

Concepts and Initiatives and Mapping of Prospect Resources for Human Livelihood Options and Habitat Utilization in Relevance to Development : A Case Study of Morigaon District , Assam

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ABSTRACT: *The management of livelihood options and habitat utilization in context to development has been concern for human being in various geo-ecological context. Morigaon district of Assam is here selected for review concern .The district is marked backward comparatively in respect of satisfactory management of livelihood options and better utilization of human habitat in relevant to development. Physio-geomorphy of the district is constitutes greater areas by plain and lesser area hill, hillock, foothills etc. Indigenous terrain favors agricultural practice and it opted as primary livelihood as well major economic activities in the district. The utilization of habitat and livelihoods not satisfactory to manage requisite living standard in perspectives of development. Working status constitutes 66.14% unemployed people ,25% main working person and 8.0% marginal workers. Stable function of development is needs to uses of indigenous resources for human habitat utilization. Agriculture is the major one source of livelihoods in the district which is still now in traditional mode of operation and it has scope to sustain the requisite target. The agro-based development has enough potentiality using irrigation in the area. Large concentration of surface inland water bodies could for effective agricultural productivity. Modernization and mechanization of farms will play important role in advancement of agriculture with irrigation facilitation. In the district there has large area under inland wetlands which are using negligibly in traditional and indigenous fishing methods. Wetlands has higher potentiality naturally to product fish commercially with provision of preservative and scientific methods of aquaculture to meet livelihood support based development. The fertile soil has higher potentiality to produce mustard oil seeds on commercial basis as industrial cropping and to establish agro-based industry in the area . Here in this paper some concepts and affordable initiatives are attempt to discuss based on the data collected from secondary and field observation.*

Keywords— *Livelihoods options, habitat, agriculture, aquaculture, modernization, commercial, agro-based-industry and development*

I. INTRODUCTION

The management of livelihood for present and future centuries to sustain demand of growing human population has been subjected for review of study both in academic and in policy related and from individual to institutional level initiatives. A livelihood is comprises people, their capabilities and the means of living including food, income and assets(Chambers , R ; Gardon,R.C.1991) and its management or procession through planning and practice approach for resource mobilization of geo-environmental potential qualities for utilization of human habitat has been concern with passage of time. Development in other hand, an appreciation to the satisfaction level of socio-economic living status of human material lives that is fundamentally functioned by livelihood utilization and achieving development is a rational decision making, specialization of knowledge, planning to resource utilization (Johnston,ed. R, J, 2000).

The livelihood induced habitat utilization in respect of development has been confined as the outmost agenda in recent centuries in worldwide. Under the aegis of United Nation , Advisory panel of the World Commission on Environment and Development(WCED, 1987a) it has been defined as : ...

“...livelihood is a adequate stocks and flows of food and cash to meet basic needs... its security refers to ownership or access to resource and income earning activities including resource and asset to offset risk The ownership of land , livestock ,or trees ,right to grazing ,fishing ,hunting or gathering by stable employment in varied activities with remuneration and it is affordable when it acceptable economically...”

In Eleventh Five Year Plan of India, 58 million employment opportunities has been planned to meet livelihood option for ever growing population in the country for the time being and in future . Among the under developed areas Morigaon district of Assam is a backward region in North East India of the nation has been discussed in this paper .

II. OBJECTIVES OF STUDY

The following objectives are opted for discussion:

1. To know existing state of livelihood option, habitat utilization and development and their appreciation.
2. To highlight prospect options and opportunities based on natural resource utilization in perspective of development and strategy outline to achieve it.
3. To focus other related issues and their management to utilize habitat in the area.

III. SIGNIFICANCE OF STUDY

The significance of study involves that development is very important in Moriga of post modern development era of present time and in addition the district is lying very back ward with comparison to other district of Assam and with national standard in India.

IV. DATABASE AND METHODOLOGY

The data collected from different sources are used here to conceptualize the theme, analysis of discussion and references for necessary comparative assessment. The quantitative techniques such as percentile, score and other necessary statistical calculation are done here to arrive in proper analysis and data are presented in tabular form with supporting relevant diagrams. Analysis are brought based on data 2001 to 2007-08 as far as possible. The conclusions of the study are drawn based on the result of derived from analysis and field observation in the area.

