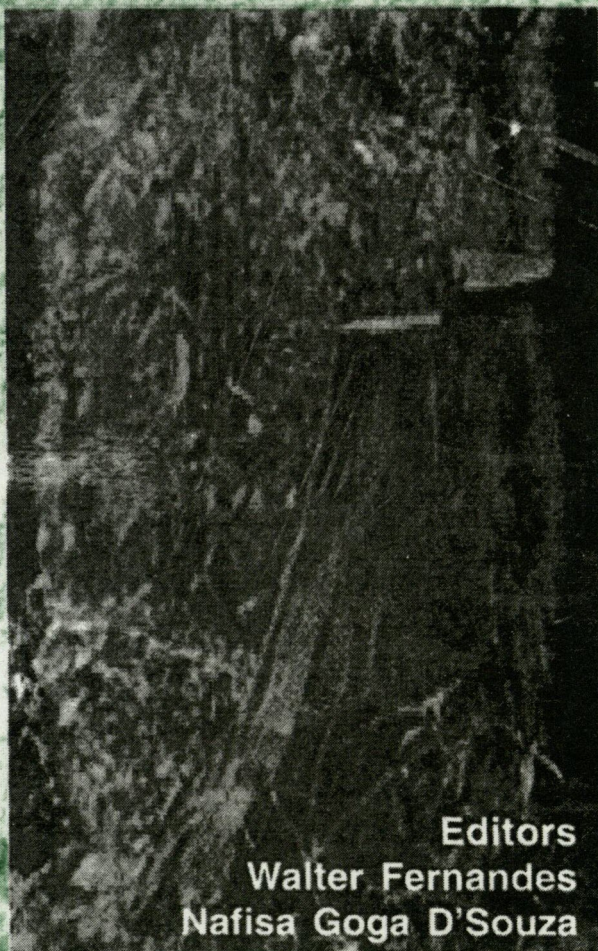


# **Climate Change and Tribal Sustainable Living: Responses from the Northeast**



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**Walter Fernandes**  
**Nafisa Goga D'Souza**

**North Eastern Social Research Centre  
&  
Indian Network of Ethics and Climate Change**

**CLIMATE CHANGE AND TRIBAL  
SUSTAINABLE LIVING:**

**RESPONSES FROM THE NORTHEAST**

*Edited by*  
**Walter Fernandes**  
**Nafisa Goga D'Souza**

**North Eastern Social Research Centre  
And  
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# **1. Climate Change and Tribal Sustainable Living: Citizens' Concerns: An Introduction**

**Walter Fernandes  
Nafisa Goga D'Souza**

Climate change, popularly known as global warming, has today become a major issue of international negotiations. Accelerated climatic changes in the global atmosphere emerged as a major concern at the Earth Summit (*United Nations Conference on Environment and Development—UNCED*) held in Rio de Janeiro in June 1992. The issues involved in it have serious implications for India, particularly the marginalised communities like the tribals. Hence this book. It contains revised versions of papers presented at the *National Seminar on Climate Change and Tribal Sustainable Living* organised at Guwahati, September 4-6, 2000 jointly by the North Eastern Social Research Centre and Indian Network of Ethics and Climate Change. Its objective is to share some reflections on the nature and current processes with respect to the negotiations around climate change and to draw out implications for India, especially the marginalised.

## **The Context of Climate Change Negotiations**

A Swedish chemistry scholar Svante Arrhenius described the basic mechanism underlying greenhouse gases (GHG) as early as 1896. The greenhouse effect is caused by the sun's radiation that is reflected off the earth's surface and trapped by carbon dioxide and other GHGs in the atmosphere. The natural greenhouse effect is beneficial for human sustenance. However, an abnormal increase in GHGs induced in the atmosphere by burning fossil fuels is leading to disastrous effects on the climate.

In 1988, four years before the UNCED, the *Intergovernmental Panel on Climate Change* (IPCC) consisting of about 2,500 scientists from different countries was set up by the United Nations Environment Programme (UNEP) and the World Meteorological Organisation (WMO). It is the scientific body which makes authoritative assessments of the climate change scenario, its impact and its

economic and social dimensions. According to assessments although a temperature rise of 1 to 3.5C is expected due to global warming by 2100, the impact on the local and regional climates will vary considerably. Its potential impacts are likely to include extreme weather conditions, greater intensity of floods and droughts, upsurge of diseases such as malaria and dengue fever, asthma and other respiratory illnesses due to global warming and air pollution. Other possible impacts are inundation of coastal and low-lying lands due to sea level rise, adverse effects on agriculture due to changes in soil condition, water supply and water quality and damage to mountain and wetlands ecosystems.

