Land Use Pattern of Kalahandi District

Jagadish Prasad Sahu

Introduction

Land is very important natural resource because it provides all sorts of food to man as well as it provides basis of life to terrestrial and aquatic flora and fauna in one way or the other.

But in the past land was not so important because there was less population. When man entered into the first stage of civilization he totally depended upon the practice of haunting and food gathering. He began to use the land i.e. he began to dig the earth, sow the seeds and took utmost care to get the best out of a piece of land. From that day land became a resource and gradually the demand for land increased. Land use planning was first undertaken in England to plan the use of land in such a way that the same land can support more population.

History of Kalahandi

Kalahandi, with her glorious historical background, is today confronted with problems of poverty, hunger and persistent drought which had brought terrible suffering for the people here. If we look at the past of this region, we become conscious of the legacies and the heritage, which our ancestors have passed on to us over several thousand years. Archaeological evidences are suggesting that a great civilization flourished in the region since 4th century B.C. Now Kalahandi from a state of plenty has been reduced to a state of poverty and starvation. It is on this background, a study of the past and present of Kalahandi is undertaken, with the twin objective of presenting its historical heritage as well as the present State of affairs.

The region of Kalahandi has a great antiquity. Starting from the Mahabharata, various literatures refer to this region in one geographical unit or the other. The Mahabharata mentions the region in the name of Kantara, meaning forest track or wilderness. Kautilya (4th century B.C.) in his Arthasastra mentions a place known as Indravana, which has been identified by historians with modern Kalahandi. Ashoka in his rock-edicts also mentions the place as Atavi or Atavika rajya, during 3rd century B.C. Samudragupta said to have defeated king Vyaghraraja of Mahakantara as revealed from Allahabad pillar inscription, during 4th century A.D.¹

The Mahakantara is identified with the modern region of Kalahandi district. After the downfall of Mahakantara, Kalahandi became a part and parcel of Nala rule of Podagarh for a brief period. However, with the rise of Sarbhapuriyans, in 5th century A.D., Kalahandi lost its political identity and became a part of South Kosala. By 9th - 10th century A.D., Kalahandi came under the Somavamsis and was reckoned
as Trikalinga. The Somavamsis were somewhat supplemented by the Chindaka Nagas during 11th century A.D. It is in 12th century, under Ganges, this territory was identified with Kamala Mandala, which continued up to the Maratha period. The present Naga Dynasty substituted the Gangas during the 13th/14th Century A.D. with modern Junagarh, also known as Kalahandi Nagar as its capital. In 1940, the British Govt. recognised the Ex-king of Kalahandi as the Maharaja and ruler of Karonda State. With the merger of Princely States of India, the Maharaja of Kalahandi P.K. Deo signed the merger agreement in December 1947; the modern district of Kalahandi thus came into existence.

Geographical Condition of Kalahandi

Kalahandi is one of the most backward district of the Orissa State, spreading over an area of 7920 sq kms, which is about 7.56% of the total area of the State. Out of the 30 districts of Orissa, it occupies 7th position in area. It is situated between 19°8' N to 20°25' N latitude and 82°32' east and 83°47' east longitude. It is located in the south-western part of Orissa. The district is bounded by Bolangir on the north, Phulbani on the east, Rayagada on the south-east, Koraput on the south, Nabarangpur and Raipur on the west and Nuapada district on the north-west.

There are 2 Sub-Divisions, 7 Tahasils, 13 Blocks, 1 Municipality, 2 NACs, 12 Police Stations, 273 Grampanchayats, 2068 villages and 137 uninhabited villages in Kalahandi district.

General information about the district.

A. Physiography

Physiographically the district may be broadly divided into two different natural divisions, the hilly tracts and the plain country. The former chiefly comprises of the ranges of hills which ran from the north-east to the south-west of the district and the later constitutes the river valleys of Tel and its tributaries, and the Jonk.

About eight kilometres south-east of Bhawanipatna, commences the mountain tracts called the Dongarla which cover a vast area of about 3665 sq km. on the eastern side of the district and south-wards to the Koraput border. These tracts vessel in a serious of precipitous hill ranges from the plains. The path by which the ascent on Karlapat side is made quite impracticable even for 'sagads' (solid wheeled carts) and many parts are inaccessible except by foot. The hillsides are covered with dense Sal (shorea robusta) forest, and it is not until the open valleys at the higher elevation are reached that cultivation is met with. These valleys are mostly fertile and are splendidly watered being intersected by perennial streams. Here and there patches of regular rice cultivation are met with and crops of wheat; but for the most part, the country is given over to ‘Dahi Cultivation or Jhuming’. The hill tracts form a conspicuous landmark in the scenery and the wild precipitous ranges which mark their border, stand up from the plains like a vast wall and are visible for many miles. The principal plateau lands are the Karlapat, Thuamul Rampur ranges and the Baphilimali hill, a fine plateau on the district border near Madhupatna; these in parts each an elevation above sea level of 1220 metres and over. In these hills of the Dongarla area the splendid stream of the Indravati takes its rise near Thuamal. It makes its way through the hill range which forms the southern boundary of Kalahandi. Not far from the place where the Indravati flows south through this barrier the Hati river rises on the northern slopes and flows due north in exactly the opposite direction.
The principal hill ranges belong to Eastern Ghats. It covers almost the entire eastern and southern parts of the district. These ranges are named at different points differently after the village near their base. The main peaks in these ranges are Tangri Dongar (1229m), Karlapat (1213m) and Kattighara (953m).