V. DISCUSSION

The Morigaon district, the erstwhile subdivision of parent district Nagaon till to September 1989, is located within latitude 26.33' to 26.31' north and from longitude 91.59' to 92.35' east with covering an area 1587.7 sq. km., and 2.02% to total area of Assam. The district is bordered by Brahmaputra river and Darrang district in north, Karbi Anglong district and Meghalaya state in south and Kamrup district in west. The district is bears low relief having more plain area with presence of large inland and outland water bodies. The forest such as evergreen, semi evergreen, deciduous and riparian are found with and 10.34% to total area of district. The soil is very fertile and is found types of red, old alluvium new alluvium and sandy soft. The land use patterns constitutes 63.85% in net sown area, 0.58% fellow land 0.43% culturable waste, 3.82% barren, 12.72% not put in agriculture and 10.34 percent in forest cover, 5.24%, permanent pastures and grazing land 2.82% and in miscellaneous trees and groves. According to 2001 census, total population accounts 776256 and 958753 on 2011 and 2.91% to total population of Assam. The other demographic character such as population density 456 person/km², sex ratio 945 female/1000male, 37989 urban population and 738268 rural population, 21.35 growth rate and 59.46% literacy. The agriculture is the main livelihood and greater land area is used for agricultural practice. The agriculture is found the character of subsistence, wet cultivation, settled agriculture, plantation and non-plantation type, use of animal, dependency on rain water and low productivity per unit of land and low per capita land holding. The economy of Morigaon is completely agro-based where large number of people involves to manage their livelihood which is 72.25%, the economy of Morigaon is very backward with comparison to other districts of Assam where per capita gross district domestic product is 5848, and working population structure is shown in table no.1

Table 1: Working Status of total population in Morigaon , 2001.

Category of workers	Person	Percentage
Main Worker	200132	25.78
Marginal Worker	62692	8.07
Non Worker	513432	66.15
Cultivators	138083	52.53
Agricultural Labor	51858	19.72
Household industry worker	861	3.29
Other than household industry	64225	24.43

Source : - Statistical Hand Book of Assam 2004.

* Data of 2011 has been not presented due to partial availability.

The present development set-up of Morigaon district is need to measure that how fat it is functioned by livelihood and other facilities in the area. The necessary statistical calculation composite Z score is applied here to arrive quantitative analysis and is outlined in the following table.

Table 2: Calculation of Z score to measure development.

Indicators	Quantity*	Z- Value
Literacy	Male	66.13
	Female	52.36
Percentage of urban population	4.89	-0.40
Percentage of total worker	33.85	-0.39
Percentage of total non-worker	66.15	-0.39
T.G.D.D.P.	42342	3.59
P.C.G.D.D.P.	5848	0.14
Sex ratio (Female/1000male)	945	-0.31
No. of birth (2001 year)	11256	0.65
No. of death (2001 year)	1814	-0.23
P.W.D. Road length (in km)	1022	-0.30
Public Health care centre	13	-0.40
State Dispensaries	13	-0.40
Hospitals	3	-0.40
Electrified village	433	-0.36
Total/Score	64028.53	0.03

Source *: Statistical Hand Book of Assam 2004.

$$Z = \frac{X_{ij} - X_i}{Q}$$

Where, x_{ij} is the quantity of each every indicator from first to last one

X_j is the average of indicators quantity

Q is standard deviation.

So Ex = 64028.53

X = 4268.5

N = 15

Q = 10604.5

Based on the above calculation and score it is statistically found every low value of Z score i.e. 0.03 which indicates very low level of development moreover. The development state is found to see very poor based on field observation because it is below 1 and to achieve 1 of Z value the existing facilities and their utilization for public satisfaction should need to upgrade to attain basic development. In addition to make a comparative outlook of basic indicators involving to concern analysis as well national norms of India would be transparent for the respective assessment and it is outlined in table no. 3

Table 3: Comparative Statistics of Morigaon District, with Assam and India, 2001.

Comparative variables	Morigaon ¹	Assam ²	India ³
Population density (person /km ²)	456	340	324
Rural Population (%)	95.10	87.09	87.28
Urban Population (%)	4.89	12.90	27.78
Literate population (%)	59.46	63.25	65.49
Total Working Population (%)	33.87	35.78	39.1
Total Non Working population (%)	66.15	64.21	60.9
Agricultural Worker & Cultivator (%)	71.91	52.35	58.20
Net sown area (%)	63.85	34.86	43.00
Irrigated area (%)	2.45	19.26	38.72
Cropping intensity (%)	154.62	149.47	134.35

Source : 1. & 2. Statistical Hand book of Assam 2004.

