CHAPTER – I

GENERAL INTRODUCTION

With a geographical area of over 21,087 Sq km and perched on the high hills of the North Eastern part of the country, Mizoram possibly has the most difficult terrain, over 80% of the total geographical area being hilly and with steep hills separated by rivers flowing North to South thus, creating innumerable hurdles in intra-state as well as inter-state communication. This landlocked area is bounded by foreign countries on all sides except for a small stretch that rubs shoulder with Assam, Manipur and Tripura. Its International border, which is about 722 km, is almost 3 times longer than its border with the mainland.

The State gets an average annual rainfall of more than 2445mm and that too in a concentrated period of 6 months resulting in the working season in a year greatly restricted. At the same time, surface sub-soil being highly porous, its retentivity of water is low. Consequently, the State faces the unique paradoxical problem of scarcity of water in the midst of plenty.

As per 2001 Census the total population of the State is 8.89 lakhs. The decadal growth rate (1991-2001) is 28.8 percent. Density of population according to 2001 Census, is 42 persons per Sq.km. It is estimate of that by 2008 the population will reach over 11 lakhs. There are more than 1.76 lakhs households. Vast majority of the population are scheduled tribe – the percentage being 94.50. More than 50% of the total population live in over 700 villages. The State's economy is pre-dominantly agricultural with more than 60% of the total work force engaged either directly or indirectly in agriculture. However, agriculture still remains under-developed and the primitive method of jhum (shifting cultivation) predominates. Both production and productivity are relatively low.

Of the total area only 21 percent is put on the paddy/seasonal crops. As high as 63 percent of the total crop area is under jhum cultivation. According to the departmental figure of 2007-2008 total production of paddy stood at 15688 lakhs MT. During the same year the area

under fruits was a little more than 21559The forest production is mainly timber, bamboo, broom-sticks etc. The forest are continuously under great pressure of shifting cultivation.
Although in the field of education Mizoram has made tremendous progress over the years, which pushed up the literacy level, percentage of literacy being nearly 88.50%, (next only to Kerela). In pure statistical terms it is a big achievement, but qualitatively the picture is not that bright because nearly 60% of the educated population are unskilled and only 10% of the total work force are reportedly skilled. This is one grey area which has to be taken care of urgently.

The State has 8 Administrative Districts and 24 Development Blocks. There is no land tenure system. Of late a programme for limited cadastral survey as a preliminary step towards formulating a land tenure system, particularly in the urban conglomerations, has been taken up.

1.1 GSDP :

The Gross Domestic Product (GSDP) of the State at factor cost at constant (1990-2000) prices in the year 2007-08 is likely to attain a level of Rs.2,34,370 lakhs against the quick estimate of GSDP for the year 2006-07 of Rs.2,22,057 lakhs. The growth in GSDP during 2007-08 is estimated at 6.74 percent as compared to the growth rate of 7.50 percent in 2006-07. At the National level, the growth in GSDP during 2007-08 is estimated at 8.7. percent as compared to the growth rate of 9.6 percent in 2006-07. The overall growth rate of 6.74 percent in GSDP during 2007-08 has been mainly due to the growth rate of over 8 percent in the sectors of financing, insurance, real estate, business services, community, social and personal services.

Though more than 60% of the population area engaged in Agri and Allied activities, the share of Agriculture in the Net Domestic Product (NSDP) is merely 30% at current prices during 1998-99. It is imperative to substantially improve upon Agri and Allied Sector to raise NSDP and therefore, there is the urgent need for aggressive developmental intervention to enhance productivity and income of cultivator. The follow table show the growth of NSDP and per capita income from 1999-2000.

Table : 1 The growth of NSDP from 1999-2000.

Year	GSDP (Rs. In lakhs)		NSDP (Rs. In lakhs)		Per Capita Income (In Rupees)	
	At current prices	At Constant (1999-2000) prices	At current prices	At Constant (1999-2000) prices	At current prices	At Constant (1999-2000) prices
1999-2000	155006	155006	140951	140951	16443	16443
2000-2001	173742	162718	156728	146256	17826	16635
2001-2002	194653	1773328	175199	155499	19430	17245
2002-2003	216579	191263	193268	170451	20896	18429
2003-2004	232498	197429	208337	176015	21963	18555
2004-2005	245457	205628	218116	183939	22417	18904
2005-2006	272086	210513	239787	185768	24029	18616
2006-2007(Q)	299566	222057	262857	196712	25682	19220
2007-2008(A)	330509	234370	288701	207339	27501	19750

Q : Quick Estimates A : Advance estimates (source statistical handbook Mizoram).

The state could be in for some external shocks in the months to come, primarily having to do with a general slowing down of the Indian economy (which could impact, the level of the inter-governmental fiscal transfers) and the adverse impact from 'mautam' resulting from bamboo flowering.

1.2 Sectoral Performance :

Since the attainment of statehood in 1987, Mizoram has made considerable progress, particularly in social sector development-e.g., it ranks second only to Kerala in terms of literacy, has exceptionally good performance in terms of low infant mortality and death rates, and has seen a decline in the decadal rate of growth of population. A large chunk of the population is associated with construction activities and services sector, of which Government is a predominant component. Fiscal correction initiatives in recent have limited the scope for expansion of employment in Government. The economic performance of Mizoram has been constrained mainly due to its geographical situation; its remote location and the hilly terrain which result in high transportation costs. Also low population density lead to high costs of service delivery.

1.3 Fiscal Performance :

If the fiscal health of a Government is to be summarized in terms of a single indicator, it would be the gross fiscal deficit (GFD), i,e., the requirement of debts to implement its spending decisions both related to capital and current expenditures. High ratios portend high debt in the future along with increasing debt service liability, which in turn puts a squeeze on the resources available for developmental spending.

The state has succeeded in substantially raising its own revenues (both tax and non-tax) since 2001-02, particularly from 2005-06. It has also managed to contain the growth of expenditures, so that revenue surplus is sustained since 2003-04, and helped to bring down the fiscal deficit to more reasonable levels from 2006-07.

In Mizoram, GFD has fluctuated from 21.6% in 2000-01 to 4.22% in 2007-08 (revised estimates); it is targeted at 3.6% of Gross State Domestic Product (GSDP) in 2008-09 in an attempt to come closer to the target set in the Fiscal Reform and Budget Management (FRBM) Act. As has been mentioned, a redeeming feature is that revenue balances (which indicate the state's ability to finance its current expenditures out of its current resources) have come down from a deficit of 11.13% in 2000-01 to a surplus of 5.1% of GSDP in 2008-09.

1.4 Revenue :

Central Transfers. Being a special category state, the public finances of Mizoram are heavily dependent on the transfers from GoI. Trends in central transfers clearly show that Mizoram continues to rely substantially on the center for its revenues. Central transfers as percent of revenue receipts have consistently been hovering around 90-92%.

Own Receipts. Over the period 2001-02 to 2007-08, revenue receipts exhibit an average annual growth of more than 18%. Central transfers (shared taxes and grants), constituting the larger share of total revenue receipts, grew at about the same rate as the total, while the relatively small component of own receipts grew faster at about 22% annually on an average. In terms of the 2007-08 (revised estimate) figures, the state's own receipts constituted only a little over 8% of the revenue receipts. Adding the share of central taxes, this percentage rises to about 23% of total revenue.

1.5 Expenditures :

Overall Expenditure Profile. Public expenditure led growth strategy is manifested in high government expenditure in Mizoram. As a ratio to GSDP, total expenditure has increased from 68% to almost 82% between 2001-02 and 2007-08 (RE). Revenue expenditures have been covering between 57-59% of GSDP in the recent years. The increase in total expenditure, therefore, has been contributed mainly by increase in capital expenditure, especially by the increase in capital outlay. Within revenue expenditures, general services show a modest average annual growth of about 8.5% with interest payments showing an even lower rate of a little above 5%. Social services and economic services grew at about 10% and 12% respectively. The relative growth rates are significant for the reason that general services have claimed a share of revenue expenditures lower than social services, but higher than economic services. Given that the latter two broadly constitute the developmental expenditures, both components should ideally be higher than the general services. It is likely put general services which become the smallest part of the three components in the near future. Managed an increasing trend during 2004-05 to 2007-08 but registered a sharp fall in 2008-09. Given the non-discretionary nature of the bulk of revenue expenditure (salary, pension, interest), the fall in capital outlays in 2008-09 could be attributed to state's attempt to bring down fiscal deficit in line with the FRBM target.

1.6 Fiscal Discipline :

GoM enacted the Fiscal Responsibility and Budget Management (FRBM) Act in 2006 (and its relevant Rules in 2007) with the objectives of, among other things, eliminating the revenue deficit and reducing the fiscal deficit to 3% of GSDP by 2008-09. Consequently, GoM has taken the following steps towards implementing fiscal reforms:

(i) setting up a Public Expenditure Review Committee;

(ii) conducting the Finance Minister's Half Yearly Review

(iii) preparing the Medium Term Fiscal Policy Statement, the Fiscal Policy Strategy Statement, and the Macro Economic Framework Statement;

(iv) establishing the Debt Consolidation and Relief Facility, and the Consolidated Sinking Fund;

(v) making arrangements for management of public debts, and

(vi) taking a structural adjustment loan for tax, fiscal and socioeconomic reforms.

1.7 The New Land Use Policy (NLUP) :

Why This New Initiative : Mizoram is a late comer to development process as only from 7th Plan it was, as an entity, included in the 5-year Plan Programmes. Besides this delayed entry, the plan strategy suffered from (a) small plan size (b) faulty planning (c) flawed implementation and (d) total disregard of peculiar problems of hill tribal population. As a result stagnation in the rural economy persists and the primitive Jhum (shifting cultivation) practices continue with resultant land degradation, low productivity, increasing ecological imbalance and more significantly pauperization of the farming community.

While there is no doubt that Mizoram has made considerable socio-economic progress under the last four 5-year Plans, as would be evident from the statistics of plan investment, physical achievements in various sectors and gradual raise in the per capita income level, this prosperity has not however, been a shared one, not quite equitable. Plan development efforts have not impacted rural Mizoram. Level of benefits accrued to the rural areas are relatively lower compared to that of the urban areas. Progress has, thus, been lopsided and not inclusive.

In a State where more than half the population are rural and where nearly 60% of the people depend directly or indirectly on agriculture, most of them engaged in jhum practices, the only way to ensure inclusive development is to develop the primary and rural sectors and to augment the income level of the rural population.

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CHAPTER - 2

THE MAIN OBJECTIVES OF THE NLUP

The over all objectives will be to improve the livelihood of vulnerable groups mainly jhumia families in a sustainable manner through improved management of their resource base in a way that contributes to protecting and restoring environment. The specific objectives will be as below:

(i) It aims at keeping 60% of Mizoram total land area under rain forests.

Deforestation and jhum burning go together. Jhum burning accounts for a very high percentage of green house gas emissions when every year almost 2 lakh acres of land in rain forest are cut down and burnt. The state government through the NLUP now committed to respond to the crying demand to stop the jhuming practice.

Mizoram has 52 lakhs acres of land area. There are still about 1 lakh jhumia families. Under the NLUP family oriented programmes will be prepared for every jhumia family in a wide range of sectors. On an average 7 acres of land will be allotted to one family for agriculture, horticulture and allied activities. Thus only about 12 % of the tatal land area in Mizoram will be required/utilized.

(ii) All the workforce hitherto engaged in jhuming will henceforth be employed in sustainable economic venture to create productive assets for each family. Projects will be prepared for each family to enable him to increase productivity at least 5 times from the level under the jhum system.

A large number of educated unemployed will be covered under the NLUP. The programme will check the present discontent of thousands of educated people as well as the poor people. The government is fully aware of the urgency for action. Fortunately there is still enough land in Mizoram for the permanent residents who wish to avail the programmes under the NLUP. The major problem is lack of financial resources.

(iii) Promoting a sensitive approach to the design and implementation of development intervention,

(iv) Increase income through development of sustainable farming system, Micro Enterprises including Promotion and Modernization of Small Scale and Cottage Industries.

(v) Reclaiming land having potential for wet rice cultivation and providing Minor Irrigation so as to encourage settled cultivation in valleys and terraced rice cultivation on slopes.

(vi) Promotion/cultivation of suitable Horticulture crops including medicinal and herbal plants and value addition locally.

(vii) Search and Research of markets as would ensure remunerative prices of produces to farmers.

(viii) Access to basic service like power, telecommunication, road network including Agri Linkroads.

(ix) Providing housing assistance to the extremely poor families.

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CHAPTER - 3

DESCRIPTION OF MIZORAM STATE & STATUS OF VARIOUS CROPS

3.1 Population

According to the final results of Population Census 2001, the population of Mizoram stood at 888,573 as on 1st March 2001 (Annexure I). The decadal growth rate during 1991-2001 is 28.8 per cent. The literacy rate in Mizoram has increased from 82.26 per cent in 1991 to 88.8 per cent in 2001 (provisional), which is the second highest in India next only to Kerala. The density of population in Mizoram has also increased from 33 person sq. km in 1991 to 42 persons in 2001. Aizawl District is recorded as the highest density area with 95 persons per sq. km as per 2001 census.

High natural population growth rates are likely to prevail for the foreseeable future due to the higher than average number of women in the child bearing age-groups and higher birth rate. The resultant increased pressure of population on the resources base will exacerbate the vulnerability of the communities.

3.2 Topography

The State's topography is, by and large, mountainous with precipitous slopes forming deep gorges culminating into several streams and rivers. Almost all the hill ranges traverse in the North-South direction. The eastern part of Mizoram is at a higher elevation compared to the western part. The average height of hill ranges is around 920m, although the highest peak, the Blue Mountain (also called the Phawngpui), goes upto 2165m. There are 15 major rivers in this State, out of which seven rivers, namely Tuivawl, Tuvai, Tuirini, Tlawng, Tut and Teirei flow northward and ultimately confluence with Barak river of Assam valley. Other five rivers namely, Mat, Tuichang, Khawchhaktuipui, Tiau and Chhimtuipui (Kolodyne) flow towards south. The remaining three rivers namely Tuichawng, De and Khawthlangtuipui flow to the west. In the south of Mizoram, the Karnaphuli flows in the northward direction and then enters Bangladesh. The river Kolodyne of Southern Mizoram flows southern and enters Myanmar. River Kolodyne and River Karnaphuli are large rivers and are navigable to a great extent, leading respectively to the ports of Akyab in Myanmar and Chittagong in Bangladesh.

3.3 Climate

Mizoram has a pleasant climate. The upper part of the hills are predictably cold, cool during the summer, while the lower reaches are relatively warm and humid. Storms break out during March-April, just before or around the summer. During winter, the temperature varies from 11℃ to 21℃ and in the summer it varies between 20℃ to 29℃. The entire area is under the direct influence of the South West monsoon. It rains heavily from May to September and the average rainfall in Aizawl is 208 cm. The entire Mizoram receives an annual rainfall of 2455.9 mm, more or less evenly distributed excepting the South-Western parts that generally receive slightly higher amount of rainfall. The rainy season normally starts from May and lasted up to October it rains heavily during this period.

3.4 Soils

The soils of Mizoram are dominated by sedimentary formation. These are generally young, immature, mostly developed from parent materials such as fereginous sandstones and shale. The soils in the foot hills are collocium deposit and in plain areas alluvial deposits are predominant. Three soil orders such as ultisols, inceptisols and entisols are found in Mizoram. The soils as a whole are well drained except in few valley flat lands. The soils in general have low inherent fertility viz. bases and mineral reserves. The soil in the hills are strongly acidic in reaction, where as the soils in alluvial deposits are less acidic in nature. The surface soils of the hilly terrains are dark, highly leached and poor in bases, rich in iron and have pH values ranging from 4.5 to 5.5 (highly acidic). They are well drained, deep to very deep, rich in organic carbon, low in available phosphorus content and high in available potash. The surface soil textures are loam to clay loam with clay content increasing with depth. The percentages of clay, silt and sand within 50cm of the surface in most cases are 20-30% and 25-45% respectively. The pH and organic carbon contents decrease and clay increases with depth. The base saturation above a lithic or paralithic contact is mostly low (below 35%). They are capable of providing substantial oxygen supply for plant growth and have capability to retain moisture and maintain supply through the growing seasons of most crops.

Soils of the valley flat lands are brown to dark brown, poor in bases, moderately acidic with pH ranging from 5.5 to 6.0, medium to high in organic carbon content, low available phosphate and medium to high available potash. These are deep to very deep but moderately to poorly drained. The texture of the soil is mostly sandy loam to sandy clay

loam. The percentage of clay, silt and sand in the upper 50cm ranges 15-35% 5-34% and 40-75% respectively. Clay contents do not increase with depth.

3.5 Land Tenures

Land within Mizoram, like some other states of Northeast, is in the customary ownership of the communities. Village land falling within the jurisdiction of a village is controlled by the Village Council and land distribution is done as per the customary practice to the villager for jhuming and other farming activities. But the customary community ownership is now undergoing certain modification to meet the needs in the face of changing land use opportunities. Terrace and valley land is considered as private land with permanent, heritable and transferable rights through the issue of land settlement certificate (title) by the competent authority. However lack of mortagagable title to the land does constrain access to bank finance.

The emergence of private rights over land has contributed to the concentration of land, particularly the better land, in the hands of a few affluent persons within the community disturbing the former egalitarian character of tribal society. As a consequence, tenancy arrangements are also becoming more common, usually in respect of terrace and valley land, although at present they probably represent less than 10% of the land area. All tenancies are governed by customary practices and are usually on a crop share basis with rents fixed at 33-50% of the production. Most of such tenants are coming from the neighbouring of state of Assam and earn their livelihood at the cost of the local population.

3.6 Land Use Pattern

Mizoram has the most variegated hilly terrain in the eastern part of India. The hills are steep and are separated by rivers which flow either to the north or the south creating deep gorges between the hill ranges. The average height of the hills is about 900 metres. The highest peak in Mizoram is the Phawngpui (Blue Mountain) with a height of 2210 metres. The land use pattern of the State has been affected primarily by land capability as determined by characteristics of micro and mini watersheds. Besides, several social and legal factors such as land tenure system etc. also affect the land use pattern.

Details of the land use status of the State are given in the table below.. The total cropped area in 2003-04 was 1.27 lakh hectares, of which only 5,000 ha are sown more than once.

The gross irrigated area was only 12,4 per cent of the total cultivated area. Table showing land use statistic for 2006-2007 & 2007-2008 is as below :

Table 2 : Land Use Statistics of Mizoram

('000 ha)

SN	Particulars	2006-07	2007-08
1	Geographical Area	2108.700	2108.700
2.	Reporting Area for Land Utilization Statistics (total 1 to 5)	2108.700	2108.700
3.	Not Available for Cultivation (a+b)	134.040	130.050
	a) Land put to non-agricultural use	125.420	125.430
	b) Barren and Unculturable Land	8.620	8.620
4.	Other Uncultivated Land Excluding Fallow Land a+b+c	79.230	77.209
	a) Permanent Pastures and Other Gazing Land	5.235	5.230
	b) Land under Miscellaneous Tree-Crops and Groves not Included in Net Area Sown	68.765	66.749
	c) Cultivable Waste	5.230	5.230
5.	Fallow Lands (a+b)	207.543	210.928
	a) Fallow Lands Other than Current Fallows	166.078	165.981
	b) Current Fallows	41.465	44.947
6.	Net sown area	94.187	92.813
7.	Total Crop Area	105.575	102.903
8.	Area Sown More than Once	5.000	1.437
	Total Irrigation Area	16.360	14.169
	Area Irrigated for the year	11.388	9.446

Source : Statistical Hand Book of Mizoram 2008

3.7 Agriculture

Agriculture occupies a very important place in the economy of Mizoram,. In the Economical Classification of Workers as per 1991 Census, majority of the population i.e. 61.37% are cultivators who are engaged in agricultural activities mostly by practicing 'Jhum' cultivation. Meanwhile, the share of agriculture alone in the net domestic product (NSDP) is merely 30% at current price during 1998-99. As per the Agriculture Census (1995-96-the latest census), there were 65,919 operational holdings with a total operated area of 85,000 hectares. Out of

the total number of holdings 42.04% is marginal 39.0% small, 17.83% semi medium 1 .11% medium and 0.01% large holdings.

The economic life of the Mizo has always been centered around jhum or shifting cultivation. The crops grown in the jhum are mixed. The principal crop is paddy and others are maize, cucumber, beans arum ginger mustard sesame, cotton etc. After clearing the burnt jhum, seeds for crops other than paddy are sown. Towards the end of April near the full moon time, paddy is sown. Mainly two types of paddy seeds are sown in the same field –early paddy and principal paddy. Yield of early paddy is rather poor but it ripens early and provides sustenance till the principal paddy is harvested. There is vast scope for cultivation of tapioca, sugarcane, cotton, pulses and oilseeds in the State. Some pulses like cowpea, rice beans and French beans are cultivated in the jhum. Oilseeds crops like sesame, mustard and soybean are growing well in the state.

In spite of the fact that agriculture is the mainstay for about 60% of the population of Mizoram, only 5% of the total area is under cultivation and about 11% of the total cultivated area is under irrigation. Paddy continues to remain the chief food crop and the staple food of the Mizo. It occupies almost 50% of the total cropped area and more than 88% of the total area under food grains. In spite of the fact that the rice being the most important crop occupying the largest share in area and production, Mizoram is still not self sufficient in rice production. Moreover there was decline of production in last few years for various reasons as shown below :

Table 3 : Area and Production of Important Crops of Mizoram State

Name of Crop	2003-2004		2004-2005		2005-2006		2006-2007		2007-2008	
	Area (ha)	Produc-tion (MT)	Area (ha)	Produc-tion (MT)	Area (MT)	Produc-tion (MT)	Area (ha)	Produc-tion (MT)	Area (ha)	Produc-tion (MT)
Paddy	59196	114630	57085	107661	55754	99021	52847	42091	54541	15688
Maize	10481	20282	10505	19788	11742	22703	10775	20969	7328	729
Pulses	4892	4313	6741	7971	2972	2737	5054	5833	5048	2632
Oil Seeds	7532	5478	5817	5321	4816	5429	4075	3755	8485	748
Sugarcane	1393	36174	1357	13565	1383	45953	1340	12187	883	828

Source: Statistical handbook, Mizoram 2008.

The total production of paddy fluctuated from 1.14 lakh MT in 2003-04 to 1.07 lakh MT during 2004-05 and .99 lakh MT 2005-06 to .42 lakh MT in 2006-07 and .42 lakh MT in 2006-07 to .15 lakh MT in 2007-08. Fall in production particularly in 2006-07 and 2007-08 is due to rodent devastation of crops in the wake of gregarian flowering of bamboo. Damage was so extensive that intensive programme of rodenticide was taken up and about 14,55,568 nos. of rodent population was killed saving a portion of the produces in 2007-2008. Apart from increase in rodent population, during gregarian flowering of bamboo other insects like Thangnang (treebug) multiply manifold and cause extensive damage of crops.

Decline of Jhum Cultivation & Urgency for corrective measures :

In economical classification of workers as per 2001 census majority of Mizoram population i.e 60%, are cultivators and are engaged in Agricultural activities mostly practicing Jhum cultivation. In the olden days with availability of vast area of land including forest land, smaller size of population and in view of self-sustaining families/ rural economy, the Jhum practices were a viable proposition. But the impact of increased pressure on land, particularly forest land led to shrinkage of 10 years Jhum cycle to 3-4 year cycle lowering productivity and production thus rendering Jhum practice uneconomical. Other factors, in addition to pressure on land causing decline in Jhum cultivation include :

a. Sustained initiative for Jhum control as a matter of Government Policy for last several years and awareness campaign about adverse impact of Jhum practice in Mizoram economy.
b. Switch over to other livelihood activities like horticulture, terrace farming, Animal husbandry, contract works, wage earnings from construction works etc.
c. Various developmental activities opening avenues for easier option like contract etc as distinct from hardwork involved in Jhum practices.

Reasons for decline of income from Jhum practice:

a. Pressure on land has made Jhum size small and shrinkage of Jhum cycle cause low productivity resulting in poor income for the farmers.
b. Availability of food stuff through PDS system and import of many items from other states. As a result farmers experienced adverse impact of over production when they lose out in competition with traders from outside and or do not have access to remunerative markets. Crops like ginger, turmeric and hatkora etc are few instances where farmers are frequently forced to distress sale.

Impact on forest land and decline in Jhum area :

It is estimated that an average area of 2.00 lakhs acres of Forest cover are annually destroyed by slashing and burning of trees for Jhum land in Mizoram.

