim LC 185, Para. 20
\(^{90}\) Ibid, Para 19
\(^{91}\) Ibid, Para 11
\(^{92}\) Ibid, Para 20
the special importance of the Himalayan Ecosystem but the government has failed to enact any special code of rules or legislation concerning the Himalayan Range.

4.5.5 National Mission for Green India

The national Mission for a green India or the Green India mission is one of the eight National missions under India’s National Action Plan on Climate change, announced by the Honourable Prime Minister in June 2008. It lays emphasis on making a fundamental shift in mindset from traditional focus of increasing the quantity of forest cover to increasing the quality of forest cover. The Mission proposes to take a holistic view of forestry, and not merely focuses on plantation to meet carbon sequestration targets. There is also a deliberate and major focus on decentralization and a conscious attempt to involve local governmental institutions in the implementation of the Mission. The plan is to engage the public citizens and civil society in the design of the mission itself. It recognizes that the climate change phenomenon will seriously affect and alter the distribution, type and quality of natural resources of the country. the National Action Plan on Climate Change addresses the critical concerns of substantial development and identifies the close linkage of the economy with its natural resource base, and cautions that climate sensitive areas such as forestry may face a major threat because of the projected changes in climate. This will have repercussion for livelihoods of people in general and forest dependent communities in particular.

The Green India Mission therefore puts the “greening” in the context of climate adaptation and mitigation, aiming to enhance ecosystem services like carbon sequestration and storage (in forests and other ecosystems), hydrological services and biodiversity; along with provisioning services like fuel, fodder, small timber and NTFPs.

4.5.5.1 Main Objectives

The main objective of the Green India Mission is to double the area to be taken up for afforestation over the next ten years, taking total afforested area to twenty million hectares. It would double up the area taken up under eco restoration. The forest area treated under the mission that would equal the area to be taken by the forest department and the other agencies over the next decade through the schemes and programmes initiated by the mission. The mission also aims to achieve the objective
of increasing greenhouse gas sequestration by India’s forest to 6.35 percent of yearly emissions by the next decade. It is an increase of 1.5 percent over efforts in absence of the Green India Mission. The Green Mission India hopes to approach carbon sequestration through restoration of ecosystems rather than by promoting plantations. It seeks to address the drivers of forest degradation including fuel wood extraction and livestock grazing, enabling local communities to play a central role in project governance and maintenance. It also intends to select landscapes based on criteria such as vulnerability to climate projections and potential for carbon sequestration within a robust monitoring framework.

4.5.5.2 Mission

The Mission will have clear targets for different forest types and ecosystems which will enable achieving the overall objectives of the Mission. The Mission targets can be classified into the following:

- 2.0 m ha of moderately dense forests show increased cover and density
- 4.0 m ha of degraded forests are regenerated/afforested and sustainably managed
- 0.10 m ha of mangroves restored/established
- 0.10 m ha of wetlands show enhanced conservation status
- 0.20 m ha of urban/peri urban forest lands and institutional lands are under tree cover
- 1.50 m ha of degraded agricultural lands and fallows are brought under agro-forestry
- 0.10 m ha of corridor areas, critical to wildlife migration are secured
- Improved fuel wood use efficiency devices adopted in about 10 million households (along with alternative energy devices)
- Biomass/NTFP based community livelihoods are enhanced that lead to reduced vulnerability

4.5.6 National Mission for Sustainable Agriculture

The National Mission for Sustainable Agriculture (NMSA), which is one of the eight Missions under the National Action Plan on Climate Change (NAPCC) seeks to
address issues regarding ‘Sustainable Agriculture’ in the context of risks associated with climate change by devising appropriate adaptation and mitigation strategies for ensuring food security, equitable access to food resources, enhancing livelihood opportunities and contributing to economic stability at the national level.

The Mission acknowledges that the risks to the Indian agriculture sector due to climatic variability and extreme events would be accentuated at multiple levels including at the levels of crop or livestock, farm or cropping system and the food system. Adverse impacts on agricultural production would be severe in the absence of appropriate adaptation and mitigation measures with far reaching consequences in terms of shortages of food articles and rising prices which could endanger the food and livelihood security of our country. The Mission, therefore, seeks to transform Indian agriculture into a climate resilient production system through suitable adaptation and mitigation measures in the domain of crops and animal husbandry. These interventions would be embedded in research and development activities, absorption of improved technology and best practices, creation of physical and financial infrastructure and institutional framework, facilitating access to information and promoting capacity building. While promotion of dry land agriculture would receive prime importance by way of developing suitable drought and pest resistant crop varieties and ensuring adequacy of institutional support, the Mission would also expand its coverage to rain fed areas for integrating farming systems with management of livestock and fisheries, so that agricultural production continues to grow in a sustainable manner.

