
GEO-MANIPUR ALERT

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The present book tries to focus some of the vital issues causing degradation of natural ecosystem in Manipur. Further it also highlights the better environmental planning and application of clean technology for a sustainable development. Some of the papers attempt to create awareness among the readers of the burning issues on the degradation of natural environment of Manipur including its causes, effects and control measures.

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During the middle part of the December, 2004 I was thrown into extreme trouble and hospitalized for more than two months. My left leg was made deformed by a certain group of our own community demoralizing the whole approaches and efforts of the eco-movement in the State. I was under a severe mental tension. During this period of mental depression Shri Irengbam Arun (Editor: Ireipak), Shri Hanjabam Priyokumar Sharma (Desk Editor, AIR Imphal), Dr. M.C. Arun (Associate Professor of Anthropology, M.U.), Dr. L. Sarat (Retd. Selection Grade Lecturer, Manipur College) suggested me to publish a book collecting all the papers/articles which were presented at different academic platforms and fora of International, Regional and National level workshops and seminars etc. Without their inspiration, I may neither prepare nor publish this book. The gestation period of this book has been a long one, with seven years of cocoonisation of the scripts by me and ultimately my wife Smt Ch. Debala Devi (co-author) took the initiative for drafting the final script. I would like to acknowledge the countless efforts and encouragement from/by various organizations and colleagues will remain ever encouraging during these seven years of academic devastation.

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Authors

Preface

Land and water are ecologically linked into systems called catchments or watersheds. From the smallest droplet to the mightiest river, water works to shape landscape. River systems stitch together landscape, transporting materials and living organisms rather like our body's circulatory system. A catchment is a web of life. Healthy water bodies like wetlands and rivers are a highly complex web of natural system. Major engineering interventions such as dams, water diversions, and channelization and land reclamations across the rivers, lakes and wetlands projects harm drainage system by altering their chemistry, their flow, their physical nature (geomorphology). Natural river systems provide fisheries, floodplain agriculture, natural services and products, aquifer replacement, water quality improvement and high biodiversity—all free. All of these free services can be diminished or destroyed by wrong planning etc.

On the other hand, the global climate system is a consequence of and a link between the atmosphere, earth, ocean, ice, and the land. Any change in the link, resulting - climate change, is produced by forcing agents may be either internal or external. Global warming or cooling can be driven by an imbalance between the energy the Earth receives from the sun, largely as visible light, and the energy it radiates back to space as invisible infra-red. The greenhouse effect is caused by the presence in the air of gases and clouds that absorb some of the infra-red flowing upwards and radiate it back downwards. The large- scale problems of today's environmental change have been created by the abuse and overuse of the Earth's resources during the development of industrial society over the past three centuries. The over-exploitation of the water, air and land of the earth planet resulted in rise of sea level, species extinction, and loss of biodiversity, soil erosion and desertification.

The threats of climate change are widely aware by all nations today. The international community took serious initiatives to arrest the present day trend of global warming and climate change. The Convention on Climate Change, a United Nations framework, calls for stabilizing atmospheric concentrations of greenhouse gases at levels that will avoid critical destabilizations of global economies and ecosystems. Government and non-governmental organizations are currently engaged to make people aware of the threat and are taking actions to reduce the emissions of greenhouse gases.

The present book tries to focus some of the vital issues causing degradation of natural ecosystem in Manipur. Further it also highlights the better environmental planning and application of clean technology for a sustainable development. Here sustainable development means "*development which meets the needs of the present without compromising the ability of future generations to meet their own needs*". Some of the papers attempt to create awareness among the readers of the burning issues on the degradation of natural environment of Manipur including its causes, effects and control measures.

Authors

1

Manipur: A Land of Colourful Ethnic Mosaic

Geographically, Manipur is a unique land of Mountains with intermittent river valleys and plains. This area has been evolved with a typical natural environmental factor. Through this environmental framework, the area creates specific geo-climatic regions of endemic flora and fauna and an ideal home for the indigenous settlers. Identification with the shared experiences of like-minded groups, or cultures, within a familiar and stable territorial setting has, of course, been a natural process inherent in the history of human settlement in the present state of Manipur. Communities have come to inhabit at particular locational places and, over the centuries of occupation, have gradually come to identify with their regional or macro-environments, perceived as archetypal, endowed with love and celebrated in songs and poetry, as well as understood in terms of appropriate land use and economic development. The sense of national identity in its recognizable modern form took root and crystallized in a particular historical point of time in Manipur. Within these processes, minorities whose cultures were submerged or denied, preserved and nurtured their identities in whatever ways they could, towards the day when they would be able to flower freely again. In the meantime, self-determination, led to the birth, resurrection or amalgamation of many long-standing cultural groups into a new nation-state in Manipur. This may be equivalent with the young United States of America's experience of

surge of new-found nationalism. However, the process of amalgamation of different ethnicities into one nation of Manipur was severely disturbed by the waves of Hindunization/Sanskritization or Indianization. Then, the process has been further aggravated by the colonization of the Britishers.