The United Nations Framework Convention on Climate

Change (UNFCCC) was established during the UNCED. UNFCCC demarcated the commitments of the developed and developing countries to curbing GHG emissions and to provide for the establishment of international negotiations to review the implications of the Convention. The ultimate objective, according to the UNFCC document, is to achieve 'stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.' This should be achieved 'within a timeframe sufficient to allow ecosystems

**Table 1: Meetings of the Conference of Parties**

COP-1: March/April, 1995 at Berlin, Germany: Berlin Mandate (BM)

COP-2: July, 1996 at Geneva, Switzerland: Progress of BM, Geneva Declaration

COP-3: November, 1997 at Kyoto, Japan: Kyoto Protocol

COP-4: November, 1998 at Buenos Aires, Argentina: Buenos Aires Plan of Action (BPA)

COP-5: October/November, 1999 at Bonn, Germany: BPA continued

COP-6: November, 2000 at The Hague, The Netherlands: Deadline for elaborating details of the Kyoto Protocol

to adapt naturally to climate change,' ensuring that ' food production is not threatened ' and development is enabled to proceed in a 'sus-

tainable manner.’ International negotiations are in process since 1992.

**The Kyoto Protocol**

The negotiating countries met at the *Third Conference of Parties (COP)* held in Kyoto, Japan in November 1997 and concluded with a basic agreement known as the *Kyoto Protocol*. This was a landmark meeting in the history of the negotiations on climate change. The deliberations at the Kyoto conference centred on the capping of emissions: *who will reduce, by how much, how and within what time frame?* It called upon industrialised countries to reduce their GHG emissions by 5.2% below 1990 levels by 2008-2012, ‘individually or jointly’. The industrial countries are to demonstrate progress by 2005.

*The Kyoto Protocol* also laid down several ‘flexibility’ mechanisms’ such as joint implementation, clean development mechanisms and emissions trading which aim mainly at reducing the

Table 2: Differentiated Commitments of Kyoto Protocol

| Target (Percentage from base year or prior) | Party  |
|---|--|
| -8%   | Austria, Belgium, Bulgaria*, Czech Republic*, Denmark, Estonia*, European Community, Finland, France, Germany, Ireland, Italy, Latvia*, Liechtenstein, Lithuania*, Luxembourg, Monaco, Netherlands, Portugal, Romania*, Slovakia*, Slovenia*, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland |
| -7%   | United States of America   |
| -6%   | Canada, Hungary*, Japan, Poland*   |
| -5%   | Croatia*   |
| Stablisation                                | New Zealand, Russian Federation*, Ukraine*   |
| +1%   | Norway   |
| +8%   | Australia  |
| +10   | Iceland  |

\* Countries that are undergoing the process of transition to a market economy

cost of complying with the Kyoto mechanisms and reducing the burden of domestic commitments. Subsequent meetings have further attempted to "operationalise" the Kyoto Protocol. That was the attempt at the Conference of Parties (COP) held at The Hague in November 2000. However, according to news items (*The Sentinel*, March 4, 2001) the parties could not reach an accord mainly because of disagreement between the USA and the European Union (EU).

### Issues of Concern

| Table 3: The Contribution of Principal GHGs to Anthropogenic Climate Change.   |   |  |
|--|---|--|
| Gas  | Main sources and their share in emissions in industrialised countries in the 1990's | Share of GHG emissions of industrialised countries in early 1990's |
| CO <sub>2</sub>  | Fossil fuel combustion, industrial processes  | Ca. 82%  |
| CH <sub>4</sub>  | Fossil fuel production, distribution and combustion, agriculture, waste             | Ca. 12%  |
| N <sub>2</sub> O   | Agriculture, fossil fuel combustion, industrial processes                           | Ca. 4%   |
| HFCs,<br>PFCs,<br>SF <sub>6</sub>  | Industrial processes, industry, consumers   | Ca. 2%   |
| Extracted from: Sebastian Oberthur, Hermann E. Ott, 1999, <i>The Kyoto Protocol: International Climate Policy for the 21<sup>st</sup> Century</i> , p. 7 |   |  |

The major issues of concern are already alluded to in the *Kyoto Protocol*. The first of them is that the rich countries are responsible for most emissions. But they want the poor countries to pay the price. Some poor countries like India are increasing their GHG emissions and that adds to pressure on them.

