

Shillong 20<sup>th</sup> Dec. 2001

Dear Madam Dr. Vibha Ahuja,

We have completed the NE Regional NBSAP meeting at Guwahati from 18 to 20 December 2001. Due to my personal and departmental activities, I could attend only on 18<sup>th</sup> December 2001. I have presented my NBSAP Project Draft Report for Sub-State Site, West Garo Hills, Meghalaya.

Now, I am submitting herewith a Draft Report of the same for West Garo Hills Sub-State Site for necessary action. My Draft Report may not be exactly as per format supplied by you, but the suggested Pin Point Strategy Action Plan is more important to be included in the National Strategy Action Plan along with the Meghalaya State and North Eastern Region. Please accept our proposal for West Garo Hills, Meghalaya.

I may be excused for delay in submission and it may not be possible for me to redraft or re-write the same report again, due to some departmental preoccupations.

Wishing you **A Merry Christmas and Happy New Year.**

Yours faithfully,

(P.G. Momin)  
Coordinator Sub-State Site  
West Garo Hills, Meghalaya

To,  
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# Preface

The Society for Environmental Protection and Rural Development (SEPARD), Pedaldoba, West Garo Hills, is an autonomous, non-profit making voluntary organization, registered under the Society's Act 7 of 1990, Meghalaya. The Society has been doing a commendable good work and services to the people of the area of West and East Garo Hills of Meghalaya.

The selected areas of Pedaldoba and the surrounding villages is an extremely backward area in terms of economy of the people, including road connections, health care centers, drinking water supply, electricity and in the field of education facilities, etc. The people in the villages are mostly the jhumias in the hills, and they do wet cultivation of paddy in the narrow strips of small river valleys. Our society aims at that the subsistent agriculture out to be given a supplementary economic impetus to help in the amelioration of the economic development of the rural poor.

The Society have successfully organised a number of seminars, awareness programmes and workshops in various important and burning issues like Environment Protection, Jhum Control and Plantation, Social Environment and Hygenic Awareness Camps, Tree Plantation on the road sides and Awareness Generation Project for Mother and Child for the rural poor people in the last twelve years. It is successful to carry out the various activities of the society with the good number of participants among the youth and village Nokmas of the area.

The present participation of the National Bio-Diversity and Action Plan, Government of India, our Society SEPARD is very grateful as a matter of chance to be one of the coordinator for the sub-state site, West Garo Hills, Meghalaya. We would be grateful for valuable comments and inputs on this Draft Proposal on Bio-Diversity Strategy Action Plan (BSAP) for Garo Hills in the near future. The coordinator of the project owe his debt of gratitude to all the local advisory members, participants, school pupils, teachers, Nokmas, and general public who are keenly participated and contributed to complete the process of NBSAP project.

(P.G. Momin)  
Coordinator, NBSAP  
Sub-State Site,  
West Garo Hills,

# CHAPTER – I

## INTRODUCTION

### **Profile of the Area (Garo Hills)**

Meghalaya, the 21<sup>st</sup> state of Indian union, was declared a full-fledged state on January 21<sup>st</sup>, 1972. Having an area of 22,429 sq. km. and population of 17,74,748 in 1991. The state has at present 7 administrative districts – West Garo Hills, East Garo Hills, South Garo Hills, West Khasi Hills, East Khasi Hills, Ri-Bhoi and Jaintia Hills.

The East Garo Hills district is one of the major districts (out of the three original districts) since inception of the state of India in 1970. Garo Hills district is situated between 25°9'20" and 26°51'18" North latitude and between 91° and 91°10' East longitude. The Garo Hills district by now, again has been divided into three districts, West, East and South Garo Hill districts in 1975 for better developmental activities and closer relationship between citizens and state government agencies. The Garo Hills district lies in the Western part of Meghalaya, bounded by Assam in North and Western part, and Mymensing district of Bangladesh in the South. The Garo Hills district is a part of Meghalaya plateau with beautiful undulating hill ranges with rich in flora and fauna such as wild animals, birds, reptiles, different medicinal plants, valuable trees, orchids, etc.

### **Topography, Geology, Climate and Soil**

The Garo Hills district being a part of Meghalaya plateau, the geological history of which has to be explained in relation to the total structure of Meghalaya plateau. The Garo Hills a part of Meghalaya plateau has indeed a checkered evolutionary history and is a fragment of the super continent of Gondwana and contains within each warfare the marks of peneplanation periods. The higher parts of plateau preserved remains of Gondwana surface, while later cycles traced below them. The various rock types found in Garo Hills is occupied by (a) Archaean, (b) lower Gondwana rocks and (c) Cretaceous tertiary sediment.

The geology of Garo Hills is characterised by the presence of a wide variety of rock types that originated in various epochs of the earth evolution, starting from the most ancient time upto the recent, the oldest known rocks comprises the "Archaean group" (about 3600 million years). This group is represented by hard massive rock like Gnessic, granulites, pegmatite, amphibolites and the banded ferruginous, quartzite which occupies 60 percent of the area in the northern part of the district. The Garo Hills is rich in mineral wealth, the potentiality of initiation or expansion of mineral based industries in the districts of Garo Hills mainly depend on the three principle mineral deposits, viz., limestone, coal and clay.

There were three mountain ranges – the Arabella range, the Tura range and Rangira range passes through the Garo Hills, forming the great Balpakram Valley in between Garo Hills is known for the abundance of wild life, should interest naturalist and photographer captured the facts of life of animals and the flora and fauna. The highest peak of Garo Hills is Nokrek peak (1412 m). From the point of view of physical features the district of Garo Hills can be divided into three regions –

- (1) Northern sub-montane region,
- (2) the Central main plateau region and

- (3) Southern Hill slope region. The water divides or the drainage basin of the district can be divided distinctly into 2 zones –
- (a) Northern river basin zone and
  - (b) Southern river basin zone.