3. India : A Comprehensive Geography (2007) - Khullar, D.R.

* Data on 2011 has been not presented due to partial availability.

The gross comparison of selected variables are shows that those should need to relevant assessment in order bring development. The indigenous resource and geographical background of Morigaon is favors livelihood option practice in agricultural activities and establishment of agro-based industry and business, rearing and production of fishing activities, option in sericulture, handloom and handicraft and horticultural activities and livestock rearing etc. are in scientific method and commercial basis etc.

Agricultural Potentialities: Mapping and Utilization:

The agriculture accounts main livelihood (71.91%) for the local people of Morigaon and it is practiced in 63.35% area to total area of district. The rice, jute and mustard three are the major crops cultivated in Morigaon. The rice is cultivated both in Kharif and Rabi season which is highly dependents on rain water and production is low i.e. 0.3 tone per. hectare of agricultural land and in gross 11376 tone where irrigation is still now in minor position. As director of SIRD, Assam(2009) quoted “*there has high potentiality of agricultural production to bring domestic development in Morigaon district.*” In order to strengthen and transfer agriculture from subsistence phase to production phase in respect to development of cultivators as well as domestic development in Morigaon the following steps should be adopt.

(a) Provision of irrigation facility :At present in Morigaon 2285 hectare net area has been utilized by minor irrigation out of 101372 hectares of land under net area, which is very y poor, even governmentally 17122 hectare net area has targeted to facilitate irrigation and out of which 170 hectare have been achieved. The problem of irrigation is the main hurdle of agricultural development in Morigaon. If net sown areas are irrigated adequately the agricultural production will able to meet the demand of agro-based development in Morigaon. The huge concentration of permanent inland and outland water bodies will provide permanent source of irrigation, where the medium to major technical assets should need to be plant.

(b) Mechanization and modernization of farm : The agriculture of Morigaon is typically traditional mode of operation, dependency on animal, practice of low productivity crops. In order to increase agriculture production, farms should must be mechanize with use of tools in ploughing, harvesting, use of chemical fertilizers, pesticides, HYV seeds, crops conservation and storage of crops. As recoded data, 30420 hectare net area has used HYV seeds and 7060 tone chemical fertilizer used which is very low with comparison to the other district such as Barpeta (109622), Nalbari (100929) and Nagaon District (173089) in Assam.

(c) More Cultivation in rabi season (winter): Morigaon district is generally flood affected area, so in order to ensure agricultural production, more importance should be given cultivation in robi season because significantly production of agriculture in this season is high.

(d) Co-operative system of farming: The per capita land holding to each cultivation is low which is cause problem in possession of agricultural assets individually by cultivators. So, to solve the problem, the agricultural tools are need to manage co-operatively which will help to poor as well as individual farmers to better agricultural practice and production in perspective of their development.

Industrialization and development:

Development in true sense carried by industrialization and in case of Morigaon district it is not happened where although a large scale industry HPCL located. In Morigaon 0.65% industrial workers constitutes to total working population, which is very negligible. Moreover the collaption of Assam Spun Mill and Assam Silk Milk in Jagiroad due to managerial laps and negligence of workers in duty has cause huge lost to the local people, economy and development who has nothing any scope to revive it. The agricultural production itself forms the source and base of raw material to establish agro-based industries particularly based on production and potentiality of Jute and Mustard cultivation. Presently 9900 tone Jute and 4100 tone mustard produced annually which are high i.e. jute 1.8 tone and 0.7 tone Mustard oil seed per hectare cultivated land which are supplied to other places as raw material and which are returns as consumer’s goods and finish product for local people in high price that is ultimately hampered on local peoples economic condition and development. If the Jute and Mustard oil industry would establish locally in Morigaon, this will benefit to local people apart from marketing of raw material to distribution of finish product, where a sizeable number of people would be able to manage livelihood in the various working sector in industry which needs a proper entrepreneurship role and governmental patronage. The agro-based industrialization will bring the requisite development and facilitate habitat utilization in Morigaon district.

Rearing and Production of Fish: Potentiality and Utilization

Fishing as well as pisciculture have already grown as professional livelihood in Kerala, West Bengal, Orissa, Andhra Pradesh, Tamilnadu, Maharastra Karnataka, Goat etc. in India. In this reference the generation of potential fishing livelihood is high in Morigaon, because the highest area of wet land area accounting 11658 hectare in Assam where below 1% people now opted as livelihood. Other hand, fish production is law 7969

tone(on 2004) than Dhubri (11580), Barpeta (12533), Kamrup (10770), Darrang (10520) and Cachar District (13120) .

