

# SUSTAINABLE DEVELOPMENT: A STUDY WITH SPECIAL FOCUS ON FOREST DEPLETION IN MIZORAM

Dr. Abdul Hannan Barbhuiya  
Associate Professor, Department of Economics  
Govt. Kamalanagar College, Chawngte, Mizoram.

## Abstract:

*Economic growth and development are dependent on the availability and use of natural resources. Nature has given sufficient resources for everyone's need but not to satisfy anyone's greed. The rat race among the nations to achieve higher and higher levels of development rendered the nature unsustainable. The incongruous relationship between economic development and environmental degradation has called forth the concept of sustainable development. The exclusive symptoms of unsustainability include greenhouse effect and climate change, ozone depletion, atmospheric acidification, toxic pollution, biological species extinction, deforestation, land degradation and desertification, depletion of non-renewable resources like fossil and minerals, urban air pollution and solid wastes, water contamination etc. To sustain the nature, i.e., using the resources today without destroying it for tomorrow, a unified effort is of utmost necessity.*

**Keywords:** Sustainable development, ecology, environment, forest degradation, shifting cultivation.

## INTRODUCTION:

In the process of economic development ecological balance of the world is affected directly or indirectly. With the increase in population and their growing demand the situation even worsens. But the act of developing today at the cost of tomorrow is dangerous. This is the crucial juncture where lies the concept and need for sustainable development. The ecology and the process of economic development of a particular country or region may be specific and peculiar to it, but its effects on the universe is global. So, a unified effort to develop today without endangering the nature for tomorrow is of utmost necessity. The present paper gives a birds-eye-view of the concept, need and components of sustainable development, in general, and aims at focusing on the depletion and degradation of forests, which is the most important natural resource of Mizoram, in particular.

## SUSTAINABLE DEVELOPMENT:

### A. Meaning and Concept:

Growth plus change together constitute development. Growth, for the last two centuries, has become almost synonymous to economic growth in terms of gross domestic product or per capita income of a nation and change essentially refers to social change, i.e., an overall improvement of the socio-economic

conditions of a country. This has eventually led to a rat race amongst the nations to achieve higher and higher levels of development. The goals of higher economic growth are achieved by exploiting natural resources and hence are often contradictory to the preservation and sustenance of environment. This very incongruous relationship between economic development and environmental degradation has called forth the concept of sustainable development.

Sustainable development means improving the quality of life of the present generation without excessive use or abuse of natural resources, so that they can be preserved for the future generation. As per Brundtland Report “Sustainable development is the development that meets the needs of the present (people) without compromising the ability of future generation to meet their own needs”. The term ‘sustainable development’ was first coined in 1972 at the United Nations Conference on Human Environment at Stockholm and the most important piece of writing on it, viz., “Our Common Future” was by the World Commission on Environment and Development (WCED) in 1987.

Sustainable development is a multi-dimensional and interdisciplinary concept. According to Van Den Bergh (1996), the theoretical perspective of sustainable development consists of Neo-classical economic equilibrium, evolutionary ecology, physic-ecology, socio-cultural and human ecology. Thus, it encompasses physical, natural and social sciences like Environmental sciences, Botany, Zoology, Biology, Engineering, Geography, Sociology, Economics and so on. Hence, the exclusive symptoms of unsustainability include greenhouse effect and climate change, ozone depletion, atmospheric acidification, toxic pollution, biological species extinction, deforestation, land degradation and desertification, depletion of non-renewable resources like fossil and minerals, urban air pollution and solid wastes, water contamination etc.

### **B. Need for Sustainable Development:**

For a balanced growth and lasting development, a concerted effort is of utmost importance to the world community. No one should live today at the cost of tomorrow. To ensure a better future, 170 countries signed many important documents on sustainable development pledging preservation of environment at the Earth Summit at Rio-de-Janerio way back in 1992.

