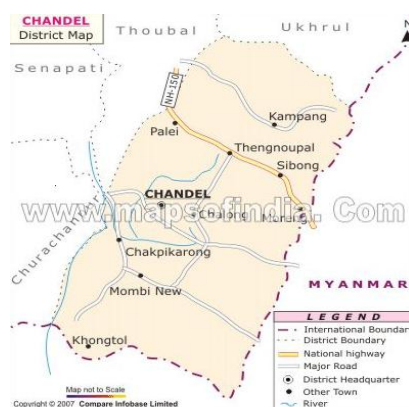
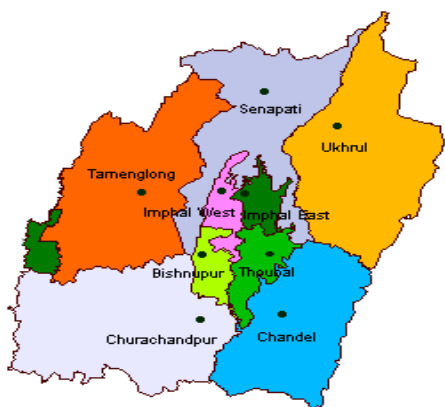


DISTRICT RESOURCE INVENTORY PROFILE OF CHANDEL DISTRICT

Chandel District is geologically one of the least explored district of Manipur state. It is situated in the southeastern part of the state bordering with the Union Socialist Republic of Myanmar. It extends approximately between 23 50-24 38 N latitudes and 93 45-94 125 E longitudes having an area of about 3,313 square kilometers. The hill ranges of this district are the southward extension of the Naga–Patkoi hills from the North and northeast, and continue southward as the Chin Hills forming an integral part of the Indo-Myanmar Ranges (IMR). The structural and tectonic pattern of this district is, therefore, transitional between the NE-SW trending pattern of the Naga-Patkoi hills and the N-S trend of the Chin Hills.

Background Information about the District:



The whole district is divided into four sub division namely, Tengnoupal Sub-division (90 villages), Chakpikarong Sub-division (223 villages), Chandel Sub-division (130 villages) and Machi Sub-division (70 villages). Out of the total district area of 3,313 square kilometers hilly ravines and long range of Indo-Myanmar boarder, about 28.96 square kilometers is under dense tree forest cover, 1206.75 square kilometer is under moderately dense tree forest covered and 347.54sq.km is under open tree forest cover. Bamboo brakes are found over an area of 212.39sq.km. Out of the total 2790sq.km forest area of the district, 193.08sq.km is affected by shifting cultivation. The district with 294 villages has divided into three sub micro regions on the basis of geology, soils, climate, topography and natural vegetation.

1. **Chandel Western Hilly Regions-** The region is situated over the northwestern part of the district covering about half of the Tengenoupal subdivision and small part of the Chandel subdivision. The region is drained by the rivers Taret and Lokchao flowing towards east.
2. **Chandel eastern Hilly Regions-** The region is situated over the northwestern part of the district covering about half of the Tengenoupal subdivision and small part of the Chandel subdivision.
3. **Chandel Southern Hilly Regions -**The region is situated over the northwestern part of the district covering about half of the Chakpikarong subdivision.

Agro-ecological zone of Chandel District:-

Chandel district enjoys an equable climate through admits of variation in various parts of the three-subdivisions. It experiences oppressive heat in the summer and intense cold in the winter. The rainy season starts in March and continues till September. The cold season runs from October to February and January is the coldest month. April, May and June are the hot seasons though the heat in the months are alternate with occasional rains and does not assume and distributing proportion. The minimum and maximum temperatures were recorded 7oc and 36oc respectively (1990). Thus, the whole district is falling under **Sub-tropical** region with the exception of Moreh wherein the foothills experience **mild tropical**.

The district enjoys adequate amount of rainfall. The distribution of rainfall widely varies 1650.00mm at Chakpikarong and 343.85mm at Moreh. However, some rain occurs in all months of the year with heavy rainfall during the period from April to July.

The region is bestowed with unique diversity in climate and natural vegetation exhibiting rich plant diversity. It is an area of high biodiversity and cultural heterogenic with distinctive ethnic groups, mountain peaks, sacred forest, sacred landscape, sacred groves all these making it a place of enormous plant bioresources. The region has a rich tradition of nature conservation.

