

**ENDANGERED ENVIRONMENT THREATENS THE HUMAN SECURITY****\*\* KIRAN CHAUHAN & VAIBHAV GARG****Introduction**

The environmental challenges of the 21<sup>st</sup> century have arisen from the interaction of different human activities. The interaction of multiple environmental problems in specific locations calls for new research and management approaches. For water resources and atmospheric quality issues, management strategies that account for the influences of multiple human activities in interaction with the dynamic natural system are being developed and evaluated.

The increasing scope of human security now readily includes environmental degradation, global warming, and climate change. These issues have extended human understanding of environmental change, conflict, and vulnerability and explored the roles of conservation and sustainable development in promoting peace, stability and human security.<sup>1</sup>

The Environment-Threat-Vulnerability nexus plays a vital role in proving that environment is a real security threat.<sup>2</sup> Ecosystem Integrity is crucial for the population's sustainable livelihood. Therefore, certain environmental conditions- often resulting from environmental change, "such as pollution, or natural disasters"- can pose an acute threat to human security.<sup>3</sup> Environmental degradations and climate change increase individual's vulnerability.

**Sustainable Development: An efficient but unsuccessful objective**

The concept of sustainable development attempts to balance the scale between the quantity of development and quality of environment. The concept of sustainable development defies the traditional notion that development and ecology are opposed to each other.

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<sup>1</sup>Richard Matthew and Brian Mcdonald, "Networks of Threats and Vulnerability: Lessons From Environmental Security Research," ECSP Report, Issue 10 (2004): 10.

<sup>2</sup>Barnett, J. (2013). Global Environmental Change and Human Security. Annual Review of Environment and Resources. 38:373-386. 2013

<sup>3</sup>Jon Barnett and W.NeilAdger, "Climate Change, Human Security and Violent Conflict," Political *Geography* 26(2007): 639-655.

The logic behind this concept is that the “natural resources” are not the fruits of the labour of the present generation and therefore, these resources can only be exploited where provision is made for adequate consideration of the rights of future generation.

The main objective of sustainable development could be stated to be environmental harmony, economic efficiency, equity with social justice, both intra and inter generation, conservation of resources and local self-reliance.

If we want to understand how this term has been understood in India, we would have to look into the decision of the Hon’ble Supreme court of India in *Narmada Bachao Andolan v. Union of India*<sup>4</sup> wherein it has been observed that “Sustainable Development means what type or extent of development can take place which can be sustained by nature or ecology with or without mitigation”. In this context, development primarily means material or economic progress.

In *Bombay Dyeing & Mfg. Co. Ltd. v. Bombay Environment Action Group*,<sup>5</sup> the Apex court laid stress that sustainable development demands delicate balance between environment values and development needs. In doing so, it is not possible to ignore intergenerational equity, nor is it possible to disregard the dire need that the society urgently requires.

### **Features**

The main features of the concept of sustainable development may be summarized as follows<sup>6</sup>:-

- (a) Every human being is part of the community of life, made of all living creatures.
- (b) Every human being has fundamental and equal rights, including the right to access to the resources needed for a decent standard of living.
- (c) Every person and each society is entitled to respect these rights and is responsible for the protection of these rights for all others.
- (d) Everyone should take responsibility for his or her impacts on nature.
- (e) Everyone should aim to share fairly the benefits and costs of resource use.

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<sup>4</sup>(2002) 10 SCC 664

<sup>5</sup>AIR 2006 SC 1489

<sup>6</sup>Jaswal, Paramjit S. & Jaswal, Nishtha, *Environmental Law: Environmental Protection, Sustainable Development and the Law*, 3<sup>rd</sup> Ed., Allahabad Law Agency, Faridabad, 2009

(f) The protection of human rights and the rights of nature is a worldwide responsibility that transcends all cultural, ideological and geographical boundaries.

### **Precautionary Principle**

The precautionary principle is one of the important principles under the concept of sustainable development. Principle 15 of the Rio Declaration codified for the first time at the global level the precautionary approach. The Principle states as follows-

“In order to protect the environment, the precautionary approach shall be widely applied by states according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”<sup>7</sup>

In India, there are lots of environmental regulations, but most environmental regulations, like the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 are aimed at cleaning up pollution and controlling the amount of it released into the environment.<sup>8</sup>

The Indian Supreme Court has accepted in *Vellore case*<sup>9</sup> that the Precautionary Principle is part of the environmental law of the country.