The existing problems and their solution in order to engage local people in fishing livelihood are as following:-

- (a) An inferiority mind of peoples that it is a reputation lost occupation and is generally done by lower caste people of society.
- (b) Hunting of fish during the time of fish fertile and seedling fish.
- (c) Use of dense hole net in fishing.
- (d) Dependency on natural fishseed production and low artificial production of fish seeds (18.07 million)
- (e) Untimely fishing which lost proper market value of produce fish.
- (f) Risky of floods.

In order to management fishing as a livelihood to boost domestic economy and development in Morigaon, here more than 10% people must involve in fishing apart from fish seeding to market management which will need to use of new wetlands and their proper possession in fish production by removing existing problems, their scientific care and maintenance. The following steps should be done to meet the requisite target.

- (a) Adoption of scientific method in production of fish seeds and their maintenance and preservation.
- (b) The maximum use of wetlands in fish production.
- (c) Willingness of unemployed people to adopt fishing livelihood as well aquaculture activity.
- (d) Restriction in and in case to be formulate law to stop hunting of fertile fish and seedling fish in open natural public fishing.
- (e) Restriction in use of dense hole net during April to June month of year.
- (f) Conservation of existing wetlands for fish production purposes and timely fishing.
- (g) Production of more fish seeds artificially as far possible.

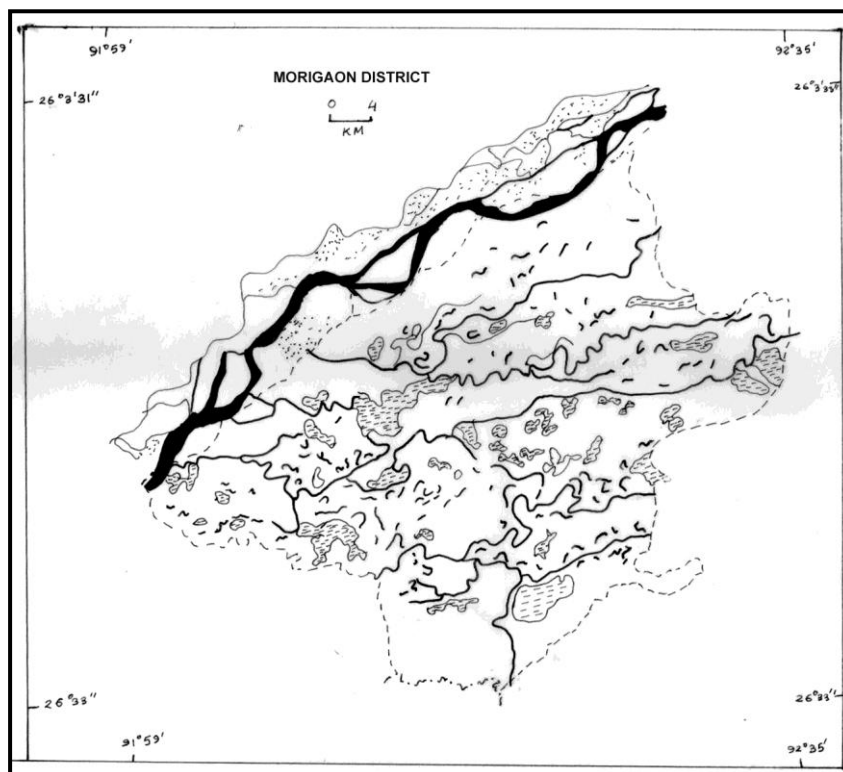


Figure 1: Wet lands and water bodies in Morigaon District.
Source: ASRSAC,s Application on wetlands, 2007.

Sericulture, Handloom & Handicraft Horticulture and Livestock rearing :

Among the non-workers, 40.57% is female, and engagement of livelihood for this woman is very important to bring rural development. In Morigaon, there has good scope to generate sericulture as an livelihood

to woman population. Moreover the other favoring factors are the greater population in rural area, concentration of Scheduled Caste and Scheduled Tribe population, availability of non-agricultural areas etc. The existing pattern of sericulture activities is outlined in the following table no 4.

Table 4: Sericulture activities in Morigaon, 2007-08.