The Garo Hills district is directly influenced by the South-West monsoon and North-East winter winds. The four seasons of the region are Spring (March-April), Summer (Monsoon – May-September), Autumn (October-November) and winter (December-February). During March and April, the atmosphere gradually warms with the advent of spring, from the middle of April, the temperature starts rising to the maximum in the month of June and then decreases gradually due to summer rain. These periods may be termed as the summer (monsoon) season. The maximum temperature recorded is 34°C at Tura of West Garo Hills District. October and November are the two months when the climate is cool and temperate. After November, the winter season sets in and continues up to the end of February. During these months the temperature comes down as low as 11°C in Tura. Rainfall starts by 3<sup>rd</sup> week of May and continues right up to the end of September and sometime well into the middle of October. The maximum rainfall occurs over the south-western slopes of Garo Hills, i.e., over Tura, Dalu, Bhagmara and Mankachar and Dhubri, the adjacent places of Assam. The maximum rainfall is received in the month of June and July as 765 and 790 mm respectively.

## Soil

The soils of Garo Hills have developed under varied conditions of geology, relief, climate and vegetation. They are of four different types –

**Red Loamy Soils** occupy the central part of Garo Hills, i.e., upland zones of central part of Meghalaya. They are derived from the weathering of rocks like Granites, Gneisses, diorites and others which are relatively rich in clay forming minerals and poorer in Silica. These soils are generally loamy but sometimes vary from clayey to sandy loam. The surface horizon which is about 30 cm. thick has occurs ranging from reddish-brown to dark reddish-brown. The soil are rich in organic matter and nitrogen but deficient in phosphate and potash. They are wealthy acidic in character and are suitable for the cultivation of rice, potato and fruits.

**The Laterite Soils** occurs in a broad belt extending from West to East in the northern part of the districts. They have been formed by the weathering of rocks like quartzites, schist, conglomerate, granites and gneisses which are rich in iron and allumina. From the agriculture point of view, the soil are not very important but can be used for the purpose by mixing heavy amount of organic matter.

**The Red and Yellow Soils** are found in a belt running from east to west in the foothills of the districts. They vary in colour from yellow to red, reddish yellow and yellowish brown. These soils are usually fine textured ranging from loam to silty loam and are suitable for rice and fruits.

**The Alluvial Soil** occurs all along the north-western and southern fringes of the districts. These soils are rich in potash but poor in phosphate. They are being used for the cultivation of rice, jute and fruits. The terrain has played an important role in determining the nature of the soil in Garo Hills. In general the soils are immature, light in colour, less clayey and less fertile on the hill-top and are thick, matured, deep in colour, more clayey and

more fertile in the valleys and alluvial lawlands. The soil erosion is one of the major problem of agriculture in Garo Hills district. It is mainly caused by the practices of shifting cultivation which is characterised by rugged topography and heavy rainfall. The uncontrolled grazing which limits the growth of vegetations on the land surface and in some areas, the top-soil has been completely washed away from the hill slopes, making them useless for cultivation.

### Population

The physiography, the climate and the economy of the districts do not provide a regional environment. The population is most uneven in its distribution. The growth pattern is erratic and migration is a common features. Most of each population is rural in nature. The demographic and social structure of the districts are essential and important in formulating of any plans for the economic development of a region.

The district-wise number of villages, towns, police stations, out-post, and community development of Garo Hills District is given below –

#### Area and Population

District	Area (Sq. Km)	Population (2001)	Sub-division	Villages (2001)	Towns (2000)	Police Stations	Police Outposts	Comm. Dev. Blocks
E Garo Hills	2603	247555	1	856	1	5	3	4
S Garo Hills	1849	99105	-	595	1	1	2	3
W Garo Hills	3715	515813	2	1481	2	7	4	7
Meghalaya	22429	2306069	8	5780	12	34	24	32

The Block-wise population of Garo Hills District is also given below –

### Population and Area

According to the 2001 census, Meghalaya has a population of 2306069 of which Garo Hills accounted for 862473 population. The density of population per square kilometer is 103. The district-wise population breakup is as follows –

#### District-wise Area and Population

District	Headquarters	Area (Sq. Km)	Population
West Garo Hills	Tura	3714	515813
East Garo Hills	Williamnagar	2603	247555
South Garo Hills	Baghmara	1850	99105
Meghalaya	Shillong	22429	2306069

There are 14 development blocks in Garo Hills, out of which West Garo Hills have 7 Development Blocks. They are

1. Dadengiri Development Block
2. Selsela Development Block
3. Rongram Development Block
4. Betasing Development Block

5. Zikkjak Development Block
6. Dalu Development Block
7. Tikrikilla Development Block

### Block-wise Area and Population

Districts and Blocks	Area (Sq. Km.)	Population (2001)	No. of Villages (2001)	Households (2001)
<b>East Garo Hills</b>	<b>2603</b>	<b>99105</b>	<b>856</b>	<b>35537</b>
Dambo Rongjeng Dev. Block	885	60192	277	11111
Songsak Dev. Block	703	32212	173	6507
Samanda Dev. Block	547	30094	132	5782
Resubelpara Dev. Block	468	66332	274	12137
<b>South Garo Hills</b>	<b>1849</b>	<b>99105</b>	<b>852</b>	<b>23226</b>
Chokpot Dev. Block	612	29464	343	5519
Baghmara Dev Block	651	33255	147	6175
Rongara Dev Block	587	14354	105	2698
<b>West Garo Hills</b>	<b>3715</b>	<b>515813</b>	<b>1481</b>	<b>76314</b>
Dadenggiri Dev Block	947	63170	136	12549
Selsella Dev Block	535	99752	305	17609
Rongram Dev Block	867	89546	232	16620
Betasing Dev Block	301	51531	205	10087
Zikjak Dev Block	405	53787	191	10615
Dalu Dev Block	659	45241	257	8834
Tikrikila Dev Block	-	-	155	-
<b>Meghalaya</b>	<b>22429</b>	<b>2306069</b>	<b>5780</b>	<b>327371</b>

### Administration

The state of Meghalaya has a universal legislature, the State Legislative Assembly consists of 60 members and the breakups of Electoral Legislative Assembly constituencies are as follows –

1. 29 representative from Khasi Hills
2. 7 representative from Jaintia Hills
3. 24 representative from Garo Hills