There is a decline of Jhum practice and the area utilized for Jhum cultivation during last 10 years is as below:-

Table 4 : The area utilized for Jhum Cultivation during last 10 years

Year	Area under Jhum in Ha
1997-1998	68,114
1998-1999	68,392
1999-2000	36,285
2000-2001	35,798
2001-2002	40,305
2002-2003	41,356
2003-2004	43,447
2004-2005	40,969
2005-2006	40,100
2006-2007	41,465

3.8 Horticulture Crops

Agro-climatic conditions in Mizoram are found to be very suitable for growing a wide range of horticulture crops covering fruits, vegetables, ornamental crops, plantation and spice crops. Among fruits, mandarin orange is the dominant fruit crop, covering a total area of 5,395 ha with a total production of 34,366 MT during 2006-07 and an area of 6,395 hac with a production of 41,567 MT in 2007-08. The next important fruit crop is passion fruit recording an area of 1,109 ha and production of 4,979 Mt in 2006-07 and an area of 8944 hac with production of 4,4720 MT in 2007-08. The State Govt. has also laid emphasis on the development and expansion of a high market potential fruits like passion fruit, orange, Hatkora, banana, etc. The major vegetables grown in Mizoram are tomato, brinjal, beans, peas, squash, mustard, cabbage, etc. Among tuber crops, potato, sweet potato and colacasia are major ones grown. The climate in the State is suitable for the cultivation of spices. Ginger, turmeric, chilly, pepper, cinnamon and large cardamom grow very well in the State. At present ginger, turmeric and chillies are commonly cultivated. On hill slopes,

cinnamon of the wild variety is available in plenty. Large cardamom is thriving well in higher altitudes of 600 m and above. Ginger is traditionally cultivated in the jhum land grown in an area of 4,639 ha with a production of 45,000 MT in 2005-06. Cropwise data on area and production of major horticulture crops is given as below :

Table 5 : Area, Production & Yield rate of Principal Horticulture Crops in Mizoram.

SN	Name of Crop	2006-2007			2007-2008		
		Area (in ha)	Production (in MT)	Yield MT/Ha	Area (in ha)	Production (in MT)	Yield MT/Ha
1.	Orange	5395	34366	6.37	6395	41567	6.5
2.	Banana	5020	119676	23.84	6220	151519	24.36
3.	Passion Fruit	1109	4979	4.49	8944	44720	5.00
4.	Arecanut	1562	4436	2.8	1562	4451	2.85
5.	Ginger	3426	55432	16.17	3587	57010	15.89
6.	Birdeye Chillies (Dry)	792	1077	1.36	100	200	2.00
7.	Turmeric	535	10074	18.83	4175	83500	20.00
8.	Chow Chow (Squash)	664	24455	36.8	714	26418	37.00
9.	Cabbage	236	3684	15.6	200	5000	25.00

Source : Statistical Handbood, Mizoram 2008

The area under floriculture has grown from 22.8 ha in 1997-98 to 71 ha in 1999-2000 with rose accounting for 30 per cent share, followed by aster and anthurium. Flowers like anthurium, roses, Bird-of -Paradise, gladiolus, chrysanthemum etc. are grown successfully round the year. Anthurium has been exported outside the State regularly. The State has a wide spectrum of orchids growing from lower elevation to high hills. The cut flowers are airlifted and marketed in Kolkatta. Mizoram has a wide spectrum of orchids growing from the lower elevations to the high hills. The orchids grown in the high hills fetch a good price in the market at Delhi and Calcutta. More than 200 varieties of orchids have been identified in Mizoram till now. In view of the right agro-climatic conditions prevailing in Mizoram, there is an immense potential growing Orchids for large scale commercial purposes. Flowering for 2007-08 is as below :

Table 6 : Flowers Production in Mizoram (2007-08)

SN	Name of Crop	Area of Sq.m	Production in No. of Flowers	Yield per Sq.m
1.	Anthurium	239800	7194000	30 Nos.
2.	Rose	44768	2014560	45 Nos.

Source : Statistical Handbood, Mizoram 2008

3.9 Bamboo

Mizoram, with an area of 21,090 sq. km has an abundant reserve of bamboo forest covering 1,254,400 ha, contributing to 14% of all India bamboo distribution. Bamboo is distributed throughout the State between 400-1520 m. altitudes. Melocanna baccifera (Mautak) is the major species of bamboo found in Mizoram. The total annual production of bamboo is estimated as 3,237,689 MT. In all 21 species of bamboo have been recorded in the forest of the State. Out of these species, Melocanna baccifera is the predominant and occupies 95% of the bamboo-afforested land in the State. It is often distributed in tropical and subtropical riverine reserve and valleys, and grows profusely in the drainage areas of the Tlawng, Tut, Teirei, Langkaih and Barak rivers in West Aizawl. It is a very versatile species, the culms grow to 10 metres height and are strong and durable with slender fibres and inconspicuous nodes which render them ideal for house building, weaving, pulping and the production of small softwood products such as incense sticks, chopsticks and toothpicks. The shoots can also be eaten, and are of high quality.

The estimated total bamboo resources in the State stood at 6.54 lakh MT, and the consumption is only 14,020 MT, leaving a surplus of 3.09 lakh MT. Per capita consumption of Bamboo is 4.41 in rural area and 1.81 in urban area. The specific species which are put to different uses are given in Annexure II.

3.10 Other Crops

Sesame: Sesamum (Chawhchhi) is one of the most important edible oil seeds cultivated in Mizoram. It is grown as mixed crops in jhum land. The prospect for its cultivation has vast potential in Mizoram. Sesamum is usually rich in oil (50%) and protein (18-20%). 100gm of seeds provide 592 calories. Sesamum produce in Mizoram is mainly marketed to Assam. Traders used to collect the produce from farmers and carry to nearby market i.e. at Karimganjr / Silchar. Traders purchase the Sesanum from farmers@ Rs.15/-to Rs.18/- per

kg. Sesamum is a short-gestation crop. The production can be increased or decreased according to demand.

Cotton: Cotton is the most important fibre crop cultivated in the State. It is sown as mixed crop in jhum land. It is grown mainly in the western belt of Mizoram. There is vast potential for cultivation of cotton in the State. At present the utilization of cotton is for making quilts, pillows, cushions, etc., as there is no cottage industry for other purposes like making threads etc. The approximate cost of cotton is Rs.50.00 per kg.

Tung: Tung (Aleurites montana) is seen all over Mizoram. Tung is generally grown in homestead and garden land in a scattered manner. Sometimes, it is grown in jhum lands in compact blocks having 275 plants per ha. The tung oil is used largely in paint industry and is considered as the best of the available oils in India. At present, castor, linseed and other oils are generally used in the paint industry and tung oil could easily replace the other oil used. Thus, there will be no difficulty in marketing tung oil. At present, there are two tung oil extraction units near Aizawl. The oilcakes can be used as fertilizer for the fields. Tung oil is marketed at the rate of Rs.40 per kg (ex–factory), and is presently imported into India from China. Given the right technology, tung oil extraction in Mizoram can be very profitable as an item of import-substitution.

Tea: The tea produced in Mizoram has a distinct touch of quality and flavour similar to teas grown at high altitudes in the Nilgiris and Darjeeling. Biate has the largest area under tea, followed by Ngopa, Khawdungsei, NE Bualpui, Pawlrang, Tlungvel. The tea estates are managed by co-operatives.

3.11 Animal Husbandry & Veterinary

Promotion Animal Husbandry and Veterinary activities is essentially relevant for NLUP programmes because of great potential for generating income and employment in rural sector. Other important benefits which will accrue from such promotional activities will be as below :

a) The Livestock production and Agriculture are intrinsically linked, each one being dependent on the other and both are crucial for the overall food supply of the people.
b) Livestock provides large share of draught power, the dung produced from dairy farming which is an important organic manure.

c) The dairy sector contributes one of the largest share in Agriculture GDP. Mixed crop – livestock farming are commonly practices in the state

The Department while chalked out programmes were guided by the recommendation of Indian 2001 report on population growth trend, projected availability of livestock and t rend of increasing demand for milk, meat etc was also taken note of while targets were proposed for Animal Husbandry programmes.

Availability and shortfall of food of Animal origin as worked out by Deptt. is as follow :

Table 7 : Marketing Infrastructure :

SN	Particulars	2007	Per capita availability	ICMR recommended	Shortfall over recommendation
1.	Milk production (in thousand litres)	16505	51 gm/day/head	210 gm/day/head	159 gms/day/head
2.	Egg Production (in lakh)	402	45 nos.head/year	180 nos.head/year	135 nos. year/head
3.	Meat production(tons)	11430	35 gm/head/day	110 gm/head/day	75 gms/head/day

Statistics as above will indicate that there is a great potential for generating income and employment and increased production can be absorbed in the local market for a long time progressively obviating the present practice of importing from outside.

Table 8 : Existing Marketing Infrastructure is as below :

SN	Name of Institution	Location	Capacity	Funded by	Owned by
1.	Mizoram Multi Commodity producers co-op union	Aizawl	15 TLPD	GOI	AH & Vety .
2.	District Milk Union	Lunglei	5 TLPD	GOI	AH& Vety
3.	District Milk Union	Kolasib	5 TLPD	GOI	AH & Vety .
4.	District Milk Union	Champhai	5 TLPD	GOI	AH & Vety .
5.	Animal Feed Plant	Aizawl	50 tones/day	GOI	AH & Vety .
6.	Modern Slaughter House	Aizawl	100 Animals/day	NEC	AH & Vety .
7.	Pork & Poultry Processing Plant	Aizawl	50 Animals/day	NEC	MIFCO

Table 9 : Livestock Products of Mizoram State

YEAR	MILK (in MT)	EGGS (in lakh)	MEAT (in MT)
2006 -2007	15998	348	8761
2007 - 2008	16505	402	9430

Source : NEDFi Databank

Pork consumption in particular is very high. The traders who organize import sell the same in the local market. Eggs are also sold in the local market and generally shopkeepers collect them from the villagers and like livestock a large quantity is brought into the State for meat purposes.

3.12 Fisheries

Fisheries comprise fish from mostly fish ponds, and traditional integrated rice-cum-fish culture in paddy fields. Rivers and their tributaries are harnessed for production of fish to supplement the annual production. Consumption of fish in the State is much higher than the State's own production. Presently, 2,640 ha of water area has been brought under pond fish culture and another 400 ha under paddy-cum-fish culture. About 7,000 families are engaged in fish farming while another 2,000 are involved in riverine (capture) fishery. The State produced only 3,758 MT from culture sector in 2006-07 and 2413 MT in 2007-08 and another 300 MT from other sources against the total requirement of 10,395 MT for a projected population of 9.45 lakhs calculated at 11 kg per capita per year consumption, while the import of fish into the State in the same year was 7,830 MT.

Mizoram has 24,000 hectares of potential area available for fish farming. Due to poor economic condition of the rural people and financial constraints of the State Government, it has not been possible to exploit the potential. So far only 2,640 hectares of water area has been brought under pond fish culture. There are another 400 hectares under paddy-cumfish culture integrated farming with wet rice cultivation. Besides the area, 6,000 hectares of water area are also available in the riverine sector in the form of rivers and streams. Production from culture sector alone is estimated at 3,500 MT by 2005-06. The total production from all these resources are estimated to be 3,800 MT against the requirement of 10,395 MT based on the projected population at the end of 2004-05 of 9,45,000 calculated with per capita requirement of 11 kg. Thereby at the end of 2004-05 the State is in a position to meet only 3.97 kg per capita leaving a shortfall of 7.03 kg per capita from the State own production.

3.13 Sericulture

The art of weaving cotton and silk fabric has long been closely associated with the culture and tradition of women of Mizoram. Sericulture was introduced in the erstwhile Mizo district of the then Assam State during 1949. However, due to communication constraints, law and order problems etc., and sericulture activities remained dormant. Subsequently, the State made major advances in sericulture in the last decade, and now provides subsidiary income to about 5,000 families in the State. Mulberry sericulture is practiced in the districts of Aizwal, Kolasib, Champai etc., and the progress made in area expansion and cocoon/ raw silk production is given in the table below:-

Table 10 : Production of Cocoons & Silk Yarns in Mizoram.

SN	Name of Cocoons	Unit	Production	
			2006-2007	2007-2008
1.	Mulberry	MT	48.00	45.00
2.	Muga	No.(in Lakh)	3.60	2.50
3.	Eri	MT	3.80	4.00
4.	Oak Tasar	No.(in Lakh)	1.50	1.00
5.	Silk Yarn	MT	4.00	4.30
6.	No. of seeds/ cuttings distributed to farms	'000'	7960	12040

Source : Statistical Handbook, Mizoram

Mizoram has an independent Department of Sericulture headed by a Director with a total of 281 employees of which 184 are technical staff. The table below indicates details of infrastructural facilities available both under State and Central sectors for development of mulberry silk industry in the State.

Table 11 : Infrastructural Facilities Available for Mulberry Silk in the State

Facility	Units (State)	Units (Centre)
Research Extension Centre	0	01
Mulberry Farms	12	0
Chowki Rearing Centres	6	0
Technical Service Central	02	0
Weaving Centres	01	0

Dyeing Centre	01	0
Sericulture training Institute & Demonstration Farm	01	0
Seed Preservation Centre	01	0
Reeling & Spinning Centre	01	0
Silk Reeling & Twisting Factory	01	0

Source: Deptt. Of Sericulture, Mizoram

Presently 3.5 to 4 MT of mulberry cocoon are produced annually in the State. The production of mulberry raw silk has shown incremental trend during the last few years as a result of different schemes launched during IX and X Plan periods. The topography and climate of the State are congenial for the production of Bivoltine silk and also sustain seed production activity to cater to the needs of the neighbouring States. However, adherence to age-old traditional practices and use of primitive reeling and spinning devices in most of the areas are the limiting factors for slow growth of silk production and utilization. Besides, non adoption of improved technologies, absence of market infrastructure and supporting linkages are the other major constraints for the development of the silk industry. Major quantity of cocoons is flowing out of the State due to lack of adequate marketing and reeling facilities and traditional practices of value addition. The non-conversion of huge quantity of mulberry cocoon into silk is depriving the State from employment and sustenance of the industry. Thus there is urgent need to organize the above sector to augment the production of yarn/fabric for additional income generation and employment.

3.14 Forestry

About 20% of Geographical area is under dense forest while reserved/protected forest constitute 38 percent the geographical area. The three forest types occurring in the State are tropicial wet evergreen, tropical moist deciduous and sub-tropical pine forests. Mizoram is rich in wild flora & fauna, both in variety and abundance. About 88,400 ha of the forest area of the State is under two National Parks and four wildlife sanctuaries. Dampa Tiger Reserve is located in the State.

More than 400 medicinal plants and 22 species of Bamboo have been reported to exist. Total forest produce during 2002-2003 was valued at 304.83 lakhs.

Before 1980, an estimated 7,900 hectares of plantations was done in the State. The average annual plantation peaked to 20,500 hectares during 1985-90. The rate declined to 6,800 ha during 1998-99. Plan-wise progress of plantations and breakup of species are given in following tables :

Table 12 : Forest Plantations by All Agencies

Period	Area in '000 ha
1951-80	7.91
1980-85	76.88
1985-90	102.78
1990-91	17.38
1991-92	14.46
1992-97	73.19
1997-98	9.14
1998-99	6.82
Total	308.55

Source : NAEB, MoEF, 1999

Table 13 : Species Wise Plantations by Forest Department

Species	Area in '000 ha	Percentage
Tectona grandis	64.49	34
Gmelina arborea	53.92	28.4
Pinus spp.	32.63	17.2
Michelia spp.	11.36	6
Others	27.15	14.3
Total	189.54	100

Sources: Mizoram Forest Department

North Eastern region including Mizoram is characterized by rich and abundant resources (forest etc) but paradoxically the people are still in poverty in the midst of plenty. In the absence of alternative livelihood activities most of the people depend primarily on the exploitation of these resources. As a result there is increasing pressure on forest land with aggravating land degradation problem without mechanism for resources regeneration. Such is the case in the region which is considered as one of the two areas of bio-diversity

"Hotspot" in Indian sub-continent. Given this context various intervention has been directed at resolving both problems of poverty and natural resource degradation in this region. In Mizoram too one of the interventions was the 1st NLUP initiative during 1985-91 which was however, abandoned by the succeeding Government in 2002 and therefore the problems persists and needs to be addressed.

The change matrix reveals that there had been an overall decrease of 562 sq. km. of dense forest. This is the result of degradation of 653 sq. km. to open forest and 453 sq. km. to non forest. The decrease is also associated with conversion of 464 sq. km. of open forest, 56 sq. km of scrub and 24 sq. km of non forest to dense forest. **The loss of forest cover in the state is mainly due to intense shifting cultivation practice.**

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CHAPTER – 4

SELF SUFFICIENCY AND IMPORT SUBSTITUTION

Mizoram an agrarian economy still imports a large quantity of food staff, fruits, vegetables, fish and livestock like pig, cattle, goat, poultry essentially required for the over all food supply of the people. A large quantity of such items are presently imported from other states particularly neighboring states of Assam, Tripura and Manipur. Some quality is also imported through informal boarder trade from Myanmar. Though accurate import figures are not available, the statistics as collected by Trade and Commerce Department, Mizoram as below would indicate roughly the present trend of imports :

Table 14 : Import of Agriculture, Horticulture and Livestocks items etc.

SN	Items	Unit	2003-04 (in unit)	Approx Market Value (Rs perunit)	2004-05 (in unit)	Approx Market Value (per unit)	2005-06 (in unit)	Approx Market Value (per units)	2006-07 (in unit)	Approx Market Value (per unit)	2007-08 (in unit)	Approx Market Value (per unit)	2008-09 (in unit)	Approx Market Value (per unit)	Amount (2008-09) (in Rs.)
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
1	Vegetables	Qtl	41209	1570	59005	1600	48585	1750	28688	2000	244558	2350	22678	2550	57828900.00
2	Pineapple	Qtl	3355	1450	15590	1500	48201	1500	3195	1750	13707	1800	2010	2000	4020000.00
3	Cattle	No	3585	12000	1334	12000	410	12000	429	14000	5059	16000	3242	17000	55114000.00
4	Pig	No	6473	10000	4595	12000	6574	12000	85	14000	26	14000	-	15000	-
5	Goat	No	11873	1800	1298	1800	6019	1800	521	2000	4483	2000	5931	2500	14827500.00
6	Dog	No	502	700	796	700	938	800	1413	1000	No import due to permit cancellation by Govt.				
7	Poultry	Tukri	2389	3000	3130	4000	4070	4000	5932	4200	2141	4200	1989	4800	1591200.00
8	Fish	Tukri	12373	2000	11613	2300	11201	2500	24639	2500	1194	2500	10971	3000	32913000.00
9	Betel leaves	Tukri	28753	600	52011	600	42619	700	51638	700	3455	800	29344	2000	58688000.00
10	Egg	Boxes	90841	400	132462	400	67786	420	31269	450	47244	520	41411	630	26088930.00
11	Betel nuts	Qtl.	24152	1000	27656	1200	51806	1400	33532	1500	22718	1500	29152	1600	46643200.00
12	Potato	Qtl	28747	1000	40228	1000	42310	1200	62691	1500	29733	1800	32986	2000	65972000.00
13	Tobacco	Qtl	-	-	-	-	-	-	-	-	-	-	1920	20000	38400000.00
14	Fruits	Qtl	-	-	-	-	-	-	-	-	-	-	565	5000	2825000.00
	GRAND TOTAL														**404911730.00**

Value of commodities imported during 2008-09 = Rs.4,04,91,1730.00 (i e Rs. 40.50 Crores)

Mizoram has the potential to attain self-sufficiency in most of the items through development of Agriculture and Allied Sector and correspondingly generating income and employment for the farmers.

2. (i) Apart from attaining self-sufficiency in such basic food items, with increased production there is scope to access markets within the country and even export markets of neighbouring countries particularly Bangladesh. Mizoram is having about 700 km bordering Bangladesh with 150 million population. Available statistics indicate that Agriculture account for 33.3 percent of GDP of Bangladesh; but this sector suffered a setback from 1997-98 when its annual growth rate dropped from 6.4 % in 1996-97 to 3.1 % in 1997-98. As per production figures released by Bangladesh statistics during 2000, Bangladesh produce 6,24,735 MT of vegetables as against its requirement of 1,05,85,000 MT and 14,94,120 MT of fruits as against its requirement of 63,51,000 MT. Deficiencies in vegetables and fruit production are 99,60,265MT and 48,56,889MT respectively. Though updated figures are not available requirement of items like Ginger, Chilli Oranges, Sesame and Vegetables are on the increase aggravating deficiencies of such produces in Bangladesh. Mizoram can take advantage of the available Bangladesh market for such produces.

(ii) Apart from fruits and vegetables, Bangladesh has a large requirement of Bamboo to feed its medium size paper mill at Chandraguna, Chittagong and Chotak Paper Mill near Shylhet. Requirement of Bamboo for Chandraguna Paper is 1,00,000 MT green Bamboo annually and their Bamboo forests has been largely depleted. Similarly Chotak Paper at Shylhet also require similar quantity of Bamboo. In fact an agreement was earlier made with one Nitol Group of Industries in Bangladesh in 2007 for export of Green Bamboo of 300 MT on daily basis through SuterKandi L.S.C Karimganj, Assam. But this agreement could not be materialized for various reasons and the primarily reason being the political turmoil in Bangladesh in the few last years. However now with the installation of a new stable and democratic government in Bangladesh, atmosphere is conducive to bilateral trade with Bangladesh. In fact some quantity of Ginger, Turmeric, Sesame and also Bamboo are now being dispatched to Bangladesh through informal trade channels.

NLUP has therefore incorporated programmes for Production of Agro-Horticultural produce and Bamboo resources aiming at potential export markets in neighbouring countries of Bangladesh and Myanmar.

CHAPTER – 5

PROBLEMS TO BE ADDRESSED

Mizoram is basically an agrarian economy being dependent on subsistence-oriented agriculture interlinked with other land based activities such as livestock and forestry etc. In the past in view of availability of vast Jhum land and Small population, the farming community could maintain, though low, a satisfying level of equilibrium. But increased population growth, changes in land use pattern resulting in loss of fertility and natural forest has profoundly impacted the economy rendering Jhum practices unsustainable.

All the tribal societies in the North East including Mizoram are undergoing rapid transformation as they come to terms with new developments impacting the socio-economic fabric of the tribal society. Their traditional lifestyle in conditions of adequate access to land for jhum cultivation provided a satisfactory subsistence livelihood. Now, rapid population growth has increased pressure on available land resources, forcing communities to seek alternative means of ensuring their livelihoods through urban employment, cash crop development, wage labour and exploitation of timber resources. Some have been more successful than others resulting in widening disparities both between and within communities. Modifications in land tenure arrangements have opened the door to land grabbing with the result that the traditionally egalitarian tribal communities are becoming increasingly economically stratified.

Mizoram like other States in the North Eastern Region represents a unique socio-cultural framework and faces similar if not the same set of problems. These factors have not always been taken into account in the design and implementation of development programmes within the region. As a result, the impact of development initiatives has generally fallen short of expectations. Stagnation in the rural economy persists and low productivity of jhum cultivation continues on a wide scale. Yields from jhum are low with paddy averaging 900 kg/ha. Before population pressure exerted its influence on demand for crop land, fallow cycles of 10 years or more were largely self-perpetuating and shifting cultivation was a relatively stable method of exploiting wooded hillsides. With the increased demand for land to maintain household food security, the jhum cycle has been reduced to 3 to 5 years and in

some villages, down to two. As a result crop yields have gone down due to reduced fertility. Recent analysis of satellite imagery of the project area has also revealed significant encroachment of forest land over the last 7 to 8 years by jhum farmers. A significant change in cropping pattern has occurred in response to the decreasing fallow cycle with a trend towards increased commercialization of jhum cultivation. The shortening of the Jhum cycle (down to 3-5 years for many communities) with its impact on declining fertility has resulted in continued encroachment on the forest resources and progressive land degradation. The environmental consequences in an area renowned for its rich biodiversity are severe. Most families recognize that Jhum cultivation is no longer a sustainable livelihood system but they lack knowledge or conviction of alternative development options and the means to adopt them.