### *Northern Nations Responsible for the Phenomenon*

The largest amount of GHG emissions are caused by carbon dioxide emitted mainly in the energy and other industrial sectors. Hence the industrialised countries are primarily responsible for the climate change phenomenon. Table 3 reveals that the overall emissions are high particularly in the USA and the EU. Over 80% of the CO<sub>2</sub> emis-

sions in the atmosphere for the last 150 years have come from the rich countries. This points to inequity in the use of the atmospheric global commons. Although the developing countries like China and India are also beginning to raise their emissions due to their increasing industrial growth, on a *per capita* basis their contribution is insignificant.

The industrialised countries feel that global climate will only be effective if the growth of emissions in developing countries is curbed. But the South (formerly the Third World) argues that any steps to curb GHGs must be based on a principle of equity such that their economic development needs are taken into account. Thus ultimately the issue here is one of fairness in access and entitlements to the global atmosphere. In the current deliberations it is the historical emissions that are considered a frame of reference when calculating the extent to which reductions must take place. So 1990 is being used as the base line year. Rich countries thus have entitlements on emissions based on their already high level of past emissions.

The important issue is how to arrive at a way of calculating entitlements such that there is an underlying

Table 4: Total and per capita CO<sub>2</sub> emissions of selected players in 1990

| Country         | Total Emissions(Mt) | Per capita emissions |
|-----------------|---------------------|----------------------|
| USA             | 4957                | 19.8                 |
| EU              | 3326                | 8.7                  |
| Japan           | 1173                | 9.4                  |
| Russia          | 2389                | 16.1                 |
| China           | 2374                | 2.1                  |
| India           | 602                 | 0.7                  |
| Sudan           | 5                   | 0.2                  |
| Trinidad/Tobago | 12                  | 10.0                 |
| Saudi Arabia    | 173                 | 10.9                 |
| OECD            | 10310               | 13.1                 |
| World Total     | 21400               | 4.1                  |

Source: Oberthur, S and Ott, H.E; *The Kyoto Protocol*; Springer, Germany, 1999

ing fairness in the degree to which Northern countries must reduce their emissions and the extent to which developing countries are allowed to increase theirs. Should the entitlements be based on a *per capita* basis? These are uncomfortable issues for those who have a long history of GHG emissions. Very few of them want to address them at the negotiations. As an editorial in *The Hindu* ("Climate Change," 26<sup>th</sup> February 2001) said:

The warning to the rapidly industrialising West about where it was heading did come very early and there was enough time to act upon it with corrective steps. The smoke and fumes from the mushrooming factories were trapped in a sky over which there was almost always an overhand of clouds except during unusually bright summers. This inevitably led to the stifling atmospheric inversion from the spewing out of more and more carbon dioxide.

#### ***Urgent Problem: Reductions Inadequate***

IPCC recommends that annual global emissions of carbon dioxide be reduced by a massive 60-80% from current levels if concentration in the atmosphere is to be stabilised to 450 PPMV (parts per million by volume) by the end of the 21<sup>st</sup> century. In comparison, targets that were finalised at the Kyoto conference seem ridiculously low. This is not the only aspect of the dismal scenario. Several loopholes exist which undermine the reduction targets for domestic emissions. For instance, the *Kyoto Protocol* conceded the inclusion of carbon 'sinks' related to land and forestry activities in the calculation of reduction commitments. Apart from difficulties in measuring the levels of carbon dioxide absorbed by 'sinks', is the more fundamental ethical question of reducing forests to marketable commodities alone and the lack of respect for them as habitats of the indigenous peoples of the world.

Furthermore, Northern countries are attempting to buy their way out of their problem through mechanisms such as emissions trading (ET) and clean development mechanisms (CDM). ET means trading essentially with East European countries with economies in transition. Their emission levels have dropped by about 30% from the

1990 base year because of the collapse of their industrial economies. Rich industrialised countries are proposing to meet their reduction targets by purchasing these reductions. The net impact would obviously be that there will be hardly any real reduction in emissions in the industrialised countries. CDM is a mechanism by which developing countries assist developed countries in meeting their commitment under the UNFCCC. In other words developed countries have the option of taking up reduction emission projects in developing countries because it is relatively cheap to do so. In the process they earn credits for themselves.