**Meghalaya Legislative Assembly**  
***Constituencies in Garo Hills, 2000***

- |                              |                  |
|------------------------------|------------------|
| 1. South Garo Hills District | 1. Chokpot       |
|                              | 2. Baghmara      |
| 2. East Garo Hills District  | 1. Karkutta      |
|                              | 2. Mendipathar   |
|                              | 3. Rongrengiri   |
|                              | 4. Resubelpara   |
|                              | 5. Songsak       |
|                              | 6. Rongjeng      |
|                              | 7. Bajengdoba    |
| 3. West Garo Hills District  | 1. Rangsakona    |
|                              | 2. Dalamgiri     |
|                              | 3. Dalu          |
|                              | 4. Selsela       |
|                              | 5. Dadengiri     |
|                              | 6. Rongchugiri   |
|                              | 7. Kherapara     |
|                              | 8. Salmanpara    |
|                              | 9. Tura          |
|                              | 10. Mahendraganj |
|                              | 11. Rongram      |
|                              | 12. Phulbari     |
|                              | 13. Tikrikilla   |
|                              | 14. Ampattgiri   |
|                              | 15. Rajabala     |

After the State Legislative Assembly constituencies, there is an Autonomous District Council with 30 members. The district council is established on the basis of VI Scheduled of Indian Constitution.

**Health**

Like education, the foundation of health care centers was started and laid foundation stone by the Christian Missionaries as far back as the 19<sup>th</sup> century. Yet the health services coverage in the state and districts of Garo Hills is much below the National average owing to the hilly terrain with its inadequate road network. To reduce infant and maternal mortality, a number of family welfare programmes have been taken up under Central Government sponsorship. The State Government Health care centers and hospitals are as follows –

- |   |      |
|---|------|
| 1. Government Hospitals   | 5    |
| 2. Community Health Centres   | 10   |
| 3. Primary Health Centres   | 77   |
| 4. Sub-Health Centres   | 325  |
| 5. No. of Beds in Govt. Hospitals,<br>Community Health Centres,<br>Primary Health Centres | 2352 |



The district-wise number of hospitals and dispensaries of Garo Hills district 2000 is given below –

### **Health Services**

District	Hospital	Dispensaries	PHC	CHC	Sub-Centre
South Garo Hills	-	5	3	1	21
East Garo Hills	-	3	15	2	67
West Garo Hills	3	9	17	3	87
Meghalaya	10	38	88	12	413

## **CHAPTER – II**

### **STATUS OF BIO-DIVERSITY**

#### **The People**

The Garo Hills district is predominantly inhabited by the Garos, belonging to the Bodo family of the Tibeto-Mongloid race, said to have migrated from Tibet. The Garos prefer to call themselves Achiks' and the land they inhabited as the Achik land. They are among the few communities in the world that observed the matrilineal line of descent in the family, in which lineage and ancestral property pass down from mother to daughter.

Garo Hills district is basically an agricultural district with about 80 percent of its total population depending entirely on agriculture for their livelihood. The hilly terrain and land condition of the district do not offer much people in bringing additional areas for additional areas under wet cultivation, but, the district has a vast potential for developing horticulture. The agro-climatic variation within the district offers much scope for cultivation of temperate as well as tropical fruits and vegetables.

Besides the major food crops of rice and maize, the district is also renowned for its horticultural crops like orange, lemon, pineapple, guava, litchi, banana, Jackfruits and temperate fruits such as peach & cashewnuts, etc. Potato, ginger, turmeric, black peppers, arecanut, tezpatta, battle leaf, short-staple cotton, jute, mesta, mustard and rape seeds etc. are some of the important cash crop in the district.

Apart from the above, the Garo Hills district have achieve signal success in the cultivation of non-traditional crops like tea, cashewnuts, oil-seeds, fruits, mushroom, coffee, rubber, and wheat etc. are some of the important cash crops in the district. In order to provide assured irrigation to the cultivation and thereby ensuing increase production, a number of minor irrigation facilities has been envisaged. Live-stock and dairy farming have tremendous potential for generating self-employment avenues to the people including educated unemployed youths of the district. The other programme is to assist the people in raising fodder and pasture to graze their cattle and other live-stock. Sericulture, weaving, poultry and piggery is also another important means of income among the women folks of the district.

#### **The Garo Hills Eco-System**

Beyond the Deccan plateau after the Raj Mahal Hills an across the Ganga-Brahmaputra Doab towards east, the first hill complex of N.E. India encountered is the Garo Hills. It is the western most end of the Meghalaya plateau forming first link in the chain of hill eco-system of NE India. The plateau is dissected into the irregular spurs and the valleys of Garo Hills but left as a rolling plateau in the Khasi Hills proper, which is undissected shape by a few deep and cliff sided gorges to its precipitous southern scarp, only its northern side continuing the character of Garo Hills. Culturally the Garo Hills are in transition between the civilization of Indian sub-continent and S.E. Asia.

The Garo Hills eco-system is endowed with rich flora and fauna which provided food to hunters and gatherers in the past. Agriculture is governed by tropical monsoon climate of moderate to high rainfall, warm summers and mild winters; wet tropical forests;

fertile loamy soils in the hills and valley plains and alluvium in the narrow flat valleys; well developed drainage system etc. Other resources are coal, limestone, white clay, kaolin, glass sand, iron ore, gypsum, quartz, feldspar, phosphate and silimanite but at present, clay is utilized in a few potteries and brick making units. The eco-system also has high potentiality for universal base industries with the rich natural resource base, enlightened people and low population density, the Garo Hills are ironically one of the economically undeveloped regions of India. The continuum of wet paddy fields, landscape of the surrounding plains has penetrated into hills through the broad valleys. Proximity to developed societies, presence of fertile valleys, monsoon climate and innovative people have played significant role in bringing comparatively an early change from Archaic form of plant cultivation with slash-and-burn method to settled plough farming.

### **Forest**

Forests has always been an integral part of the people of the district. Be it for timber, fire wood or other forest produce like broomstick, bay leaf, chimamon, etc. Forests have been the source of sustenance to the ever-increasing need of men. However, the rich bio-diversity of primary forests are disappearing as they give away to only secondary scrub forests due to their continual exploitation by the people.

The forests under the control of the state government and the district is very small as compared to the total geographical area. The rest and the maximum area of the forest falls under the control of the clan, community or privately own had been recklessly exploited for agriculture and commercial purposes.