Paddy cultivation is declining in jhum lands under force of declining productivity to be replaced by higher value products for the market such as vegetables to provide cash to buy food grains. Settled agriculture on terraces and valley lands is dominated by rice cultivation. Technology is backward with limited use of HYV fertilizers and yield are low at 1.2 to 1.5 MT/ha . **Limited areas of horticultural and plantation crops have been planted in recent years, but the choice of crops has been production rather than market-oriented, resulting in severe marketing problems for crops.**

In spite of the fact that agriculture is the mainstay for about 60% of the population of the State, only 5% of the total area is under cultivation and about 11% of the total cultivated area is under irrigation. It has remained backward industrially which can be attributed to physical isolation, lack of mineral resources in the state, distance from the heart of the country coupled with communication, etc. problems. In the small scale sector are the rice-milling, oil and flour milling, mechanized bamboo workshop, saw milling, brick making and furniture workshop.

Lack of employment opportunities is a major handicap in the state. The state government, the primary employer, has more than 45,000 people on the rolls and is bursting at the seams. There is an equal number of educated unemployed with no large industries and just about 3,000 small scale units. Unemployment figure is soaring in the state, as seen in the following table:

Table 15 : Employment in the State in Last Two Years (in '000)

Particulars	2002			2001		
	Public Sector	Private Sector	Total	Public Sector	Private Sector	Total
Total Employment	40.5	1.8	42.3	39.8	1.8	141.6
Women Employment	11.2	0.8	11.9	10.9	0.8	11.7

Against the background of failed development initiatives and the general air of distrust and disillusionment, the role of the Project will be to demonstrate a new approach to development which focuses on interventions which are technically appropriate, culturally sensitive and institutionally effective. This requires developing a genuine partnership between the communities, government and other agencies (such as NGOs and research institutes) in which all interventions will be demand-driven and client-oriented and for which the indigenous knowledge and capabilities of the communities will be accorded due recognition. This new approach will also emphasize transparency and accountability).

5.1 Lessons from Past Development Initiative :

a) *Land Use Policy during 1985-91 :*

In this context it is worthmentioning that some initiative were made in the past for poverty alleviation of the farmers particularly Jhumia families by way of providing alternative livelihood options. First Land Use Policy initiative during 1985-91 was introduced on a modest scale for Jhum control initially confining to 4 Rural Development Blocks only. Mizoram being basically an agrarian economy the first NLUP programmes aimed at creating sustainable livelihood opportunities in Agriculture and Allied sector including Animal Husbandry, Pisciculture, Sericulture and also Social Forestry. Stress was also given for non-farm sector including promotion of cottage industries and also processing units to open up avenues of employment opportunities for people rendered unemployed due to progressive switch over from Jhum practices to other livelihood activities. It is obvious that project of major switch over from age old traditional Jhum practices to more scientific, productive and durable practices encountered various difficulties hurdles – social, economic, administrative and marketing Government was seized with such problems and while efforts were on to overcome such problems, Government of Mizoram invited MS Swaminathan Research Foundation for their expert opinion and guidance in the matter.

b) *Findings of MS Swaminathan Research Foundation, vis-à-vis NLUP (1985-91) as contained in their "Blue Print" for sustainable Agricultural and Rural Development :*

MS Swaminathan Research Foundation (MSSRF) undertook a detailed study of the economy including the on-going NLUP programmes then under implementation with a view to identifying the shortcomings and suggesting appropriate design of strategies and proposal for raising financial support for integrated rural development aimed at reducing Jhum cultivation. Amongst various findings and recommendations, MSSRF noted the following shortcomings of first NLUP programmes :

i) Schemes have been chosen arbitrarily
ii) High value schemes have been given precedence over marketability of products.
iii) Purchases of raw materials, tools, animals etc. by a Central Committee has been the root cause for failure of the scheme as the inputs never reached in time for the season bound agricultural operations.
iv) Monitoring of the schemes has been very poor.
v) At many places, the farmers gave up jhuming for permanent activities which did not give adequate returns.

Findings of MSSRF was taken note of by the Government and appropriate measure had also been taken to overcome such deficiencies.

In spite of such shortcomings, first NLUP(1985-91) programmes impacted economy in a positive manner as was evaluated by an "Independent Church" organization in their assessment made in 1992. A few instance of success stories of persons who gave up Jhum practices and managed to set up sustainable alternative livelihood activities are as below :

(i) One C.Zokunga S/o Khawvelthanga of Sihphir Village took up Dairy farming with two cows along with supplementary cropping to start with. He could improve upon his diary along with other livelihood activities over last few year. At present he is having mulching 5 cows with 58 litres of milk every day for sale at Rs. 25/- per litres and thus earning Rs. 1450/- per day.

(ii) One Laltanpuia S/o Lallura of Neihbawih Village started with 2 cows along with other livelihood activeties. At present he is having 7 mulching cows with 80 litres of milk per day earning Rs. 2000.00 per day.

(iii) One Malsawma S/o Thleiliana of Arpu Veng Sihphir took Saw milling on a modest scale and presently earning well and also own a good house and maintaining a vehicle.

(iv) One Lalzuia, Sihphir took up Iskut cultivation and improved his financial status having one Assam Type good house and having regular income.

(v) One C.Lalkhuma S/o Bawihthanga (L) of Bungzung, Champhai District reared Mithun (Hill Cattle) and presently having 12 mithun. Mithun rearing has enabled him to earn a sustainable livelihood for several years now.

(vi) Hrangkimi W/o Sawiliana (L) of Zawngtetui of Champhai District took up orange gardening which have proved a great success. Presently every year she is earning about Rs. 3.00 lakhs from the garden.

(vii) One Ronghaka S/o Zawngliana (L) took up Saw Milling and the trade has proved a success and the family is now leading a very happy life earning regular income.

These few instances are only illustrative to show how NLUP programmes have the potential to provide sustainable livelihood options.

But unfortunately the succeeding Government abandoned the programme and introduced a new programmes called Mizo Intodelhna Programme (MIP) in 2002. Though conceptually programmes were good, the modus operate of the programmes were flawed from the beginning as the Mizoram Intodelhna Executive Authority sought to implement. Programmes ignoring the line departments. When the guidelines were revised in 2006 to put the Programmes back on track, the damage had already been done without any scope of retrieval of the programmes. **These past development initiatives also suffered from the following constraints :**

- **an essential top-down approach to programme implementation, with little genuine involvement of the community, and little emphasis on the development of village institutions and of the necessary service facilities such as credit, extension, inputs supply and marketing required to sustain development, has left farmers feeling that schemes are imposed on them and hence they have little sense of commitment or of ownership of the scheme.**
- **lack of coordination between the line departments has prevented the promotion of coherent development strategies. This has also been largely responsible of**

the lack of adequate technical support to farmers in the management of their new developments.

- **farmers have been given inadequate training and extension support.**
- **production rather than market-led approach to crop selection has resulted in the promotion of crops with limited marketing opportunities resulting in disillusionment on the part of farmers.**

The Project will also contribute to the search for a more sustainable economic base for the state enabling them to identity its comparative advantage and to develop new investment opportunities. This rests on identifying commodities and products which are capable of commanding premium prices to overcome the existing innate logistical handicaps. The State has the benefit of a rich, and largely undiscovered resource base whose potential has yet to be fully investigated and exploited. Given the importance of the unique and immense biodiversity resources of the State, special attention needs to be given to the interface between the requirements of the communities and the need to ensure adequate protection of the biodiversity stock. The Project, therefore, provides for a unique opportunity to develop interventions in areas of potential conflict which extend the approaches designed for sustainable livelihood to take in the additional requirements for protection of the genetic stock.

5.2 Institutional Support System

All the tribal communities in the North East have well defined traditional institutional structures comprising, with some slight variations, a village chief or headman and some form of Village Council. In Mizoram, however, there are elected Village Councils with powers to manage Village Administration, adjudicate customary laws and more importantly exercise certain authority for allotment of land for garden, farming etc. purposes.

Agricultural activities in the state are supported by the various line departments of the state governments (agriculture, horticulture, soil conservation, irrigation, animal husbandry, forestry and sericulture). These departments operate through district, sub-divisional and field units. The greatest deficiency from the point of view of developing coherent strategies to natural resource management is that competing development opportunities for horticulture and other plantation crops generally handled by different agencies who approach farmers individually. There is a considerable depth of good technical knowledge amongst the line

department staff which, because it is not being exploited to its full potential due to severe operating constraints, has contributed to demotivation and low output of the officers. Each state has a well organized network of Forest Department offices whilst the Autonomous District Councils(ADCs) have their own forest administration set-ups. However, forestry staff at all levels lack strategic orientation, adequate expertise, and proper motivation in planning, designing and implementing community participatory forestry programmes.

5.3 Extension Support

Agricultural extension is the responsibility of the Department of Agriculture (DAO) which at the field level is organized through circles, headed by and Agricultural Inspector, which cover two or more blocks, Agricultural Extension system is largely ineffective due to a lack of suitable technical messages and little support to staff in the form of field allowances and supply of inputs for field work. There is little research and technical support provided to extension staff and very little in-service training. Shifting cultivation is not included in their training, which leaves the majority of extension staff with a poor understanding of the real dynamics of shifting cultivation as practiced by the hill farmers. The Extension Education Institution (EEI) is the main training institution for the whole region and has dedicated staff to provide a wide range of courses. Forestry extension in the region is in a disorganized state but given suitable training, the manpower available in the Social Forestry Divisions can be effectively mobilized to provide extension services to the people. However, there is an urgent need to improve the infrastructure, materials, programmes and implementation mechanisms.

5.4 Research Support

The main research institutes in the NER are the Indian Council for Agricultural Research (ICAR) which has research station in each state (excepting in Assam), the Assam Agricultural University (AAU), the North Eastern Hill University (NEHU in Shillong, the Central Agricultural University (CAU) in Imphal, the Tea Research Institute, Tocklai (in Assam), the Central Potato Research Station, the Regional Research Laboratories (RRL) of CSIR (working on essential oil extraction and medicinal plants) etc. Past research efforts have generally lacked a client –driven, on-farm, multi-disciplinary and development oriented approach and this has resulted in inappropriate models which are too complex and not replicable. But some new approaches are evident with both CAU and AAU's Regional Research Station in Diphu (Karbi Anglong) carrying out inter disciplinary field research programme with jhum farmers.

5.5 Marketing

Agricultural marketing is one of the weakest links in the agricultural economy of the region. The marketing system is unregulated and dominated by private traders and middlemen. The major part of the marketable surplus is sold individually in small quantities by farmers at periodic markets at the village level or to itinerant traders. It then passes through a hierarchy of primary and secondary assembly markets before reaching terminal markets in major cities outside of the region, principally Calcutta. Factors such as seasonality of production, perishability of produce, inadequate credit facilities, lack of market information, etc. compel growers to sell their produce at low and frequently unremunerative prices. The bargaining power of the farmers is weak and prices and dictated by the traders. Farmers also frequently borrow from traders/money-lenders increasing the level of exploitation.

5.6 Credit Facilities

The virtual lack of credit facilities in the NER has represented a major constraint to the promotion of development activities. Lending by the formal financial institutions is minimal and credit: deposit ratios are very low, indicating a large outflow of resources from the region. At present, no banking culture exists on either the demand or supply side. Tribals have no habit of savings. A major constraint on the banks' ability to lend is the lack of land titles under the customary land tenure arrangements to provide the necessary security, but this is frequently used to cover the banking sector's basic lack of willingness to lend due to other factors such as poor recoveries, difficulties of servicing small loans in difficult terrain, inadequate staff and low morale. Access to credit is affected by the patchy coverage of bank branches with large areas unbanked and by the complex and protracted banking procedures. As a result of the recent banking policies several loss-making branches have been closed down – all were located in rural areas. The cooperative sector is virtually nonfunctional with societies engaged in distribution of essential commodities but not advancing loans.

As a result of the inadequacies of the formal credit system, communities remain dependent on informal sources of credit, obtained from relatives/friends and traders/money-lenders, for both consumption and productive purposes. Interest rates are high at around 10-20% per month. Production loans from traders are a major source of exploitation as borrowers are committed to sell their produce to the trader at vastly reduced prices in addition to paying high interest rates.

CHAPTER – 6

TARGET BENEFICIARIES

The project envisages covering the entire state of Mizoram which has 95% of its total population as tribals. In the State, poverty is prevalent amongst these households who remain heavily dependent on jhum (shifting) cultivation. All the 8 districts will be covered under the project. The village statistics in respect of these districts is as follows:

Table 16 : Village Statistics of the Districts in Mizoram State

SN	District	No. of Village	Total No. of Household	Total No. of Jhum Cultivator family	No. of WRC cultivators families	Total No. of cultivator families	Out of column 7 No of families operating both Jhum & W8RC
1.	Aizawl	165	60863	18378	453	18831	254
2	Champhai	104	21134	8368	2630	10998	-
3	Kolasib	36	16402	6201	1709	7910	492
4	Lawngtlai	166	20966	14031	546	14577	170
5	Lunglei	136	30097	14897	1139	16036	2376
6	Mamit	90	15370	8051	392	8443	109
7	Saiha	58	9494	4794	422	5216	78
8	Serchhip	36	10528	5240	1568	6808	-
	Total	**793**	**1,84,854**	**79,960**	**8859**	**88819**	**3,479**

Source : Statistical Handbook, 2007-08, Deptt. of Agriculture

The target group will comprise the more vulnerable groups which are those households who remain heavily dependent on jhum cultivation. These groups will include households solely dependent on jhum cultivation who face progressive marginalization with the continuous decline in jhum yields; and households engaged in jhum cultivation who also have inadequate areas of valley land or terrace cultivation where productivity is also low due to lack of access to technology, support services, etc. or small areas of cash crops from which they obtain inadequate returns.

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CHAPTER – 7

PROJECT STRATEGY

The proposed design of the project will take note of the shortcomings of the similar endevours initiated under previous programmes like Mizoram Intodelhna Programme to improve plan strategy and focus on effective implementation for target realization. As already reiterated the basic thrust of the project aimed at empowering poor households in rural and urban areas to directly deal with wide and diverse range of problems and constraints that hampers livelihood developments as well as better position them to capture opportunities for livelihood improvement. **These problems express themselves (a) at the household level in terms of food security. (b) at the production system level in terms of low productivity (c) at the community level poor infrastructure and service delivery and (d) at the supply chain level inadequate access to input and output markets including financial services. These problems are interrelated, leading to vicious circles and resulting in poverty traps; often exacerbated by natural resource degradation as is now conspicuously happening in Mizoram with declining Jhum cycles being a case in point.**

In order to break out of these poverty traps, there is a need for a holistic approach that allows for dealing with these interrelated problems in a simultaneous fashion. To make this happen the project should provide direct support aimed at building organization of the poor and putting assets in the hands of the poor and the resulting empowerment of the poor, larger operating areas and increased scale would allow the poor to help themselves in dealing with both Government and market failures. Project support would be demand driven and provided as an integral package that, while recognizing local conditions, would be considered most effective by local stakeholders in breaking the existing poverty traps. At the same time and recognizing some of the weaknesses of livelihood project implemented earlier like Mizoram Intodelhna Programme(MIP), the project would facilitate establishment of critical partnership with stakeholders like local NGOs, Village Councils etc as would further leverage the organization of the poor in achieving their objectives.

The Project will address the critical institutional constraints to development in the state. It will focus on introducing approaches which:

- are more responsive to communities' perceptions of needs and priorities;
- involve communities more in decision making and planning;
- make communities more responsible for management of their development programmes in order to generate a greater sense of ownership of development interventions;
- build on the traditional values of community participation; and
- utilize the strengths of village institutions and other community organizations.

The Project will take into account various on going scheme presently at various stages of implementation and would facilitate complementing each other and thereby optimize benefits to the targeted beneficiaries. The first element of this strategy will be to introduce participatory planning and monitoring processes and finance priority activities identified through the involvement of all stakeholders especially the beneficiaries which reflects more productive and sustainable use of the available resources. Such planning & Monitoring will :

- adopt an inter-disciplinary, multi-sectoral approach;
- assist farmers in the gradual conversion of their presently unsustainable farming systems into a more sustainable system
- promoting permanent plantation crops in fallow jhum fields;
- introduce crops and agronomic practices which contribute to soil conservation;
- promote water resource conservation and enhance water-use efficiency for irrigation;
- build on the natural advantages of the area through greater emphasis on agro-forestry as sources of livelihood as well as environmental protection;
- enhance rural income through promoting livestock, fishery and sericulture enterprise;
- adopt strategies suited to the remoteness of region through emphasis on low input technology and on high value/low volume; and
- introduce contract farming approach offering windows of opportunity for marketing outside the region;

Emphasis will be given on rationalization of land utilization according to its suitability for different purposes. The most vulnerable steep slopes will be taken out of agricultural usage and converted to forestry and perennial tree crops. Forestry, agro-forestry and perennial

crops development programmes are planned to first generate livelihood resources for jhum cultivators and then to gradually reduce their dependency on jhum. Food security strategies will build on the present trend of optimizing land utilization through switching to more productive cash crops whilst ensuring a minimum level of home food production.

The second element of this strategy will focus on developing self-reliant community institutions to manage implementation of the project activities and sustain and further development in the long term. A flexible approach will be required in order to cater for the different socio-cultural characteristics of the various tribal communities. As most traditional community institutions exhibit deficiencies which impair their suitability for management of development under the project, communities will be encouraged to establish a Village Development Committee (VDC), as an arm of the traditional village council, providing for greater focus on vulnerable groups; broader representation including women, youth and the marginalized groups; greater accountability and transparency in their operations and greater involvement of women in community affairs. The process for establishing the VDCs will be in tune with local customs and will be based on consensus of the entire community.

7.1 Proposed Phasing and Coverages :

Project is designed as 5 years plan with a phased approach to eventually cover all the prospective beneficiaries numbering about 1,20,000 households. **Programmes to be taken up in 1st year are to be treated as 'on pilot basis' for experiment and making suitable modifications/improvements in subsequent years learning from the experiences where necessary.** The whole state will be brought within the perview of the project judiciously selecting the beneficiaries for different livelihood activities mutually complementary to each other as would optimize the benefit to farmers. **The project would focus execution on 'a cluster basis' initially concentrating on availability of large number of beneficiaries in compact areas of a district rather starting in more areas irrespective of the number of beneficiaries. The advantage of this approach will be that project start-up will be straight forward. Another advantage would be generation of "critical mass" in terms of voice, volumes and corresponding negotiation powers and economics of scale that will enable the organizations of the poor accessing markets on more attractive terms than would be the case if phasing is done in a more dispersed and fragmented manner.**

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CHAPTER – 8

PROJECT COMPONENTS

Keeping in view the strategy outlined above, the identified objectives are proposed to be achieved through the following components;

- **Social empowerment/capacity building of communities.**
- **Partnership Development/Strengthening of participating agencies.**
- **Economic Empowerment/Economic Livelihood Activities.**
- **Project Management.**

Details of the activities identified and estimates of the investments proposed for each of the above components have been worked out based on the ground realities of the State and the norms being followed. The volume and type of investment proposed for developing economic livelihood activities, in particular, are only indicative, and can undergo revision as the Project progresses.

8.1. Social Empowerment/Capacity Building : Investment under this component will be required, amongst others, for intensive and long term training efforts for members of the Village Development Committee(VDC) and others, establish leadership, protect vulnerable sections of the communities, strengthen cultural identifies and heritage, conduct participatory planning process. In addition, support will be provided to federate community based groups into higher-level associative tiers. The components specific objectives will be to :

- Establish viable, equitable and sustainable village institutions;
- Promote community self-reliance;
- Integrate women into community decision-making processes;
- Reorient the local power structure so that it reflects the interests of the marginalized groups in the community;
- Contribute to change towards a bottom-up and people centred planning process;
- Generate a sense of ownership of the development process by the community;
- Ensure community-level participation in and feedback to project management.

- ❖ Help NGOs and Government service organizations to coordinate and focus their efforts towards improving resource management options and developing alternative livelihood activities for community members;

The strategy for meeting these objectives entails the establishment of Village Development Committee (VDC) with all the NLUP beneficiaries as members. This component will aim at supporting Village Development Committees (VDCs) to manage and monitor the implementation of the project's development initiatives at the village level.

Strengthening of community institutions like VDC and SHGs envisages making provisions of office buildings, training, infrastructure, communication net work so that these institutions may effectively function and help the beneficiary farmers in the implementation of the programmes. Strengthening of participating agencies which are, NGOs like YMA, MHIP, AMFU etc envisage financial and other assistance for Trainers' training study tours and exposure to and familiarization with success stories for replicating the same where possible. These NGOs will be contracted to mobilize communities and assist them in building up appropriate community institutions for the management of development initiatives, building to the extent possible on traditional institutions. The NGOs will also promote the establishment of around 1000 number of self-managed self-help groups (SHGs). The project will also facilitate the formation, on a pilot basis, of clusters of (15-25) SHGs and associations of (4-8) SHG clusters to provide on-going support to the groups and promote further expansion of group formation. The emergence of such clusters/associations will be demand-driven amongst mature groups.

Capacity building of the community will also include construction of Village Development Committee (VDC) Office/Meeting Hall/Training infrastructure. Apart from routine management and administration works, these Meeting Hall/Training Infrastructure will be required by professionals, line departments officers, NGOs etc to impart necessary training to farmers for skill development, application of inputs, availing extension services etc for successful implementation of livelihood activities programmes. In all 750 villages such Office Building/Meeting & Training Infrastructure is proposed to be constructed at the cost of Rs. 5 lakh each for villages having upto 1000 households and @ Rs. 7.50 lakh for villages having more than 1000 households.

In order to effectively monitor implementation of the programmes at the grassroot level its necessary to provide computer system to all 750 villages where there are already plans by Power Deptt. to provide electricity in near future and BSNL is also providing broadband facilities. Requirement of fund at Rs. 46,800/- per computer system for 750 villages is worked out at Rs. 350.00 lakh to be spread over five years. Detailed Estimate at Annexure-XIX.

Each NGOs facilitator will act as friend, philosopher and guide to the VDC in the implementation of programmes. The project will fund staff costs, provision of motorcycles and other necessary equipment and supervisory and operational costs. The project will provide for training sessions by the NGOs for the whole community in order to raise awareness, orient the community to execute the work as per plan, obtaining necessary extension facilities and commitment to realizing targets as projected in Village Plan. In addition, executive members of the VDCs, managers of the Village Development Fund and members of the SHGs will receive training in management skills, accountancy, and procedural aspects required for the efficient operation of institutions. Communities will be exposed to effective community managed development initiatives through in-country study tours. The project will fund the procurement and development of appropriate communications materials including videos on participatory development and the formation and management of SHGs to facilitate the training. In addition, the project will finance the establishment costs of the VDCs and SHGs including a cash box, storage trunk, ledgers and record books and office contingencies.

In NLUP there will be District Level Implementation Committee headed by Deputy Commissioner of respective districts. These Committees will be responsible to help Villages Development Committees in plan formulation and monitoring/evaluation of programme implementation at the village level. Additional staff including technical and field level supervisors coterminous with the project can be entertained and paid from the provision of funds earmarked under SJSRY both under “Salary Wages” and “A& OC” components. Funds under components “Salary Wages” and “A&OE” earmarked for 2008-09 are Rs. 25.42 lakhs and Rs.45.96 lakhs respectively. CSS/SJSRY as above can appropriately be converged towards capacity building component of NLUP.

8.2 Partnership Development/Strengthening of Participating Agencies :

Support under this component will aim at establishing effective mechanism for (a) coordinated action with line departments and other agencies for proper implementation of the programmes, facilitating timely delivery of inputs and introducing state of the art technology for enhancing productivity as well as community owned and managed productive infrastructure.

This component will also aim to upgrade the skills of both government and NGO staff to allow them to work more effectively with the communities. Training will focus on participatory processes and upgrading the technical skills of the technical officers, research and extension staff responsible for various aspects of natural resource management. Gender sensitization will be an integral part of all training courses. Training will comprise national/international short courses and seminars, group training, and in-country and overseas study tours. The NGOs will in addition be trained in the accountancy, management and procedural skills which they need to pass on to the communities.