There are a number of apprehensions regarding CDM. For one, if rich countries resort to cheap reduction options at this stage when developing countries have no obligations to meet emission reduction targets eventually when they do fall under legally binding commitments they will have more expensive targets to pursue in future. Secondly it would allow industrialised countries to buy as many credits as possible to bank them for future commitment periods. Thirdly, it would further lock the countries into a carbon path because developed countries are promoting more efficient carbon based technologies. Thus CDM risks increasing the inequities between the rich and poor countries if it does not follow the principle of equity and if it is not tied to renewable energy technology. To quote the above editorial again:

The multinational corporations from the richer countries are also projecting a deceptive concern for the industrialisation of the developing countries with offers to set up production units for them while their real objective is the shifting of polluting technology away from their own shores. The developing countries, therefore, should be on guard against the intrusion of a new brand of anti-ecological colonialism.

### ***Differing Vested Interests and Slow Negotiations***

There are several actors in the negotiation process. On one side are the rich countries viz. JUSSCANZ or Japan, the United States of America, the EU and its Member States, Switzerland, Canada, Australia and New Zealand. Then come Russia and other Countries in

transition to a market economy and finally the Developing World or G-77 countries. The Non-Governmental Organisations, Environment Networks, Business and Local Authorities and International Organisations, although not a formal part of the negotiations, influence decision making nevertheless through informal processes.

The most progressive of the developed world is the EU which has been setting more ambitious targets and tends to challenge the US position in several instances particularly in relation to the mechanisms to be adopted for reduction of emissions. In fact, the COP of November 2000 failed mainly because the USA and the EU could not reach an agreement. The leadership of JUSSCANZ wrests with the US which is the most conservative partner, partly because of the vested interests of its industries and partly because of the lack of consonance between the President and Senate. More essentially USA fears that curbing emissions may have a negative impact on the current lifestyle of its citizens. Giving that reason, the George Bush administration has withdrawn the USA from the *Kyoto Protocol* during 2001. The Countries in Transition are mainly concerned about the current state of their economies. They need financial support and hence are definitely interested in trading relationships with the US.

The developing world has a myriad voices. The Alliance of Small Island States (AOSIS) is the most vulnerable because climate change is an immediate threat to their survival. The petroleum exporting developing countries are worried about the future of their economies if alternative energies are developed in lieu of oil on which their survival depends. The smaller countries particularly in Africa are especially interested in resources for transfer of technologies. And large countries like India, China and Brazil want to safeguard the development needs of their growing economies.

The South has developed neither a model of its own nor has it found a response to the demands made by the North (rich countries) that GHG reduction should get priority over the developmental needs of poor nations. In that sense the South is waging a losing battle. Thus it is the hard economic realities that influence the negotiations. For example, the US takes the position that it will ratify the *Kyoto Proto-*

col only if developing countries 'participate meaningfully'. The developing countries are clear that their growth needs cannot be compromised.

### **Major Implications for India**

India is a signatory of the UNFCCC. The climate change phenomenon and its international negotiations are of special significance to her for two reasons. Firstly, the impacts of climate change are likely to affect her more because of her vulnerability as a developing country. India has a large coastline. So several low-lying areas are under potential threat of submergence. Moreover the country is unable to cope with the increasing floods and droughts that to a degree are human made and require immediate attention. For example one can ask whether the Orissa supercyclone of October 1999 was only a natural disaster or had something to do with the destruction of its mangroves and other forests and the rise in sea temperature. Also adverse impacts on the production system and health need urgent attention. Secondly, in the context of the South lacking a common strategy, India needs to search for and play a leadership role in influencing global economies to pursue sustainable development options.

But the model of development that India is pursuing today is not much different from that of the North. As such it is counter productive because it is ecologically unsound. It has resulted in the over-use of resources thereby destroying the natural balance of the country's ecosystems. What the country needs is an approach to development that is economically and ecologically effective. Equally important are the social implications of the development paradigm that India has chosen. Studies done on India's pattern of development show that her approach based on intensive use of the natural resources and capital has replicated international inequalities within the country (Vyasulu 1998). Hence while one cannot accept the demand of the North that India and other poor countries sacrifice their developmental needs to suit their lifestyle, one has to question a system that creates inequalities within the country. Development is essential but not one that impoverishes the majority, pushes them to destructive natural resource management and causes climate change.

So far at the international level India has highlighted mainly the question of equity in entitlements to the atmosphere. But it has done little else either at the international or national level. As a response to the demands of the North, India needs to take the lead in creating in the South, alternative calculations of the emissions themselves. One cannot go by the criteria set by the North or by figures based on these norms. In the few studies that have been done till now (for example Agarwal and Narain 1992) focus has been on the issue of international equity. They insist that the calculations should be based on *per capita* emissions of the total population, for the developmental needs of the people and the state of the environment in each country. The *per capita* emissions in India are low compared to those in North America and EU.