The forest types in the district of Garo hills includes the sal forest, mixed moist deciduous forest, the evergreen forests, bamboo forests, and grassland forests. Some of the important and valuable timber species includes the *Sal*, *Gamari*, *Titachampa*, *Teak*, and *Salmakri*. Many rare plants which have become endemic to only certain pockets includes the pygmy lily, pitches plants, sundew, wild citrus, some rare bamboos, canes, and a number of varieties of orchids including the ladys sleeper orchids.

There are two national parks in the district of Garo Hills, viz., Balpakram National Park and Nokrek National Park or Nokrek Biosphere Reserved Forest. The wild life sanctuary located at Siju in South Garo Hills. This National Park and Wild Life Sanctuary form the habitat for a number of rare and threatened birds and animals. Some of the birds which are unique to the area includes the great pried hornbill, Kalizphasant, imaral dove, Red Jungle Fowl, Peacock, peasant, Racket tail, Drongo, Himalayan Golden Back, Wood Pecker, Black Napped Oriole. The check list of animals includes the binturong, Clouded Leopard, Flying Squirrel, Golden Cat, Sniped Hare, Hoolock Gibbon, Gaur, Tiger, Elephants and number of snakes and pythons. The Forest Department in the state, district authorities has been making a lot of efforts in a forestations of the already barren areas with the help and co-operation of local peoples. For the control of pollution in the urban area, erratic rainfall and climate changes, planting of trees in every vacant place and protection of existing forest with its wildlife has become an immediate necessity.

For the administrative control, the forest of a district of Garo Hills may be classified into five categories –

1. Reserved Forest
2. Unclass State Forest

3. Private Forest
4. Protected Forest
5. Village Forest

Only the reserved and protected forest are under the management of the state government. The rest are own by the individuals, clans, or villages or they are controlled by the District Council.

The area under different reserved forests of Garo Hills is given with the appropriate area occupied. Out of sixteen reserved forests, the West Garo Hills have only three reserved forests.

### **Area Under Reserved Forests, Garo Hills**

Darangiri Reserved Forest	10356 Sq. Km.
Songsak Reserved Forest	23390 Sq. Km.
Dambo Reserved Forest	18129 Sq. Km.
Rongrengiri Reserved Forest	36259 Sq. Km.
Chima Bongri Reserved Forest	23309 Sq. Km.
Dima Reserved Forest*	20720 Sq. Km.
Rajasimala Reserved Forest	18130 Sq. Km.
Ildek Reserved Forest	2560 Sq. Km.
Dilma Reserved Forest	2560 Sq. Km.
Angratoli Reserved Forest	30043 Sq. Km.
Baghmara Reserved Forest	44288 Sq. Km.
Siju Reserved Forest	5180 Sq. Km.
Rewak Reserved Forest	6473 Sq. Km.
Emangiri Reserved Forest	8283 Sq. Km.
*Dibru Hills Reserved Forest	15022 Sq. Km.
*Tura Peak (Catchment Area)	3890 Sq. Km.
<b>Total</b>	<b>268516 Sq. Km.</b>

## CHAPTER – III

### ECONOMY

#### Agriculture

Garro Hills is predominantly an agricultural district where more than 85 percent of the total population live in rural areas and depends on agriculture for their livelihood. Although agriculture occupies a very important place in the economy of the region, only about 15 percent of the total geographical area is available for cultivation of crops. The rainfall in the region is adequate for agriculture but due to the rugged topography and less productive soils, it has not been able to give as satisfactory results except the surrounding villages in the plains and valleys along the border fringes which form a part of Brahmaputra Valley in the north western part of Garro Hills and also along the southern slopes bordering to Bangladesh.

The district-wise land utilization and area under whole of Garro Hills, i.e., East, South and West Garro Hills is given below –

#### Garro Hills District Wise Landuse, 2000

Items	E. Garro Hills	W. Garro Hills	S. Garro Hills	Meghalaya
Reporting Area	260300	371400	18500	2240900
Forest	124750	167602	101746	950000
Not Available for Cultivation	10337	21736	9418	220245
Other Uncultivated Land excluding fallow Land	66528	60378	31390	602670
Fallow Land	26785	57720	24143	231600
Net Sown Area	28900	63964	18303	218385
Area Sown More Than Once	5226	19931	4742	44445
Total Cropped Area	34126	83895	23035	262830

Source: Directorate of Economics and Statistics, Meghalaya

## Garro Hills – Production and Yields of Principle Crops

Crops	Garro Hills		Meghalaya	
	Production	Yield	Production	Yield
Rice	61633	1075	119302	1143
Wheat	1760	1196	1800	1200
Jute	35000	1260	35000	1260
Maize	4290	858	11324	700
Cotton	3350	748	3350	75
Mesta	25200	648	25200	648
Banana	21742	13504	49200	13297
Potato	3315	5023	7300	4060
Sweet Potato	3350	5000	12590	3357
Tapioca	3972	4389	10272	5254

## Area and Production of Crops

Crop Categories	Garro Hills	Meghalaya
Total Food Grains		
Area	65557 (35.71)	125397 (68.30)
Production	68772 (50.82)	135309 (100.00)
Oil Seeds		
Area	7400 (4.03)	7499 (4.08)
Production	3551 (98.75)	3596 (100.00)
Fibre		
Area	19542 (10.64)	19542 (10.64)
Production	63553 (100.00)	63553 (100.00)
Miscellaneous		
Area	5800 (3.16)	31147 (16.98)
Production	34899 (23.00)	151772 (100.00)
Total Area	98299 (53.54)	183585 (100.00)

Note: Values in brackets indicate percentage.