8.3 Economic Empowerment/Economic Livelihood Activities :

Investment under this component will aim at expanding sustainable/viable income earning activities, enhancing productivity, employment opportunities by providing an integrated package on a demand-driven basis consisting of : **(a) support improving access to finance and formation of capital assets at the household level (b) vocational skill training to facilitate employment generation with special emphasis on youth (c) community based infrastructure with emphasis on Agriculture link roads, irrigation facilities, rural electrification, seed farms, tele-communication facilities and vocational training facilities (d) natural resource management with special emphasis on community based forestry management of non-timber Forest Produces(NTFP) and Technical Assistance and capital investment for value addition activities in the down stream segment of relevant supply chain**.

i) The component will by implication, include the following :

- ❖ Assist households engaged in jhum cultivation to adopt more environmentally sound and sustainable land use systems.
- ❖ Improve rural incomes through a range of farm and non-farm activities;
- ❖ Upgrade the generic stock of livestock;
- ❖ Reorient and strengthen the extension service and hone the technical capabilities of extension staff;

- Broaden development strategies for the region and seek out new development opportunities;

In order to attain these goals, the project will support the provision of inputs for a series of technical packages which will increase farmers' livelihoods, enhance the productivity of the resource base and contribute to environmental protection and restoration. The technical package will focus on feasibility aspect of horticultural and perennial crops and forestry on fallow and abandoned jhum lands and improving rural household income through livestock, forestry and sericulture etc and micro-enterprise, cottage and household industries. The crops will be selected from a menu of options of crops suited to the locality agronomically and in relation to market opportunities. Under social forestry, strong emphasis will be given to the development of bamboo, cash crops, medicinal and aromatic plants which have high potential for generating greater off-farm earnings. The project will also support major drive involving water harvesting, micro irrigation etc. systems. It will also strengthen the capacity of the extension services provided by government and NGOs.

ii) Linkages and Synergies with On-going programme :

NLUP Programmes designed as multi-purpose, multi-disciplinary and multi-pronged project aims at linkages and synergies with the on-going programmes of State and Central Governments particularly of Agriculture, Horticulture, Power, PWD and Tele communication etc Departments. Convergence of such on-going programmes with the proposed NLUP activities will maximize the benefits and render livelihood activities sustainable.

The Economic Livelihood Activities sector would comprise the following components;

- Development of agriculture;
- Development of horticulture;
- Development of mulberry silk;
- Development of integrated fish farming;
- Development of animal husbandry;
- Development of bamboo/non-timber forest produces; and
- Development micro-enterprises.

Apart from livelihood activities programmes as above, NLUP also proposes essential infrastructures which includes as below :

- Construction of Agri-Link roads at strategic location and rural road network.

- ❖ Construction of Minor Irrigation facilities.
- ❖ Construction of Water Harvesting System.
- ❖ Rural Godown.
- ❖ Setting up of processing units for value addition.
- ❖ Quality seed and tissue culture Laboratory.
- ❖ Power supplies to rural areas.
- ❖ Provision of Tele-communication facilitate to rural areas.
- ❖ Banking Facilities.

In order to combat the evils of rapid urbanization a modest programme for housing facilities for urban poor for 800 beneficiaries at a cost of Rs. 8.00 crores has also been included for 2009-10 and 4000 beneficiaries in 5 years at a cost of 40.00 crores.

8.4 Development of Agriculture :

Mizoram is basically an agrarian economy where 60% of the population depend on Agriculture. Unfortunately the agriculture practices are still primitive and about 1.00 lakh households are totally depending on agriculture and of these about 80,000 households are jhumia families who in the absence of viable alternative livelihood option are pursuing primitive & low productivity jhum practices with increasing poverty and depriration. District-wise number of household with jhumia/cultivator families are shown in the table below :

Table 17 : District-wise of household with jhumia/cultivator families :

SN	District	No. of Village	Total No. of Household	Total No. of Jhum Cultivator family	No. of WRC cultivators families	Total No. of cultivators families	Out of column 7 No of families operating both Jhum & W8RC
1.	Aizawl	165	60863	18378	453	18831	254
2	Champhai	104	21134	8368	2630	10998	-
3	Kolasib	36	16402	6201	1709	7910	492
4	Lawngtlai	166	20966	14031	546	14577	170
5	Lunglei	136	30097	14897	1139	16036	2376
6	Mamit	90	15370	8051	392	8443	109

7	Saiha	58	9494	4794	422	5216	78
8	Serchhip	36	10528	5240	1568	6808	-
	Total	**793**	**1,84,854**	**79,960**	**8859**	**88819**	**3,479**

Source : Statistical Handbook, 2007-08, Deptt. of Agriculture

Introduction of sustainable permanent agriculture practices is the only answer for Jhum Control and therefore long term Agriculture development strategy include, amongst others, as below :

8.4.1 Wet Rice Cultivation in potential available flat land in river valleys.

8.4.2 Wet Rice Cultivation in hill slope.

8.4.3 Introduction of value/cash crops like oil palm, sugarcane which are suitable in Mizoram conditions and have easy access to remunerative markets.

8.4.3.1 Oil Palm Cultivation :

In Mizoram Oil Palm Cultivation which was started in 2006 has a good prospect. Production in 2008 was only 27 qtls. The whole quantity is purchased by the company with whom Government has made an agreement with buy back arrangement and also for setting up processing units with three companies namely Godrej Agrovet Ltd., Food fats and fertilizer Ltd., Ruchi Saya Industries Ltd.

Table 18 : For Oil Palm Cultivation (ISOPOM) allocation of fund and area covered is as below :

Year	Cetral (Lakhs)	State (Lakhs)	Total (Lakhs)	Area Covered (in Ha)	District
2004-2005	107.00	NIL	107.00	NIL	NIL
2005-2006	90.00	87.39	177.39	584	Kolasib & Lunglei
2006-2007	102.87	45.00	147.87	185	Kolasib
2007-2008	150.00	150.00	300.00	1614	Kolasib & Mamit & Lunglei
2008-2009	391.0915 (250.00(ACA))	199.0325	510.13 250.00(ACA)	2546	Kolasib & Mamit Lunglei & Serchhip

Source : Department of Agriculture.

Table 19 : Area proposes to be covered (ISOPOM) is as below :

10th Plan Period	1350 Ha
11th Plan Period	29,650 Ha
12th Plan Period	30,000 Ha
Total	**61,000 Ha.**

Source : Department of Agriculture

There is a prospect of good market for Oil Palm as according to WHO, per capita requirement of edible oil is 15kg/annum as against per capita availability is only 10kg/annum is expected to increase @ 6% per year with increase in income elasticity. In view of the present trend of increasing demand for edible oil, increased production will not create any problem for marketing even if there is a decline in diesel/petrol costs.

8.4.3.2 Sugarcane Cultivation :

In Mizoram Sugarcane Plantation has following advantages :

i) Processed Gur and Khamdsari has a good local market.

ii) Due to use of diesel operated cane crusher, instead of bullocks as the practice in most other parts of the country, the cost of production is comparatively low.

iii) In Mizoram sugarcane plantation may regenerate for 4 to 8 years on its own because of the practice of ratooning as distinct from seasonal cultivation practiced in other states.

Though sugarcane plantation needs a lot of fertilizer, it will not affect the policy of organic production as use of fertilizer is permitted in areas where it is necessary. Moreover, whole state of Mizoram cannot be converted into organic. Organic and Inorganic(or chemical) farming will go simultaneously. Any cultivator who wants to follow organic farming should follow all the terms and conditions, whereas those who want to continue chemical farming are allowed to do so.

In view of the need for sustainable livelihood option to wean away farmers from Jhum practices, it is proposed to include 28800 households in 5 years for following activities in the NLUP programmes with 4420 households in 1st year 2009-10.

- ❖ WRC in Flat Land of 12000 hectares (by 2000 households @ Rs. 120000 per hectares) in 1st year and in all and 12,000 hectares by 12,000 households in 5 year.
- ❖ WRC in Hill slope in 1st year 700 hectares by 2000 household @ Rs. 1,36,000 per hectares and 10,000 households in 5 years covering 10,000 hectares.
- ❖ Oil Palm cultivation by 920 hectares by 920 households @ Rs. 1,00,000 per hectares in 1st year and 4600 household in 5 years covering 4600 hectares.
- ❖ Sugarcane cultivation of 1000 hectares by 1000 families @ Rs. 1,00,000 per hectares in 1st year and 5000 household in 5 years covering 5000 families.

Model project cost for WRC on flat land is at annexure - IV(a) WRC on slope land is at annexure – IV(b) for oil palm at annexure IV(c) and sugarcane at annexure IV(d). Physical and Financial target for these activities is at annexure – IV(e).

8.5 Development of Horticulture :

The agro-climatic attributes of the state have since been found highly congenial for growing variety of horticultural crops particularly on gentle slopes are not only highly remunerative land use option but also for preventing soil erosion, improving soil fertility and thereby maintaining ecological balance. There are already a number of on-going programmes under Technology Mission and the NLUP Programme aims at exploiting the momentum already gathered in the state and focused on selected crops which have higher economic potential and easy access to markets. The following crops are considered suitable for inclusion in the NLUP Programmes.

8.5.1 Passionfruit *(Passiflora edulis) :*

Passionfruit is a very well known fruit crop in Mizoram. It is found naturally growing wild even in the jungle. The climatic condition of the state is ideal for cultivation of this fruit crop. Few farmers have taken-up Passionfruit cultivation successfully as their livelihood and incentive have been triggered amongst the farming community in the state. But due to high initial cost/investment to be incurred for the establishment of Passionfruit garden, most farmers do not afford to take-up its cultivation. Trailing support is required by this crop for which galvanized iron wire is normally used so as to establish permanent structure which is very expensive.

The technology and skill for establishment and maintenance of Passionfruit garden has been improved by the state Horticulture Department recently. In earlier years, passionfruit used to be harvested during June and July months only, but today, Passionfruit can be harvested throughout the year in Mizoram with the adoption of improved technology, having peak harvesting months in June, July and October and rest of the months are lean season, but fruits are available throughout the year.
The processing plant at Chhingchhip can extract Passionfruit Juice and they are extracting it even today. The machine for concentration of the juices including its tetra-packaging facility has been procured and being installed which will facilitate in marketing Passionfruit juices in a concentrate form. Low volume, high value and long storage-life products are the required items for Mizoram due to its remote location. Concentrated juice of Passionfruit can be one of it.

Model project with costing per hectare is at annexure –V(a). It is proposed to take up 3700 hectares is 5 years by 3700 households and during 1st year 2009 – 10,740 hectares by 740 households will be taken up for cultivation. Physical and Financial targets are shown at annexure – V(j)

8.5.2 Grape (*Vitis lubrusca*):

Grape has been cultivated for quite sometime in higher altitudes in areas like Hnahlan and Champhai in the eastern part of Mizoram. The variety being introduced and cultivated is identified as Bangalore - blue variety the same of which seems to have been commonly used for Sacramental wine in the past in the United States of America.

Grape is extremely doing well even without provision of irrigation in the eastern high elevated areas under rainfed condition. These grape fruits are being processed locally for wine and grape juice which are sold in the market. Many farmers are earning their livelihood through grape cultivation and support their family and even constructed concrete structure home at such remote areas.

Today, grape farming community formed society and established wineries at Hnahlan and Champhai. The quality of their wine will greatly improve and the same will find good market in the mainstream of wine market. There is a bright prospect for grape cultivators in Mizoram, not only for sustenance but even for prosperity.

Model project with costing per hectare is at annexure- V(b). It is proposed to take up 6000 hectares is 5 years by 6000 households and during 1st year 2009 – 10, 1200 hectares by 1200 households will be taken up for cultivation. Physical and Financial targets are shown at annexure – V(j).

8.5.3 Mandarin Orange (*Citrus reticulata*) :

Mandarin Orange cultivated in Mizoram is commonly known as 'Khasi Mandarin' by Indian Scientists. In earlier years, maximum plantation areas are in the western part of Mizoram. Mandarin orange used to be a major fruit crop in Mizoram, covering large areas of plantation, generating good income to the farmers. Mizoram oranges used to be marketed as far as Bangladesh in addition to Indian market. But due to citrus die-back disease, large area have been destroyed and declined which is called 'Sertam' in Mizo.

Today, as technology improves, this citrus decline problem is gradually prevented while remedial operations and measures being taken. Recently, Israel technology is being adopted in citrus plantation right from production of quality planting materials to plantation including installation and provision of drip irrigation to citrus plants; a pilot project being executed at Rulpuihlim village. With the improved technology applied, citrus plants are expected to start fruiting within three years from its plantation in the orchard.

As there never was a problem in marketing orange fruits and still no market problem even today, citrus industry in India and even in Mizoram has a very good prospect. Citrus plantation can be expanded at its maximum extent where Mizo farmers can adopt the technology of its cultivation.

Model project with costing per hectare is at annexure-V(c). It is proposed to take up 6000 hectares is 5 years by 6000 household and during 1st year 2009 – 10, 1200 hectares by 1200

households will be taken up for cultivation. Physical and Financial targets are shown at annexure – V(j).

8.5.4 Chow - chow (*Sechium edulis*) :

Mizoram is the largest producer of Chow - chow in India. The major growing areas are in Aizawl and Kolasib Districts. Many farming families are sustaining their families with the cultivation of chow chow. Mizoram climatic condition really favour its cultivation due to which the taste and flavour of Mizoram chow chow is preferable to other chow-chow produced elsewhere other than in Mizoram.

A well organised association known as 'Iskut Growers Association' is managing the marketing of chow-chow especially for outside the state consignments. Maximum consumption are in Cachar District of Assam and some quantity are also exported to Bangaldesh. Hence, there seems no market problem till date and it can be predicted that even in the near future. Therefore, it may be advisable to take-up this particular crop even in the implementation of New Land Use Policy in Mizoram.

Model project with costing per hectare is at annexure-V(e). It is proposed to take up 1000 hectares in 5 years by 1000 households and during 1st year 2009 – 10,200 hectares will be taken up by 200 households for cultivation. Physical and Financial targets are shown at annexure – V(j).

8.5.5 Arecanut (*Areca catechu*) :

Arecanut plantation is one of the important plantation programmes in Mizoram since many years back. The major growing areas are in Kolasib and Mamit Districts. There are some plantation even in Aizawl District. Mizoram climatic condition in the low lying areas are very conducive for Arecanut plantation. The fruit quality is good and fruit size is big.

There had been no market problem for Arecanut till date and demand is rather increasing year after year. Many farmers sustain their family from Arecanut and create family assets and are well established.

One major advantage of this crop is that complicate processing process is not required and the fruit by itself is ready for market. Moreover, keeping quality is good and it can withstand long distance transportation and it can be roughly handled at all level. When processing is involve and long transportation is required farmers always face problem. Therefore, this crop is recommendable for inclusion in the programme of New Land Use Policy.

Model project with costing per hectare is at annexure-V(f). It is proposed to take up 4000 hectares is 5 years by 4000 households and during 1st year 2009 – 10, 800 hectares will be taken up by 500 households for cultivation. Physical and Financial targets are shown at annexure – V(j).

8.5.6 Aloe Vera (*Aloevera Linn*) :

Cultivation of Aloevera is being taken up in Mizoram since 2007 - 2008 only at commercial scale, the major growing area being W. Lungdar in cluster manner. Aloevera is doing very well under Mizoram climatic condition. The plants are ready for harvest within two years from plantation.

Aloevera cultivation is being taken up under Horticulture Department and selected farmers have successfully cultivated this crop and now ready for extraction of Aloevera gel for market. Cultivators of this crop formed a society known as Mizoram Bio-Tech Industry who monitored their member-cultivators, leaving no room for its failure.

Now, Aloevera gel extraction machine is being installed at W. Lungdar. The first extraction of the gel will be carried out during 2009. Also there has been proper market tie-up between the Global Bio-tech, Gurgaon (Delhi) and the Mizoram Bio-tech Industry, hence market

arrangement appears to be in place and ready for take-off. As there are many uses of Aloevera gel in cosmetic Industry, pharmaceutical etc, there is bright prospect for this crop cultivation in Mizoram for the farmers.

Model project with costing per hectare is at annexure – V(d). It is proposed to take up 4500 hectares is 5 years by 4500 households and during 1st year 2009 – 10, 900 hectares will be taken up by 900 households for cultivation. Physical and Financial targets are shown at annexure –V(j).

8.5.7 Green House Farming / Protected Cultivation :

Greenhouse farming is a novelty and new introduction in the State of Mizoram. Never before greenhouse was known for cultivation of vegetables, flowers etc., but today, it has become so popular and facinated by most young educated unemployed youths. The productivity per unit area is very high and within a small area under protected cultivation, one can have bumper harvest and support family. Although the initial investment for construction of greenhouse is high, yet the advantages is that the Greenhouse can be utilised repeatedly for years together, management is easier and cost effective, while quality of products are superior to open field cultivation in addition to higher productivity level per unit area.

Therefore, to trigger incentives of educated unemployed youths, this programme can be one of the most promissing programmes under New Land Use Policy in the field of farming.

Model project with costing per hectare is at annexure –V(h)I. It is proposed to take up 1000 units is 5 years by 1000 households and during 1st year 2009 – 10 200 units will be taken up for cultivation. Physical and Financial targets are shown at annexure – V(j).

8.5.8 Tung (*Aleurites spp*)

During 1992 when NLUP was implemented, Tung had been successfully cultivated in many parts of the state. However, due to marketing problem a number of cultivators did not bother for continued maintenance of the plantation.

With the passage of time, there is now an increasing demand for tung oil, even in a state like Mizoram. RTP Enterprise, being one of the most important users of tung oil in the state, has even brought forward its desire to have market tie-up with Horticulture Department as far as this crop is concerned. This enterprise has expressed its readiness to buy unhusked tung fruit @ Rs. 8/- per kg, provided there can be Decorticating machine.

The Department therefore feels that taking up Tung cultivation under NLUP and signing Buy-back market Tie-up with RTP Enterprise would be a good option, as the conduciveness of tung cultivation in the state has already been established.

Model Project is at annexure V(g) and Physical and Financial Target is at annexure V(j).

8.6 Mulberry silk

Development of Mulberry plantation for rearing silkworm would be another approach to diversify land use system in Jhum areas and supplement the income of farmers in addition to the potential of new employment opportunities likely to be generate.

There is a vast potential for the development of Sericulture in Mizoram. The climatic condition, fertility of the soil, rainfall, etc. are most suitable for breeding of all kinds of silkworm. It may be mentioned here that India, including Mizoram is the only country where all variety of Silks like Mulberry, Eri, Muga and Tasar are commercially exploited. The gestation period from raising plantation to rearing of silkworms is hardly 1 yr. to 1½ yr. In case of Mulberry inter-cropping with other vegetable cash crops had been successfully practiced every now and then. Sericulture activities that come under village and small industries had immense potential for upliftment of rural economy in the State, to generate direct and indirect gainful employment and it is one of the most effective means to wean away the devastating Jhum cultivation in the State. In the process, the Jhumias will raise Mulberry plantation and rear silkworm through which they will have permanent and regular earning for their livelihood.

8.7 Modalities of Assistance :

Assistance will be given in kind and cash, however, understanding the economic condition of the farmers, majority being Below Poverty Line group, cash assistance will be given as far as

possible. It is envisaged that 10% will be contributed by the beneficiaries by way of family labour. The essential technical equipments will be procured by the Department and shall be distributed to the farmer when necessary. This is considered necessary to avoid misutilisation of fund by the farmers. The Department will ensure that any assistance either in cash or kind should reach to the actual farmer.

Keeping in view to implement the project systematically, unit cost is worked out at Rs. 1.00 Lakh per family by covering 1 Ha. of land with mulberry cultivation (An.I.) The economic of the project by Silkworm rearing, Silkworm cocoon Production and sale of those cocoons for every crop is shown at (An. II). It is estimated that the farmer can harvest cocoons 4 or 5 times in a year and fetching handsome returns within 30 days. By this way, the family can sustain their livelihood and improve their economic condition.

It is proposed to cover 8500 households in 5 years and during 1st year 500 households to be included in the NLUP. Model Project is at annexure – VI(a) and the Physical and financial target is at annexure – VI(b).

8.8 Establishment of Reeling and Twisting Facilities.

The project envisages production of 500 MT of mulberry cocoons every year once all the plantations attain full capacity. The existing Multi end reeling unit, located at Zemabawk would not be sufficient to consume the entire cocoons produced under the project. To convert these cocoons into yarn, it is proposed to establish one additional Multi end Reeling & Twisting unit with 10 basin (100 reeling ends) and 120 spindles, under Govt. sector in the project Area for training and demonstration. The location of the reeling cum twisting units would be finalized by Dos, Mizoram based on the location of production clusters. Each multi end reeling unit (10 basin) would have a capacity to produce 10 kg. raw silk per day by consuming 100 kg. green cocoons in 8 hours. It is assumed that the remaining quantity of cocoons would be sold to private buyers of the adjacent States, as practiced at present. These Reeling cum twisting Units can also function for more than one shift per day depending on the need.

Initially only one additional reeling unit will be established which can increase in accordance with the availability of cocoon. The unit will be run by the Government in the beginning and the same will be handed over to reliable private ruler / society in due cause.

The outlay earmarked for the establishment of one reeling & twisting unit is Rs. 49.22 lakhs is at Annexure-VI(c). Physical and Financial Target is at Annexure–VI(d).

8.9 Comprehensive Fisheries Development in Mizoram:-

It is estimated that Mizoram has a potential area of 24,000 hectares available for fish farming, out of which only about 10.5 percent has been exploited so far. As against this the demand of fish for the State's population of 9.45 lakh in 2004-05 was 10,395 M.T, calculated at per capita consumption of 11kg by the Fisheries Department of the state. This demand will further increase with the increase of State's population and earning capacity of the people. This in itself justifies a major investment for the required development of fisheries in the state to bridge the gap between the demand and supply, besides generating self and regular employment. Existing water bodies under fish farming in the state is 2840 hectares as per District wise details shown below:-

Table 20 : District-Wise of Fish Farming in Mizoram.

Sl. No	Name of District	Existing water area under fish culture
1.	Aizawl 'E' including Champhai and Serchhip District	446.3 Ha
2.	Kolasib	761.0 Ha
3.	Mamit	578.0 Ha
4.	Lunglei	343.2 Ha
5.	Saiha including Lawngtlai District	711.5 Ha
	Total:-	2840.0 Ha

Apart from the available water bodies as above, there are more than 40,000 unexploited WRC plots or land. These available unexploited WRC land can form a sizeable fishery resources towards comprehensive fisheries development of the state.

8.9.1 Present Scenario, Strategy and targets for production of table size fish and fish seed.

The basic aim of the Department is targeted towards augmenting the production level of the state to meet per capita requirement of 11kg of table size fish as per yardstick laid down by North Eastern Council (NEC) within a period of 7-10 years. Thereby, it is further aimed at

settlement of the existing Jhumia families in fish farming venture permanently in order to bring an end to the devasting practice of jhum cultivation.

With the per capita requirement stated above, the state required 11,176 M.T of table size fishes against the projected population at the end of 2007-08. The available resource of 2840 Ha in the pond culture sector and 6000 Ha in the Riverine sector could produce only 3750 M.T annually offering 3.7kg per capita leaving a shortfall of 7.3kg. With the passage of time and increase in population, the state would require about 16,000 M.T against the projected population at the end of 2014-2015. Therefore, with average productivity rate of 2 M.T per Ha, almost 6000 Ha – 6500 Ha of new water body have to be brought under fish farming.

In respect of fish seed production, the Department is producing merely 2.0 million fish seed against the requirement of 28.4 million annually with the available seed production facilities in the Department. The rest of the requirement of seed is generally met from the private seed farms located within Mizoram and Assam. Therefore, a serious need is felt for developing seed farms in the private sector to meet the present and future fish seed requirement from the state itself. Therefore, the development strategies are aimed at:-

(i) Creation and development of new water bodies for fish farming and integration of Giant freshwater prawn in feasible areas.
(ii) Augmentation of unit area productivity though modern and improved technology of fish farming.
(iii) Supply of input such as lime, fish seed, Prawn PL, fish feed including nets and gears to the farmers.
(iv) Development of new fish seed farms with hatchery in the private sector to meet the increasing fish seed demand.

(v) Development and establishment of marketing network for effective marketing of table size fishes produced locally and to offer remunerative price to the fish producers.
(vi) Disseminating technical knowhow of modern and improved method of fish farming to the farmers through training and demonstration.