B. Drainage

The asymmetric pattern and the characteristics of the drainage system strongly reflect the character of relief and the climate differences. The Tel, Indravati and Jonk, which form tributaries of large rivers like the Mahanadi and Godavari, may be mentioned among the principal rivers of Kalahandi. Besides, the Tel receives a large number of effluents in the district. The scenery along the banks of these streams during their course through the hills specially on the Indravati and the Raul, a feeder of the Tel, is exceedingly fine and varies from wild raging torrents sweeping over bare rocks, to placid stretches of deep pools with the stream swirling in the eddies between rich meadow land, verdant with grass and banks overhung with willows.

Most of the hill streams of the district are perennial. The rivers in the open country seldom carry a large flow of water in the hot weather. The Tel, Sagada, Hati, Ret and Uttei are mostly reduced to tiny streams in their lower reaches from February to June. On the other hand, the Raul throughout its whole length, most of which lies inside the forest, holds a fair flow of water even in the month of May. The Sagada, Ret, Indravati, Bada Nala and many others carry a strong stream of perennial water in the upper and middle reaches and only lose it in their sandy beds when they descend to the plains.

Tel is the longest and most important river in the district, rising in the hills of Nabarangpur and entering in Kalahandi district, a few kilometres west of Dharamgarh it flows through an alluvial tract. The important feeders on its right bank are the Motel, Hati, Sagada, Ret, Bulat and Raul. The Raul rising in the hills of Kandhamal district flows through the mountain tracts in the north-eastern part of Kalahandi district, enters Bolangir near Sikerkupa and joins the Tel a few kilometres from the borders of Kalahandi. It receives most of the drainage of Madanpur-Rampur area. The Uttei rises on the same hills and receives a few feeder in the fertile tract of M. Rampur area and joins the Tel on the border of Bolangir-Kalahandi districts near Belkhandi. It drains the wide plain between Madanpur Rampur and Narla. The Hati, a large tributary of the Tel, rises in the high hill ranges of Jaipatna and joins the Tel about 12 kms north of Junagarh. The Bulat rises at the southern end of Gundi Dangar about 12 kms south of Bhawanipatna and flows past the town in a north-western direction under the name of Pipal Nala before it turns northwards to join the Tel near Karlapada.

Indravati is the largest river system of this area, which supply water to most parts of Jaipatna, Junagarh, Koksara, Thuamul Rampur, Dharamgarh and Kalampur Blocks for irrigation purpose. Tanks are found in almost every village. They are generally classified as Kata, Sagar, Bandh and Sara. The tanks are chiefly used for bathing, drinking, pisciculture and irrigation purposes. Phurlijharan, one of the most perennial waterfalls, about 15 kms from the Bhawanipatna township area is the most attractive place and picnic spot for the tourists.

C. Climate

The climate of this district is extreme and on an average it experiences monsoon variety of climate. Summer season is intensely hot and winter is very cold. The year is divided into four seasons.
The hot season from March to May followed by the south-west monsoon season from June to September. October and November constitute the post-monsoon season. The cold season is from December to February. The average annual rainfall is 1378.3 mm. The variation in the annual rainfall from year to year is not very large.

Temperature

There is a meteorological observatory at Bhawanipatna which has started functioning very recently. According to the meteorological observation at Bhawanipatna, the hot season commences by about the beginning of March when temperatures begin to rise. May is the hottest month when the mean daily maximum temperature is about 41°C and mean daily minimum temperature is about 28°C. On individual day the maximum temperature was 49°C at Bhawanipatna on 23rd May 2002. December is the coldest month with the mean daily maximum at about 28°C and mean daily minimum at about 11°C. The temperature of coldest day was 2.5°C at Th. Rampur on the 29th December 2003.

Humidity

The relative humidities are high in the south-west monsoon and post-monsoon months. The air becomes gradually drier thereafter. The summer is the driest part of the year with the relative humidities particularly in the afternoon often-going down below 30%.

D. Soil

Soil is a natural part of the earth’s surface being characterised by layers paralleled to the earth’s surface resulting from modification of parent materials by physical, chemical and biological processes operating under varying conditions. During varying period of time the classification of soil in Kalahandi District is made after the scheme of U.S. soil conservation service by the survey of India in their district planning map series. It is done with a purpose for better soil management. The soil of Kalahandi district is an admixture of Red, Black and Sandy loan. The district has five different types of soil broadly classified as (i) Red Laterite (ii) Black clay (iii) Sandy Loan (iv) Clay and (v) Red Sandy loan.