No. of sericulture village		172
No. of family engaged	Eri	5837
	Muga	327
	Mulberry	403
Total area under silk worms food plants (in hect.)	Eri	424
	Muga	154
	Mulberry	243
Yield cocoons (in mt.)	Eri	48.20
	Muga	12
	Mulberry	3.50
Production of raw silk yarm (in mt)	Eri	36.15
	Muga	0.20
	Mulberry	0.25
Nos. of spinning charkha		Nil

Source: Statistical handbook of Assam, 2008.

The above table shows that sericulture activities, its cultivation and production is very low. The Eri has high potential to increase its cultivation and production in the areas not put for agricultural purposes in Morigaon. Moreover presently, Eri farms and grainages in the area are as 6.50 hectare seeds grainages, concentration centre 47.40 hectare, 33.23 hectare in plantation and 403.5 kg production. The proper market based organization is important to generate sericulture livelihood to rural population.

The handloom and handicraft is well known for the traditional rural woman population which is till now in household-based. The existing pattern of handloom and handicraft activities of Morigaon shown bellow in table no-5.

Table 5 : Handloom and handicraft statistics in Morigaon, 2007-08.

Handloom activities pattern		Quantity.
Handloom training centre		4
No. of trainees in Handloom centre		65
Weavers extension service unit	No. of unit	2
	Production (in mt)	726.3
Handloom production centre	Production centre	Nil
	Production (in mt)	Nil
No. of weavers engaged	Part time	55192
	Full time	4699

Source: Statistical Hand Book of Assam, 2008.

The existing level of handloom and handicraft activities of people engaged in this sector and production is still now in traditional domestic based mode of utilization where 0.14% full time and 20.95 part time workers engaged. Now, the demand of handicraft and handloom products is very high and is rising in local and outside market. The favoring factor vize-large numbers of female non-worker and greater percentage of rural population could engaged in the cottage industrial sector which will provide livelihood option to rural population and rural development. Here is need to establish cottage industry with assist of low coast technology and commercial based production.

The practice of horticultural activities has good potentiality in Morigaon to generate employment, improvement of economic condition of farmers. The soil fertility condition is favorable, short time duration of production, less per capita land holding etc. The daily demand of potato, tomato, onion, cabbage, cauliflower, cucumber, carrot, pumpkin and ground etc. could cultivate commercially to develop economic condition of small farmers.

The existing livestock rearing level is vide-goat 12%, pig 2.17%, duck 22.28%, indigenous cattle 27.4% and cross breed cattle is 1.6%, which could extent in order to promote domestic economy of poor families ad farmers in Morigaon District. The rearing of livestock in commercial based such as pigs, goat,

poultry farming has good potential to promote economic condition and livelihood to poor rural people which need to scientific care and maintenance and commercial based demand to outside market.

An environmental concern:

Morigaon district is in geographically and physio-environmentally effected by floods of river Brahmaputra and Kapilee, wherein resource mobilization process should need to function in concern to and compromise with modes of flood effects. Both engineering and indigenous methods concerns should be taken in case of resource mobilization in function of livelihood option and habitat utilization in perspectives of development.

An model of development induced factors could forward in case of Morigaon district as in the figure no. 2.