Technologies too have to be developed that can prevent the type of climate change envisaged while meeting the developmental needs of the poor. Not much has been done in this regard and one has to insist that the Government of India should not stop at reacting to the North but should take other initiatives in searching for alternatives. For example, much has been written on the GHG emitted in the South for survival needs such as paddy against "luxury emissions" of the fuel used by the automobiles. But one is left with the impression that the position of the Government of India in the IPCC negotiations does not look at these issues that are relevant from the point of the ordinary citizen. The focus is mainly on industry and power.

### **Implications for Tribal Communities**

This model of development has special significance for the tribal communities, particularly in the North East. Among the many demands made by the North are that the forests be preserved to suit the need of reducing GHG emissions. Similar demands are also made by the middle class in India that gets the benefits of the present pattern of development. Just as the rich countries expect the poor to preserve their environment to suit their GHG needs, the better off sections in India expect the natural resource dependants to do the same. That forests should be preserved is beyond doubt. The main question is whether it should be done by impoverishing a large number of eco-

system dependants, particularly tribal communities. Should forests be viewed only as an economic asset of the industrialist or the locus for the recreation of the middle class or also, rather primarily, as the livelihood of their dependants?

Traditionally more than 50% of the food and other needs of the forest dwellers have come from the forest. Given their total dependence on this and other natural resources, they have for centuries treated them as renewable and have developed a culture of their sustainable use (Fernandes, Menon and Viegas 1988: 152-170). The Indian corporate sector and the middle class that view their livelihood only as a raw material or as a source of profit have started the process of their destruction. In other words, the pattern of development has resulted in the degradation of the environment understood as their livelihood, not as nature or raw material alone.

At the international level India has been basing her demands on the principle of equity. This principle has to be extended to the communities within the country that have been deprived of their sustenance in the name of national development. Simultaneously, it is important to review the present environment management systems from the perspective of the traditional sustainable culture of the tribal communities. One cannot romanticise the past as though their culture were the solution to all the problems of the present. However, the issues raised by the climate change debate need to be recognised not merely within the Indian context in general but also from the perspective of the marginalised groups like the tribal communities. Demands made for alternatives at the international level are based by and large on the criteria set by the North. In the Indian context, climate change needs to be re-interpreted as a threat to the livelihood and the very survival of communities that have treated the natural resources as sustainable. Lessons have to be learnt from them and their practices updated to suit the present. So their principles of sustainability have to be treated as the starting point in the search for a solution to the problems that have led to the crisis of climate change.

### **Role of Civil Society in the Indian Context**

Climate Change tends to occupy a low priority in most sections of Civil Society because of the perception that it is far removed from the struggle for survival which is the bane of most developing countries. It is regarded as a problem created by the North. Therefore, many in Civil Society believe that the solution needs to emerge from these countries. This is being myopic because such thinking fails to perceive the issue in a holistic perspective. Climate change is a part of an ecological crisis, which reflects most poignantly the unsustainable model of development that currently governs the globe. The ultimate victims of this ecological crisis are the urban and rural poor of our nation. Thus there is a need to understand the international debate on climate change from their perspective because of the fundamental questions that it raises in relation to future directions of the world's economies.

Moreover in a context where the negotiations do not reflect the concerns of the common person especially in developing countries there is a need for civil society representatives to take a proactive critical stance and challenge the dominant voices of the global elite. In as much as civil society does not express its concern about grassroots realities its representatives are not adequately challenged or supported to negotiate policies that will benefit the common person in our country. Hence it is imperative that we make our voices heard while we continue to strive for sustainable societies with viable alternatives at the grassroots level.

### **The Papers in This Book**

An understanding of these issues is the objective of this book. So we present it revised versions of most papers presented at the *National Conference on Climate Change and Tribal Sustainable Living* held at Guwahati on September 4-6, 2000. We begin with the summary of the Conference. In it Sanjay Barbora summarises the keynote address, the papers and the discussion that followed. Of importance is the discussion that added many nuances to the presentations and led to the statement summarised at the end of the report. The consensus among the 50 participants mostly from the Northeast but also a few

from elsewhere in India was that the Government of India cannot merely react to the stand of the rich countries. It should formulate its own policies and follow them consistently within the country. For example, at the international level, the stand of India is that equity should be the basis of negotiations. Equity should be visible within the national policies, particularly when it concerns the tribals.