8.9.2 Activities to be adopted under New Land Use Policy programme

With the above strategies, the Department is planning to adopt the following activities in the state of Mizoram for comprehensive development of Fisheries over a period of 5 years with effect from 2009-2010 in a phase manner under New Land Use Policy programme:-

- ❖ Creation of 6000 Ha of new water bodies covering 3000 families for intensive fish farming.
- ❖ Polyculture of carps and Giant freshwater prawn in 1000 Ha of new pond from the aforesaid 6000 Ha of new water bodies so developed in the comparatively warmer zone of the state.
- ❖ Supply of 1st year inputs such as lime, fish seed, Prawn PL, fish feed, prawn feed including nets and gears to the beneficiaries families covered under the programme.
- ❖ Establishment of 8nos of fish seed farms (District Level) including hatchery with a production target of 8-10 million fry for each seed farm to meet the present fish seed requirement and requirement of the new water body created under New Land Use Policy programme.
- ❖ To develop 10nos of Mini Ice Plant and 40nos of fish transporter in private sectors by arranging subsidy to the tune of Rs.5.00 lakh per unit for Ice Plant and Rs.4.00 lakh per unit for transporters (specially designed LCV with required insulated boxes and other accessories).
- ❖ Demonstration and training of all the beneficiaries covered under the programme for 10 days (in two phases of 5 days each) in line with the provisions and patterns of National Fisheries Development Board. Requirement is Rs. 160.00 lakh

The unit cost for creation of new water bodies, supply of input, establishment of seed farm will be in line with the unit cost under Fish Farmers Development Agency (GOI). For seed farm with hatchery, the requirement is Rs. 102.40. In order to maximize the benefit from New Land Use Policy programme, model schemes for intensive fish farming and polyculture of carp and prawn are furnished under Annexure-VII(a) and VII(b) respectively. Physical and Financial target for intensive fish farming and polyculture is annexure –VIII(C). There is also necessity of infrastructure, facilities like Ice Plant, Transport and also Capacity Building through training and demonstration for which the physical and financial target is at VIII(d).

TABLE 21 : Quantum of assistance in kind proposed to be adopted under the programme

1.	Slaked lime (for both intensive and polyculture	100kg per unit
	RCD	
2.	(a) Intensive farming	20.0 M.T per unit
	(b) Polyculture	1.0 M.T per unit
3.	Vermicompost (only for polyculture)	0.5 M.T per unit
4.	Urea (intensive farming only)	0.6 M.T per unit
5.	SSP (intensive farming only)	0.48 M.T per unit
6.	Micronutrient(intensive farming only)	0.024 M.T per unit
7.	Fish seed (fry)	
	(a) Intensive farming	30,000 nos per unit
	(b) Polyculture	25,000 nos per unit
8.	Prawn PL (polyculture only)	20,000 nos per unit
9.	Fish feed	
	(a) Intensive farming	0.7 M.T per unit
	(b) Polyculture	0.6 M.T per unit
10	Nets and gears	
	(a) Dragnet 100'x15' of 2" mesh size	1no per unit
	(b) Hand net 30" dia	2nos per unit

8.10 Animal Husbandry

TABLE 22 : The tentative break up of trades under Animal Husbandry is as follows:

Sl No	***Animal Trade***	***Beneficiary Families***	***Animal per beneficiary***	***Total animals required***	***Model Project Cost***
1	Pig rearing	18000	7 piglets	126000	*Annexure-VIII(a)*
2	Dairy	870	2cows	1740	*Annexure-VIII(b)*
3	Layer	1900	150 chicks	285000	*Annexure-VIII(c)*
4	Hill cattle	150	10 cattle	1500	*Annexure-VIII(d)*
5	Sheep/ Goat	150	50 goats/sheep	7500	*Annexure-VIII(e)*
6	Broiler	790	200 chicks	158000	*Annexure-VIII(f)*

TABLE 23 : The requirement of animals and the present production capacities is given below:

SL No	Species of Animal	Animals required under AH & V (for entire project period)	Animal required under other Dept for subsidiary trade	Total Animals required	Present production Capacity	Additional capacity required
1	Dairy	1740	-	1740	-	1740
2	Pig rearing	126000	69000	195000	7500	187500
3	Hill cattle	1500	-	1500	-	1500
4	Sheep / Goat	7500	-	7500	-	7500
5	Layer	285000	-	285000	264000	21000
6	Broiler	158000	-	158000	-	158000

8.10.1. Requirement of Piglets :

As can be seen from the above, not taking into account the present demands for piglets and chicks, the demands under NLUP is 195000 piglets. The present AH & Vety Farms have a production capacity of 7500 piglets during 5 years. Therefore, in order to meet the requirement, an additional capacity for producing 187500 piglets r is required. Taking the norm of 16 piglets per sow per year, additional capacity of 2344 sows needs to be created. Therefore, an additional capacity of 1200sows unit farm may be established under NLUP by improvement /up gradating of existing farms in all 8 districts of Mizoram.

TABLE 24 : Proposal for Improvement/Upgradation of existing pig farms by setting up of 150 SOW units in 8 District.

SL No	ITEM OF WORKS	Nos Of UNITS	UNIT COST (Rs in Lakhs)	AMOUNT (Rs in Lakhs)	REMARKS
1	Construction of House For breeding sows stock and Grower piglets	8	63.18	505.44	Pig house for 150 breeding sows and grower piglets to be constructed.
2	Purchase of Breeding stock	8	15.00	120.00	Good quality breeding stock is to be procured.
3	Equipment	8	2.00	16.00	Feeding and watering equipments.
4	Operational cost for 4 years	8	68.40	547.20	Operational costs include cost of feeds and labour.
5	TOTAL		**148.58**	**1188.64**	

8.10.2. Animal Feeds :

The success of the NLUP much depend upon the availability of good quality animal feed. In order to meet the present demand of feed and the expected increase in demand, projection have been made as follows:-

TABLE 25 : Feed Requirement under NLUP :

Sl No	Species of Animal	Feed Required Under NLUP For 5 yrs (MT)	Feed Required Under NLUP For one year (MT)	Present Annual Demand (MT)	Total annual Demand (MT)	Daily Demand Projected (MT)
1	Dairy	1905	381	29461	29842	81.76
2	Pig rearing	71820	14364	241503	255867	701.00
3	Layer	11371	2274	38543	38117	104.43
4	Broiler	5688	1138	38543	39681	108.71
	TOTAL				363507	995.90

Feed Requirements :

The above table shows the projected requirement of animal feeds for Mizoram for a period of one year which is 996 MT. This is inclusive of the present demand in the state.In the meantime, the Department already owns a Feed Plant of 50 MT with the production capacity of 15000 MT per year of 300 working days. However, the Feed Plant is also catering to the requirement of the existing animals. It may be also mentioned that private parties are also selling animal feeds in the state and that NLUP beneficiaries will be producing their own home grown local feeds. Therefore, in order to meet the additional requirement of feed, the installed capacity will have to be increased by another 500 per day. This is expected to meet 50% of the concentrate feed requirements of the state.

It may be noted that more than 90 % of the feed ingredients comes from outside the state. In order to encourage local production of feed ingredients and for their own consumption, NLUP beneficiaries will take up maize cultivation up in the 2 HA of land to be allotted to each beneficiary family, as income generating crop, as maize constitute a large proportion of pig and poultry feed. Rice polish and broken rice also form an important constituent of animal feeds. Production of these is expected to increase significantly with the increase in rice production under NLUP.

One aspect worth exploring is the enrichment of locally available feed materials and waste products such as orange peels, passion fruit waste products etc. If this can be done successfully , it will significantly lower the cost of feeding the animals, and consequently bring down the price of the end product, ie milk meat and eggs, to the level affordable by the common people. It is understood that countries in South East Asia, like Thailand have adopted indigenous method of local feed enrichment. Effort may be made to replicate this by studying their method and organizing study tour for the concerned officers.

In order to give the project sustainability, it is suggested to hand over the Feed Plant to a private party in Private Public Participation mode, as it is the experience that Government run enterprises tend to get overstaffed and under used for various reasons.

The present location of the Feed Plant is too small to accommodate the proposed 500 Mt Plant. Therefore, the Plant may be set up at Department land at Selesih, where there is sufficient land available.

TABLE 26 : Proposal for establishment of Feed Plant to 500 MT capacity to be funded under NLUP.

(Rs in lakhs)

SL. No	ITEM OF WORKS	1styear	2ndyear	Total
1	Land development	15.00	-	15.00
2	Plant Building (Capacity500MT/day)	200.00	-	200.00
3	Rawmaterialgodown (15000MT capacity)	250.00	-	250.00
4	Finnishedproductsgodown	30.00	-	30.00
5	Drying house	30.00	-	30.00
6	Labour shed	25.00		25.00
7	Machineries, Including weighbridge		250.00	250.00
8	Water and Electricity		50.00	50.00
9	Revolving fund for procurement Of raw materials		100.00	100.00
10	Manpower Development (study tour to SE Asia)	10.00	-	10.00
	TOTAL	560.00	400.00	960.00

8.10.3. Establishment of Breeding Units :

In order to encourage production of piglets in the state and not depend on outside sources, and in order to bring down the price of piglets and pork, another proposal is made to establish Breeding Farms in each CD Block of the state. The Beneficiary Family selected for Pig Breeding Farm will be provided fund for construction of semi pucca Pig house, 29 Nos good breed of piglets including 1 breeding boar, and concentrate feeds for one year till the sows start producing.

Mizoram has a total of 26 Community Development Blocks. It is proposed to establish one such unit in all the Blocks. This will ensure that piglet iseasily available in a all the villages of Mizoram.

This project will be taken up by progressive farmers who will contribute 20 % of the cost while the Government will contribute 80 % of the cost. The proposal may be tabulated as under:

TABLE 27 : The Project Cost contribute from Govt. and Beneficiairies.

(Rs in lakhs)

SN		*CAPITAL EXPENDITURES*	*Amount*	*Govt Contribution*	*Beneficiary Contribution*
A	1	Construction of farrowing pen @48 sq ft per animal for 29 breeding Sows @ Rs160/sq ft	2.00		
	2	Construction of breeding boar pen for 1 boar 48 sq ft @ Rs 160/ sq ft	0.10		
	3	Construction of piglet box	0.50		
	4	Utensils & appliances	0.50		
		Total of A	**3.10**	**2.50**	**0.60**
B		RECURRING EXPENDITURES			
	1	Cost of foundation stock of good breeding 30 piglets @ Rs 10,000.00 / piglet	3.00		
	2	Cost of feed for 1 year for30pigs calculated at 570 kg/pig @ Rs 20/ kg	3.00		
	3	Veterinary aids and vaccines	0.50		
		Total of B	**6.50**	**5.20**	**1.30**
C		LAND DEVELOPMENT& WATER HARVESTING			
	1	Clearing and land development for cultivation of Animal feeds, such as maize, tapioca, pumpkin etc	1.00		
	2	Construction of water harvesting tank	1.00		
		Total of C	**2.00**	**1.50**	**0.50**
		GRAND TOTAL	**11.60**	**9.20**	**2.40**

There are 26 CD blocks in Mizoram, hence the total cost will be:

Cost of 1 unit Rs 11.60lakhsX 26 CD Blocks = Rs 301.60lakhs.

Summary :

Three projects have been submitted to be funded to complement the NLUP project. The rationale for such projects is, to render the main NLUP to be successful, much supporting role is to be played by the Department. Hence, the need to increase the piglet production potential of the state as well as animal feed production potential of Mizoram. It is expected that the boost in productionof piglets will make easy availability of piglets which will bring down the cost of piglets and expected to lower the cost of meat to 10 – 15 % of the present cost. Additionally, cultivation ofmaize will de encouraged which will increase local production of animal feeds, and also be a means of earning cash by the farmers, and do away with the dependency from other states.

The proposals can be summarized as follows:

8.10.4 Pig Farms:

The Department is having pig breeding farms in all 8 (eight) districts with capacity to produce 1500 piglets per year. It is proposed tp improve upon all the 8 farms uniformly, cost structures being as follows:-

1.Construction of pig house	Rs	504.44 lakhs
2.Purchase of breeding stock	Rs	120.00 lakhs
3.Equiptment	Rs	16.00 lakhs
4.Operational cost	Rs	547.20 lakhs
Total	Rs	1188.64 lakhs

Once operationalised, these farms will produce about 7000 piglets per year and production may start from the second year 2010-2011. This will bring total piglet production to 8500 piglets per year and meet about 50 % of the requirement, the rest coming from that produced by the beneficiaries.

The total requirement is Rs 1188.64 lakhs for eight farms and requirement for the first year is Rs 520.44 lakhs and the remaining amount of Rs 667.20 lakhs may be released in the 2nd year 2010-11.

8.10.5 ***Feed Plant :***

Presently, the Department is having 50 MT capacity feed plant which fall short of the states requirement .Once NLUP is implemented, there will be an additional requirement of 363507 MT per year. In order to meet this demand, the Department proposes for establishment of 500 MT capacity at a cost of Rs 950.00 lakhs to be completed in two years. The cost structures is as follows:

1.Constuction od Plant building, Godowns		Rs 535.00 lakhs
2.Machinery and equipment		Rs 300.00 lakhs
3. Manpower development &Training		Rs 10.00 lakhs.
4.Revolving fund		Rs 100.00lakhs
5.Land development		Rs 15.00 lakhs
	Total:	Rs 960.00 lakhs

8.10.6 Pig Breeding Units :

Beneficiaries will be identified in all CD Blocks to take up Pig Breeding Units. The cost of establishing one Unit is Rs 10.59 lakhs. The total cost is:

1.Cost of one Pig Breeding Unit	Rs 11.60 lakhs
TOTAL for 26 Blocks	Rs 301.60 lakhs

GRAND TOTAL:

Pig Multiplication Farms		**Rs 1188.64 lakhs**
Feed Plant		**Rs 960.00 lakhs**
Pig Breeding Units		**Rs 301.60 lakhs**
	TOTAL	**Rs 2450.24 lakhs**
	SAY:	**Rs 24.50 Crores**

(Rupees Twenty four Crores) only.

Physical and Financial target in respect of Livelihood developmental activities is annexure – VIII(g). Physical & Financial target for infrastructure is at annexure – VIII(h).

8.11 Development of Forest :

It is worthwhile to reiterate that amongst the priority areas, NLUP gives top most for environmental protection and aims at keeping 60% of Mizoram total land area under rain forest.

As per the Forest Survey of India's inventory carried out in 1988-89 the Bamboo stock in Mizoram is assessed at 12,950.75 (000) MT and the annual yield being 3237.689 (000) MT, while the annual consumption of bamboo for domestic purpose was estimated at 28.315 (000) MT, thus leaving an annual surplus of 3209.374 (000) MT for industrial and trade purpose. North Eastern States contributes 67% of the country's Bamboo stock and Mizoram alone contributes 14% of the country's growing stock of bamboo with about 9,210 sq. km (49.10%) of the geographical area of 2,1018 sq. km of the State.

Bamboo-sector development is a high priority thrust area of the State Government and Government of India. Thus there is a need to promote bamboo development for the benefit of rural sector.

Bamboo sector development in the State bears immense potential in alleviating poverty in rural areas as Bamboo raw material supports variety of cottage industries, agro-based industries. Bamboo shoot processing units, besides being a substitute to timber, forms a value added products that is in demand in Western countries. In order to promote commercial cultivation of Bamboo for the benefit of rural poor, high yielding thick walled bamboos need to be raised in farmer's sector on crash basis.

8.11.1 Objectives:

a. To encourage commercial cultivation of Bamboo in the farmer sector as a source of sustained income.
b. To increase productivity of bamboo, ensuring sustained supply of raw material for cottage industries, Bamboo shoot processing units, for value added export items and as substitute to wood in-constructional activities.
c. To rehabilitate the traditional jhum cultivators on a sustained productive farming through Bamboo cultivation for improving their Socio-economic condition.
d. To minimize pressure on forests for timber by producing big thick walled Bamboos for constructional purposes.

8.11.2 Mode of Operation:

a. One family can take 2 ha. Bamboo Plantation

b. Bamboo Plantation Project can be operated during 5 years period only. If the project is proposed to be implemented during 10 years, the operation can be repeated.
c. The National Bamboo Mission adopted rate of Plantation per ha for Rs 25,000, hence, financial outlay for creation of 1 ha plantation is based at Rs 25,000.
d. As spacing of the Bamboo Plantation is 5x4 mtrs apart, cultivation of other Agriculture/Horticulture crops like vegetables, fruit crops like papaya, passion fruit, medicinal plants, Turmeric, Sugar cane, Banana, Soya bean, Ginger, cereals, mulberry and fodder plants for dairy development etc., can be suitably cultivated as mixed crop. Inter cropping is possible and necessary to generate income for the farmers to supplement their income during gestation period. Accordingly provision made for mix cropping in the project model. From the third year onward, the bamboo plants would have attained such height and clump dimension that there would not be any space for other crops.

8.11.3 Site Selection:

Site selection shall preferably be made with the help of Environment & Forests Department and Land Revenue & Settlement Department. Plantation sites shall be identified mainly in accessible areas such as road sides and river banks where harvesting and transportation will be easy. Private land holders can take up bamboo plantation in their own land whereas the landless shall be allotted such plantation land on lease as per modality worked out by the State Government.

8.11.4 Raising of Bamboo Seedlings:

The bamboo farmers do not have adequate technical know-how on raising of quality planting material. In order to maintain uniformity in raising the seedlings, the Environment & Forests Department shall be entrusted to take up bamboo nurseries by selecting quality bamboo species, and the appropriate fund may be set aside for this purpose.

8.11.5 Expected Returns:

Under the cultivated conditions Bamboo is quite remunerative, as rhizomes will mature in the 3rd year itself, while seedling origin crop will be ready for harvesting from 5th year onwards. On an average 5 culms per clump would be available on maturity. One hectare of plantation with 500 nos. of clumps will yield around 2500 numbers of mature culms from 5th year onwards giving a return of Rs. 1,00,000/- per hectare per year for about 30 to 50 years till

flowering. The sale rate of mature bamboo is reckoned at no less than Rs. 40/- per culm after meeting harvesting and tending expenses. Farmers will earn more income once the Bamboo based industries are set up for value addition items like manufacture of reconstituted wood, floor board and penal products etc. During the gestation period of 1-2 years farmers can earn additional income by growing vegetables, fruit crops like papaya, passion fruit, medicinal plants, Turmeric, Sugar cane, Banana, Soya bean, Ginger, cereals, mulberry and fodder plants for dairy development etc., within the interspaces. Maintenance cost of Bamboo clumps after maturity is practically negligible excepting cleaning of unhealthy, broken and damaged culms at the time of harvesting. Due to least maintenance expenses bamboo cultivation on commercial lines is quite remunerative.

Model Project for plantation (2 hac) is at annexure – X(a). Physical and Financial Target is at annexure – X(b).

NLUP attaches utmost urgency for afforestation and preservation of bio-diversity to reverse the existing trend of deforestation mostly caused by Jhum practices. Jhum burning accounts for a very high percentage of gas emission when every year rain forest in almost 2 lakhs acres of land area is cut down and burnt. NLUP programme focused on eco-friendly activities, preserving green forest and through programme of bamboo plantation would aim at further increasing the forest cover. Main objective of Bamboo Plantation as below :

i) To increase productivity
ii) To introduce varieties of bamboo suitable for industrial use.
iii) To improve granaries and forest coverage.

Bamboo occurs as a lower storey in evergreen, semi-evergreen forests along river banks and grows profusely in abandoned jhum lands. It occurs pure in bamboo-brakes. In pursuance to NLUP objectives the existing bamboo resources within the notified forests and outside in government lands and jhumland and Village Council areas shall be managed on scientific lines, keeping in view the end use, socio-economic need of local people and industrial need. Bamboos within notified forests shall be managed as per approved management plan keeping in view sustainable forest management principles in association with local village communities {under JFM (Joint Forest Management) concept}.

Villages with more than 50% of bamboo resources will be designated as Bamboo Village for promotion of bamboo based industries. Technology is now available to use bamboo for production of timber substitute for furniture, housing material and other industrial purposes. It is worth mentioning that Mat Ply made of bamboo has been extensively used for Tsunami victim of Andaman & Nicobar Islands.

Forest Department has taken a project for tree plantation in degraded jhumland with project duration 2003-2012 with funding from Additional Central Assistance at estimated cost of Rs. 76.05 crores. The genesis of the project is the increasing pressure on forest land owing to jhum practices and the resultant burning of precious bio-mass, release of gases like carbon dioxide/chlorine, degradation of forest, loss of productivity, siltation reservoirs/rivers and ultimately increased environmental hazards. This project envisage regeneration of forest resources including bamboo plantation targeting an area of 30,000 hectares. **A total area of 22000 hectares of bamboo plantation under NLUP will be created in the next 5 years** by Forest Department in addition to state Forest Department's on going plantation of 30,000 hectares under a special project called "Artificial Regeneration of forest and Bamboo Plantation" which is in progress since 2003-2004 to increase forest cover and to replenish the bamboo resource depleted owing to gregarious flowering. In 2009-2010, 4000 hectares will be taken up on pilot basis. Physical and Financial target in respect of Forest Department iis at Annexure-X(b).

8.12 Soil & Water Conservation Department :

One of the objectives of the NLUP is to promo eco-friendly activities through generation of forest based resources particularly Non-timber Forest Produces (NTFPs), like bamboo grass etc. In the programme of Soil & Water Conservation Department, Bamboo grass Plantation has been taken up as an items activity for commercial purposes enabling the farmers to generate income as such produces have assured markets. Soil and Water Conservation Department will take up plantation of Bamboo broom. Soil & Water Conservation Department also proposes to include in NLUP plantation of a) Rubber b) Coffee and c) Broomgrass. Brief Description and feasibility aspect is as below :

8.12.1. ***Rubber Plantation*** :

Rubber Plantation has a great potential of more than 50,000 ha in the low elevated area of less than 1000 ft, mostly on the northern, western and southern parts of Kolasib, Mamti,

Lunglei and Chakma Districts bordering Cachar district, Tripura and Bangladesh. It enjoys warm humid climate with well drained Soil and fairly well distributed annual rainfall of around 2000mm. The plantation will be done on compact area approach as far as possible to facilitate better common processing units.

The estimated expenditure excluding common processing units, road network in plantation areas, irrigation facilities etc. for planting and maintaining 1 ha. at the prevailing labour rates works out to be Rs. 1,05,791.00 plus Rs. 10,000.00 as Administrative cost for a spread of 6 years immaturity period as indicated in Annexure-I. Accordingly, the project has a total outlay of Rs. 3173.73 lakhs for Group planting of 3,000 ha (3000 families) and its maintenance for a spread of 8 years i.e. each year creation maintained upto 5th year.

As discussed the matter with Rubber Board officials on 21.5.2009, it is proposed to be tied up with Rubber Board assistance that will be released by the Board after the works are done each year for a period of 6 years. For funding the project, Rubber Board will contribute planting subsidy of Rs. 30,000 ha. plus Rs.5,000 for bamboo fencing as follows :

Year	***Planting grant***	***Cost of Planting materials***	***Transport grant***	***Fencing subsidy***	***Total***
1st Year	5,500	4,000	1500	5000	16,000
2nd Year	4,000	-	500	-	4,500
3rd Year	3,000	-	500	-	3,500
4th Year	3,000	-	500	-	3,500
5th Year	3,000	-	500	-	3,500
6th Year	3,500	-	500	-	4,000
TOTAL :	**22,000**	**4,000**	**4000**	**5000**	**35,000**

Over and above the subsidy rendered by the Rubber Board, the remaining cost of Plantation and maintenance for 6 years will be borne by the State Government. Yearwise phasing of planting programme is indicated in Annexure-II. 500 ha will be created in the first year, 1000 ha created in the second year and maintained 500 ha created in previous year; and 1500 ha created in the 3rd year and maintained 500 ha and 1000 ha created in previous years and so on. Each year creation will be maintained upto 5th year and there would be a spillover to 12th

Plan. Excluding Rubber Board assistance, the State Govt. contribution towards the plantation will be- Rs. 214.315 lakhs for 500 ha. creation in first year; Rs.481.780 lakhs for 1000 ha creation and 500 ha. maintenance in second year; Rs. 792.275 lakhs for 1500 ha. creation and 1500 ha maintenance in 3rd year and so on as in Annexure-II and when all 3000 ha. are created and maintained upto maturity i.e. 5th year in each case, the total expenditure by the State Govt. will be Rs. 2123.731 lakhs.

During the gestation period of about 6 years, short duration Cash Crops like Banana, Pineapple, papaya, soyabean etc. as per the choice of growers will be done for their subsistence. Necessary inputs like planting materials, fertilizers etc. are to be procured from the nearest sources with the help of Rubber Board in the initial years. Bud wood and Seedling Nurseries will be established with the help of the Board for future needs.

8.12.2 Coffee Plantation :

Arabica Coffee has a good potential in the State where elevation is between 1000 ft. – 3500 ft but due to hilly terrain, aspect of the land, altitude, and good shade play a crucial role for successful growth of Coffee. Due to site and location specificity, it is difficult to have large contigous piece of land in a compact area. Nevertheless, a good no. of rural farmers had been assisted by the Coffee Board and the State Govt. since the past years, it is considered appropriate to consolidate the already planting areas of Coffee for a successful plantation by individual farmers.