Soil:-

The Soil of the district ranges from Clay type to Loamy Red Soil rich in organic matter. However, the hilly regions or the Upland areas are characterized by the acidic nature.

Farming system:

Even though, the country has called for the second green revolution, the entire district is still in the traditional system of cultivating crops. Basically, there are two types of farming system vizely

- i) Rice based mono-cropping system in the valley and foot hill areas.
- ii) **Rice** + pulses+maize+cucurbits+mustard+colocasia+Alocasia+sweetpotato+spicies crops, etc in the upland jhum/shifting cultivation.

Primary occupation: Agriculture, services and wood cutting/ quaring.

Secondary occupation: Fishing, occasional labours.

Marketing: Though the production levels of their crops are low, even then, they sell some of their produces. The main selling products are ash gourd, perkia, banana, cucumber, citrus macroptera, maize, bamboo (shoot and fermented) and many other spices.

Ranking of major problems & constraints in Adoption of Agricultural Practices:

1. Non-availability of irrigation water.
2. Lack of Suitable Technology for High/Up-lands.
3. Use of local or traditional varieties.
4. Lack of Govt. Initiatives.
5. Lack of Scientific Know-how.
6. Fragmentation of land holdings.
7. Marginality nature of land.
8. Insects / Pests /Rodents and Animals problems.
9. Problem of weeds in Uplands areas.
10. Lack of credit facilities.
11. Soil problems.

Identified major pests and diseases in paddy cultivation:

- Bacterial Leaf Blight
- Blast
- Sheath Blight and
- Caseworm etc..

Available enriched bio resources of the district are given below:

SI No	Types of bio-resource	Items
1	Agro-forestry	Uchan, Uningthou, Leihao, Yanghao, Tolhao, Tan, Tairelmanbi, Heijuka, Sahi, Uyung, Ushoi, Uthangjing and other trees of economic values.
2	Horticulture fruit crops/vegetables	Banana, mango, apricot, plum, guava, perkia, wild apple, pomegranate, ginger, turmeric, cucurbits, citrus macroptera, colocasia, allocasia, sweet potato, yam, mustard, chilli, tapioca, and many others Spices crops etc.
3	Cereals	Rice, maize, barley. Among the rice varieties, Red rice(Tareh shang), white rice(Reshang), Scented rice(shapfu) and Lamkang phou(Short type) etc.
4	Pulses	Soybean(small and broad seeds), rice bean(black , white&Whitish, Reddish and Grey seeds), etc.
5	Others	Bamboo shoot and fermented bamboo shoot, etc.
6	Medicinal plants	Ok-hidak(Acorus calamus),Khujumpere(Achyranthes aspera), Nongmangkha angouba(Adhatoda vasica Nees), Heirikkhagok(Aegle marmelos), Khongjainapi(Ageratum conyzoides), Chanam(Allium sativum), Kakthrum(Alisma plantago aquatica), Kanghoo(Alpinia galangal), Vubati(Andrographis paniculata), Pungdinglee(Argyria nervosa), Nunggarei(Asparagus racemosas), Leibakngou(Artemisia nilagirica), Uroksumban(Basella alba), Karpoor(Blumca densiflora), Haochak(Blumcopsis fulcata), Urisanamachu(Cascuta reflexa), Yaipan(Cucurma angustifolia), Sebang kauthum(Cyperus rotundus), Tingthou(Cynodon dactylon), Manahidak(Coleus amboivicas), Kuthup(Clerodendrum indicum), Monshaobi(Chenopodium album), Peruk(Centella asiatica), Daopata(Cassia alata) and many others.
7	Endangered breeds of fish	Ngarha, Ngashang, Ngalor, Ngaphar, Ngaleng, Ngabarul, Ngawoh, Ngarang, Limehsen, Ngararba, Ngalim, Kikung, Aeh(crab)

District & Agro-Climate	Area(Sq. Km)	Elevation(Metres above MSL)	Soil	Temperature (Min.& Max.)		Rainfall (Av. in mm.)	% of Agril. Area	Density (Per Sq. Km)	% of cultivators and Agril. labour	Suitable Crops &Animals
Chandel &Sub-tropical and mild tropical at the foothills of Moreh area	3313	400-2500	Hilly	34	6	2520	3.4	37	81	Maize, treebean, Hatkora, bamboo Shoot,mit hun, cucurbit