Since many confuse between Global Change and Climate Change, in his keynote address Prof. P. S. Ramakrishnan makes a distinction between the two. He presents the latter as only a component of the former. He also discusses its other components like biological invasion and bio-diversity depletion and contrasts them with the traditional systems such as *jhum* cultivation. He thus brings out the difference between the traditional and modern natural resource management and consequently of bio-diversity development and management systems. Shifting cultivation shows this difference more than other systems. So he draws lessons from it for the future.

Two case studies from the rest of India show the traditional tribal resource management systems and the impact of modern inputs on them. As Chandrasekhar remarks, climate change among the Konda-Reddi tribals of Andhra Pradesh is linked mainly to land alienation and their impoverishment resulting from it. Though the AP has the best laws protecting tribal land, the field reality is far from satisfactory. Non-tribals encroach on their land with impunity. That drives the tribals to practices that are destructive of forests and the rest of the natural environment. Thus their poverty that leads to deforestation and ecological degradation is basic to the processes that result in climate change. This phenomenon cannot be reversed without dealing with its causes.

Benson George gives possible solutions to the situations that result in climate change. He discusses the pattern of development and the value system behind it. The official solutions are top down and do not respond to the needs of the tribals. He states that the solution he suggests depends on their traditional culture and knowledge and that such an approach alone can give them hope in their future and recreate in them a vested interest in the sustainable management of their environment.

Then follow four case studies from the Northeast. Though dealing only with the Angami Naga tribe, Alphonsus D'Souza's discussion of their traditional forest management system has relevance for the rest of the Northeast too. It is because he does not stop at the past but discusses recent changes among them and their impact on the environment. They did not have totemism and myths of origin linked to it as in Middle India. But the belief in the spirits of nature was strong in their traditional religion. Though a majority among them have become Christians, the role of the spirits and of the traditional priest remains important. But commercialisation has introduced changes that are much more dangerous than religious conversion. Though the Angami have preserved their forests till today, the drying up of sources of cash income is taking them towards their destruction. The youth movements among them are trying to counter this change. In this context he pleads for the youth and Christian leaders to form an alliance to evolve a new ideology of natural resource management that builds on the past but responds to recent changes.

Thomas Rengma discusses mostly the recent practices that destroy the environment. The fact of climate change is clear from the examples of change in temperature he gives. Though his presentation may leave one with the impression that the tribals alone are to blame for ecological degradation, his stand is that the destructive practices are a result of other changes occurring among them. Thus his paper becomes meaningful when read together with that of D'Souza.

The Mishings, as Monisha Behal says, are a peace loving people living close to rivers. Being peaceful, they moved to the interior as outsiders came and occupied their land. That has resulted in their impoverishment. As encroachers push them further they are beginning on one side to destroy the natural resources for sheer survival and on the other to resist the outsiders. The encroachers and the armed forces consider it rebellion or insurgency. Their repression to prevent what the security forces call unrest pushes a section of their youth to the underground. To find a solution to the climate change that results from it, one has to understand the social and environmental causes together and deal with them in a holistic manner. Otherwise they may be further marginalised.

Finally searching for people based solutions, Amrit Kumar Goldsmith gives examples of sustainable practices from different States of the North East. He begins with a discussion on the climate change and its causes in the Northeast. The examples of sustainable practices he gives immediately after it help one to understand why most official solutions have failed. In some cases they are not based on a proper understanding of the social and other causes of environmental degradation. In other cases they do not involve the people. So their implementation suffers. Based on other cases he gives of people-oriented solutions, he presents a diagram depicting the main features of an alternative to the development pattern that destroys the environment and result in climate change.

## **Conclusion**

We thus present in this book, not definite solutions but only the direction that they can take. Within this general perspective, the exact nature of the alternatives has to change from region to region. Common to all of them is equity. The Government of India insists on it in international relations and in the implementation of the Kyoto Protocol. The 50 participants at the Conference insisted that equity cannot remain at the international level but should be implemented within the country. The resources that are the tribal livelihood are viewed by economic decision-makers only as a raw material. In the process their communities are deprived of their sustenance. With it they experience a transition from their sustainable practices to a destructive pattern. Those who look only at their present practices accuse them of being the main destroyers of forest and of climate change. The participants are clear that environmental changes cannot be understood without their social and economic causes. A search for solutions has to begin with this premise. That is why we present these papers in this book.