There are several issues which need to be addressed in striking a balance between economic development and environment protection. Such important areas are ensuring a safe human life, prevention of environmental degradation, check the exploitative technology and find alternative sources, check the over exploitation and waste of natural resources, regenerate renewable energy sources etc.

Since environmental degradation knows no boundary the issue of sustainability is universal in nature. Although the developing nations like China and India are trying to grow very fast, their relative share to damage the global environment is still a fraction of the OECD countries. Hence, a joint action by all nations towards maintaining a congenial environment for the days to come is the bare necessity. Accordingly, 192 UN member states identified 8 common development goals (Millennium Development Goals) in the UN Millennium Summit, 2000, on the most critical areas of human progress and agreed to achieve desired

results by the year 2015. These areas are-(i) eradication of extreme poverty and hunger, (ii) achievement of universal and primary education, (iii) promoting gender equality and empowering women, (iv) reduction of child mortality, (v) improvement of maternal health, (vi) combating HIV/AIDS, malaria and other diseases, (vii) ensuring environmental sustainability and (viii) developing a global partnership for development.

### **C. Components of Sustainable Development:**

The content of sustainable is so vast and varied that it touches upon almost all spheres of life individually as well as collectively for the present and the future. Economically, it aims at achieving a balanced growth. Ecologically, it aims at preserving the ecosystem. And socially, it aims at guarantying equal access to the resources to all human communities. Thus, three main components of sustainable development can be identified as under:

#### **I. Social components:**

- Workers health and safety
- Impact on local communities and quality of life
- Benefits to disadvantaged groups

#### **II. Economic components:**

- Creation for new markets and opportunities for sale growth
- Cost reduction through efficiency and improvements and reduced energy and raw materials or inputs
- Creation of additional value

#### **III. Environmental components:**

- Reduce waste, effluent generation and emission into environment
- Reduce impact on human health
- Use of renewable raw material
- Elimination of toxic substances.

### **MIZORAM PERSPECTIVE:**

Mizoram is a small hilly state occupying an area of great strategic importance in the southernmost corner of Northeast India. It lies between 21.58<sup>0</sup> to 24.35<sup>0</sup> N latitude and 92.15<sup>0</sup> to 93.29<sup>0</sup> E longitude. The tropic of cancer runs through the territory. The total area of the state is 21,081 sq. kms. Mizoram has a total population of 10,97,206 (Census of India, 2011) with overall density of 52 persons per sq. km. The literacy rate of the state is 91.58 percent, which is the third highest in the country. Mizoram has the most dappled topography among all hilly areas in this part of the country. It is a land of rolling hills, rivers and lakes. The climate of Mizoram is moderate, cool and pleasant throughout the year. It is generally cool in summer and not very cold in winter. The temperature varies from 20°-30° C during summer, 11°-21° C during winter

and the relative humidity varies from 70-80%. The average rainfall in Mizoram ranges between 200 and 300 cm per year.

Mizoram is a No-industry state. But it is quite rich in terms of flora and fauna. The vegetation of the state is divided into four types based on the nature of forests, viz., tropical, wet evergreen and semi evergreen, montane subtropical, and bamboo forests. The most important floral group in Mizoram is bamboo, which along with other plantains, grows at the lower altitude of the forest. At higher altitude, the woods get denser with canes and creepers. As to the faunal resource of Mizoram, a recent survey by the scientists of the Zoological Survey of India (ZSI) focuses on nearly 1,468 species belonging to 891 genera under 295 families, of which insects alone form 37% with 520 species; the next abundant group is the birds with nearly 370 species and subspecies distributed in the State.

Environmentally speaking, Mizoram is reasonably a good habitat with nearly 91.47 percent forest coverage of its total land area. While Mizoram accounts for only 0.64 percent of the total geographical area of the country, it contributes around 2.43 percent in the total forest and tree cover of the country.

The most significant natural resource of Mizoram is forest. Table 1 below depicts the district-wise forest cover of Mizoram.