District wise distribution of area under paddy in Manipur

Sl. No	Name of District	Area	Percentage.	Rank
1	Senapati	25.97	16.45	1
2	Tamenglong	10.07	6.38	8
3	Churachandpur	20.08	12.72	4
4	Chandel	7.24	4.59	9
5	Ukhrul	13.69	8.67	7
6	Imphal East	25.09	15.90	2
7	ImphalWest	17.08	10.82	5
8	Bishnupur	16.47	10.44	6
9	Thoubal	22.14	14.03	3
Manipur		157.83		100

Estimated Area, Yield and Production of Cereal crops For Chandel District (Paddy and Maize)

Sl No	Name of Block	Area Yield and Production of Rice and Maize					
		Rice			Maize		
		Area ('000ha)	Yield (kg/ha)	Production ('000tonnes)	Area ('000ha)	Yield (kg/ha)	Production ('000tonnes)
1	Tengnoupal	3.33	1573.57	5.24	0.06	3500.00	0.21
2	Chandel	1.89	1481.48	2.80	0.03	2666.67	0.08
3	Chakpikarong	2.02	1980.20	4.00	0.12	3083.33	0.37
Total		7.24	1662.98	12.04	0.21	3142.86	0.66

Area under Jhum cultivation of paddy (in '000 ha)

Year 2006-07			
Sl No	District/State	Area	P.C. of Area under Jhum cultivation to district total
	Chandel	4.87	67.27
	Manipur	41.79	26.48

Distribution of Area under Paddy by different types of cultivation (in '000 ha)

Year 2006-07			
Sl No	Name of District/Hill Districts Total	Type of Cultivation	Area
1	Chandel	Permanent	2.37
		Jhum	4.87
		Total	7.24
2	Hill Districts Total	Permanent	35.26
		Jhum	41.79
		Total	77.05

Area under Cereal Crops (Paddy and Maize) by different types of cultivation in '000 ha.

Sl No	Name of District/Block	Area under Cereal crops)(Paddy and Maize)by different								
		Permanent including Terrace			Jhum			Total		
		Paddy	Maize	Total	Paddy	Maize	Total	Paddy	Maize	Total
1	Tengnoupal	-	-	-	3.33	0.06	3.39	3.33	0.06	3.39
2	Chandel	1.70	-	1.70	0.19	0.03	0.22	1.89	0.03	1.92
3	Chakpikarong	0.67	-	0.67	1.35	0.12	1.47	0.02	0.12	2.14
4	District total	2.37	-	2.37	4.87	0.21	5.08	7.24	0.21	7.45
5	Hill Districts total	35.26	0.92	36.18	41.79	1.42	43.21	77.05	2.34	79.39
6	Valley Districts total	80.78	-	80.78	-	-	-	80.78	-	80.78
7	Manipur	116.04	0.92	116.96	41.79	1.42	43.21	157.83	2.34	160.17

Area under Cereal Crops (Paddy and Maize) by different types of cultivation in '000 ha.

Sl No	Name of District/Block	Area under Cereal crops)(Paddy and Maize)by different								
		Permanent including Terrace			Jhum			Total		
		Paddy	Maize	Total	Paddy	Maize	Total	Paddy	Maize	Total
1	Tengnoupal	-	-	-	3.33	0.06	3.39	3.33	0.06	3.39
2	Chandel	1.70	-	1.70	0.19	0.03	0.22	1.89	0.03	1.92
3	Chakpikarong	0.67	-	0.67	1.35	0.12	1.47	0.02	0.12	2.14
4	District total	2.37	-	2.37	4.87	0.21	5.08	7.24	0.21	7.45
5	Hill Districts total	35.26	0.92	36.18	41.79	1.42	43.21	77.05	2.34	79.39
6	Valley Districts total	80.78	-	80.78	-	-	-	80.78	-	80.78
7	Manipur	116.04	0.92	116.96	41.79	1.42	43.21	157.83	2.34	160.17

Area under Cereal Crops (Paddy and Maize) by different varieties of seeds used in '000 ha