In *Tajcase*<sup>10</sup>, the Supreme Court was dealing with the problem of protecting the ‘TajMahal’ from the pollution of nearby industries. The Court applied the ‘Precautionary Principle’ as explained in the *Vellore case* and observed-

“The environmental measures must anticipate, prevent and attack the causes of environmental degradation. The ‘onus of proof’ is on the industry to show that its operation with the aid of coke/coal is environmentally benign.

### **The Polluter Pays Principle**

<sup>7</sup>Nimushakavi, Vasanthi, *Constitutional Policy and Environmental Jurisprudence in India*, 1<sup>st</sup> Ed., Macmillan India Ltd., Delhi, 2006, 146-147

<sup>8</sup>Doabia, Justice T. S., *Environmental and Pollution Laws*, Vol. 1, 1<sup>st</sup> Ed., Wadhwa and Nagpur Company, New Delhi, 2005

<sup>9</sup>*Vellore Citizens Welfare Forum v. Union of India*, AIR 1996 SC 2721

<sup>10</sup>*M.C.Mehta v. Union of India*, AIR 1997 SC 734

The polluter pays principle is one which aims at ensuring that the costs of environmental damage caused by polluting activities are born, in full, by the person responsible for such pollution; the polluter. The principle means:

- (1) The polluter should pay for the administration of the pollution control system;
- (2) The polluter should pay for the consequences of the pollution- for example, compensation and clean-up.

Under the principle, it is not the role of Government to meet the cost involved in either prevention of damage caused by pollution or carrying out remedial measures, because the effect of this would be to shift the financial burden of the pollution to the taxpayer.

The Supreme Court of India for the first time applied expressly the polluter pays principle in the case of *Indian Council for Enviro-Legal v. Union of India*,<sup>11</sup> and held that the responsibility for repairing the environmental damage was that of the offending industry.

### **Doctrine of Public Trust**

The concept of the Public Trust Doctrine is based on the idea that certain common resources such as air, water, forests and other natural resources are held in trust by the State for the benefit and use of public at large.<sup>12</sup> The doctrine enjoins upon the Government to protect the resources for the enjoyment of the general public rather than to permit their use for private or commercial purposes.<sup>13</sup> The heart of the Public Trust Doctrine is that it *imposes limits and obligations* upon government agencies and their administrators on behalf of all the people and especially future generations.

This doctrine was revived, re-discovered and expanded only after 1970's UN Conference on Human Environment.<sup>14</sup>

The Supreme Court of India adopted the doctrine while interpreting Article 21 in connection with the environment and ecology. The doctrine of Public Trust was first introduced in the Indian legal system in the case of *M.C.Mehta v. Kamal Nath*.<sup>15</sup>

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<sup>11</sup>AIR 1996 SC 1446

<sup>12</sup>Negi, Dr. VidyaBhagat, *Environmental Law: Issues and concerns*, 1<sup>st</sup> Ed., Regal Publications, New Delhi, 2011, p. 157

<sup>13</sup>*Karnataka Industrial Areas Development Board v. C. Kenchappa*, (2006) 3 SCC 571

<sup>14</sup>*Supranote*12, p. 157

The doctrine was once again followed in *State of West Bengal v. Kesoram Industries Ltd.*,<sup>16</sup> wherein it was observed that deep underground water belongs to the State in the sense that doctrine extends thereto. Ground water is considered as a part of national wealth and it belongs to the entire society.

### **Factors that threaten Human Security: Infringement of the Doctrine of Sustainable Development**

#### **1. Population**

The world population is increasing every year in a growing pace. Estimates by the UN Population Fund show that the total world population being 7.2 billion in mid-2013, will reach 8.1 billion in 2025, and further to 9.6 billion in 2050 and 10.9 billion in 2100.<sup>17</sup> This situation brings some special responsibilities especially for developing countries where the highest increase in population is observed.

Because of being lack of information or not having the ability and power enough to organize and combat it, the communities of the developing countries may not obscure exploitation of their resources by global companies or powerful countries.<sup>18</sup>

#### **Pollution**

Air and Water, the most precious gifts of nature, are very essential, not only to the mankind but to flora and fauna also. All living creatures on the mother Earth have a right to environment in order to survive. According to Section 2(a) of the Environment Protection Act, 1986, the word 'Environment' includes (i) water, air and land, (ii) the inter relationship which exists among (a) water, air and land, and (b) human beings, other living creatures, plants, micro-organisms and property.