4.5.6.1 Main Objectives and Targets

Rain fed Agriculture: - in such areas the need for development of drought and pest resistant crop varieties while improving the methods to conserve soil and water to ensure optimal utilization. It can only be done by generating awareness through stake holder consultations, training workshops and demonstration exercises for farming communities, for agro-climatic information sharing and dissemination which would be extensively taken under the plan.
4.5.6.2 Risk Management

Strengthening existing agriculture and weather insurance mechanisms. Development and validation of weather derivative models by insurance providers. Ensure access to archival and current weather data for this purpose. This could be done by creating a well web enabled, regional language based services for facilitation of weather based insurance. one of the main targets to reduce risk is by mapping vulnerable eco-regions and identification of pest and disease hotspots and implementation of region-specific contingency plans based on vulnerability and risk scenario.

4.5.7 National Mission On Strategic Knowledge For Climate Change (NMSKCC)

The National Mission on Strategic Knowledge for Climate Change (NMSKCC) seeks to build a dynamic knowledge system that would inform and support national policy and action in addressing the climate change challenges while not compromising on the nation’s growth goals. This, it seeks to achieve through a combination of knowledge infrastructure, institutional inter-connections, capacity building and mission mode programmes well supported by an inter-ministerial co-ordination mechanism. Among the key deliverables of the mission are:

- 10 thematic knowledge networks in the areas of climate science, climate modeling, adaptation across GDP critical sectors, energy generation technologies, emission inventories
- 10-12 technical report on sub-mission programmes concerning Indian monsoon, glaciers melt, frequency and intensity of natural disasters such as floods, droughts, cyclones, earth quakes
- Regional and disaggregated climate models
- 50 Chair professorships in climate science and technology and about 200 trained specialist climate change researchers
- At least 3 PPP programmes in adaptation and mitigation technologies
- Technology Watch Groups across climate science, renewable energy, clean coal, sustainable habitats, solar, waste etc.

(Source: NMSKCC Mission Document, 2010)
• Thematic reports on technology policy interfaces in the areas of per capita emissions at various GDP growth rates, energy
• Technology collaborations with the USA, EU, Japan, China on areas identified in the mission elaboration from time to time

4.5.7.1 Analysis of Plan

While the broader objectives and the deliverables are a step in the right direction, there is a strong need for reprioritization of the themes and approaches to realizing the mission deliverables. These will have to have a sharp focus across four axes: technology, markets, and policy, capacity well supported by a strong technology led collaboration and co-ordination platform. Further, across each of the axes appropriate interventions will have to be thought through rigorously and with substantial budget allocations than are currently envisaged. Such interventions could take the form of new institutions, programme and partnership models, network interconnections, or re-hashing of the research priorities.

The goals and targets are clear but are not sufficiently ambitious. Local effects of warming and the resultant vulnerability, which need to be understood to improve our capacity for adaptation, are not emphasised. There is also little effort to build interdisciplinary knowledge on the impact of climate change, which would be vital to policy formulation. In addition, the mission fails to focus on the kind of knowledge generation required for climate proofing development activities which may require new strategies and approaches.

4.5.7.2 Implementation

‘Building Human and Institutional Capacities’, a focus of the mission, was launched with SCOPUSTM data providing a list of 100 institutes and 100 scientists, of which 30 institutes were invited to submit proposals for 15 topics in four broad categories: establishing and strengthening a Centre for Excellence (CfE), strengthening major programmes and building human capacity. Of the 29 proposals received from 19
institutions, 14 were selected (including proposals to set up 2 CfEs by the Indian Institute of Technology Bombay and the International Crops Research Institute for the Semi-Arid-Tropics (ICRISAT), which have been launched, while the rest have been initiated - funds and sanctions have been released till 31 March 2012. At least two thematic knowledge networks have been set up so far. A National Data Sharing and Access Policy (NDSAP) have also been launched. INCCA has released “Climate Change and India: A 4X4 assessment” to address concerns regarding the effects of climate change on natural resources and livelihoods. The process of formulating Professor-Chair-ship for the next 5 years has been initiated.