**Table 1. District-wise Forest Cover of Mizoram (Area in Sq. Km.)**

District	Geographical Area	Very Dense Forest	Moderately Dense Forest	Open Forest	Total	% of Geographical Area
Aizawl	3575	28	1135	2022	3185	89.09
Champhai	3185	60	1042	1570	2673	83.92
Kolasib	1382	0	187	1027	1214	87.84
Lawngtlai	2557	0	705	1632	2337	91.40
Lunglei	4536	1	1186	2954	4141	91.29
Mamit	3025	43	654	2044	2741	90.61
Saiha	1400	0	551	696	1247	89.07
Serchhip	1421	6	398	807	1211	85.22
Total	21081	138	5858	12752	18749	88.93

Note:

Very Dense Forest: All lands with tree canopy density of 70% and above

Moderately Dense Forest: All lands with tree canopy density of 40% and more but less than 70%

Open Forest: All lands with tree canopy density of 10% and more but less than 40%

(Source: FSI, 2015)

The above table shows that, Lawngtlai, Lunglei and Mamit districts have more than 90 percent of their land covered by forests. However, other districts are also not lagging far behind. In so far as very dense forest is concerned, Champhai district tops the list followed by Mamit and Aizawl. In case of moderately

dense forest Aizawl is ahead of all others and Lunglei district has the largest area under open forest coverage.

Exploitation of forest like other natural resources is but obvious as a consequence of increasing population and their growing demand. The pressure on forests is of special significance in the case of Mizoram since it is the prime resource in the state. A picture of ten years' change starting from 2005 in the forest cover of the state is shown in table 2.

**Table 2. Change in Forest Cover of Mizoram since 2005 (Area in Sq. Km.)**

Year	Very Dense Forest (VDF)	Change in VDF	Moderately Dense Forest(MDF)	Change in MDF	Open Forest (OF)	Change in OF	Forest Cover	Change in Forest Cover
2005	133	-	6173	-	12378	-	18648	-
2009	134	1	6251	78	12855	477	19240	592
2011	134	0	6086	-165	12897	42	19117	-123
2013	138	4	5900	-186	13016	119	19054	-63
2015	136	-2	5858	-42	12752	-264	18748	-306

Source: FSI, 2005; 2009; 2011; 2013; 2015

The distinctive feature from the above table is that, the area under very dense forest is increasing while the moderately dense forest is decreasing. This is due to the different type of land use scenarios in the state of Mizoram in comparison to other parts of the country, i.e. shifting cultivation, in which land is once cleared for the purpose of cultivation and after the span of 4-5 years it has been left abandoned by the local communities to restore in its natural condition. In the year 2015, the area under VDF and MDF is decreasing in comparison to 2013, which results in overall decrease of 306 sq. km. of forest land of the state.

It is a matter of concern that forests are declining even in this hilly state. It can result in land degradation, soil erosion, river siltation and many other environmental hazards. In such a situation, the drivers of deforestation need to be identified and viable remedies should be made.

The drivers of deforestation may broadly be classified as under-

***Proximate or Direct Drivers:***

- Agricultural expansion/encroachment
- Shifting cultivation
- Fuelwood collection
- Illegal timber harvesting
- NTFPs extraction
- Grazing
- Mining
- Industrial expansion
- Road constructions
- Hydro-power

- Natural calamities, e.g., flooding, landslides, forest fires etc.

***Underlying or Indirect Drivers:***

- Overpopulation
- Unemployment
- Increased demand of forest products
- Irregular monitoring
- Lack of transparency
- Lack of awareness.

The Indian Council of Forestry Research and Education conducted a study in 2017 and brought out the following result (table 3) on peoples' perception as to relative contribution of different drivers of deforestation in Mizoram.