Sl.No	Name of District/Block	Area under Cereal Crops (Paddy and Maize) by different varieties of seeds used.					
		Others/Local			Total		
		Paddy	Maize	Total	Paddy	Maize	Total
1	Tengnoupal	1.47	-	1.47	3.33	0.06	3.39
2	Chandel	0.49	0.01	0.50	1.89	0.03	1.92
3	Chakpikarong	0.17	-	0.17	2.02	0.12	2.14
4	District total	2.13	0.07	2.14	7.24	0.21	7.45
5	Hill Districts total	63.19	2.10	65.29	77.05	3.34	79.29
6	Valley Districts total	34.36	-	33.36	80.78	-	80.78
7	Manipur	97.55	2.10	99.65	157.83	2.34	160.17

Estimated Area (in '000 ha) under Cereal Crops (Paddy and Maize) by different types of irrigation used.

Sl. No	Name of District/Block	Area (in '000 ha) under Cereal Crops (Paddy and Maize) by different types of irrigation.						Total (not irrigated and irrigated)		
		Irrigated area of paddy					Total irrigated area of paddy	Paddy	Maize	Total
		Canal	Tank	River	Others	Total				
1	Tengnoupal	-	-	-	-	-	-	3.33	0.06	3.39
2	Chandel	-	-	-	-	-	-	1.89	0.03	1.92
3	Chakpikarong	-	-	-	-	-	-	2.02	0.12	2.14
4	District total	-	-	-	-	-	-	7.24	0.21	7.45
5	Hill Districts total	0.26	-	4.72	3.81	8.79	8.79	68.27	2.34	70.60
6	Valley Districts total	-	-	13.19	18.00	31.19	31.19	49.54	-	49.54
7	Manipur	0.26	-	17.91	21.81	39.98	39.98	117.85	2.34	120.19

District wise distribution of fertilizers (in tones) in Manipur

Sl No	Name of District	2006-07					
		Urea	DAP	MOP	M/Phos	SSP	Total
1	Chandel	407	145	59	40	-	651
2	Manipur	47246	5370	2325	3415	690	59046

Production and Productivity of important Commodities in the district

Sl. No.	Name of the commodity	1995			2000			2005			2008		
		A	P	Y	A	P	Y	A	P	Y	A	P	Y
1	Paddy (Jhum)	6.5	5.2	0.80	6.6	5.61	0.85	6.8	5.19	0.87	7	6.23	0.89
2	Paddy (Rainfed)	3	3	1.00	3.1	3.19	1.03	3.2	3.36	1.05	3.3	3.59	1.09
3	Maize	1.8	2.97	1.65	1.9	3.23	1.70	2	3.60	1.80	2.48	4.57	1.84
4	Mustard	1.7	1.44	0.85	1.9	1.71	0.90	2	1.86	0.93	2.27	2.17	0.96
5	Groundnut	0.70	1.12	1.6	0.9	1.62	1.8	0.90	1.71	1.90	1.00	2	2
6	Soybean	0.20	0.54	2.7	0.25	0.70	2.8	0.27	0.81	3	0.30	0.90	3
7	Pea	0.40	0.24	0.6	0.42	0.29	0.7	0.45	0.36	0.8	0.50	0.40	0.80
8	Rice beans	1.60	6.80	0.5	1.7	0.85	0.5	1.8	1.08	0.8	2.00	1.2	0.6
9	Sesamum	0.25	0.087	0.35	0.27	0.097	0.36	0.28	0.10	0.37	0.30	0.11	0.38
10	Sugarcane	0.15	6.75	45	0.18	8.28	46	0.20	9.40	47	0.22	10.53	47.86
11	Cole crops	0.30	2.55	8.5	0.35	3.15	9	0.40	4	10	0.45	4.50	10
12	Potato	1.20	9	7.50	1.3	10.01	7.7	1.5	11.7	7.8	1.63	13	7.98
13	Chilli	3.30	5.94	1.8	3.4	5.98	1.9	3.5	7	2	3.60	7.2	2
14	Turmeric	0.80	3.04	3.8	0.9	3.51	3.9	1	4	4	1	4	4
15	Ginger	1.50	5.7	3.8	1.6	6.28	3.9	1.7	6.8	4	1.8	7	4