## Animal Husbandry and Dairy Farming

Animal Husbandry and Dairy Farming occupies an important place in the economy of the districts. According to the live-stock census, the region has approximately 2.5 lakh cattle, 0.55 lakh buffaloes, 0.25 lakh sheeps, 0.65 lakh goats, 0.03 lakh horses and ponnies and 1.6 lakh pig. The live-stock wealth derived its importance from the pre-dominant agrarian economy with suitable climate and grazing facilities. The distribution and number of veterinary institution in whole Garro Hills, i.e., East, South and West Garro hills is given below –

**Garo Hills – District-wise Breakup of the Services Veterinary Hospitals/Dispensaries, 2000**

Districts	Animal Treated	Castration Done	Artificial Inoculation	Inoculation/ Vaccination
East Garo Hills	25	0.8	1.5	25
West Garo Hills	292	6.5		107
South Garo Hills	45	2.5		20
Meghalaya	817	18.9	22.4	371

**District-wise Breakup of the Number of Veterinary Institution, 2000**

Districts	Hospital	Dispensaries	Aid Centres	Key Vill. Centres	Intensive Cattle Dev. Projects	Stockmen Centre	Veterinary Doctors, Surgeon
East Garo Hills	-	8	9	-	-	9	12
West Garo Hills	1	12	9	1	1	21	29
South Garo Hills	-	3	5	-	-	4	4
Meghalaya	4	59	64	2	2	86	171

The population of live-stock like cows, pigs, poultry, goat, sheep, horses, ponies, are mostly reared in Garo Hills based on good climatic effect for the availability of grazing lands. It is observed that more than 70 percent of the buffaloes and about 50 percent of cattle are reared in Garo Hills. The high concentration of domesticated animals like buffaloes and cows in the Garo Hills Districts is due to its warm climate, because of low-lying areas, grazing facilities and their demand for ploughing the land.

Since, pork, formed a part of the menu of most of the Garo and other tribal people, pig are reared in large number. The government has taken various steps to develop piggery industry in Garo Hills. The geo-economic conditions are quite favourable for development of animal industry and dairy farming in the region. The economy of rural population will greatly improve if the scientific method of animal husbandry and dairy are adopted.

**Industry**

In spite of the fact that Garo Hills is rich in mineral, forest or agricultural resources, it is industrially backward. Only less than 4 percent of the population of the district depends upon industry as compare to the other parts of India the reason is significant industrially, although some industries are important from the regional point of view. The location of various industries shows that Garo Hills Districts is industrially more developed within Meghalaya State. The industries of the district may be grouped into the three categories –

1. Large Scale industries
2. Medium Scale industries

### 3. Small Scale industries

The distribution of those industries among the cottage industries, mention may be made that bamboo and cane works are very famous within the districts. Other cottage industries of the districts are – Pottery, Blacksmithy, Tailoring, Carpentry, Bee-Keeping.

#### **Number of Registered Small Scale Industries (Units) in Garo Hills, 2000**

Name of the Trade	No. of Units
Blacksmithy	15
Carpentry	16
Bee Keeping	4
Pottery	2
Bakery	30
Cane and Bamboo Works	7
Vehicle Repairing or Servicing Works	15
Welding and Vulcanising Works	16
Tin-Smithy	9
Printing Press	8
Textile Handicrafts Manufacturing Units	8
Rice, Oil, Atta, Chakki Mills	20
Saw Mills	8
Bricks Making Units	17
Tire Retreating Units	25
Truck Raging Units	8
Tailoring	60
Cycle Repairing Units	50
Manufacture of Pencil and Chalk	5
Candle Manufacturing Units	10
Washing Shop Manufacturing Units	7
Steel or Foundry Works	8
Knitting Units	17
Sign Board Manufacturing Units	10
Cobbler	15
Wood Curving	11
Sugar Candy, Lozenzy Factory	5
Cabinet Making	4
Oil Ghani Manufacturing	5

In Garo Hills Districts, there is no large scale industry set up so far. There are 12 medium scale industry and 423 small scale and cottage industries set up in 2000. Sericulture and weaving rearing of silk worm and cocoons are fed on the leaves of wild berry trees. Hand woven and weaving is very much developing in the whole of districts as the Garo and other communities who lived in Garo Hills used their own clothes and dresses.

The Garo Hills Districts may be divided into four economic regions such as



- (a) Forest Regions,
- (b) Agricultural Regions,
- (c) Agricultural and Livestock Regions,
- (d) Mining Regions.

The industrial activities of the districts may be divided into the following six industrial regions or nodal centers. They are –

- (1) Tura Urban Industrial Regions
- (2) Phulbari Industrial Regions
- (3) Garo-Badha Industrial Regions
- (4) Mendipathar Industrial Regions
- (5) Dalu-Baghmara Industrial Regions
- (6) Simsangiri Industrial Regions

The main causes of the slow progress of industrial activities and the backwardness of the district is due to the terrain and the topography in respect of inaccessibility, quite low population, illiterate, unskilled and untrained, absence of proper road and communication, transport, power and other incentive capital involvement, banking loan facilities, etc.

### **Tourism Industry**

Meghalaya dotted with a number of lovely tourist spots, where nature unveils in all her glory. Garo Hills is known for its abundance of flora and fauna should interest naturalist and photographers to capture the variegated facets of life, of a unique range of flora and fauna. Three mountain ranges, the Rangira range, Arabella range and Tura range pass through the Garo Hills. The headquarters, town of Tura is situated 323 kms. via Guwahati from Shillong at an altitude of 657 metres. The highest point is Nokrek peak with an elevation of 1,412 metres. Some important Eco-Friendly Tourist Spots of Garo Hills are indicated briefly as follows -

### **Tura**

Tura has a picturesque landscape of hills against a backdrop of low-lying plains. A sunset view can be best seen from Tura Peak at 1,400 metres and its summit can be reached by a five kilometres trek, partly by hiking and also by rock-climbing.

### **Siju Cave**

Located on the cliff overhanging the right bank of the Simsang River in South Garo Hills district, the Cave is locally known as *Dobakhol/ or the Cave of Bats*.

The cave consists of innumerable internal chambers and labyrinths, which have not yet been fully explored. The depth of the Cave is yet to be fathomed.

The cave is totally dark with a perennial stream flowing out of it, which abounds with different forms of aquatic life.

The formation of stalagmites and stalactites in these caves resemble those of *Blue Grotto* in the Isle of Capri.

### **Siju Bird Sanctuary**

Just across the Siju Cave on the other side of Simsang river in the South Garo Hills where you can spot many rare and protected wild birds - during winter some migrating birds have been visiting this place, which be an added attraction to wild life lovers.

### **Nokrek Peak**

The highest point of the Garo Hills region of the State, is the *Nokek Peak*. A virgin canopy of thick, tall and lush forests cover Nokrek and its environs.

*The Nokrek National Biosphere Park* has established at Nokrek and it abounds in various Wildlife including herds of wild elephants, rare varieties of birds and pheasants, besides rare orchids.