Article 21 of the Indian Constitution guarantees to all persons a fundamental right to life. The Supreme Court observed that right to life is not confined to mere animal existence but extends

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<sup>15</sup>(1997) 1 SCC 388

<sup>16</sup>(2004) 10 SCC 201

<sup>17</sup>*Supra* note 2, p. 373-386

<sup>18</sup>Barbier, E. (1997). The Economic Determinants of Land Degradation in Developing Countries. The Royal Society. London, 352, 891-899

to the right to live with basic human dignity. Andhra Pradesh High Court observed that enjoyment of life and its attainments and fulfillment guaranteed by Article 21 embraces the protection and reservation of the nature's gifts, without which life cannot be enjoyed.<sup>19</sup> The court further observed that protection of environment is not only the duty of the citizens but is also the obligation of the State and all other state organs including the courts.

## 2. Water Pollution

Water is the most important element of nature. In *State of Himachal Pradesh v. Umed Ram Sharia*,<sup>20</sup> the Supreme Court has held that every person is entitled to life as enjoined in Article 21, that he has also the right under Article 21 to his life and that Article 21 embraces not only physical existence of life but also the quality of life.

There are many incidences of water pollution all over the country, which prove that the safe drinking water is no more into existence and is at the verge of extinction.

### (1) Hardlook Yamuna Pollution: Delhi High Court, Green Tribunal eye on water pollution<sup>21</sup>

The Delhi High Court and the National Green Tribunal have taken up the issue of water pollution in the city in multiple cases.

Progress has been slow despite intervention by the judiciary. For instance, the "poison water lake" near the Tughlakabad fort. In 2014, a PIL was filed before the High Court alleging that water that collected in the area was "killing" the trees and animals.

The High Court commissioned a study by the DPCC and the Ministry of Environment and Forests, which found that 4 water bodies in the area, spread over 6.2 acres near the Tughlakabad fort were "full of raw sewage" from the nearby unauthorized colonies. For the past two years, the bench has directed government agencies on reducing pollution in the water.

### (2) Ganga Pollution Case

One of the most polluted sites is the city of Kanpur in Uttar Pradesh, located on the banks of the Ganga- one of India's longest and holiest rivers. The city has a population of 2.9 million. At this site, the Ganga receives large amounts of toxic waste from the city's domestic and industrial sectors, particularly the tannery industry.

<sup>19</sup>Leelakrishnan, P., *Environmental Law in India*, 3<sup>rd</sup> Ed., LexisNexisButterworthsWadhwa Nagpur, Gurgaon, 2008, p. 281

<sup>20</sup>(2006) 3 SCC 549

<sup>21</sup>Kumar RK, High-Resolution climate change scenarios for India For the 21<sup>st</sup> century, *Curr Sci.* 2005; 90:334-345

For more than 100 years, Kanpur has been a major centre for India's tannery industry. Most of the tanneries are located in the neighborhood of Jajmau, which lies outside the main city on the southern bank of the Ganga. The leather industry is highly polluting; the processes of washing, liming, fleshing, tanning, splitting and finishing involve a large number of chemicals. One ton of hide generally leads to the production of 20-80 m<sup>3</sup> of turbid and foul-smelling wastewater, including chromium levels of 100-400 mg/l, sulfide levels of 200-800 mg/l, high levels of fat and other solid wastes, as well as significant pathogen contamination. Pesticides are also often added for hide conservation during transport.<sup>22</sup>

In response to a writ petition against pollution of the river Ganga due to industrial waste, the Supreme Court of India in 1987 mandated the tanneries in Kanpur, Uttar Pradesh to either clean up or shut down.

### (3) Case study of a polluted river- the Yamuna

The Yamuna is one of the most important rivers of north India. It passes through Uttarakhand, Haryana, Delhi, and Uttar Pradesh. It merges with the Ganga at Allahabad in Uttar Pradesh. Though the Yamuna starts getting polluted by pesticides and fertilizers as it enters Haryana, most of the pollution occurs in Delhi. More than 10 million people live in Delhi. Yet it does not have a proper sewage disposal system.

19 drains from Delhi open into the Yamuna. At one time, these carried rainwater. But because of the poor sewage disposal system, water carrying sewage is discharged into these drains, from where it finds its way to the river.<sup>23</sup>

In Delhi, along a stretch, the Yamuna is choked by water hyacinth- a weed. This is an example of eutrophication. Dead fish are also found in the river as soon as the monsoon begins. This is due to the sudden increase in pesticide and other pollutant levels.