It seems reasonable to expect that the inevitable globalization of culture and economy after the Second World War and the rapid growth of communications would lead to a progressive dilution or even disappearance of national and regional identity feelings. It might also be expected that such an outcome would have been accelerated by the spread of 'multinational' capitalism and the accompanying tidal wave of English as a new international 'lingua franca'.

Even if the changing winds are blowing very fast all over the globe, there are certain areas like Manipur which could not be touched by the changing wave. Large or small ethnic groups of the state claim each other for a distinct socio-cultural identity and displaying ethnic psyche accompanied by such behavioral pattern as assertion of identity, seeking socio-cultural and economic protection, reservation, etc. All these have led to socio-political unrest in the state, especially during the last few decades. An analysis of the causes of ethnicity reveals the following points:

1. Different racial and ethno-linguistic origin, living earlier in different physical locational setting, came to life in the State of Manipur. Different groups of people, therefore, inherit different socio-cultural and racial identity.
2. Different groups of people, coming at different points of time, settled in different physiographic settings and hence, have been brought up by different socio-economic milieu. This process has given different identity to different groups.

3. Historical compulsions and developments were such that there was an ample opportunity for emotional integration of various people to form a single political hegemony of the state in the past. It is noteworthy to mention that the changes were nipped in the bud by the process of Indianization/Sanskritization. Further the British created Hills and Plains isolation imposing Hill administration-handling solely by them. This reinforced the isolation between the hills and the valley people.
4. During the British rule, as also merged with the Indian, there occurred unequal sectoral development. Development was more in some area and less or absent in some other areas. Then again, development was relatively quick in the field of general education but less in the economic sector. Furthermore, administrative exigency led to opening up of new area linking distant places. Such a situation has laid bare the painful fact of hill and valley economic disparities and social imbalances. The result is that the educated unemployed has been increasing with spatial differences and regional imbalances are realized grudgingly, with all their undesirable consequences.
5. Because of geographic isolation of certain hilly areas inhabited by certain ethnic groups and absence of development in them, there is a feeling of deprivation and exploitation among the people inhabiting in the State. On top of this, north-east India as a whole is physically almost isolated from the main-land India. As a result of these geographical facts, there exists a feeling of 'deprivation and exploitation' at different levels: Firstly, there is a feeling, among the people of the eastern Himalayas as a whole of being

'deprived and exploited by the centre. Secondly, the tribes feel that they are being deprived and exploited by the non-tribal people (or by the valley people to the highlanders). Thirdly, the backward and minority groups feel that they are being deprived and exploited by the relatively advanced majority groups. Fourthly, the same feeling is seen to prevail among the smaller tribes against the dominant tribes.

6. Unabated migration of people from even beyond the international boundary in the state has been continuing from such a long time and in such large volumes that the local people fear of being swamped and losing their cultural identity, political and economic hold. It is often found that the right and imaginative decisions and measures are not taken, letting an ethnic situation to be serious later on.
7. Lack of economic development in the state leading to rapid growth of unemployment, especially educated unemployment, has thrown the youths—both male and female—into a state of aimless atmosphere. Such a situation is taken advantage of by the people with vested political and selfish interests. These so-called leaders know that ethnicity is a powerful tool to unite a group of people. So they take advantage of it and arouse ethnic sentiments among the people of their respective ethnic groups at the cost of unity and integrity of the State of Manipur. The present day crisis of ethnic unrest is one of the most important problems hindering socio-economic growth and territorial integrity of the State. But the problems have to be solved. Firstly, the sense of deprivation and exploitation at all levels has to be wiped out through sincere efforts; Secondly,

the sense of insecurity and fear of indigenous small culture being swamped has to be contained, by making genuine efforts to contain immigration and allowing to grow all the individual indigenous ethnic culture of the State (Manipur Cultural Integration Conference's Approach); Thirdly, an action plan is to be taken up to empower the ethnic groups to develop their own culture, dialects and sustainable development of their specific locational factor; Fourthly, effort should be made to acquaint each ethnic groups which is established through understanding with the idea of peaceful co-existence; Fifthly, avenue should be created so that common people of both hills and plain be able to participate in all affairs of socio-economic and political development in the State.

These may require both long-term and short-term policies. But such policies can be found out if the ethnic leaders, politicians, welfare-bodies, socioeconomic planners and social engineers put heads together and make concerted efforts.

2

Everybody Lives Downstream

As viewed from space, Earth appears as a watery planet because nearly 71 per cent of its surface is covered by oceans/seas. All the water on Earth makes up what is called the hydrosphere. The origin of hydrosphere dated back to the beginning of Earth's history more than 4.5 billion years ago. At some early stage of the Earth's formation, it began to release water and various gases from its interior by a process known as degassing. Most of the water on Earth's surface is concentrated in the southern hemisphere where the water to land ratio is about 4 to 1 and the distribution of water differs from place to place and from region to region.

Nowadays, the problem of water is becoming increasingly acute mostly due to the unscientific exploration of available resources and also destruction of the natural environment. The problem is further aggravated due to the deterioration of quality of surface waters and their progressive pollution. However, a good deal of effort is being made to prevent this evil but its efficiency is so far inadequate. It is also realized that the basic cause of the environmental degradation and problem of water is mainly caused by the consequent effect of the continuous population growth and expansion of urbanization and its infrastructural activities at the cost of the Natural Physiographic regions.