### **Sisobibra**

A place of historical importance where the Garos fought their last battle against the British under the command of Pa Togan Nengminja. It is just 12 kms from Williamnagar on the way to Tura on the bank of the mighty Simsang river.

### **Imilchang Dare**

It is a Waterfall of immense visual beauty. The deep green environs full of large ferns, tall creepers and elegant climbers complete the desired effect, making *Imilchang Dare* a memorable sight. The deep, wide pool at the bottom of the falls with its wide and expansive surrounding make it an exciting natural swimming pool, full of fish of varied size and colour, besides being an ideal picnic spot.

### **Williamnagar**

Headquarter of East Garo Hills District encircled by the Simsang river - has been named after the first Chief Minister of Meghalaya Capt. Williamson A. Sangma.

### **Bhaitbari (An Archaeological Treasure )**

Located on the western frontier of the State. Bhaitbari is a small village of West Garo Hills District. The site is renowned for the archaeological finds having been uncovered after protracted 'excavations' on the area. The finds are of artefacts which reveal the existence of planned places of worship.

The Bhaitbari excavations are certainly of immense historical and anthro-political interest and importance.

### **Rongbang Dare (Waterfalls)**

This sprightly fall, though perennial, is at its best during the monsoon months. It presents motorists driving from Asanangre towards Williamnagar, a romantic visual of lasting satisfaction.

Clustered on either side by vast evergreen hills of bamboo, the falls itself appears to be on the sway, leaving the viewer with memories of ecstatic joy.

### **Chibragre**

Meaning confluence of 2 rivers is just 25 min. drive from Tura. A veritable picnic spot with its lush green surrounding and breath taking beauty. The traditional hanging

bamboo cane bridge suspended over the Ganol river from bank to bank - lures many picnickers to try this swinging bridge.

### **Rongdang Falls**

Just above the famous Siju Cave in the midst of green thick jungle, you can see a beautiful Waterfall cascading down.

### **The Festival of Wangala**

The major festival of the Garos, Wangala, celebrates the Autumn Harvest. Held every year between November and December, it begins with propitiation, ceremonies to the deity *Patigipa Rarongipa-Misi Saljong*, held in every village. It is followed by other elaborate rituals entailing four days and nights of universal dancing and merriment. **It** culminates in the warrior's dance - *the dance of hundred drums* - on the final day. It is a festival which is colourful, spectacular and enjoyable for the entire community.

### **Connections**

Most parts of the Garo Hills are negotiable through day-trips from Tura and Shillong. Conducted tours are available, through M.T.D.C. as well as Private Operators, between Shillong and Tura. Taxis are also available.

## CHAPTER – IV

### N.B.S.A.P ACTIVITIES

The Garo Hills District is a part of Meghalaya plateau with beautiful undulating ranges with rich flora and fauna such as wild animals, birds, reptiles, different medicinal plants, valuable trees, orchids, etc. in the past. The Garo tribes have inhabited/settled in the area since time immemorial. The main occupation of the Garo tribes, the traditionally practiced jhum cultivation, i.e., by way of cutting down the jungle growing different types of maize, rice, vegetable for their livelihood. The plot jhum cultivation is shifted after two years for another plot of land. The continuous cutting of forest/jungles for the cultivation purpose created all the ill-effects in the area such as top cover of soil erosion, drying up river beds, distribution of valuable timber trees, extinction of traditionally used medicinal plants, banks and roots, flower and orchids, wild animals like tiger, elephants, leopards, deer, pythons and different kinds of birds and fishes in the stream, rivers and lakes. Not only that it affects the uncertainty of climatic condition and health hazards of the people like malaria, cholera, black fever and leprosy till 1950.

Man live with his surroundings for their livelihood and survival. Man depend on nature for every development, to change in his lifestyle and co-existence. But the present condition of the gifted nature on earth is in extinction due to the misuse of man, greediness for wealth and wasteful exploitation of its natural resources. The vegetation cover, including kinds of plants, the animal life on earth's surface and water bodies are of our great concern to preserve and maintain for future human existence and future purposes. From this view point, the present exercise of the activities of the NBSAP project on the West Garo Hills, aims at maintaining and preservation of the natural flora and fauna by way of educating the rural people how to make the best use of the natural resources.

The project work took an advantage of partnership for Bio-Diversity advocacy among the state bonders with effect from 20<sup>th</sup> July 2000, just after the National Bio-Diversity Strategy Action Plan Workshop held at New Delhi on 22-23<sup>rd</sup> June 2000. It is to create awareness and educate rural masses who are uneducated people, practice jhum cultivation in the hills. The awareness camps have been conducted in different centers and villages. Before carrying out the Awareness Camps, the proper consultations, advices, co-ordinations are done with state and district authorities of Garo Hills Districts such as –

1. Deputy Commissioner, Tura, West Garo Hills
2. Civil Sub-Divisional Officer, Dadengiri
3. Civil Sub-Divisional Officer, Resubelpara
4. Civil Sub-Divisional Officer, Ampati
5. District Agriculture Officer, West Garo Hills, Tura
6. District Horticulture Officer, West Garo Hills, Tura
7. Divisional Forest Officer, Wildlife, West Garo Hills, Tura
8. District Malaria Officer, West Garo Hills, Tura
9. Conservator of Forests, Western Range, Tura
10. Conservator of Forests, territorial, Tura
11. Divisional Soil Conservation Officer, Tura

12. Block Development Officers of Resubelpara, Tikrikilla, Selsela, Rongram and Jikjak
13. Eco-Development Board, West Garo Hills, Tura
14. Educated and Intellectual Group like Principal, Tura Government College, Tura
15. Pro-Vice-Chancellor, NEHU, Tura Campus, Tura
16. Principal, Durama College, Tura
17. Businessmen, Contractors, and Suppliers, etc.
18. The Village Chieftain/Headman of the District
19. The Aking Land Nokmas (Owner of the land)
20. Other important Personalities including School Teachers

Out of the above mentioned state, district, educational institutions, officials, Nokmas (owner of land) and other important social workers and village women-folk were formally selected to be the members in the Local Advisory Committee (LAC) constituting 22 (twenty-two) members with their consent. A copy of the LAC members had already sent to the Member Secretary/TPCG, New Delhi.