The estimated expenditure for Creation and maintenance upto 3 years for 1 ha. at prevailing labour rates work out to be Rs. 1.00 lakhs plus Rs. 0.10 lakh as administrative cost (Annexure-III). The scheme for 1000 ha. (1000 families) has been drawn up with the total outlay of Rs. 1,000.00 lakhs plus Rs. 100.00 lakhs as administrative cost (Annexure-IV). 200 ha will be created at the cost of Rs.89.10 lakhs in first year; 300 ha created in 2nd year with 200 ha. maintenance from previous year creation at the cost of Rs. 178.31 lakhs; 500 ha creation in 3rd year with 500 ha. maintenance from previous year creation at the cost of Rs. 319.44 lakhs and so on. Coffee can be mixed with Black pepper very well for subsidiary income. Poultry/Pig rearing can also be done as a subsidiary trade.

8.12.3 Broomgrass Plantation *:*

Broom grass can be cultivated in the whole State even though the growth an productivity are found to be better on the lower altitude. It can grow well on marginal lands and degraded

waste lands but its plantation would be focused mainly along the National and State Highways on both sides. It serves as a good soil binding plants and useful for roadside protection and stabilization besides producing brooms of high economic value. The flowering cycle is about 8 to 10 months and hence, within a year broom can be harvested but the production increases with advance in growth. The tender leaves after harvest can be used as cattle feed and the stems can be sold to Paper Mills too.

The cultivation is simple and easy to manage, no highly scientific management is required.

The estimated expenditure for planting and maintenance of 1 hectare at the prevailing labour rates works out to be Rs. 1.00 lakhs plus Rs. 0.10 lakh as Administrative cost (Annexure V). A Scheme for 5,000 ha. (5000 families) has been prepared with the total outlay of Rs. 5,500.00 lakhs (Annexure VI). Creation and maintenance will be completed within 5 years as 1,000 ha. in first year at the cost of Rs. 350.90 lakhs; another 1,000 ha. created in second year and maintained 1000 ha. created in previous year at the cost of Rs. 1100.00 lakhs; 1500 ha. each created in 3rd & 4th year while maintaining each previous year's creation.

Besides broom grass, soft wood like bombax ceiba etc. will be planted at about 30 – 40ft interval. This will provide for plywood, match sticks, softwood planks etc. in the years to come. Drying shed for quality drying will also be provided.

8.12.4 Sustainability of the Schemes.

(Forward & Backward Linkages)

(1) All above schemes have a product of non-perishable items, low volume, high cost and long storage capacity without damage and assured market.

(2) All schemes are environmental friendly and promotes good afforestation and handsome income – viable alternatives to jhuming.

(3) A well maintained rubber plantation of 1 ha. can produce on an average 1000Kg – 1500 Kg rubber sheets annually. At the prevailing rate of Rs. 90.00 per Kg, this can fetch Rs. 90,000 – Rs. 1,35,000/- income annually. This can be supplemented with bee keeping also.

(4) Similarly, a well maintained Coffee Plantation of 1 ha. can produce 8-10 quintals of clean coffee annually. This at the prevailing rate of about Rs. 100/Kg can fetch Rs.

80,000 – Rs. 1,00,000 anually. The plantation can be mixed with black pepper of high value spices.

(5) Broom is required every household, poor and rich, everywhere. 1 ha. plantation has been estimated to produce dried broom grass flower for broom stick about 1100 Kg, 15,00 Kg, 1,00 Kg in the first, second and third year of planting. At the current sale rate of Rs. 30/Kg, the equivalent monetary values will be Rs.33,000, Rs. 45,000.00 Rs. 1,23,000 respectively. Softwood plants will add economic income at maturity also.

Model Project for Rubber is at Annexure-IX(a) for coffee at Annexure-IX(b) and for broomgrass is at annexure IX(c). Abstract for yearwise physical and Financial target is at annexure IX(d).

8.13 Micro Enterprise Sector :

Micro Enterprise Sector has a potential to generate employment and income both in urban and rural areas. Success in such activities however largely depends on selection of beneficiaries and their performance. Moreover it is also necessary to ensure that such products or services should be market driven. Necessary skill formation and training is also a pre requisite for success of such activities. Industries deptt. has taken into account all such relevant factors into consideration in working out the model projects in various fields like carpentry, black smithy, shoe repairing, electronic repairing, bakery cane/bamboo works etc. A modest programme covering 500 beneficiaries in 2009-10 and in all 6500 beneficiaries are targeted for 2009-2015.

In NLUP Micro-enterprises in various trades/industries have been incorporated targeting 500 beneficiaries in 2009-10 and a total of 6500 beneficiaries in five years 2009-10 to 2014-15. Financial assistance for capital investment, capacity building and other requirements which are worked out at around Rs. 1,00,000/- for each beneficiaries. However such beneficiaries will need skill formation in their chosen trade/industry and for this purpose funds provided under CSS/Swarna Jayanti Sahari Rojgar Yajona(SJSRY) can be converged towards skill formation of NLUP beneficiaries, obtaining training where feasible and necessary to ensure success of such programmes. Under the component GIA (DWCUA, USEP training etc) for 2008-09 there was a provision of Rs. 172.5 lakhs. When such funds are available in 2009-

10, these amount can be suitably utilized for skill formation/training of the selected beneficiaries under NLUP where feasible.

There are as many as 28 model projects prepared by Industries Department requiring assistance for individual beneficiaries around Rs. 1.00 lakh. However only 5 specimen model projects are shown at annexure XI(a). Physical & Financial target is given at annexure XI(b).

8.14 Handloom Industry :

Handloom, a traditional activity, ingrained in the culture and skill of Mizoram women has become a brand in itself and occupies a pride of place in Mizo Society. Handloom items produced by Mizoram weavers because of quality, design and texture can fetch premium prices compared to those of other states in the North East. It is worth mentioning that Textile mills in South India have been imitating the design of Mizoram handloom products and go for largescale production. It is proposed to cover 3000 households in 5 years and during first year to cover 600 households. Model Project at Annexure – XI(c). Physical and Financial Target is at Annexure – XI(d).

8.15 Infrastructure Development for the Success of NLUP Project :

8.15.1 *Development of Irrigation Facilities :*

Out of 2,560.65 mm annual rainfall (average of nine year data from 1998-2006), 2,269.01 mm or 88.61 % of the total rainfall is received during six months from June to October leaving the remaining six months relatively dry with a mere 291.64 mm or 11.39 %. Rainfall distribution in Mizoram over the period of three crop seasons is as given below:

Kharif (June to October)	-	1,852.33 or 72.34 %
Rabi (November to February)	-	65.93 or 2.57 %
Summer (March to May)	-	642.39 or 25.09 %

It may be observed from facts stated above that while there is ample rainfall to support traditional practice of jhum cultivation, the rainfall pattern or distribution over different crop seasons does not favor intensive farming. Therefore, development of irrigation is indispensable for all-round development of Agriculture and promotion of intensive farming to attain food security.

Due to uneven distribution of rainfall over different seasons, irrigation facility is required by most of the crops viz. **field crops** like Rice, Maize, fodders etc., **plantation crops** like

orange, Assam lemon, mulberries, etc. and other **cash crops** like tea, coffee, red Oil palms, etc. It is a fact that irrigation facility is basically required for successful implementation of various schemes under Agriculture & Allied Sector being covered by NLUP; therefore, Minor Irrigation Schemes will have vital role to play in implementation of NLUP.

Planned scheme of minor irrigation development was started in 1985-86 when separate Annual Plan was formulated and a separate fund allocation for Minor Irrigation Schemes was provided in the State Budget Estimates for 1985-86. Since then, 9,522 ha of land had been covered by Minor Irrigation Schemes/projects 62 Minor Irrigation Projects are being completed to cover another 2,769 ha. Present status of minor irrigation development in Mizoram State is as as below:

Table 28 : The present status of Minor Irrigation is as below :

SN	Name of Distirct	Geographical area (Ha)	WRC Potential Area Ha)	Area covered by Minor Irrigation			
				Completed	On-going	Total	% from Potential Area
1.	Mamit	302,575	20,182	1,155	236	1,391	6.89%
2.	Kolasib	138,251	9,429	1,681	632	2,313	24.53%
3.	Aizawl	357,631	4,140	993	431	1,424	34.40%
4.	Champhai	318,583	8,697	2,301	540	2,841	32.67%
5.	Serchhip	142,160	3,710	1,192	166	1,358	36.60%
6.	Lunglei	453,800	12,797	1,131	365	1,496	11.69%
7.	Lawngtlai	255,710	11,405	660	317	977	8.57%
8.	Saiha	139,990	4,284	409	82	491	11.46%

Minor Irrigation Programmes :

As already mentioned about 9560 families are having WRC with an area of 11,000 hectares. More than 90% of them have no irrigation facilities. Total potential area for irrigation is 74,644 hectares Of this only 9522 hectares has so far been brought under irrigation leaving an area of 65122 hectares to be covered.

AIBP: Main funding source for Minor Irrigation Schemes is Accelerated Irrigation Benefits Programme – **AIBP.** Since 1999-2000, 186 minor irrigation schemes/projects have been taken up under Accelerated Irrigation Benefits Programme (AIBP) and the present status is as briefly stated below:

Table 29 : **Status of Minor Irrigation programmes taken up since 1900-00 under AIBP programmes is as below :**

SN	Particulars	Total Cost (in crore)	No. of Project	C.C.A (ha)	Potential creation (ha)	Year of inclusion under AIBP	Present Status (February, 2009)
1.	AIBP-I	5.4290	10	738	738	1999-'00	Completed
2.	AIBP-II	3.1230	4	309	309	2001-'02	Completed
3.	AIBP-III	10.4070	20	558	1370	2003-'04	Completed
4.	AIBP-IV	26.6700	43	1535	3105	2004-'05	Completed
5.	AIBP-V	42.7021	47	2058	4250	2006-'07	Completed
Sub Total : Completed Projects		**88.3311**	**124**	**5198**	**9772**		
6.	AIBP-VI	24.0530	22	1020	2019	2007-'08	Being completed
7.	AIBP-VII	43.3095	40	1749	3636	2007-'08	Being completed
Sub Total : On going Projects		**67.3625**	**62**	**2763**	**5655**		
8.	AIBP-VIII (not started)	78.7465	73	3361	6638	2008-'09	To be stared in 2009-10
Grand Total		**234.4401**	**259**	**11328**	**22065**		

Under AIBPVIII 73 projects are already sanctioned at a cost of 78.74 crore to potentially create 6638 hectares and the projects are posed to be started in 2009-10. These AIBP-VIII Projects (73 nos) are in the pipeline and therefore may be implemented with a view to cover the Agro-horticultural activities of NLUP programmes for optimizing the benefit to farmers.

In order to support the NLUP programme projects under AIBP – VIII amounting to Rs. 78.74 crores is included the NLUP programmes to be impleted tin 3(three) years. List of the Project with details showing physical and financial target is at annexure – XII.

Identification of areas for minor irrigation will focus on proximity to proposed terrace system and permanent farming areas. To ensure optimum benefits, representatives from Soil, Agriculture and Horticulture Deptt. to go as a team under the guidance and supervision of Principal Secretary/Agri production commissioner, Agriculture Deptt.

8.15.2 Road Network and AgriLink Road :

a) National Highways & State Roads :

i) Road Construction activities in Mizoram started from 5th five year plan mainly and taken up by the State PWD and Border Roads Organisation (BRO). The total length of all type of road in Mizoram as on 31.3.2008 is 5980. 87 km and road density is 28.36 km per 100 sq. km while BRO look after national highways, the state PWD construct and maintain state roads connecting satellite towns and villages and also in selected areas construct and maintain internal road of villages, town and Aizawl city.

ii) Govt. of Mizoram availed World Bank loan for Mizoram state road project of Rs. 474.8 crores and by the end of 2008-09 expenditure amounts to Rs. 473.80 crores. This project is scheduled to be completed in 2019-10. Another project called Mizoram State Road Project (EAP) at a cost of Rs. 19085.00 lakh is proposed to be taken up during 11th plan (2007-2012).

b) Pradhan Mantri Gram Sadak Yojana (PMGSY) :

PMGSY is an Anti-Poverty Programme focusing on providing new connectivity to unconnected rural habitation with population of 250 and above for hilly areas. Programme envisaged covering habitation as below :

Habitation with Population 1000 volumn	:	32
Habitation with Population 500-999	:	104
Habitation with Population 240-499	:	115
Total	**:**	**251**

Approximate length for connecting the above habitation is 2618.50 km and the progress as on 31/12/2008 is construction of 1981 km covering 126 habitations.

Apart from PWD and BRO, Rural Development Deptt has also taken construction of road in border areas and a few areas have been covered to take care of Agro-horticultural farm are along the border. Rural Department targeted 59 km a cost 182 lakhs and work is likely to be completed by 2009-2010.

c) Construction of Agriculture Link Roads :

While these network of National Highways, State Road and also the PMGSY roads have largely improved the quality of life of people including many rural areas, there is

need for Agri Link Road to connect the prospective farm areas to benefit the farmers. Increased developmental activities of Agri-horticultural and agro-forestry sector in a hilly terrain like Mizoram underlines the urgent need of a network of Agri Link Road to connect the potential areas for intensive farming. Moreover such a network of Agri Link Roads would facilitate easy and timely procurement of various inputs and transportation of crops for marketing or storage. Construction of link roads connecting the strategic locations and hub of cluster farm areas is an important infrastructure component of NLUP programmes. It is proposed to construct Agri Road covering all 750 villages categorizing villages on strength of households as below : Household 250 & below 5 km, 251 – 500 households 10 km, 500-1000 households 15 km and above 1001 households 20 km. It is estimated with matching contribution in the form of labour, it will be possible to construct all weather truck Agri Road (without pavement) at a cost of Rs. 15.00 lakh per km. Total km to be covered for 750 villages is worked at 5720 km costing Rs. 85800.00 lakh for 5 years and requirement for first year is 17100 lakhs. Estimate for Office Building etc costing Rs. 5.00 lakh each and Rs. 7.50 lakh each is at annexure XII(a). Physical and Financial Year-wise target at annexure – XII(b).

8.15.3 Tele-Communication Facilities :

a) Coverage of tele-communication in the rural areas is important for boosting the rural economy. Tele-communication development under Bharat Nirman Project has been taken up in big way which will be of great help in implementing NLUP programme also. Status of different services as below will indicate the coverage of areas.

Table 30 : Status of Different Services in Tele-Communication in Mizoram :

Name of District	No of BTS/Exchange			Capacity of Exchanges			No. of connection as on 31.3.2009		
	WLL BTS	LL Exch.	Total	WLL BTS	LL Exch.	Total	WLL BTS	LL Exch.	Total
Aizawl	5	8	13	3250	3792	7042	2377	2476	4853
Lunglei	7	7	14	5250	2312	7562	2412	2240	4652
Kolasib	4	5	9	2500	2704	5204	1485	1206	2691
Champhai	5	3	8	3750	1144	4894	2083	967	3050
Serchhip	2	4	6	1500	1936	3236	1056	1331	2387
Saiha	1	4	5	750	976	1726	606	867	1473
Mamit	4	2	6	3000	496	3496	1477	365	1842
Lawngtlai	2	2	4	1500	1872	3372	495	1208	1703
Total	**30**	**35**	**65**	**21500**	**15032**	**36532**	**11991**	**10660**	**22651**

Rural Tele density as per 2001 Census	:	5.06%
Urban DEL	:	46608
Urban Tele Density	:	10.5%
Overall Tele Density with Fixed Telephone	:	07.79%
Overall Mizoram Total No. of connection (LL+WLL+Moble)	:	159552
Overall Tele density of Mizoram	:	17.96%

b) Broadband Facilitates :

Broad Band Facilities are made available at the following places :

1. Aizawl	2. Durtlang	3. Sihphir	4. Thingsulthliah
5. Seling	6. Lunglei	7. Serchhip	8. Champhai
9. Kolasib	10. Mamit	11. Saiha	12. Lawngtlai
13. Vairengtee	14. Kawnpui	15. Lengpui	16. Khawzawl
17. Chhingchhip	18. Chhiahtlang	19. Baktawng	20. Thingdawl
21. Bilkhawthlir	22. Lungdai	23. Zobawk	24. Saitual.

The installed capacity is 4824. The number of connecting provided are 2074.

8.15.4 Water Harvesting System :

Along with Minor Irrigation facilities there is an urgent need of water harvesting system to support NLUP. Check Dams/Earthen Dam can be suitably constructed to collected and store surface water from small streams and rivulets. A water body of a reasonable size will generate moisture retention and strength water recharging system at the sub soil level. Inspite of plenty of rains, at present, due to hilly terrain rivers and other water sources are usually dry, in winter leaving no scope for irrigation. A better water management system needs to be introduced to harvest rain water. It is therefore proposed to put up at least 5 water harvesting system in each of 750 villages at a cost of Rs. 10.00 lakh each. Farmers would contribute 20% by way of labour. Net expenses worked at Rs. 30000.00 lakh for 5 year and during 1st year 2009-10 is Rs. 6000.00 lakhs. Cost of Construction per Unit is at Annexure – XVI.

8.15.5 Rural Electrification Programmes : NLUP seized of the urgency of providing Rural Electrification as micro, household and cottage level industries in rural areas can only

he successful if there are uninterrupted supply of Power. NLUP envisage large scale production of Agro-horticultural produces, spices and also non timber forest produces (NTFP) like Bamboo, Broom Grass. In the village and household level there will be scope for value audition, a few instances of which may be as below:

1) Drying of ginger and turmeric and disposal of such dried, value added produces at the village itself when prospective buyers or companies under contract farming system to collect such produces from the village.
2) Increased production of Bamboo and Broom grass under NLUP may facilitate value addition by way of bamboo chips and making of Brooms within village and buyers collect such bamboo chips and broom from the village.
3) Other micro enterprises like Carpentry, Blacksmith, Cottage Level Power loom industries etc. are also likely to flourish over a period of time requiring availabilities of power.

In view of farmers switching over from Jhum practices, there will spring up new farm houses where they will need power for lighting. There is scope for micro/Pico hydel system with 5kw/10kw capacity and also solar lighting. In addition to domestic requirements such facilities may also contribute to irrigation.

Micro/Pico hydel power may meet the need of primary processing units in Agri related industries.

The power generation scheme for rural areas as planned by the Government of Mizoram may suitably be converged to take care of such micro/village level enterprises.

In pursuance to Rural Electrification policy of the Government of India, Mizoram Govt. has prepared Rural Electrification plan at an estimated cost of Rs.647.67 lakhs. This plan according to R.E policy, aims at interalia, at electrification of all households, free connection to all BPL households, electrification of all un-electrified villages, intensification of electrified villages, strengthening of rural power not works, power source for rural areas etc. These are targeted under following subject:

1) *Village Electricity Infrastructure (VEI)* : This aims of electrification of 137 nos un-electrified villages, intensification of 570 nos. electrified villages, electrification of all

44334 households including BPL households, free connection to 27417 no of BPL households, IAY, etc.

2) *Rural Electricity Distribution Backbone (REDB)* : This aims at strengthening of rural power network by setting up 33kv sub-stations at various places where required, to shorten 11kv lines.

3) *Decentralized Distributed Generation (DDG) :* This aims at setting up of small scale generation source in the remote rural areas where grid power could not reach effectively and reliably.

The plan envisage electrification 137 of un-electrified to villages as shown (district wise) as below:-

Aizawl	-	11	Mamit	-	7
Lunglei	-	22	Kolasib	-	5
Lawngtlai	-	68	Champhai	-	9
Saiha	-	15	Serchhip	-	NIL

Installation of Hydroger : As already mentioned with increased farming activities there will spring up farm houses in large numbers in the outlying areas. Since the emphasis is on cluster area development, there is every likelihood of the growth of nucleus centres of processing activities like bamboo chip units, Aloe vera & Tung processing units and fruit juice units etc requiring power generation of various capacities ranging from 200 watts to 3000 watts. To meet such requirement it is proposed to set up 330 untis 5 years at the rate of 66 units every.

The total cost is worked out at Rs. 7.26 crores to be spread over 5 years.

Detailed of the cost alongwith capacities is at Annexure – XII(c). Physical and Financial Target is at Annexure – XII(d).

8.15.6 Setting up of Processing Unit : At present one processing unit for passion fruit juice concentrate unit is operation in Mizoram. Main features of the processing unit is as below :

Table 31 : Main Feature of Juice Processing Unit :

SN	Name of the Project	Total Cost (in lakhs)	Capacity
1.	Chhingchhip Juice Concentrate Plan	375	1. Juice concentrate of Passion Fruit = 400 MT pa 2. Juice concentrate pineapple = 200 MT pa 3. Juice concentrate orange = 100 MT pa 4. RTS of Pineapple, orange & Passion fruit = 500 MT pa.
	Total		1200 MT per anum

NB : 1MT of Passion Fruit Juice concentrate requires 20 MT of Passion Fruit.

Traditionally Mizoram produces a large quantity of ginger every year and very often farmers suffer due to sharp fall in prices and being perishables farmers are compelled to resort to distress sale. Of late owing to a special scheme a large area has been brought under turmeric cultivation and there is a projected production of 1.00 lakh MT of green turmeric. It is apprehended that like ginger growers, the turmeric growers will also face a severe marketing problem.

This problem can be substantially addressed if the produces can be dried and value added in Mizoram itself as would make marketing easier and thereby ensuring remunerative prices to the farmers.

It is therefore, considered necessary to set up 'Biomass De-hydration units for drying turmeric and ginger in six strategic locations namely i) Khawzawl, ii) Lawngtlai, iii) Lunglei, iv) Serchhip v) Kolasib and vi) West Phaileng. Total project cost for these six De-hydration units would amount to Rs. 1162.82 lakhs. Abstract of the cost component is at annexure – XIV(a) and profitability statement at XIV(b).

8.15.7 Setting Up of Tissue Culture Laboratory : At present Mizoram is depending on National Seed Corporation (NSC) for procurement of quality seed. Since cropping pattern in current jhum lands needs to be changed, Tissue Culture Laboratory needs to be set up to identigy appropriate and quality variety for local conditions and similarly putting up seed modification farms in selected places. It is therefore proposed to set up one Tissue Culture

Laboratory targeting development of quality and Mizoram specific seeds within 2 years time. A provision Rs. 75.00 lakh is included for the year 2009-2010 and 2010-2011.

Detailed of the project cost is at annexure XV. It is planned to complete the work in two years and commission the Laboratory by 2011-2012.

8.15.8 Rural Godown : It is essential provide for Rural Godown in each village for storage, packing, grading etc. of produces raised by the farmers as community common facilities. It has been worked out to plan construction of such godowns as below covering 750 villages.

Capacity		No.		Cost
50 MT	:	310	:	9.00 lakh
100MT	:	220	:	20.00 lakh
200 MT	:	220	:	40.00 lakh

Total requirement of funds for 750 godowns as above is Rs. 15990.00 lakh and requirement for 1st year 3189.00 lakh.

Cost of construction at annexure XVIII(a) and Physical and Financial Target yearwise is at annexure – XVIII(b).

8.15.9 Power Requirement Under NLUP Project : Presently, P&E Department is waiting "In Principle, approval of Viability Gap Funding (VGF)" for Tuivai Hydro Electric Project (210 MW) from Department of Economic Affairs (Ministry of Finance) to be executed on PPP mode. If executed, the principle for this will be 51% in the equity ratio of private and 49% for Government of Mizoram. The gestation period of the project is 6 years. This project may be converged to meet the power requirement of NLUP in due course. The Department has accordingly planned to cover the rural areas with focus an NLUP beneficiaries. The cost of the project is Rs. 1499 crore (2007 price level). Mention may also be made that other projects for which DPRs available for Tuivawl (42 MW) costing Rs. 379.95 crore(2008 price level) and Tuirini (38 MW) costing Rs. 259.97 crore (2007 price level) hydro electric project may also be taken into consideration to meet partial requirement of the NLUP scheme.

Probably load forecast of Power demand under NLUP is 50 megawatt.

However, in the interim period till power schemes under VGF take effect in order to meet immediate requirement of NLUP beneficiaries, the Government of Mizoram may apply enhancement of entitlement of power share from Ministry of Power from share of Central Power Generating Project to the tune of 50 MW.