4.5.7.3 Potential Barriers to Implementation

Provisions for students and researchers to take advantage of facilities outside their parent institutes are limited, creating constraints for the mobility of students, knowledge sharing among researchers and interdisciplinary research. The Department of Science and Technology may not be able to effectively channelize funds towards interdisciplinary research.

4.5.7.4 Suggestions

- Technologies: Cost competitive and suited to Indian context
- Capacity: Radical re-thinking, learning curves, and execution on the part of current institutions and capacity, think tanks, research and development priorities, technology infrastructure to support deep and wide collaboration and co-ordination

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96 Hindu: ClimateAction Plan Needs to be Transparent, available at http://www.hindu.com/2008/07/01/stories/2008070152301300.htm last accessed on 5/09/2012 at 1.30 pm
100 Available at <http://moef.nic.in/downloads/others/CC_ghosh.pdf>? last accessed September 10, 2012
• Markets: GFCS Framework readiness for adoption, markets readiness, exemplar programme models; Policy: Science/evidence based approach to policy making, successful international collaborations
• Budgets: The proposed NMSKCC budgets of INR 150 cr and INR 2500 cr across XI and XII plan periods amount to INR 1.5 – 25 per person(@ 1 billion Indian population count). There is room for re-prioritization and better allocations in order to realize the set NMSKCC mission objectives.

4.6 THE CURRENT POSITION OF INDIA

4.6.1 India Post Stockholm

The development and progress of Indian environmental law has taken place for most of its part in the last three decades. With both legislative, as well as judicial efforts, India has seen the issue of the ‘environment’ and ‘environmental concerns’ come to the fore, creating awareness and making our legislators and administrators take a look at what was, what is and what needs to be done for maintaining environmental standards and protecting the environment.

If one were to name a single international environmental conference which had the deepest impact on the codification of Indian environmental laws, it would only be fair to say with conviction that the beginnings of modern Indian environmental law were sown at the Stockholm Conference in 1972. India was a participant and the conference led to some sort of realization that a framework of laws was necessary to deal with environmental hazards that would result from the stage of development that India was entering in the 1970s. Indian environmental law, prior to this consisted mainly of claims against tortuous actions of nuisance or negligence. The first real foundation for environmental protection was given to the statute book with The Water (Prevention and Control of Pollution) Act of 1974 followed by other major

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101 Justice B.N. Kirpal, Developments in India relating to Environmental Justice, available at http://www.lawteacher.net/indian-law/essays/indian-environment.php last accessed on 13/09/2012. This is in contrast to laws in countries such as England, which were sometimes a direct result of some mass environmental disaster; for example, the Clean Air Act of 1956 was the outcome of the deadly smog that killed over 4000 people in London in 1952 (The Act has since been replaced by the Clean Air Act of 1993).

Some action plans significant from the Indian perspective, post Stockholm included environment and development, natural resource management, identification and control of pollutants of broad international significance, the risks of nuclear energy and environmental impact assessment.

Under the influence of this declaration, the National Council for Environmental Policy and Planning within the Department of Science and Technology was set up in 1972. This Council later evolved into a full-fledged Ministry of Environment and Forests (MOEF) in 1985 which today is the apex administrative body in the country for regulating and ensuring environmental protection. After the Stockholm Conference, in 1976, constitutional sanction was given to environmental concerns through the 42nd Amendment, which incorporated them into the Directive Principles of State Policy and Fundamental Rights and Duties.

The Stockholm conference is honoured by references in the Air Act and the Environment Act – a result of effective applications of Article 253 of the Constitution, which gives the Parliament (India’s central legislature) the power to make laws implementing India’s international obligations, as well as any decision made at an international conference, association or other body\textsuperscript{103}.

Till today EPA (1986) remains India’s most significant and compressive environmental legislation, enacted to enable coordination of activities of various national authorities concerned with environmental protection and preservation. Moving beyond the Water and Air Acts, EPA stresses both monetary sanction and provision for punishments including imprisonment for any violation of the act.\textsuperscript{104}

\textsuperscript{102} The Preamble to the Act makes a specific reference to the Stockholm conference.