Industrial wastes also find their way into the river from large industrial units (22 in Haryana, 42 in Delhi and 17 in Uttar Pradesh) and many small industrial units. Surprisingly, though Delhi constitutes only 2% of the catchment area, it is responsible for 80% of the pollution of the river.<sup>24</sup>

### (4) Cases of Jaundice in Shimla

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<sup>22</sup>Supra note 22, p. 334-345

<sup>23</sup>Supra note 22, p. 334-345

<sup>24</sup>Supra note 22, p. 334-345

More than 500 cases of jaundice have been reported from Himachal Pradesh in past few years and their number has been increasing each day.<sup>25</sup>

Shimla civic authorities suspect that mixing of sewage with the potable water has caused the spread of the water-borne diseases. The state High Court also took *suomotu* cognizance in this regard and sought a status report from the government.

The AshwaniKhud drinking water scheme supplies water to one-third of Shimla's population. Most of the jaundice cases have been reported from Chotta Shimla, Panthaghati, Vikas Nagar, New Shimla and Kasumpti.<sup>26</sup>

Doctors in the Indira Gandhi Medical College and Hospital found an average of 15 to 20 patients suffering from jaundice, who visit the hospital daily. The testing of potable water at any level is not done for virus causing hepatitis because there is no such laboratory in the state. In 2007, 2010 and 2013, a large number of people in the town tested positive for Hepatitis E, a liver problem caused by the consumption of water contaminated by sewerage.

### 3. Global Warming

The average temperature of the globe has increased more than 1<sup>D</sup> F since 1900 and the speed of warming has increased almost three times since 1970. Global Environmental Change caused by Global Warming is expected to have and has already resulted in an adverse impact on the ecosystem. The percentage of CO<sub>2</sub>, which is considered the primary contributor to the "Greenhouse Effect", has risen by over 25% since the Industrial Revolution. At the current rate of increase, it is estimated that the Greenhouse Effect will hike up global temperatures by about 4<sup>D</sup>.<sup>27</sup>

According to the United Nations Climate Panel, cities like Mumbai and Kolkata could be submerged and islands like Maldives, could disappear, or become uninhabitable at the current rate of rise in temperature.

Global Warming will pose a serious threat to human health. As of August 27, 2008, China surpassed the United States as the biggest emitter, in the world, of CO<sub>2</sub> from power generation. The top 10 power sector emitters in the world in absolute terms are China, U.S., India, Russia,

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<sup>25</sup> Available from: <http://www.nplindia.org/npl/climate> change impacts on human in India: Keysheet 9.html (accessed on 22 August, 2017)

<sup>26</sup> *Supra* note 26

<sup>27</sup> BBC News. "Global Warming "biggest threat"", August 22, 2004

Germany, Japan, U.K., Australia, South Africa, and South Korea. The European Union ranks as the third biggest CO<sub>2</sub> polluter, after China and the U.S.<sup>28</sup>

### **Impacts of Global Warming on climate of India**

India is a disaster prone area, with the statistics of 27 out of 35 states being disaster prone, with floods being the most frequent disasters. The process of Global Warming has led to an increase in the frequency and intensity of these climatic disasters.

According to surveys, in the year 2007-2008, India ranked the third highest in the world regarding the number of significant disasters, with 18 such events in one year, resulting in the death of 1103 people due to these catastrophes.<sup>29</sup>

The anticipated increase in precipitation, the melting of glaciers and expanding seas have the power to influence the Indian climate negatively, with an increase in incidence of floods, hurricanes, and storms.

Global Warming may also pose a significant threat to the food security situation in India. According to the Indira Gandhi Institute of Development Research, if the process of global warming continues to increase, resulting climatic disasters would cause a decrease in India's GDP to decline by about 9% with a decrease by 40% of the production of major crops. A temperature increase of 2<sup>D</sup> C in India is projected to displace 7 million people, with a submersion of the major cities of India like Mumbai and Chennai.<sup>30</sup>

### **Recent floods in India due to Global Warming**

1. 2005 Maharashtra flood:- In 2005, a major climatic catastrophe occurred in the state of Maharashtra in the form of massive floorings, leading to a death toll of 5000 people. The areas of Mumbai, Chilpun, Khed, Kalyan, Ratnagiri and Raigad were completely flooded, hence naming the date 26 July, 2005 as the 'Blocked Day' in the history of Mumbai.<sup>31</sup>