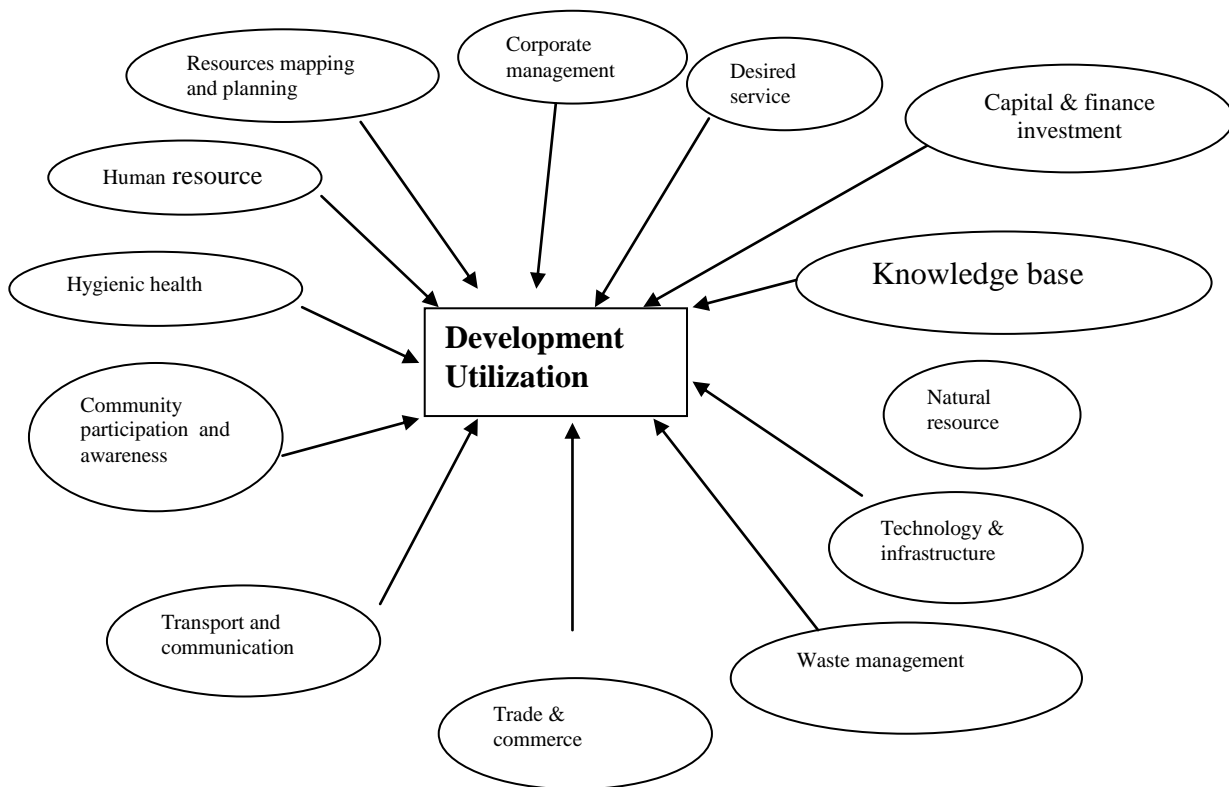


Figure 2 : Factors functioning development utilization.

VI. FINDINGS

(1) The standard and status of livelihood options and habitat utilization in Morigaon district is low and the perspectives of development is far below than the requisite level.

(2) The geo-ecological and physio-environmental condition of Morigaon district is favors to adoption livelihoods in agriculture and its allied activities, pisciculture, sericulture ,horticultural activities which should need to improve their utilization level and quality for better habitat utilization in perspectives of development.

(3). Agricultural practice should need to improve in respect of production per unit area of cultivation to get better production , economic return and strengthen agricultural support based livelihoods. The facilitation of irrigation, land use and modernize cropping methods should be adopt in the agricultural practice.

(4) The production of fish as well adoption of pisciculture has a sound prospect in the area to enhance desired livelihood option favored by geo-ecological condition. The scientific and professional approach should be taken to secure it in Morigaon.

(5) Based on socio-economic condition of rural population the sericulture, horticulture, modern farming activities has scope in livelihoods form and agro-based livelihoods other than primary activities etc. are affordable for the marginalized workers. The management of market with proper transport facilities should be concern.

(6) The geo-ecological as well environmental condition should be wisely use in mobilization of resources to secure livelihood, habitat utilization as well in perspectives of development and those should be practice in multidisciplinary concern and planning.

VII. CONCLUSION

The human population growing itself is a dynamic matter and their livelihood option management with habitat utilization is inevitable to thrive lives of each of every people in current as well as in future. It is as found in discussion in Morigaon district, here has need of development and to achieve and manage the situation, people will have to much aware and concern about natural opportunities with an innovative thinking to utilize in all round concern with dynamic mind set-ups working culture towards it that how does it will be possible to manage development based on indigenous natural manipulation.

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- [12]. TGDDP : Total Gross District Domestic Product
- [13]. PCGDDP : Per capita Gross District Domestic Product.
- [14]. PWD : Public Works Department
- [15]. SIRDP : State Institute of Rural Development.
- [16]. ASRSAC : Assam State Remote Application Centre
- [17]. Relief : The physical shape of any place, where high relief generally denotes large local difference height of land and low relief indicates little variation in attitude.
- [18]. Physio-environment: The environmental condition in reference to physical elements such slop, topography, water bodies etc.
- [19]. Terrain or topography : The surface of earth having description of all physical features.
- [20]. Wet-cultivation: The agricultural practice by use of water and cropping pattern.
- [21]. Pisciculture : Aquaculture or fish rearing.