The first Local Advisory Committee Members (LACM) meeting was held at Circuit House Meeting Hall at Tura, West Garo Hills, on 2<sup>nd</sup> October 2000, where Deputy Commissioner, Tura, Professor P.C. Bhattacharjee, Guwahati University and TPCG member of the NBSAP project and other dignitaries along with the District officials attended for meaningful discussions and suggestions of the project. The minutes of the LACM meeting was already sent to the Member Secretary of the project for necessary action.

As far NBSAP Brochure, “A Call for Public Participation” guidelines were followed and conducted “Public Hearing Cum Awareness Camps” on 10 (ten) selected jhum villages of garo Hills on different dates and places as follows –

- i) Dobokjakolgiri Village Covering fifteen (15) jhum villages on 10.09.2000
- ii) Rembegiri Village covering 10 (ten) jhum villages on 11.09.2000
- iii) Ist Local Advisory Committee Members Meeting (LACM) held at Tura Circuit House with thirty five (35) members on 02.10.2000
- iv) Bolsaldamgiri Village covering 7 (seven) jhum villages on 07.10.2000
- v) Post Graduate Students, NEHU, Tura Campus, W.Garo Hills on 10.10.2000
- vi) Mronggiri Bikonggiri Village covering 8 (eight) villages on 15.02.2001
- vii) Gimbegiri Village covering 10 (ten) jhum villages on 15.02.2001
- viii) Chisikgiri jhum village covering 12 (twelve) jhum villages on 18.02.2001
- ix) Pedaldoba Village covering 8 (eight) jhum villages on 21.02.2001
- x) Raksangiri Village consulted with Village Headman and School Teachers on 28<sup>th</sup> July 2000

The Public Hearing Cum Awareness Camps conducted on 10 (ten) different villages and locations covered 82 (eighty-two) jhum villages of West Garo Hills. The proceedings of those awareness camps with number of photographs of each camps were also attached and have been submitted to the Member Secretary of the project (NBSAP) earlier.

**NBSAP LOCAL ADVISORY COMMITTEE MEMBERS  
(Sub-State Site, West Garo Hills, Meghalaya)**

1. Sri T.T.C. Marak, IFS, Conservator of Forests, West Garo Hills
2. Sri Winston G. Momin, DFO (Wild Life), West Garo Hills, Tura
3. Sro Hemotsing K. Marak, District Horticulture Officer, West Garo Hills, Tura
4. Sri Sengran A. Sangma, Divisional Soil Conservation Officer, West Garo Hills, Tura
5. Sri Brlin M. Sangma, District Malari Officer, West Garo Hills, Tura
6. Sri Singrang Sangma, Nokma (Chieftan of the land) Dandarigiri, West Garo Hills
7. Sri Jongjing Marak, Nokma (Chieftan of the land) Rembigiri, West Garo Hills
8. Sri Pudusing Marak, Nokma (Chieftan of the land) Dobokjakolgiri, West Garo Hills
9. Smt. Bremish Ch. Momin, School Teacher and Social Worker, Pedaldoba, West Garo Hills
10. Smt. Zippora A. Sangma, Social Workers, Raksamgiri, West Garo Hills
11. Smt. Indira A. Sangma, Sr. Lecturer, Tura Govt. College
12. Smt. Heroin B. Sangma, Retd., Dy. Director, Information and Public Relation, Tura, Meghalaya
13. Sr. Baniswar R. Marak, School Teacher and Social Worker, Matchokgiri, West Garo Hills
14. Sri Suparam Marak, Member, SEPARD, Pdealdoba, West Garo Hills
15. Sri Menathson Sangma, Secy, SEPARD, Upper Kongrapara, West Garo Hills
16. Sri Balsin Marak, Member, SEPARD, Balbalgiri, West Garo Hills
17. Smt. J.G. Momin, Treasure, SEPARD, Pedaldoba, West Garo Hills
18. Sri Elwinath Marak, Chisikgiri, West Garo Hills
19. Sr. P.G. Momin, President, SEPARD, Pedaldoba, West Garo Hills
20. Smt. Sabith Momin, Social Worker, Tura Wadanang, Tura

## CHAPTER – V

### STRATEGY ACTION PLAN

The latest informations, fact and figures are collected and placed for necessary reference at the background of this exercise of the project. On the basis of the LAC members meeting held at Tura, West garo Hills and Public Hearing Cum Awareness Camps, the suggestions based on discussions with participants, illiterate jhumia cultivators, Nokmas, Gaonburas, school pupils and teachers and other walk of life, etc. The **key and pin point** strategy Action Plan is suggested for the Garo Hills District are as follows –

- 1) The jhum cultivation which practiced traditionally in Garo Hills is to be reduced substantially and slowly by way of diverting the activities of the people and mode of livelihood to –
  - (a) Horticulture – cashewnuts, bettlenut, rubber plantation, pineapple, coffee and orange plantation
  - (b) Encouragement with financial assistance for Pisciculture development and pond construction
  - (c) Economically and quick benefited scheme for piggery and poultry farming development to be undertaken
- 2) Development of handloom weaving activities among the young women-folks in rural areas along with the proper training, marketing and financial support
- 3) Village Resource Forest Development and Afforestation Programmes including protection to the Sacred Grove Forest in the selected villages and locations
- 4) Development and assistance to the Traditional Tribal Medicinal Plants and Herbs to the Local Ojhas/Gabirajs to the selected village forest
- 5) Preservation/Storage facilities to the locally available horticulture produced to be set up with proper transport and marketing facilities (to stop exploitations of the other people across the state)
- 6) Fruit canning/processing industry to be established at Chibenang and Tura for orange, ginger, guava, pineapple, lemon, cashewnut, tapioca, and jack fruit, etc
- 7) To continue the Public Hearing Cum Educational Programmes in the interior ‘jhumia’ villages of Garo Hills
- 8) Not only to reduce the traditional jhum cultivation it is also necessary to educate and give awareness to the young mothers to reduce the size of the family by way of Family Planning Method by setting up more Family Health Care Centres in the remote areas of the region
- 9) Un-plan coal extraction to be stopped. Systematic and scientific method of coal extraction to be adopted.