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<sup>28</sup>Singh N. and Singh H.N., (2012).Global Warming and Indian Monsoon. Geography and You, Nov-Dec, p. 52-56

<sup>29</sup>Supra note 30, p. 52-56

<sup>30</sup>Goswami, B.N., Venugopal, V., Sengupta, D., Madhusoodanan, M.S., & Xavier, P.K., 2006. Increasing Trend of Extreme rain events over India in a Warming Environment. Science, 314(5804), 1442-1445.

<sup>31</sup>Guhathakurta P, Sreejith OP, Menon PA (2011) Impact of Climate Change on Extreme rainfall events and Flood risk in India. J Earth SystSci 120(3):359-373

2. 2005 Gujarat floods:- The wave of floods in Maharashtra reached the state of Gujarat as well, accounting for one of the worst floods in the Indian history as it caused a financial loss of more than Rs.800 million. This disaster took place in a row of days from 30<sup>th</sup> June to 11<sup>th</sup> July, killing more than 123 people and a total of 2,50,000 people were evacuated.<sup>32</sup>
3. 2008 Bihar floods:- The 2008 Bihar floods are considered as one of the most disastrous floods in the state's history. The flood affected more than 2 million people. The flooded and affected areas were Supaul, Araria, Madhepura, Saharsa, Champaran and Purnea.<sup>33</sup>

### **The Phenomenon of cloudburst: an indirect result of Global Warming**

The cloudburst phenomenon happens mainly due to orographic lift, i.e., warmmoist air mass when reaches mountain foothills, it gets lifted, causing condensation, which results in rapid precipitation in a very short time interval.

(i) Based on a detailed analysis of weather data of the last 5 years in Leh, scientists have attributed the recent cloudburst in the region to prolonged winters which may be due to climate change. The study indicated that increased temperature and hot summers in the plains lead to increased evaporation and subsequent cloud formation in the hills.

The clouds could not retain the water droplets that lead to the cloudburst. Since the rainfall was absent on August 3, 4 and 5 and was negligible on August 7, 8 and 9, the theory of occurrence of a cloudburst in Leh due to prolonged winters was reinforced.<sup>34</sup>

(ii) The 'culprit' cloud that created havoc in the hills of Uttarakhand is supposedly a cloudburst, which is a creation of millions of droplets bound together and pregnant with gallons of water. These massive coagulated clouds with heavy water content hover over a very small location, unlike storms, that spread anywhere from 5 to 50 km range and convert into a downpour.<sup>35</sup> Strangely, the Indian Meteorological Department does not even use the terminology of cloudburst to describe the phenomenon but merely calls it meso-scale thunderstorm.<sup>36</sup> "Extreme weather events are indeed increasing due to global warming. This is

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<sup>32</sup> Supra note 33, 359-373

<sup>33</sup> Supra note 33, 359-373

<sup>34</sup> Singh N., Sontakke, N.A., 2002. On Climatic Fluctuations and Enironmental Changes of the Indo-Gangetic plains, India. Climate Change 52:287-313

<sup>35</sup> Supra note 36, 287-313

<sup>36</sup> Kulkarni A., 2012, The computation of climatological power spectra, J. Applied Meteorology, 16, 359-367

because a warmer climate can hold more moisture in the atmosphere, leading to heavier rainfall when it does occur.” says Dr. Roxy Mathew Koll of the Indian Institute of Tropical Meteorology, Pune.<sup>37</sup>

#### Constitutional Mandates and Environmental Protection:

In *Rural Litigation & Entitlement Kendra v. State of Uttar Pradesh*,<sup>38</sup> The Supreme Court has implemented the right to wholesome environment as part of the Right to Life enshrined in Article 21. Therefore, when we talk of environmental degradation, we talk of violation of rights under Article 21. The State’s responsibility with regard to environmental protection has been laid down under Article 48-A. Environment Protection is a fundamental duty of every citizen of this country under Article 51-A(g).

Global Warming threatens humanity with the very human rights which were designed to prevent- destruction of life, health, property, culture, means of subsistence, residence and movement.

It is concluded that reducing emissions of greenhouse gases, mainly CO<sub>2</sub>, is the primary way to prevent catastrophic changes in the Earth’s climate. This can be done by reducing the burning of fossil fuels used for producing electricity, running motor vehicles, aircraft, ships, and in industrial production. Moreover, preventing deforestation will also help.