**Table 3. Percent distribution of identified drivers of deforestation and forest degradation as per people's perception**

Sl. No.	Drivers	Percentage of Individuals
1	Shifting cultivation	89.24
2	Fuelwood collection	84.81
3	Fuelwood+Shifting cultivation	91.77
4	Unemployment	59.49
5	Excessive extraction of NTFPs	36.08
6	Lack of industries	37.34
7	Lack of knowledge and awareness	49.37
8	Connectivity of roads	28.48

Source: Indian Council of Forestry Research and Education (2017)

It is seen that Shifting cultivation and fuelwood collection are the main drivers of deforestation in Mizoram. In the absence of abundant flat land and traditional system of cultivation, slash-and-burn or shifting cultivation is the prominent practice in the state. This system of cultivation is neither very remunerative nor environment friendly. However, all the other factors perceived above are quite a matter of concern in the preservation of environment and are discernible hurdles in the way of sustainable development.

**WAY FORWARD:**

Some recommendations or suggestions can be made in the light of the above picturesque of deforestation.

The destructive shifting cultivation in the state may be replaced by terrace cultivation and at the same time alternative ways for horticultural farming of cash crops may be encouraged. The land left

abandoned after *jhuming* may be looked after scientifically for its natural restoration and fertility by a dedicated team at the village level with the support and guidance from the state forest department and other forestry research organizations.

In the absence of improved high efficiency cook stoves, the use of huge quantity of fuel wood is widespread in rural Mizoram. Promotion of high density energy plantation of local fast-growing species can also ease pressure on forests for fuel wood collection. Regular supply of LPG can also be assured to the prospective villagers.

Almost 72 percent of the rural population is dependent on farming. Alternative employment opportunities are very few in rural Mizoram. So, acknowledging traditional knowledge and skills, efforts need to be made in promoting cottage industries with locally available resources. This will enhance people's income and shift the dependence of the people from land and forest to industry, manufacturing and service sectors.

Finally, thorough awareness campaigns highlighting the various governmental programmes, incentives, and specifically the negative impacts of using forest resources in unsustainable manner among the masses will go a long way in combating deforestation and preserve ecology. Mizoram has an advantage in this regard over many other states as it has the third highest literate populace in the country.

#### CONCLUSION:

Sustainable development is a composite and multi-faceted global phenomenon. A concerted effort by all individuals of all nations is required to ensure a secured future. The degree of environmental degradation is not same everywhere. But the damage made to the environment and ecology will have global consequences. As to the state specific case of Mizoram, it has a pleasant state of environmental balance with abundant natural resources, especially, forests and less of emissions and pollutants. But due to several reasons excessive exploitation and hence depletion of this resource base has started. If no proper step is taken in time the future generation will suffer. It is a collective responsibility at the societal level, administrative responsibility at the governmental level and personal responsibility at the individual level.

\*\*\*\*\*

#### Reference:

Anne B. and Strange T (2008), "Sustainable Development-Linking Economy, Society, Environment", OECD Publications, accessed from <http://www.sjalfaarni.is/media/frodleikur/OECD-skyrsla.pdf> on 20.02.2019

Barbhuiya, A.H. (2014), "Cost and Finance of Higher Education in Mizoram", Concept Publishing Company (P) Ltd, New Delhi.

Census of India (2011). Ministry of Home Affairs,

Government of India.

Drivers of Deforestation and Forest Degradation in Mizoram (2017)-A Project Report, Indian Council of Forestry Research and Education, Dehradun.

FSI (2005/9/11/13/15). India State of Forest Reports, Forest Survey of India, Dehradun.

Government of Mizoram, Economic Survey, Mizoram, 2015-16, Planning and Programme Implementation Department.

[https://www.undp.org/content/dam/undp/library/corporate/brochure/SDGs\\_Booklet\\_Web\\_En.pdf](https://www.undp.org/content/dam/undp/library/corporate/brochure/SDGs_Booklet_Web_En.pdf)

Kadam, B.J. and Patil, J.S. (2014), 'Sustainable Development in Indian Economic Perspective', in *Journal of Economics and Sustainable Development*, Vol. 5, No. 19

Maithani, B.P. (2005). "Shifting cultivation in northeast India: Policy, issues and options", Mittal Publications, New Delhi.