8.15.10 Banking Facilities : Primary Banking institutions like State Bank of India, Mizoram Rural Bank (sponsored by SBI) have a good network of Bank Branches throughout the State. In addition Banks like Panjab National Bank (PNB), Vijaya Bank, Central Bank etc. are also operating in certain areas.

While State Bank of India have 60 branches covering all 8 Districts, Mizoram Rural Banks has 60 branches covering all 26 RD banks and prominent locations in the outlying areas.

It is proposed to open accounts in the name of all the beneficiaries as per NREGS model which is found to be very effective in Mizoram. In fact both the SBI and Mizoram Rural Bank have volunteered to function as Bankers for NLUP Project. These Bank may also organize Mobile Banking where necessary.

8.15.11 Micro Credit : In order to generate income during gestation period of the projects, it is proposed to take up micro-credit scheme for all the beneficiaries where gestation period is more than 12 months. In addition farmers who want to take up activities to supplement income form the main project, they shall also be covered.

The concerned banks engaged in micro credit schemes will prepare model project for each village in consultation with VDC and the line departments involved in the project.

The banks will also take up training of all the beneficiaries regarding various aspect of how to maintain bank accounts. They have also indicated that will not charge any commission as transaction fee.

8.15.12 Satellite Remote Sensing and GIS for NLUP : The pre-requisite of any natural resources based developmental activity is to prepare accurate spatial database. With the advent of Remote Sensing Technology and Geographic Information System, it is possible to prepare detail maps of various natural resource themes and integrate them to generate

spatial and non-spatial information which would be an important database for various developmental activities. As the Government of Mizoram is launching New Land Use Policy (NLUP) in a better way for the upliftment of the people, it is felt necessary to prepare scientific database for land use planning for utilization in the implementation of NLUP and other developmental activities.

Objectives :

(i) Generation of thematic outputs relating to Climate, Drainage and surface water, Watershed, Slope and Altitude, Geology and Geomorphology, Ground water, Land Capability, Land Use Land Cover, Soil, Transport Network and Settlements; and other socio-economic profiles.

(ii) Integration of thematic outputs in GIS environment, and generating sustainable land use plan which would provide spatial and non-spatial database for New Land Use Policy and other developmental activities.

(iii) To make the land use plan maps available for the users at various levels.

8.15.13 Data and Method

High Resolution Satellite Data Quick Bird (0.8 m resolution)/World View (0.5 m resolution) and Cartosat – I (2.5 m resolution) satellite data will be procured from NRSC Data Centre, Hyderabad. Ancillary data including past records/reports/maps collected from various sources will be used for reference and collection of primary data. Various field information necessary for assessing and validating the accuracy of the maps prepared will be carried out through ground truth collection.

8.15.14 NLUP Portal/Website :

Implementation of NLUP Programmes involve coordinated action with different Governmental and Non-Governmental organization, constant need of inter action amongst various stakeholders and timely discrimination of information at various levels of implementations to ensure efficiency, transparency and service delivery. A considered that a web portal/website will be of immense help for implementation of NLUP Programmes.

1. The objective behind the website is to provide a single window access to the information and services being provided by the department. It coaters to a wide range of audience and stake holders right from common citizens, government departments

and corporate sectors, national and international media and general public across the world.

2. Besides, one can find Government Tenders, Documents, Policies, Forms, Schemes, Maps, Performance Report etc. on the portal.

Setting up of such a portal will involve a total expenses of Rs. 6.60 lakhs. Details at Annexure –XX.

A portal/website development project is appended as a separate project.

Dedicated telephone : in addition to website a dedicated BSNL Landline also will be installed to meet the urgent need of all stakeholders and beneficiaries.

8.15.15 Processing Units for Fruits, Tung and Bamboo :

NLUP programmes envisage large scale production of fruits like Passion fruit, orange, pineapple etc. It is considered necessary to set up processing units for village addition at the value level and transport so such semi processed items to Industrial Estates for the end product. It is estimated one such semi-processing unit of village level may involve cost Rs. 5.00 lakh per unit. Such semi-processing units may be set up in 200 villages requiring 1000 lakhs.

Moreover there is a need for putting up two processing units for processing of Tung adopting Chiness technology as NLUP beneficiaries who took up such activities earlier now are about to raise a big harvest of such crops. Such processing unit is estimated at a cost around Rs. 200 lakh per unit and thus approximately requiring Rs. 400 lakh for 2 units.

Bamboo processing unit for bamboo chips etc will have a great scope for value addition and income/employment generation. It is proposed to set ukp 6 units on pilot basis @ cost of Rs. 100.00 lakh(Rs. 1.00 crore) per unit for 6 units in 5 years.

Setting up of these processing activities as above would require in all Rs. 2000 lakh (Rs. 20.00 crore).

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CHAPTER – 9

PROJECT IMPLEMENTATION

Programmes envisaged under NLUP are to be implemented by the concerned line departments of the State Government through the designated Implementing Committee like District Implementing Committee etc. Funds earmarked for such programmes will be allotted to line departments for release of required funds through the District Implementing Committees as per the requirement as decided by the District Committee in consultation with the Village Development Association/Village Development Committees.

The Project period will be spread over 5 year progressively covering all eligible farming community members launching various various livelihood activities as envisaged in the project. The Project will involve people's participation with active involvement of NGOs like YMA, MHIP and various designated agencies like Village Development Committee and other functionaries. The role and responsibility of the individuals and the organizations would be defined to the extent possible..

In order to implement the programme it will be necessary to ensure that the farmers get necessary training and also extension services so that they can take up the activities under the professional guidance of the experts. It will therefore be necessary that right from the beginning the stress should be on developing human resources base and also providing for necessary inputs in time for efficient management and successful implementation of the programmes. Therefore, these activities will initially improve recruiting of project staff of all the participating agencies, study tours to provide exposure to practical examples of participatory development and community institution building. Thereafter, the communication will be on mobilization of the communities, orienting them to the underlying principle of the project, involving them in the micro-planning process for formulation of the village plans and building the capacity of the community institutions to manage the project activities at the village level.

The emphasis should also be given on laying foundation for future investment through expanding nursery and seed production capabilities, producing communications, extending

and training materials, designing demonstration programmes and drawing up guidelines for execution of the various programmes as envisioned in the project.

9.1 Community Mobilization :

The Village Development Committees will be responsible initially for bringing communities to the point for full participation in the project. Against a background of dependency and growing economic stratification within communities, the Village Development Committees will need to bring about a change of altitude towards a willingness on the part of the Villagers to participate in improving its livelihood based on the principles of self-reliance and to address equity issues and assist more disadvantaged members. For this purpose an awareness campaign will be launched to familiarize the Village Development Committee members and also the farmers the scope and purpose of the schemes and how their active involvement is required to make such programmes a success. After such awareness campaign the farmers will encouraged to voluntarily make on undertaking that they will adhere to the following :

- ensure that the benefits will accrue to the marginalized groups and resource poor households in the community;
- involve all sections of the community (and in particular women) in formulating the development plans for the village;
- constitution of a Village Development Committee by the Government for Implementation of the programmes as per guidelines to be issued in the matter.
- establish transparent management and accounting procedures open to inspection by the community;
- contribute voluntary labour as stipulated in scheme to the implementation of development activities; and
- be responsible for the operation and maintenance of community assets created under the Project.
- Farmers may be required to make an undertaking that on availing benefit from this schemes, they will not revert to jhum cultivation for their livelihood.

9.2 Project Management :

The project will have a 4 tier management system for review and monitoring of the progress as would ensure proper implementation of the scheme as planned as below

State Level

i) NLUP Apex Board : There will be a high powered committee called NLUP APEX BOARD headed by Chief Minister with Council of Ministers, Commissioners/Secretaries of concerned Departments and experts/prominent citizens. This will be the policy making authorities having power to approve plan programme, allotment of funds and also overall supervision of the implementation of the programmes.

ii) NLUP Implement Board : Next to APEX BORAD, there will be NLUP IMPLEMENTATING BOARD with Vice-Chairman of the NLUP APEX BOARD as the Chairman with the heads of department of concerned line Department, experts, prominent citizens and representative of prominent NGOs. The NLUP Implementing Board will earmark funds to line departments and ensure implementation of the schemes. NLUP Implementing Board with the help of Monitoring cell working under them will monitor progress at regular intervals, commission teams for physical review of the progress on the ground and take corrective measures on the basis of feed backs received from lower formations.

iii) District Level Committee : The thirds tier would be at the District Level where NLUP District Committee will be headed by the concerned Deputy Commissioner with District officers of the concerned departments and progressive farmers/NGOs as members to supervise and monitor the project implementation, organize training and demonstration etc.

iv) Village Level Committee :

a) This fourth tier will be the Village Development Committee (VDC) All the NLUP beneficiaries in the village will be members of VDC. The Committee will consists of 3 office bearers namely President, Vice President and Secretary and one representative each from Village Council, YMA and MHIP while strength of other members will be depending on the number of households and composition of the VDC broadly will be as follows :

Households : 250 & below	Office Bearer	-	3
	Rep. VC	-	1
	Members	-	2
	Rep. YMA	-	1
	Rep. MHIP	-	1
	Total	**-**	**8**

Households : 250-500	Office Bearer	-	3
	Rep. VC	-	1
	Member	-	4
	Rep. YMA	-	1
	Rep. MHIP	-	1
	Total	**-**	**10**

Households : 500-1000	Office Bearer	-	3	Households : 1000 & above	Office Bearer	-	3
	Rep. VC	-	1		Rep. VC	-	1
	Members	-	6		Members	-	9
	Rep. YMA	-	1		Rep. YMA	-	1
	Rep. MHIP	-	1		Rep. MHIP	-	1
	Total	**-**	**12**		**Total**	**-**	**15**

Office bearers like President, Vice President and Members will be selected through election by the members of the general body of the NLUP beneficiaries. Secretary will be a qualified person preferably from the village to be appointed by the VDC with the approval of the concerned Deputy Commissioner. The President VDC may co-opt member(s) as and when considered necessary.

VDC will be the key implementation agency at the grass root level and therefore VDC members needs to be trained up in the following functions :

i) Project Formulation, drawing of action plan & monitoring exercise of the progress of implementation.

ii) Collection of relevant data, maintenance of statistics and submission of various returns/statements.

iii) Knowledge of accounts and maintenance of cashbooks.

iv) Computer knowledge and also certain level of IT skill to improve efficiency.

In the event of urgency and or any local problems affecting/delaying election, the concerned Deputy Commissioner may constitute a “Adhoc Committee” consisting of eminent village leaders of proven merit and integrity on the advise of the concerned BDO.

b) The Village Development Committees(VDCs) for the purpose of efficient management, proper maintenance of accounts and transparency will open a Bank Account with the local available bank preferably Rural Banks. Funds released for VDCs will be credited into the account of the concerned VDCs to be handled by them as per guidelines to be issued separately.

c) Details of the modalities of the functioning of those bodies will be incorporated in the Guidelines of implementation of the programmes under NLUP to be issued separately.

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CHAPTER – 10

PROJECT BUDGET

Financial requirements for different components and sub components of the Project have been worked out on the basis of the unit costs as approved by the State Govt. Schemes will be implemented through the line departments. The total cost of each component and subcomponent has further been split into cost to be debited to the Project and beneficiaries' contribution. The break up is given in Annexure XVI and XVII summarized in Table below. The beneficiary's contribution would mostly be in the form of labour cost in case of horticulture/plantation crops component, while for sericulture, fishery, animal husbandry and bamboo components, it is proposed at a flat rate of 20 % of the component cost. A separate provision of Rs.1050.00 lakhs has also been made for project administration and monitoring for 5 years.

TABLE 32 : Summary of the Costs for Different Components Proposed in the Project (period 2009-2014) (Rs. in lakh)

SN	Component	No. of Beneficiary/ Hectare/ Unit	Govt. Contribution (in lakh)	Requirement for 1st year (2009-10)	
				No. of Beneficiary	Amount (in lakh)
A.	**Activities**				
1.	Management of Administration		1050.00		370.00
2.	Capacity Building for community etc.		5878.50		1175.70
3.	Capacity Building for Participating Agencies		83.25		16.65
	Total of A		**7,011.75**		**1562.35**
B.	**Development Component**				
4.	Development of Agriculture	31600	37600.00	5920	7040.00
5.	Development of Horticulture	28800	26850.00	5760	5370.00
6.	Development of Mulberry Silk	8500	8500.00	500	500.00
7.	Integrated Fish farming	3000	6352.00	600	1270.00
8.	Department of Soil	9000	8405.00	1700	655.00

9.	Development of AH&Vety	18860	15282.00	2060	1673.00
10.	Micro Enterprises	6500	5200.00	500	400.00
11.	Handloom	3000	2400.00	600	480.00
12	Forest (Bamboo)	10740	16393.00	2000	3053.00
	Total of B	**120000**	**126982.00**	**19640**	**20441.00**
13 *	**C. Dev. of Infrastructure**				
	i) Development of. Minor Irrigation	6638 ha	On-going Scheme under AIBP-III		
	ii) Construction of Agri. Link Road.	750 village @ Rs 15 lakh/km =3750km i) 250 houses below = 478 @ 5 km = 2390 km	35850.00	480.00	7170.00
		ii) 251 – 500 houses = 165 @ 10 km = 1650 km	24750.00	330.00	4950.00
		iii) 501 – 1000 houses = 92 @ 15 km = 1380 km	20750.00	270.00	4150.00
		iv) 1001 and above = 15 @ 20 km = 300 km	4500.00	60.00	900.00
	Total of 11		**85,850.00**	**1140.00**	**17170.00**
	iii) Processing Unit : a) Bio Dehydration	6	1163.00	1	129.00
	b) Fruits	200	1000.00	40	1000.00
	c) Tung	2	400.00	1	200.00
	d) Bamboo	6	600.00	2	200.00
	d) Reeling (Seri)	1	50.00	1	25.00
	Total of Processing Unit	**215**	**3213.00**	**44**	**754.00**
	iv) Tissue Culture Laboratory	1	75.00	-	37.50
	v) Housing for poor	800	4000.00	800	800.00
	*vi) Road network	2618	PWD Works on Progress under PMGSY		
	*vii)Tele-communication to Rural Areas (Broadband) by BSNL	Installed capacity 4824	Expansion Telecommunication net work in progress connection given upto 31.3.2009 = 2074		
	*viii)Power Supplies to Rural Areas (on going to be converged)	137 un-electrified villages are to be covered	Rs. 647.67 lakh Planned to be completed 2009-2010.		
	*ix)Power For NLUP	50 MW	Tuivai Hydro Electric Project (210 MW) costing 1499 crore already approved may be converged to NLUP Scheme in due course		
	x) Hydroger	330 watts	726.00		145.20
	xi) Rural Godown	50MT=310	2790.00		558.00

		100MT=220	4400.00		880.00
		200MT=220	8800.00		1760.00
	Total of Rural Godown		**15990.00**		**3198.00**
	xii) Water Harvesting System	750 villages 5 Nos.	6000.00		1200.00
	xiii) Pig Multiplication Farm		1188.64		594.32
	xvi) Feed Plant		960.00		480.00
	xv) Pig Breeding Unit		301.60		150.80
	xvi) Ice Plant, Transporter, Seed farm and training		390.40		70.40
	xvii) Website/porter		10.60		6.60
	Total of (C)		**1,18,705.24**		**24606.82**
	Grand Total (A+B+C)		**2,52,698.99**		**46,610.37**

* *73 projects costing Rs. 7875.00 lakhs under AIBP-III already sanctioned may be conversed to cover NLUP programmes. Thus no separate provision for funds is necessary.*

Details of Financial Allocation (Component-wise) and Year-wise Allocation (Component-wise) are at Annexure – XXI and XXII respectively.

10.1. Inter Sectoral Adjustment :

A mid-term review will be made to evaluate the performance of different sectors with regard to target realization through the prescribed mechanism of monitoring, social audit and external audit. Depending on the findings of such an assessment pointing to problem areas, inter sectoral adjustment of fund allocation can be made in favour of programmes having better potential and / or higher success rates.

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CHAPTER – 11

IMPACT ASSESSMENT

11.1 Impact at household level :

Impact of Project at household level will be quite significant as a typical family with one hectare under jhum cultivation will diversify their activities to project intervention covering other areas like high yielding crops like Passion Fruit, Oil Palm, Turmeric, Ginger, Orange etc. and even taking supplementary sustainable livelihood activities like poultry, piggery and fishery. A bare household income from the present source of jhum land is estimated at Rs. 5625 per year or Rs. 23/- per workday/man-day. Further which will drop in successive years which will drop to Rs. 51354 per year or INR 17 per work day within the next 20 years reflecting a continuing decline in the productivity of the jhum land. The benefit from the project's interventions to increase the productivity of the land are assumed to overlap with the taking up of one of the range of various indicative livelihood activities to be promoted under the project. It is estimated that the net result of the Project implementation will increase the income of a household by many folds. Returns to family labour will be above the opportunity wage.

11.2 .Economic Returns :

An analysis was done to assess the impact of the scheme. It is assessed that farmers who used to earn bare annual income of Rs 5,625 from present jhum land will now be able to earn annual gross income of Rs 80,000 from the second year by diversifying their WRC cultivation in 1 ha. of sloppy land under the NLUP scheme. Even after deducting estimated Rs 38,500 as cost of cultivation (seed, land preparation, fertilizers, PP chemicals etc) annual net income in the second year is expected to be about Rs 41,500. This annual net income is even expected to increase to Rs 80,000 in the 4th year which may further increase onwards. Highlight of economic rate of return in the proposed schemes is given in Table 33.

TABLE 33 : Economic Returns to Farmer

SN	Land Use System	Expected Annual Income		Expected Annual Income in fourth year(Rs.))	
		Gross	Net	Gross	Net
1.	Agriculture (combined)	65,000	25750	122,500	86250
2.	WRC flat land (1 ha.)	50,000	11,500	125,000	85,000
3.	WRC sloppy land (1 ha.)	80,000	41,500	120,000	80,000

4.	Horticulture	-	84,924	-	130,638
5.	Fishery	395,000	2,41,800	395,000	2,41,800
6.	AH&Vety	121,733	85431	121,733	85431
7.	Sericulture	-	-	-	100,000 (3rd yr)
8.	Micro Enterprise	238,600	57360	238,600	57360
9.	Bamboo (Veg, garden, piggery, poultry etc)	-	51,380	-	201,380

Bamboo flowering locally called "Mautam" has caused widespread devastation of agriculture resulting in famine condition in rural areas. During the Pre Mautam year 2005-06 the total production of Paddy in the State was roughly 60 % of the requirement to feed the population, three year famine consequential to bamboo flowering has shattered the economy of the farmers. Production of Paddy decreased by 44% in 2006-07 which is further drastically decreased to 81% during 2007-08 and 30 % during 2008-09. Apart from loss of food production several farmers were forced to supplement their food requirement by collecting jungle roots, leafs etc. Agriculture totally failed and hardly 10 % of the requirement of the local production could be harvested. Because of poor nutrition intake health condition of affected families deteriorated causing widespread illness of various diseases. In such conditions even their meagre hard earned income through wage earning had to be spent on medical and other unproductive purposes. The share of Agriculture & Allied sector to Gross State Domestic Product has been declining over the years and the farmers in the state are in dire distress. Now, NLUP is the only hope they have to resort to for venture out into viable business activity.

11.3 Reconstruction of rural economy :

Dependence on Jhum cultivation which has been found to be unsustainable had already retarded the growth of rural economy. The situation was further aggravated by the large scale destruction of crops consequential to gregarious flowering of bamboo requiring urgent Government intervention to rebuild the livelihood base afresh so that sustainable earning opportunities are presented to the helpless farming community. NLUP is a considered project to address the crying need of generating income and employment in the agrarian sector. The judicious mixed of agri- horticultural activities, animal husbandry, fisheries, agro-forestry including bamboo etc. is expected to increase income of the farmers on an average 3 to 5 times of their present level of income.

11.4 . Impact on Jhum practices :

Jhum practices a traditional means of livelihood though benefited the people in the past has now proved unsustainable. Apart from progressively reduced income due to land degradation, loss of soil fertility consequential to jhum cycles, such activities encroached upon forest land with possible disastrous consequences. NLUP is proposed to be launched to progressively wean away the farmers in a way from destructive jhum practices.

11.5 Impact on land holding :

NLUP proposes to to go for major land laws keeping in view customary land holding vis –a-vis villagers requirement of land for farmers and other purposes. For this, a detailed land survey will be carried out to prepare land records and also introducing permanent land tenure system which will be the first of its kind in Mizoram.

11. 6 .Impact on Industry :

Mizoram is still a non industry state though there are great potentials for setting up agro based industry, bamboo based industry and the traditional handloom handicraft activities. NLUP project proposes to launch bold and massive programme of activities in agro horticultural activities including aromatic/medicinal plants and correspondingly schemes are also proposed for setting up small scale and village level industrial units which has great potential in the State. Increased production in Agro-horticultural crops and spices like ginger, turmeric etc. could facilitate agro-based industries generating income and employment and thereby heralding economic development. The existing processing unit at Chhingchhip may operate full time with increased availability of raw materials and further necessitating setting up of more such processing units the near future.

11.7 Institutional Benefits :

Self-reliance will be enhanced at both the household and community level. The participatory approach adopted will emphasize the building of village level capacity for planning and management of village affairs and the emergence of effective village institutions capable of sustaining the development process. Provision of office building, training infrastructure, computer system, involvement of NGOs in awareness campaign. Training of farmers will largely increase productivity and thereby ensure sustainability of developmental process. The built-in mechanism of Monitoring/Evaluation and Social Audit through institutional arrangement and corresponding enhanced capacity of such institution will help project implementation as planned for target realization. The project will also have a major impact in

transforming the relationship between the government and communities in the development process through the adoption of participatory planning and implementation methods, improving the efficiency of support services and ensuring greater responsiveness to the needs and aspirations of farmers and the communities.

11.8 Environment Impact :

The NLUP project aims at retaining 60 % of the land for rain forest. The environmental impact of the project will be positive and substantial. The emphasis on forestry and agro-forestry with re-establishment of tree cover on over 10, 000 ha of land apart from 20,450 ha proposed under perennial plantations will contribute to restoration of the environment and a marked reduction in soil loss. The planting of suitable species will renew traditional sources of fuel wood, timber, NTFP, etc. protecting the remaining forest from exploitation. The introduction of improvements into the cultural practices of jhum cultivation will reduce its impact on the degradation of the environment. The water balance within the micro-watersheds, and nearby areas farther downstream, will be improved by the increased vegetative cover and use of farming techniques to increase rainfall infiltration in situ.

11.9 Introduction of Commercial Agriculture :

NLUP is aiming at commercial production of Agri-horticultural produces on commercial scale for which Mizoram has a great potential. Sustained efforts in this direction is bound to yield results.

11.10 Employment Generation :

Apart from generating livelihood opportunities in rural areas, NLUP will also promise Micro Enterprises in cottage and small scale industries would generate employment opportunities in non farm sector. Cumulative impact of such micro enterprises is expected to generate employment for 4500 families.

11.11 Impact on Overall Economy :

With community participation, and farmers' active involvement, defined role of Implementing agencies and mechanism of monitoring/social audit as built into the programmes, the agrarian sector is expected to get a major boost for development. Sustained efforts as envisaged in the NLUP programmes with focus on target realization has the potential of a catalytic impact of Transforming Mizoram Economy.

CHAPTER - 12

STIPULATIONS FOR THE CULTIVATORS UNDER NLUP AND THEIR RESPONSIBILITIES

Village Council of the villages to be included in lui NLUP activities will have to given an understanding of the Government confirming their consent for the implementation of the project in their villages. They agreed to the following position stipulations:

1. Village development Association and Village will take responsibilities for implementation of the project.

2. Beneficiaries who took up livelihood activities under 1st NLUP and were put at a disadvantage due to abandonment of 1st NLUP programmes by the succeeding Government in 2002, are to be given necessary support under the present NLUP programmes.

12.1 Families to be covered under the Project

The following bonafide Indian citizens who are permanent residents of the villages will be assisted under this programme:

1) Families who earn their livelihood from Agriculture and allied activities including Animal Husbandry.
2) Families whose members do not have regular works or employment even if they are not cultivators.

12.2 Families who may not be covered under the Project

Families whose members have permanent occupations, namely Govt. servants, permanent employees under Govt. sponsor, Corporations, Boards, Semi-Govt. establishments including deficit schools, businessmen, petty traders, registered Contractors, suppliers etc. who have permanent source of income will not be eligible under this project.