\textsuperscript{103} It has been pointed out that the Parliament has the power to legislate on virtually any subject in the State List by virtue of Entry 13 of the Union List, which covers participation in international conferences and the implementation of decisions made at the conferences.

Since the 1970s an extensive network of environmental legislation has grown in the country. The MoEF and the pollution control boards (CPCB i.e. Central Pollution Control Board and SPCBs i.e. State Pollution Control Boards) together form the regulatory and administrative core of the sector. The EAP (Environmental Action Programme) was formulated in 1993 with the objective of improving environmental services and integrating environmental considerations in to development programmes.

A policy framework has also been developed to complement the legislative provisions. The Policy Statement for Abatement of Pollution and the National Conservation Strategy and Policy Statement on Environment and Development were brought out by the MoEF in 1992, to develop and promote initiatives for the protection and improvement of the environment.


4.6.2 Legislative Framework for Environmental Protection

4.6.2.1 Water

• Water (Prevention And Control Of Pollution) Act, 1976

The Water Act gives statutory definition of pollution regarding water. A significant development in the Water Act, 1976 was the establishment of a Central Pollution Control Board (CPCB) which lays down standards for the prevention and control of water pollution, and the State Pollution Control Board (SPCB) which function under the CPCB’s and State Governments directions, for the prevention and control of water
But the Water Act does not refer to the Stockholm Conference and it was put in place as a result of state governments approaching the Centre from a long time to enact provisions for protecting water from pollution.

The Water Act must be credited for representing one of the first attempts at comprehensively dealing with environmental issues. The Act prohibits the discharge of pollutants into water bodies beyond a given standard, and lays down penalties for non-compliance. In 1998, the Act was amended to conform closely to the provisions of the Environmental Protection Act of 1986.

Today, water quality standards especially those for drinking water are set by the Indian Council of Medical Research. These bear close resemblance to WHO standards. The discharge of industrial effluents is regulated by the Indian Standard Codes and recently, water quality standards for coastal water marine outfalls have also been specified. In addition to the general standards, certain specific standards have been developed for effluent discharges from industries such as, iron and steel, aluminium, pulp and paper, oil refineries, petrochemicals and thermal power plants.

- **Water (Prevention And Control Of Pollution) Cess Act, 1977**

This Act provides for a levy and collection of a cess on water consumed by industries and local authorities. It aims at augmenting the resources of the central and state boards for prevention and control of water pollution. Following this Act, The Water (Prevention and Control of Pollution) Cess Rules were formulated in 1978 for defining standards and indications for the kind of and location of meters that every consumer of water is required to install.

- **The Coastal Regulation Zone Notification, 1991**

The CRZ notification lays down a list of prohibited industrial activities and those which are permissible in the coastal zones of India. It declares the coastal stretches of seas, bays, estuaries, creeks, rivers and backwaters which are influenced by tidal action (in the landward side) up to 500 meters from the High Tide Line (HTL) and the

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105 http://hspcb.gov.in/Water%20Act,%201974%20Relevant%20provisions.pdf last accessed on 12.05 am

106 http://moef.nic.in/divisions/ic/wssd/doc2/ch2.html Last accessed on 26/09/2012 at 12.10 am
land between the Low Tide Line (LTL) and the HTL as Coastal Regulation Zone; and imposes with effect from the date of this Notification, the following restrictions on the setting up and expansion of industries, operations or processes, etc. in the said Coastal Regulation Zone (CRZ)\(^{107}\).

Also under the CRZ notification, dumping ash or any other waste in the CRZ is prohibited. The thermal power plants (only foreshore facilities for transport of raw materials, facilities for intake of cooling water and outfall for discharge of treated waste water/cooling water) require clearance from the MoEF.

4.6.2.2 Air

- Air (Prevention And Control Of Pollution) Act, 1981

The Air (Pollution Control and Prevention) Act, 1981 in its preamble clearly mentions that this act was enacted to implement the decisions reached at the Stockholm Conference in so far as they relate to the preservation of quality of air and control of air pollution. To combat problems of air pollution, the Air Act set ambient air quality standards while providing means for the control and abatement of air pollution. The Act also confers power to the boards established under the Water Act, 1976, to attain the objective of the Air Act. The Act prohibits the use of polluting fuels and substances, and regulates appliances that give rise to air pollution. Under the Act establishing or operating of any industrial plant in the pollution control area requires consent from state boards. The boards are also expected to test the air quality in air pollution control areas, inspect pollution control equipment, and manufacturing processes.