## Bibliography

- i) Geological Survey of India, Shillong Pub. No. 30 Part IV, Meghalaya.
- ii) Geological Survey of India, No. 3 Part IV, Physiography, p. 72.
- iii) Pakintein, E. District Census Handbook, Garo Hills, 1961
- iv) Based on: Know Your District, Garo Hills, GSI, Pub., Shillong
- v) Indian Meteorological Centre, Pub. New Delhi/Pune.
- vi) The Techno-Economic Survey of Garo Hills District, Meghalaya, 1975
- vii) DFO, Garo Hills, Tura
- viii) Forest Working Circle Plan, Forest Department, Meghalaya, Shillong
- ix) Department of Soil Conservation, Meghalaya, 1977, Shillong
- x) Zahid Hussain, The Land: An Indispensable Component of Ecosystem – A Case Study of the Garo Hills, Seminar Paper, NEICSSR, Shillong
- xi) J.M. Jala, Census of India, 1971, Garo Hills District, Series 13, Meghalaya
- xii) D.N. majumdar, 1980: Shifting Cultivation – Is it a way of Life? An Analysis of Garo Hills, NEICSSR, Shillong
- xiii) Report on Socio-Economic Survey of Garo Hills, 1970
- xiv) Fifth Five Year Plan, Proposal Vol. II, Sectoral Programme, Meghalaya
- xv) Basic Statistics of the North Eastern Region, NEC, 2000, Shillong
- xvi) R.L. Singh, India – A Regional Geography
- xvii) Playfair Major A: The Garo, United Pub, Guwahati, 1975
- xviii) Cary Rev. William: The Garo Jungle Book, Tura
- xix) W.W. Hunter: A Statistical Account of Assam
- xx) Basic Facts of Meghalaya, DIPR, Shillong
- xxi) Shillong: Meghalaya Tourism, Travel and Tele Guide
- xxii) Meghalaya: Pub. Directorate of Tourism, Shillong
- xxiii) Pocket Statistical Handbook, Meghalaya 2000, Shillong
- xxiv) Census of India, 2001, data Sheet of Provisional Population Totals, Meghalaya, Shillong
- xxv) L.S. Gassah (ed.): land and the People – Garo hills by P.G. Momin, Omsons, Guwahati.







# MEGHALAYA, 2001

## BASIC FACTS AND FIGURES

(Know your State)

### The Land

Area	22,429 Sq. Km.
Districts	East Khasi Hills, West Khasi Hills, East Garo Hills, West Garo Hills, Jaintia Hills, Ri-Bhoi District and South Garo Hills
Number of Villages	5780
Important Towns	Sohra, Tura, Jowai, Nongstoin, Williamnagar, Nongpoh and Baghmara

### The People 2001 Census

Total Population	2306069
Density	103 persons per Sq. Km.
Literacy	63.31
Racial Origin of the people	Austic, Tibeto-Mongoloid
Principal Languages	Garo, Khasi with English

Districts	Area (Sq. Km.)	Population (2001)	Population Density (Persons per Sq.Km)	Sex Ratio	Literacy Rate	No. of Villages	Households
East Garo Hills	2603	99105	95	960	61.70	856	35537
South Garo Hills	1849	99105	54	941	55.82	852	23226
West Garo Hills	3715	515813	139	955	51.03	1481	76314
East Khasi Hills	2820	660994	234	948	76.98		
West Khasi Hills	5247	294115	56	951	65.64		
Ri-Bhoi District	2376	192795	81	941	66.07		
Jaintia Hills	3819	295692	77	973	53.00		
Meghalaya	22429	2306069	103	975	63.31	5780	327371

### Major Mineral Resources

Coal, Limestone, Silimanite, Dolomite, Fireclay, Felspar, Quartz and Glass-sand

### Principal Forest Produce

Timber, Bamboo, Reed, Cane, Ipecac, Medicinal Herbs and Plants, Cinnamon, Lemon-grass and Thatch-grass

### Principal Agricultural Products

Rice, Maize, Potato, Cotton, Orange, Ginger, Tezpatta, Arecanut, Jute, Mesta, Banana and Pineapple

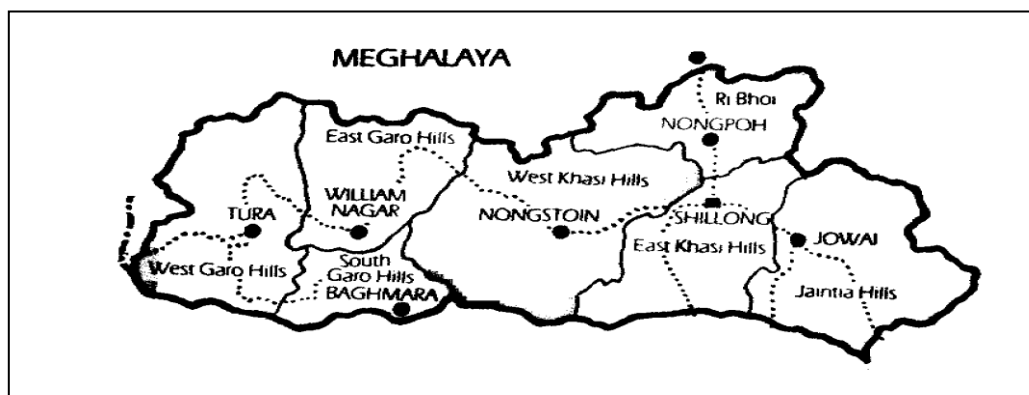
### Wildlife

Animals: Elephant, Tiger, Leopard, Bear, Panther, Wild Boar, etc.

Birds: Duck, Hornbill, Myna, etc.

### High Court

The Jurisdiction of the Gauhati High Court extends over Meghalaya, Assam, Nagaland, Manipur and Tripura



**NATIONAL BIODIVERSITY STRATEGY AND  
ACTION PLAN (NBSAP), INDIA**

**Draft Report**

**BIODIVERSITY STRATEGY AND ACTION PLAN SUB-  
STATE SITE:  
WEST GARO HILLS, MEGHALAYA, 2001**

**SOCIETY FOR ENVIRONMENT PROTECTION  
AND RURAL DEVELOPMENT (SEPARD), PEDALDOBA,  
WEST GARO HILLS, MEGHALAYA**