12.3 Responsibilities of the farmers

Beneficiary of the Project should abide by the following clauses and should give in writing his agreement to do so:

1) He should not utilize any part or portion of the assistance for anything other than for the purpose for which it is given.
2) Any kind of the assistance should not be handed over to another person except with the written permission of an appropriate authority.
3) Any asset, moveable, created or procured through the assistance should not be sold or given to others without the permission of the appropriate authority.
4) Before completion of the scheme under the Project, the beneficiary should not emigrate from the village without prior permission of the Government.

12.4 Penalties for Misuse of the Assistance

Any beneficiary who has misused the assistance will be penalized in any of the manner considered suitable by the including any of the following punishments:

1) He will be barred from receiving any further assistance.
2) He may be required to refund the assistance the value of which will be calculated in term of current value. In case of cash, the amount shall include interests, and in case of kind, the value shall be calculated as per the current cost of a new one.
3) If he/she fails to refund the assistance, the Government may take action as it deems fit.
4) The land settlement rules may also be suitably amended so that in case the beneficiary discontinues the activities for which this land has been allotted by way L.S.C will automatically revert back to Government and the said land may be allotted to reliable farmer by the District Level Committee on the recommendation of the Village Development Committee (VDC).

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CHAPTER – 13

FINANCIAL MANAGEMENT, MONITORING & EVALUATION

Financial Management, Monitoring and Evaluation will focus on transferency adherence to timeframe for target realization and proper utilization of funds as planned and approved by appropriate authorities. Key elements of this system amongst others will include :

13.1 Opening of Bank Account :

Bank Accounts , in the name of Village Development Committee (VDC) are be opened in any local Bank preferable Rural Bank . The Account will be operated jointly by the President and Secretary of the VCD.

Secretary shall maintain the necessary records of receipt and expenditure under this account in the manner as prescribed by the higher authorities. Before withdrawals of funds is made, there should there should be a release order of fund from the Deputy Commissioner in his capacity as the Chairman of the District Level Implementing Committee. Such request for release of fund shall be sent by the President and Secretary of VDC after such proposal and approved by the VDC. Proper accounts indicating the amount, expenditure, etc. of different components should be properly kept.

13.2 Financial Powers :

In order to exercise financial power, the Secretary of the NLUP Implementing Board is empowered by the Government to handle the fund in the State level. Secretary, NLUP Implementing Board with the approval of the Chairman NLUP Implementing Board will make necessary arrangement to send the money by Bank Draft/Cheques to the Deputy Commissioner concerned and respective Deputy Commissioners will be responsible for further disbursement and crediting the amount to the Village Development Committee's Bank Account. Any fund to be released may be discussed at the meeting of the Village Development Committee's and approval may be sought for such withdrawals. All payments must be made by cheque. For all drawals by Village Development Committee, necessary release order by Chairman District Level Committee is necessary.

13.3 Annual Release of Project Fund :

Each scheme is expected to be completed within the period(s) as envisaged in the Model Project. Release of funds will be contingent on the progress of the work and funds will be credited into the Bank Accounts of individual beneficiaries. Such Bank Account will be opened on NREGS Model to ensure transparency.

13.4 Maintenance of Records and Accounts :

There are numbers of records and accounts to be maintained by the Village Development Committee. Secretary of the VDC should carefully study the nature of these records and accounts. These records shall provide the basis for preparation of various progress reports, demand for release of funds, and auditing of accounts.

13.5 Social Auditing and Transparency :

Social auditing and transparency at the village level is a very important mechanism to minimize conflicts among community members. It also helps in empowering majority of members in the community rather than a few influential people and it improves participation of resource-poor families in the programme. In Order to facilitate transparency in the Project the following steps may be taken :-

1) Organizing several rounds of open meetings with the community at the initial stages in order to familiarize the members with the Project and its modalities.
2) A concise write-up of the project may be printed and distributed widely particularly in the villages where the Project is to be implemented.
3) All payments must be made through cheques.
4) Preparation of technical estimates for each work in consultation with the concerned users.
5) Frequent meetings of the Village Development Committee should be held to review physical and financial progress.
6) Resolution of the Village Development Committee along within their observation on various activities should be acted upon by the Village Development Committee with intimation to District Level Implementing Committee.

13.6 External Audit\ Independent Audit :

Apart from social audit there will be a system of External Audit by experts and independent agencies like educational institutions, church organization or NGOs and their assistance can be requested as and when required on payment of reasonable fees. Such agencies for third party audit will be identified by the Planning Commission.

13.7 Accountably :

For smooth operation of funds at the Village level, it is essential to evolve a proper mechanism for its accountability. For this purpose it is advisable to draw up a Memorandum of Understanding (MoU) between District Level Committee and the Village Development Committee regarding their respective roles, responsibilities and accountability.

13.8 Monitoring And Evaluation :

The degree of success of any project depends on monitoring to a great extent. Therefore, a comprehensive monitoring system has been designed. A separate Cell has been created for this purpose at each level of administration namely Village, District and State, and their working modalities spelt out.

13.9 Village Level Monitoring Cell (VLMC)

There are 8 Administrative Districts and at the headquarters of District there shall be a monitoring cell. This monitoring cell will function under the guidance of the State Level Monitoring cell in the office of NLUP Implementing Board. Members of the District Level Monitoring cell has be appointed by the Government. The number may be less or more according to the size of the village. The members of the VLMC will be as follows :-

1.	Chairman	-	Any other officer designates by the D.C
2.	Convener	-	One of the members of the VDC.
3.	Members (three)-		Three member from any of the following organizations – (a) V/C (b) YMA (C) MUP (d) MHIP (e) Local Church Organization.

13.10 Functions of the VLMC :

1) Every VLMC will monitr the implementation of schemes taken up in the village. VLMC may work out their own system of working to ensure regular monitoring and distribute work of site visits as considered necessary.
2) VLMC shall visit all the families within its jurisdiction at least once in three months to see the conditions at work site.
3) Every family will be given a Beneficiary Card indicating names of the Head and other members of the family, size of the schemes, assistance to be given and the amount already received, etc. VLCM will write their observation in card.

4) VLMC will carry a separate form where they write down the conditions and status of each scheme/ farm during their visit. Using this form they will compile their report. Every month they will submit a report on the farms visited by them during the month. The report should be submitted to the following during the first week of the next month. i) SLMC ii) DLMC
iii) Village Development Association (2 copies).

13.11 Verification of individual farmers :

Before visit to the work site the programme should be communicated to the farmer. It is important that the farmer himself is present during the visit. While it is necessary to inspect how much he had achieved against the target, and how well has he utilized the assistance so far and so on, it is equally important to find ways and means of helping the farmer and give him useful advise. It should be remembered that this is an important function of the Monitoring Cell. The following points may be five importance :-

1. Is the Detail Plan (Scheme) of the farmer suitable for the farm in terms of the nature of the land, soil and climate ? Whether the works that has been done are according to the Plan ?
2. Whether the assistance he had received and what had been utilized together with his own contribution (if any)are tallying with the works done ? Whether the assistance was utilized as intended in the Plan ?
3. Whether the works done are of good quality or satisfactory ? Whether the seeds/ seedlings/piglets are of good quality ?
4. Is there any need to modify or change the original Plan ?

The Cell will follow up quickly and take necessary actions on whatever problems detected and render assistance needed as an outcome of their visit. They will communicate any important information or issues requiring decision to the Village Committee, District Level Committee, State Level Committee.

13.12 Meeting on Monitoring :

There will be a monthly meeting of the Village Development Committee. They will review what have been done and chalk out future programme. They will consider the reports received from all the farmers occasionally within their jurisdiction and / or Self-help Group and discuss issues relating to monitoring and other development issues.

13.13 District Level Monitoring Cell (DLMC) :

There will be a separate and distinct body called District Level Monitoring Cell at the District Headquarters in addition to the District Level Implementing Committee which is the apex body of the project at District Level. The members will be as follows :-

1. Chairman	-	Deputy Commissioner
2. Member Secretary	-	District Level Officer from any line Department.
3. Members	-	Four members from outside the Govt., each of whom is having a good reputation and known to be honest, trusted by general public. Representive from NGOs like YMA, MHIP, AMFU and Church Organisation has to be taken.

13.14 Functions of DLMC :

DLMC shall visit all worksite of prominant programmes and all the villages in a quarter. In addition they may visit about five individual farms selected at random in each village. All the members may make field visits together as a team as far as possible. When the whole team cannot go at a time, they may split the work amongst 2 or 3 teams for the purpose of monitoring. They will record their abservation and give report to the SLMC.

They will have a monthly meeting to review the reports received from the VLMCs and their own tour notes/reports.

13.15 State Level Monitoring Cell (SLMC) is in the Office of NLUP Implementing Board:

State Level Monitoring Cell (SLMC) will be constituted by the Government.

13.16 Functions of SLMC :

They will make field visits as a team. They will visit all the District Headquarters and have meetings with District Level Implementation Committee (DLIC) and District Level Monitoring Committee (DLMS) once in three months. They will also visit Village Development Association Offices and Village Development Committee also some individual farmers at

their farms with or without prior information. They will keep record of what they see and will take follow up actions.

They will have a meeting at least once in a month. They will have a review and discussion on what they saw during their visits and on the reports received from VLMCs and DLMCs. They will take necessary actions on any matter for the success of the Project.

13.17 Auditing of Accounts :

As all the Village Development Associations are registered under Societies Registration Act, their accounts are to be audited. This is mandatory. The Nodal Department will arrange for Auditors.

13.18 Evaluation :

It will be necessary to have Terminal Evaluation of the Project. Concurrent Evaluation will not be necessary if the monitoring system is effective. It will be desirable that evaluation is done by a department other than the implementing department. Directorate of Economics & Statistics may be one good candidate for such a job. It will be advisable to have an in-depth discussion to evolve success criteria and other issues of the Project. It may be better to associates some professionals in the matter, experts, leading citizens and university teaches in the task of evaluation.

It will be advisable to start evaluation soon after the project is commissioned and evaluation is completed within in 1 (one) year. The reports of such evaluation will be useful for more effective implementation of the on-going schemes or new schemes yet to be taken up, if any.

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CHAPTER - 14

MARKETING OF AGRI-HORTICULTURE PRODUCES SPICES, FOREST & FOREST RESOURCES

14.1 Introduction

Developmental Programmes for Agri and allied sector targeting welfare and empowerment of farmers **need a built-in market plan to ensure remunerative prices for their produces.** Thus Marketing concept oriented to protecting farmers' interest envisage **a holistic approach addressing the whole gamut of critical issues like (a) crop selection (b) categorization of crops for local markets to progressively reduce dependence on imports and (c) increased production of non-perishable high value/low volume products** having comparative/competetive price advantages for commercial purposes. **Core elements for protecting farmers' interest in such a market plan would constitute access to (a) remerative markets, (b) provision of Cold Storage/Pack House facilities to increase shelf life of crops, (c) transport assistance and in extreme cases** (d) supporting the farmers' through **Market Intervention Scheme (MIS) or Minimum Support Prices (MSP)** with the help of the Central Government and Organizations like NAFED, NERAMAC etc.

14.2 Mizoram Produces & Scope of Marketing :

The agricultural crops like ginger, turmeric, chilli, passion fruits, oranges, pineapple, tung oil medicinal, herbs, forest produces like Bamboo, broom cane etc are the greatest agricultural strengths of Mizoram. Dry Chilli is one of the specialities of the state of Mizoram. It is not only greatly in demand within the country but also in great demand in Middle East Countries. There are many exporters in the southern region and especially Hyderabad who are always in search for good quality Dry Chilli for export purpose. Even within the state the price of chilli fluctuates greatly during the season and off season times. The price of chilli increase from Rs. 60 kgs to around Rs. 120 kg in the off season time in the state. The bird's eye chilli a rare species grown only in the hills of Mizoram has great demand and sold at a premium price in international markets.

The export market in the state has huge potential. With proper development of infrastructure and motivation of the **farmers there can be great scope for huge revenue generation**

from the various produces of the agricultural sector. Crops like Passion fruit, Grapes, Chilli etc have huge demand in various neighboring and European countries. Grapes and passion fruits are also demanded in huge quantities in the European countries.

14.3 Exim Policy and Prospect for Export Promotion : Though, initially largely depending on markets within the country, it is necessary to explore export markets abroad for many items for which North Eastern States have certain advantages. Liberalization of trade in pursuance to Exim Policy of the Government of India would facilitate embarking upon ambitious programme of export promotion with the assistance from APEDA. In this regard it is worthwhile to mention that MoU with Myanmar encouraging border trade and Ganga treaty with Bangladesh has the potential of restoring the erstwhile transit routes and market with far reaching implications. New concepts have began to excite the international imagination with vision for South Asia Development triangle including Eastern and North Eastern India & neigbouring countries and proposed Trans-Asian Railways and Asian High ways**. In short India's Look East Policy opens up an immense opportunity for the North East.**

While a major trust needs to be given to access markets within the country, initiative needs also to be taken to explore access to emerging inter-national markets for produces like Ginger, Chilli, Passion Fruit, Cavendish, Banana etc.

14.4 Trade with Myanmar & Present Status of Trade Centres :

In view of the economic liberalization initiated by the Government of India in 1991 the Government of Mizoram decided to take new initiatives to start trading with Myanmar on a larger scale. The Government of India realized the importance of developing bilateral trade with Myanmar and also with the other South East Asian Countries. Therefore, in consonance with its declared 'Look East' policy, necessary measures have been initiated to facilitate promotion of formal trade centre with Myanmar. **Work in progress for development of Indo-Myanmar Border Trade at Zokhawthar**, Champhai with an estimated cost of Rs. 7.00 crore. Out of this, Rs. 520.62 lakh was approved and Rs. 200.00 lakh released on Composite Land Customs Station at Zokhawthar. Subsequently, Rs. 422.08 lakh was allotted for construction of the said building.

Land measuring 18.40 bighas in area was acquired at a cost of Rs. 7,44,260.00 for construction of the Composite Land Customs Station. The Indo-Myanmar Border Trade Point at Zokhawthar Rih sector was opened on 31.1.2004 by the Hon'ble Minister of Commerce of the Union of Myanmar. As per the agreement between Government of India and Union of Myanmar signed on 21.1.1994 customary exchange of locally produced commodities are made to prevail. Twenty-two items are included in the list of items which can be freely traded under this agreement.

14.5 Kaladan Project :

Government of India has conceived an ambitious project to develop a trade route between India and Myanmar along Kaldan river. The proposed trade route aims at providing the land locked North Eastern State access to seas so that apart from International Trading, Goods could be transported by passing Bangladesh and 'Chicken Neck' Siliguri land corridor to other destinations like Kolkata and Vishakapatnam. A separation note on Kaladan Project as obtained from Trade & Commerce is at Annexure III.

14.6 Processing Units :

Processing activities having bearing on marketing as would absorb marketable surplus though important is still at a nascent stage. Chhingchhip processing plant with MIFCO has now taken new initiative to process passion fruit, pineapple etc.

A joint venture project on Bamboo processing called Venus Bamboo Processing Unit at Sairang was set up. This processing unit is facing various problems and could not yet start operation. Present status could not be ascertained.A note will be submitted later.

14.7 NLUP & Marketing :

In line with the objectives of New Land Use Policy(NLUP) of the Government of Mizoram, and in the background of emerging trend within country and abroad, the thrust of the Marketing Plan, amongst others may be as below :

i) ***To take action for identification and introduction of high value crops linked to availability of markets both within the country and abroad.***

ii) ***To take action necessary for creating reliable marketing outlets within the country and abroad for the disposal of Agro-horticultural produces, spices, forest and forest resources of Mizoram at prices remunerative to the farmers.***

iii) ***To take initiatives necessary for accelerated development and promotion of export trades from Mizoram initially aiming at Bangladesh, Myanmar and Middle East Countries.***

iv) ***To take in necessary actions to establish food processing industries in public, private, joint venture and cooperative sectors for value addition and absorbing marketable surplus.***

v) ***To take initiatives for immediate development of physical marketing infrastructures like cold storages, pack houses etc. in public, private, joint venture and cooperative sectors.***

vi) ***To make efforts to secure transport subsidies/incentives under Market Access Initiatives of the Government of India for the carriage of horticulture/agriculture produces.***

vii) ***To make efforts to create a Data-Based Marketing Intelligence Network through Electronic Media for promotion of agriculture marketing.***

viii) ***To initiate basic quality control measures such as cleaning, sorting, grading, packaging and marking/labeling for Agriculture produces meant for marketing outside Mizoram.***

ix) ***To educate farmers on post-harvest technologies and on techniques of enhancing shelf life of agri-horticulture produces.***

x) ***To encourage organic production in a phased manner to become competitive in world markets for selected crops fetching premium prices.***

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CHAPTER – 15

FUNDING FOR NLUP/ASSESSMENT OF GAP IN THE SOURCES OF FUNDING AND SCOPE FOR CONVERGENCE

15.1 Source of Funding :

Fund for NLUP may be drawn from different sources, namely Normal Central Assistance, Additional Central Assistance and other sources like NBM, NABARD, Commodity Boards, Ministry of Environment & Forests, Rural Development Ministry, NHM and from the Credit Guarantee Fund for MICRO AND SMALL ENTERPRISES under the Development Commissioner (MSME), Govt. of India. Fund will be distributed among the executing departments/agencies on prorate basis with the approval of the Apex Board. Generally up to 10% of the fund for NLUP may be utilized for administrative cost of NLUP Board.

When the proposed NLUP came up for discussion in the meeting with 13th Finance Commission on 24th April, 2009 at Aizawl, the Chairman 13th Finance Commission evinced interest and suggested that a copy of the project may be sent to them also for their examination with a view to supporting the project.

15.2. Gap in the Source :

15.2.1 Horticulture Department :

A Study was made to identify the schemes presently under implementation in different departments which are funded from other sources including CSS to work out the gap in the sources and avoiding duplications. The programmes proposed to be taken by the departments under NLUP are carefully chosen to avoid duplication. However, Horticulture Department has included programmes in 3 crops namely Madarin Orange, Grapes and Aloe Vera simultaneously being taken up under Technology Mission (TM) and National Mission for Medicinal plants (NMMP). Both the MT and NMMP envisage promotion of such crops involving financial assistance of Rs. 10.00 crore in 2008-09.

In NLUP programme for Horticulture Department for 2009-10 proposes to cover 3300 household for similar activities with financial requirement of Rs. 2868 lakh . NLUP beneficiaries chosen for these activities in 2009-10. Similarly in future also necessary

adjustment can be made if and when funds under TM/NMMP are provided covering beneficiaries chosen under NLUP in such activities.

15.2.2 Forest Department

Bamboo Missions: Under Bamboo Mission funds available and utilized were as follows:

2006 – 2007 = Rs. 8.65 Cores

2007 – 2008 = Rs. 10.01 Cores

2008 – 2009 = Rs. 9.01 Cores

There is not yet any communication for allotment of funds for 2009 – 2010. However the Forest Department is expecting a maximum of Rs. 10.00 Cores in 2009 – 2010.

15.2.3 Fishery Department

Fishery Department is expecting funds from National Fishery Dev. Board an amount of Rs. 600 Lakhs for 2009 – 2010 and next 5 years for Rs. 3000 Lakhs as subsidies. This amount can be utilized towards implementation of NLUP programme and thus for NLUP net requirement of funds will be as below:

2009 – 2010 = Rs. 670.4 Lakhs

2009 – 2015 = Rs. 3352 Lakhs

15.2.4 Capacity Building :

NLUP project envisage capacity building of the community and participating agencies for skill formation/training so that the designated agencies including NGOs may take up the critical task of arousing awareness, impart training to farmers, conduct necessary surveys for identification of beneficiaries and actively involving the community in the implementation of the programmes. In NLUP against capacity building, the total amount proposed for training etc for 5 years is Rs. 76.00 lakhs and in 2009-10 is Rs. 15.50 lakh. There is also proposal for support to community organizers (NGOs) amounting to Rs. 37.50 in 5 year and in Rs. 7.5 lakh in 2009-10.

It is worth mentioning that funds for training and skill formation may be available under CSS/Swarna Jayanti Sahari Rojgar Yagona(SJSRY). Under GIA (DWCDA, ASEP Training etc) an amounting of Rs. 172.5 lakh was provided in 2008-09 for skill formation/training. Allocation under CSS/SJSRY for 2009-2010 is not yet known.

It has been taken note that some funds are likely to be provided for capacity building etc under CSS/Swarna Jayanti Sahari Rojger Yajona (SJSRY) in 2009-10 also and subsequent years and such funds may be suitably be utilized in the proposed NLUP and thus such CSS funds when available for 2009-10 may be converged to take care of NLUP.

15.2.5 ***Sericulture :***

There is no provision of funds from State Government organization for Sericulture activities.

No other departments are having any programme overlapping availability of funds from other agencies like Central Government etc.

Fund from Central Government Organization for various activities including Technology Mission (TM), National Mission for Medical Plants (NMMP), Bamboo Mission, Nation Fishery Development Brand NREGS, IAY, BRGF etc. as may be available on the basis of the provision of funds broadly availed in 2008-2009 are worked out as below :

SN	CSS	Availed	Alloted	Prospective Amounts (Rs. in lakh)			
		2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
1.	NREGS	15194.00	29219.37	32141.31	35355.44	38890.98	42780.07
2.	Technology/NMMP Mission	3050.00	2600.00	2860.00	3146.00	3460.00	3806.00
3.	Bamboo Mission	1000.00	1100.00	-	-	-	-
4.	Fishery Dev.	300.00	330.00	363.00	399.00	438.00	481.00
5.	Macro Management (Demonstration/Training)	2380.00	2325.00	2557.00	2812.00	3093.00	3402.00
6.	PMGSY	6500.00	7150.00	7865.00	8651.00	9516.00	10469.00
7.	IWDP	2732.00	3005.00	3305.00	3635.00	3998.00	4397.00
8.	SJSRY	172.50	102.00	112.00	123.00	135.00	148.00
9.	IAY	1251.00	376.00	415.00	456.00	501.00	551.00
10.	BRGF (Dev Grant)	1897.00	Not Yet	Assessment cannot be made at this stage			
11.	BRGF(Capacity bldg)	200.00	Not Yet	-do-			
	Total		**46207.37**	**49618.31**	**54578.44**	**60031.98**	**66037.07**

Funds as may be available can be converged to cover the NLUP Programmes against some of the projects like Agri Link Roads, Water Harvesting, Water Shed Management Capacity Building of the community by way training skill formation etc. Housing Scheme proposed under NLUP may also avail funds from IAY. An exercise in due course will be made to dovetail the Central Sector Schemes with NLUP Programmes to ensure economy by

rationalizing funds utilization and maximizing benefits. It is obvious that entire amount will not be available for NLUP Programmes by formulating policy of convergence. Committed liability and mandatory requirements under the guidelines for different sectors may not permit utilization of the full amount. Due to advance planning already made and submission of the same to the concerned Ministries to the Government of India as per existing guidelines bulk of the funds may not be available for family-oriented schemes as envisaged under NLUP.

15.3 Convergence of other scheme

a) Minor Irrigation Facilities :

As already explained at page 65 Minor Irrigation Deptt. has at hand 73 projects costing 78.75 crores to irrigate about 6638 hectares. These projects can be converged to take care of proposed NLUP Programme for Agro-horticultural activities.

b) Road network & Agri Link Road :

As already pointed out at page 66 total road length of all type of road constructed both by BRO and State PWD is 5980 km. Apart from National Highway and State road, programmes under PMGSY particularly for rural areas are also being taken upto connect about 251 rural habitats targeting 2618 kms. The proposed Agri link roads as at page 75 to connect prospective farming farming areas are planned to further connect the broader road networks for optimal benefits to NLUP programmes.

c) Tele-Communication Facilities :

Expanding Tele-communication as planned by BSNL (page 76) will be of great help to progressively, cover all the villages for broadband etc facilities and thus improving the efficiency of management system, proactively involving participating agencies and maintaining transparency. Installed capacity is 4824 and number of connection provided are 2074.

d) Rural Electrification :

Rural Electrification Programme of State Government (Page 77-79) and the Tuivai Hydro-electric Project (210 MW) can be converged to take care of the NLUP Programmes for which presently requirement is worked out a 50 MW. State Electricity Deptt. proposes to electrify 137 nos. of unelectrified villages and intensification of 570 nos. of electrified villages.

In view of farmers switching over from Jhum practices, there will spring up new farm houses where they will need power for lighting. There is scope for micro/Pico hydel system with 5kw/10kw capacity and also solar lighting. In addition to domestic requirements such facilities may also contribute to irrigation.

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