The CPCB in April 1994 notified major pollutants under the National Ambient Air Quality Standards (NAAQS). These are deemed to be levels of air quality necessary with an adequate margin of safety, to protect public health, vegetation and property. The NAAQS prescribe specific standards for industrial, residential, rural and other sensitive areas. Industry-specific emission standards have also been developed

\(^{107}\) http://envfor.nic.in/divisions/iass/notif/crz.htm Last accessed on 26/09/2012 at 12.45 am
The Air (Prevention and Control of Pollution) Amendment Act, 1987, was enacted to empower the center and state boards to tackle emergencies and recover expenses incurred from offenders. The power to cancel consent for non-fulfillment of the conditions prescribed has also been emphasized in the Air Act Amendment.

The Air (Prevention and Control of Pollution) Rules formulated in 1982, defined the procedures for conducting meetings of the boards, the powers of the presiding officers, decision-making, the quorum; manner in which the records of the meeting were to be set etc. They also prescribed the manner and the purpose of seeking assistance from specialists and the fee to be paid to them.

4.6.2.3 Forest and Wildlife


The Wildlife Protection Act (WPA), 1972, provides for protection of the listed species of flora and fauna and also establishes a network of ecologically important protected areas. The central and state governments are empowered to declare any area a wildlife sanctuary, national park or closed area and placing a blanket ban on carrying out any kind of industrial activity within the protected areas. The Act provides for the administration and implementation of the Act by the concerned authorities; regulation of hunting of wild animals; protection of specified plants, sanctuaries, national parks and closed areas; restriction of trade or commerce in wild animals or animal articles; and miscellaneous matters. Hunting of animals without permission of an authorized officer when an animal has become dangerous to human life or property or as disabled or diseased as to be beyond recovery (WWF-India, 1999) is not permitted. The Amendment Act of 1991 made more effective the near total ban/prohibition on hunting.

- The Forest (Conservation) Act, 1980

This Act was adopted to protect and conserve forests. The powers of the States for use of forest land for non-forest purposes and de reservation of forests are restricted. The term non-forest purpose includes clearing any forestland for cultivation of cash crops, plantation crops, horticulture or any purpose other than re-afforestation.
4.6.2.4.1 Environment (Protection) Act, 1986 (EPA)

Following the disaster in the Bhopal Gas Tragedy, the lacunae in the environmental laws existing in India as well as corrective mechanism to prevent environmental hazards was deeply felt. The ‘umbrella legislation’, EP Act of 1986, was designed and enacted to provide a framework for the co-ordination of central and state authorities established under the Water (Prevention and Control) Act, 1974 and Air (Prevention and Control) Act, 1981.

The Central government is empowered under this Act to take measures necessary to protect and improve the quality of the environment by setting standards for emissions and discharges; regulating the location of industries; management of hazardous wastes, and protection of public health and welfare. Thus, the legislation intends to protect not only ‘water’ and ‘air’ but the ‘environment’ in general. Environment includes according to the Act, “water, air and land and the inter-relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property”. It also defines environmental pollution as the presence of any environmental pollutant in the environment.

The Central government from time to time issues notifications under the EPA for the protection of ecologically-sensitive areas or issues guidelines for matters under the EPA.

Some notifications issued under this Act include the Doon Valley Notification (1989), which prohibits the setting up of an industry in which the daily consumption of coal/fuel is more than 24 MT (million tonnes) per day in the Doon Valley, the Dhanu Taluka Notification (1991), under which the district of Dhanu Taluka has been declared an ecologically fragile region and setting up power plants in its vicinity is prohibited, Disposal of Fly Ash Notification (1999) the main objective of which is to conserve the topsoil, protect the environment and prevent the dumping and disposal of fly ash discharged from lignite-based power plants, Taj Trapezium Notification (1998), provided that no power plant could be set up within the geographical limit of the Taj Trapezium assigned by the Taj Trapezium Zone Pollution (Prevention and Control) Authority, The Environmental Impact Assessment of Development Projects Notification, (1994 and as amended in 1997), etc.
All developmental projects in ‘fragile areas’, industries in Schedule 1, etc all require environmental clearance before they can be established. Industrial projects with investments above Rs 500 million must obtain MoEF clearance and are further required to obtain a LOI (Letter Of Intent) from the Ministry of Industry, and an NOC (No Objection Certificate) from the SPCB and the State Forest Department if the location involves forestland. Once the NOC is obtained, the LOI is converted into an industrial licence by the state authority.