### **Global Climate Change**

Climate change occurs over decades or longer time scales. Over the past few decades, it has become increasingly apparent that human actions are changing atmospheric composition, thereby causing global climate change.

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<sup>37</sup> *Supra* note 38, p. 359-367

<sup>38</sup> AIR 1988 SC 2187

The Inter-governmental Panel on Climate Change has made the following projections for the next century:<sup>39</sup>

- (i) Global mean surface temperature will rise by 1.1-6.4<sup>D</sup> C, depending partly on future trends in energy use. Warming will be greatest over land and at high latitudes.
- (ii) Heat waves, heavy precipitation events, and other extreme events will become more frequent and intense.
- (iii) Sea level rise is expected to continue at an accelerating rate.

### **Why should India be concerned?**

India is a large developing country, with the great Himalayas, the world's third largest ice mass in the north, 7500 km long, and densely populated coast line in the south. Nearly 700 million of her 1 billion population living in rural areas directly depends on climate-sensitive sectors (agriculture, forests and fisheries) and natural resources (water, biodiversity, mangroves, coastal zones, grasslands) for their subsistence and livelihoods.<sup>40</sup>

Rapid mountain glacier retreat has been documented in the Himalayas, meltwater from the Himalayan glaciers contributing a sizeable portion of river flows to the Ganges, Brahmaputra, Indus and other river systems.<sup>41</sup>

### **Health effects of extreme temperatures**

- (i) While Himachal Pradesh and Uttarakhand experienced a cold wave, other parts in the country were subject to heat wave.<sup>42</sup>

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<sup>39</sup>Third Assessment Report, Vol. 1, Cambridge: Cambridge University Press; 2001, Intergovernmental Panel on Climate Change, Climate Change 2001

<sup>40</sup>Ministry of Environment and Forests, New Delhi: 2004, India's Initial National Communications to the United Nations Framework Convention on Climate Change

<sup>41</sup>*Supra* note 36, p. 287-313

<sup>42</sup>World Health Organization, Climate and Health, Fact Sheet, Available from: <http://www.who.int/globalchange/news/fsclimandhealth/en/index.html>. (accessed on 21 August, 2017) [cited on 2005 July]

- (ii) Andhra Pradesh reeled under heat wave in 2003, killing 1421 people, which is an all-time high in the history of Andhra Pradesh.<sup>43</sup>
- (iii) Effects of heat wave were also observed in Uttar Pradesh, Haryana, Punjab, Rajasthan, Bihar, Gujarat and Orissa in 2003.<sup>44</sup>
- (iv) In June 2005, Orissa recorded the highest temperature of 46.3<sup>D</sup>C in Bhubaneswar, of the last 33 years, which is 10<sup>D</sup> above normal, leading to heat wave.<sup>45</sup>

### **Resolutions**

There is no easy solution to the problem of environmental degradation especially for the developing countries having to make a choice between rapid industrialism and environmental conservation. However, there are some steps which should be taken to reduce the risks.

- (1) Regional economic integration by cooperation with regional environmental issues should be promoted for developing countries. The policies leading to environmental degradation should be avoided.
- (2) Environmental education and awareness should be improved parallel to the industrial development.
- (3) Military industries as one of the most polluter industry of the world should be regulated strictly.
- (4) And of course, environmental crimes should be taken into consideration and sanctioned strictly by the states to avoid further security risks.
- (5) Since, industrial development is inevitable, resource and energy saving technological improvements should be made, farming technologies should be improved, and education level of the people must be increased in accordance with the development rates of the countries.
- (6) The increasing rates of awareness and understanding of the environment through education of the people would be a cure for environmental degradation in developing countries.
- (7) The struggle against environmental threat doesn't seem to be possible only at local or global level. The cooperation of both local and global forces is the most required action to effectively address the challenge of environmental degradation in the proper way in developing countries.

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<sup>43</sup> Available from: <http://www.rediff.com/news/2003/jun/13rain.htm> (accessed on 21 August, 2017)

<sup>44</sup> World Health Organization, Summary, Geneva: WHO; 2003, Climate Change and Human Health: Risks and Responses

<sup>45</sup> Indian Meteorological Department, Available from: <http://www.imd.gov.in>. (accessed on 21 August, 2017)