The many proposals for rational use of water resources

and its conservation may be categorized into two basic groups. The first includes the study of universal principles of water cycle and global water budget while the second group deals with the assessment of the water resources and nature of utilization etc. For the rational use of the water resources and its conservation a fundamentally different approach is necessary for organizing the use of water resources and measures to protect them. The most important approach is the end of the abuse of water resources and proper tapping of available resources for the whole mankind. To substantiate this concept, we shall try to prove first that the water resources available on earth, provided they are used prudently, can meet the requirements of mankind and, secondly, we shall outline the principal ways to safeguard and use them rationally.

The water resources consist of statistic resources of the hydrosphere and water continually reproduced in the process of their circulation. The water is found in the atmosphere on the earth's surface and within the crust of the earth. In the atmosphere, water is found in the warmest layer, the troposphere, either in vapours or solid state, or in the form of liquid droplets. Surface water, i.e. the water in oceans, seas, lakes, river, reservoirs and glaciers, is found either in liquid or solid state. Within the earth's crust i.e. within the lithosphere, water is found in vapours, liquid or solid state; moreover, it can be firmly or largely bound by rock particles, as well as bound chemically in crystal lattice of various minerals. Surface water, underground water and the water contained in the tissues of all animals and plants (Biosphere) together compose the water envelop of the earth usually called the Hydrosphere.

The total volume of resources of water at any given time is not great but, owing to water circulation, they assume tremendous importance for the life of human race. They refer primarily, to river water whose volume within river beds adds upto a mere 1,200 cu. km. However, owing

to its extremely high mobility, river water renews in river beds once in 12 days on the average, or 30 times in one year. However, a major portion is polluted as a consequence of rapid industrialization and excessive population growth.

At one time no one questioned the amount of fresh and pure water present on this globe. After traveling for a long distance, a man did not have the slightest doubt in questioning his thirst with water from a nearby lake or river. The problem of the water being loaded with toxic chemicals or being heavily contaminated with the pathogenic microbes did not arise. Now, the whole scenario has changed completely. The problem of pollution is intensely acute in many parts of the world. Hundreds of rivers, lakes, streams and other water bodies in a country have now become polluted with all sorts of industrial, agricultural and domestic wastes, oil and city sewages laden with numerous pathogenic microbes. The world's industrial products now include more than 30,000 chemical substances and several hundred new substances of this type are added to the list each year. Public health authorities in many countries are greatly alarmed by various toxic chemical pollutants being discharged ultimately to various water bodies.

Access to a secure, safe and sufficient source of fresh water is a fundamental requirement for survival, well-being and socio-economic development of all humanity. It is high time to make aware that our human activities on the land are the major causes of both water shortages and water pollution. Agricultural development, urbanization, and industrialization cause the most harm and must be the primary focus of freshwater management efforts. Water is literally and figuratively fluid resources; actions within one part of the watershed can be a profound effect on human water use in other parts. We must learn that "everybody lives downstream".

Special attention may be given on the problem of

drinking water currently faced (March & April 1999) by the people of Manipur. During this spring season of 1999, on this part of the globe, people are struggling for a drop of potable water. On the contrary, Manipur geographically is located in a zone where the world's heaviest rainfall is recorded. At present, the State receives 142 cm of rain water annually. The total surface water resource of the State has been roughly estimated as 18,487 million hectare metres in the form of average annual yield. With this enough amount of water, people of Manipur both in the hills and valley are facing acute shortage of drinking water. Demand for drinking water is growing rapidly in the State and more particularly during the spring and pre-monsoon season. Simultaneously, increased water pollution is worsening the imbalance between water supply and demand. Hardly any river, pond or lake in the State today escapes pollution. As a result it is said that more than 75% of the common diseases occurring in the State are water borne diseases. Now water becomes every body's concern; a paradigm in which the household and the community will enter into a new relationship with an equal stake in water management.

The frequent occurrence of flood and drought alternately in the same year is the real index of the environmental condition or status of Environment in the State of Manipur. Whatever amount of rain received by the State was stored naturally by the forest in the distant past. Now almost all the forest coverage has been reduced disproportionately and hence all the rain water just turns into surface runoff with soil erosion, soil wash in the hill slopes and silation in the valley. Geographically, the State water resources and its water bodies were under one biome i.e. the hills of Manipur is the source of water and watershed area of the State. It is really unfortunate that the State has singular habit of not making use of its available water resources. By 2001 A.D. Manipur will be able to use only a tenth of

the total annual rain, and hence it is speculated that we would face the threat of water shortages in the decades to come. The reason for this is simply that we cannot hold on to all the water the State receives. More than 80% of the monsoon water disappears through surface run-off and evaporation etc. Now let us prepare for a rational use of water and conservation of water in the light of the United Nations theme of World Water Day i.e., "Everybody Lives Downstream" and the "World Water Vision Project".