The notification also stipulated two-stage clearance (site clearance and environmental clearance) process for site-specific projects such as pithead thermal power plants and valley projects. A public hearing has been made mandatory for projects covered by this notification. This is an important step in providing transparency and a greater role to local communities.

The government in 1991 further decided to institute a national label scheme for environmentally-friendly products called the ECOMARK. The scheme attempts to provide incentives to manufactures and importers to reduce adverse environmental impacts, reward genuine initiatives by companies, and improve the quality of the environment and sustainability of available resources.

Besides the above attempts, notifications pertaining to Recycled Plastics Manufacture and Usage Rules, 1999 were also incorporated under the Environment (Protection) Act of 1986.

- **The Environment (Protection) Rules, 1986**

These rules lay down the procedures for setting standards of emission or discharge of environmental pollutants. The Rules prescribe the parameters for the Central Government, under which it can issue orders of prohibition and restrictions on the location and operation of industries in different areas. The procedure for taking samples, serving notice, submitting samples for analysis and laboratory reports and the functions of the laboratories are also described under the Rules along with the qualifications of the concerned analysts.
• Establishment Of National Environment Tribunal, 1995 And National Environment Appellate Authority, 1997

The National Environment Appellate Authority Act, 1997 provided for the establishment of a National Environment Appellate Authority to hear appeals with respect to restriction of areas in which any industry operation or process or class of industries, operations or processes could not carry out or would be allowed to carry out subject to certain safeguards under the Environment (Protection) Act, 1986.

Prior to this under the National Environment Tribunal Act, 1995, the National Environment Tribunal was established to hear matters related to damages out of accident due to any hazardous substance. It was established to fulfil the responsibility under the Rio Declaration 1992.

• The National Green Tribunal, 2010

The National Green Tribunals are established under the National Green Tribunal Act 2010 for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources including enforcement of any legal right relating to environment. These Tribunals will also provide relief and compensation for damages to persons and property and for matters connected therewith or incidental thereto. It is a specialized body equipped with the necessary expertise to handle environmental disputes involving multi-disciplinary issues.

The Tribunal is mandated to make and endeavor for disposal of applications or appeals finally within 6 months of filing of the same.\(^{108}\)

• Hazardous Wastes And Medical Substances

Hazardous substances are primarily dealt with by The Hazardous Waste (Management and Handling) Rule, 1989. These brought out a guide for manufacture, storage and import of hazardous chemicals and for management of hazardous wastes.

\(^{108}\) http://envfor.nic.in/modules/recent-initiatives/NGT/ Last Accessed on 26/09/2012 at 01.15 am
Hazardous Wastes (Management and Handling) Amendment Rules, 2000, a recent notification issued with the view to providing guidelines for the import and export of hazardous waste in the country.

Bio-Medical Waste on the other hand is dealt with in the Bio Medical Waste (Management and Handling) Rule 1980. The regulation of hospitals, clinics, veterinary institutions and other institutions for proper disposal of bio-medical waste through segregation, transport, etc of infectious waste fall under these Rules.

The Municipal Wastes (Management and Handling) Rules, 2000, were formed with the aim to enable municipalities to dispose municipal solid waste in a scientific manner.

Complementing the above Acts is the Public Liability Insurance Act, 1991, which covers accidents involving hazardous substances and insurance coverage for these. Where death or injury results from an accident, the owner is made liable to provide relief. The PLIA was amended in 1992, and the Central Government was authorized to establish the Environmental Relief Fund, for making relief payments.

Atomic Energy Act, 1982, was introduced to deal with radioactive waste. In 1988, the Motor Vehicles Act, was enacted to regulate vehicular traffic, besides ensuring proper packaging, labelling and transportation of the hazardous wastes. Various aspects of vehicular pollution have also been notified under the EPA of 1986. Mass emission standards were notified in 1990, which were made more stringent in 1996. In 2000 these standards were revised yet again and for the first time separate obligations for vehicle owners, manufacturers and enforcing agencies were stipulated.