16	Squash	0.15	0.85	5.7	0.17	0.98	5.8	0.18	1.06	6	0.20	1.20	6
17	Hth kora	0.10	0.45	4.5	0.2	0.96	4.8	0.25	1.25	5	0.30	1.50	5
18	Coriander	0.50	1.75	3.5	0.7	2.8	4	0.9	4.05	4.5	0.10	5	5
19	Arium	0.46	19.76	43	0.47	20.68	44	0.48	21.6	45	0.50	22.5	45
20	Citrus	0.15	0.55	3.7	0.2	0.76	3.8	0.23	0.92	4	0.25	1	4
21	Banana	7	91	13	7.5	97.5	13	8	112	14	8.20	123	15
22	Passion fruit	2	6	3	3	9.9	3.3	3.5	12.25	3.5	4	14	3.5

A-Area in '000 ha; P-Production '000m. tonnes; Y-Yield (Productivity) in Mt/ha

Number of Enterprises and Persons Employed (Excluding Crop production and plantation)

Sl.No.	District	Number of Enterprises			Total Employment		
		Rural	Urban	Combined	Rural	Urban	Combined
1	Chandel	2205	1536	3741	3727	2902	6629
2	Manipur	58406	45831	104237	121078	125050	246128

Percentage of Agricultural and Non-Agricultural Enterprises to Total Enterprises (Excluding Crop production and plantation)

Sl.No.	Percentage of Agricultural and Non-Agricultural Enterprises to Total Enterprises (Excluding Crop production and plantation)	Rural		Urban		Combined	
		Agricultural	Non-Agricultural	Agricultural	Non-Agricultural	Agricultural	Non-Agricultural
1	Chandel	10.4	89.6	0.4	99.6	6.3	93.7
2	Manipur	9.8	90.2	5.4	94.6	7.9	92.1

Percentage of Hired Workers and Adult Female Workers to Total Workers (Excluding Crop production and plantation)

Sl.No.	District	% of Hired Workers			% of Adult Female Workers		
		Rural	Urban	Combined	Rural	Urban	Combined
1	Chandel	47.7	32.9	41.3	34.8	18.2	27.5
2	Manipur	37.1	45.2	41.2	34.2	35.3	

Lists of Market in the District:

Blocks	Numbers Available	Periodicity	Nature
Chandel	3	Daily & Weekly	Unregulated
Chakpikarong	1	Daily	-do-
Tengnoupal	8	Mainly Daily & Weekly	-do-
Machi	1	Weekly	-do-

Information on Infrastructure Facilities Under Govt./NGO/Pvt. Sector

Types	No./Area	Capacity	Status
Seed production Farm Chakpikarong	10 ha	-	Functional
Agro-Processing unit	24	NA	-do-
Horticulture Dept	1 ha	5 nurseries; 5200 sq.m & 8 unit of green house and Vermicompost	Functional
Veteniary Hospital		4	-do-
Dispensary		6	-do-
A.I. Centre		4	-do-
Livestock farm		1	-do-
Pig Breeding Farm		1	-do-
Fish Seed farm		2	-do-
Sericulture			
Field Operation Unit		18	-do-
Chouki Rearing centre		1	-do-
Technical Service farm		4	-do-
No of farms		11	-do-

Credit Institutions Available in the District:

Name of the Banks	Rural	Semi-Urban	Urban	Total
State Bank of India	Yes	-	-	3
United Bank of India	Yes	-	-	1
Manipur Rural bank	Yes	-	-	1

Information on Communication Facility:

Communication Types	Sector		Services Render	Area of Operation
	Public	Private		
Post Office	6	-	Postal Services	Whole District
Telephone Exchange	4	-	Local; STD	-do-
Telephone booth	-	38	-do-	-do-

Information on the Agricultural Implements and Farm Machinery:

Tractors	Pump-Sets	Power Tillers	Sprayers	Threshers(Local)	others
19	35	6	38	7539	42

Livestocks and Poultry Population: 17th Quinquennial Livestock Census, 2003

Category	Population	Production	Productivity
Cattle			
<i>Crossbred</i>	23,044	NA	NA
<i>Indigenous</i>			
Buffalo	6,154		
Sheep			
<i>Crossbred</i>	22	NA	NA
<i>Indigenous</i>			
Goats	802	NA	NA
Pigs			
<i>Crossbred</i>	9498	NA	NA
<i>Indigenous</i>	61255		
Rabbits			
Poultry			
Hens		NA	NA
<i>Desi</i>	229264		
<i>Improved</i>	28080		
Ducks	23456		
Turkey and others	NA		