The red Laterite soil which is deficient in Phospherous and nitrogen is found all over the district, mostly at the foot hills and hillocks. In Bhawanipatna and Dharamgarh occurrence of heavy soil is common. It is rich in Potassium and Nitrogen but poor in Phospherous. Sandy loan is seen in Lanjigarh and parts of Bhawanipatna Tahasils. The soil on the river banks of Tel, Udanti, Utei and Sagada are alluvial, sandy and sandy loan. The fertility of soil in Dharamgarh and Jaipatna areas is high. The percentage occurrence of the major soil types are as follows:

(i) Red soil - 31.63%
(ii) Black soil - 15.93%
(iii) Clay and sandy loan - 52.44%

E. Natural Vegetation

The geology, topography, climate and the soil all have a close bearing on the nature of vegetation. Above all, men’s influence on the flora is no less important. The one time densely wooded tracts on the high hills of Kalahandi is reduced to mere bamboo and dry mixed scrub in no time through denudation brought about by shifting cultivation. The forest of this region fall into the following categories:

(i) Sal Forest : The Sal (shorea robusta) forest is of a moderate moist type. It corresponds more or less with champions moist peninsular Sal. The percentage of Sal is generally over 80% in these
forests. The common associates of Sal are Asan, Jamun, Kendu, Harida, Kusum, Mohul, Bija (pterocarpus mossupium), etc. These forests dominated over the areas of Karlapat, Lanjigarh and more especially in M. Rampur.

(ii) Dry Mixed Forest: The number of species which go to make up this community is too unwieldy to be mentioned in details. The principal among them are Asan, Dhaura, Bahara, Kasi, Jamun, Bija, Bandhan, Sisu, Haldu, Khari, etc.

(iii) Bamboo Forest: The only bamboo of any important is the Salia *bans*. Here and there it forms virtually pure patches in the hills. The most extensive areas under this type are to be found in M. Rampur and Lanjigarh.

(iv) Teak Forest: There was a time when it could have been said that there was considerable quantity of teak. Most of it short-boled and yielding little clean timber, situated in the village lands and the adjacent jungle in the valley of the Tel in the north and north-west of Kalahandi. Some few patches of good teak do still exist in the far north-west in the valley of the Udanti.

Table-1

<table>
<thead>
<tr>
<th>Sl</th>
<th>Classification of forest</th>
<th>Area in Sq.Km</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reserve forest</td>
<td>1449.03</td>
</tr>
<tr>
<td>2</td>
<td>Demarcated protected forest</td>
<td>488.51</td>
</tr>
<tr>
<td>3</td>
<td>Undemarcated forest</td>
<td>313.37</td>
</tr>
<tr>
<td>4</td>
<td>Un-classified forest</td>
<td>0.54</td>
</tr>
<tr>
<td>5</td>
<td>Other forest</td>
<td>286.56</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>2535.01</strong></td>
</tr>
</tbody>
</table>

Generally, timber is the major forest produce. Minor produces of the area are Kendu leaf, Bamboo, Kusumi, Lac, Broom grass, Sabai grass and Sal seeds etc. These minor forest produces keep the local *adivasis* employed for nearly 4 months. Timber and Kendu Leaves are the main exportable forest products of the district.

F. Demography

The total population of Kalahandi district is 13,34,372. Pressure of population is not a static factor, it is highly dynamic population pressure varies with the degree of variability of fertility of soil, availability of water and other facilities. The density of population is 168 person per Sq.Km and the sex ratio is about 990 in Kalahandi.

Table-2

<table>
<thead>
<tr>
<th>Sl</th>
<th>Name of the Blocks/Urbans</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
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<tr>
<td>1.</td>
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<tr>
<td>2.</td>
<td>Dharamgarh</td>
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</tr>
<tr>
<td>3.</td>
<td>Golamunda</td>
<td>48299</td>
</tr>
<tr>
<td>4.</td>
<td>Jaipatna</td>
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</tr>
<tr>
<td>5.</td>
<td>Junagarh</td>
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<td>6.</td>
<td>Kalampur</td>
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<tr>
<td>7.</td>
<td>Karlamunda</td>
<td>24531</td>
</tr>
<tr>
<td>8.</td>
<td>Kesimal</td>
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<tr>
<td>9.</td>
<td>Koksara</td>
<td>52277</td>
</tr>
<tr>
<td>10.</td>
<td>Lanjigarh</td>
<td>37037</td>
</tr>
<tr>
<td>11.</td>
<td>M. Rampur</td>
<td>33901</td>
</tr>
<tr>
<td>12.</td>
<td>Narla</td>
<td>51331</td>
</tr>
<tr>
<td>13.</td>
<td>Th. Rampur</td>
<td>32473</td>
</tr>
</tbody>
</table>

Urban

<table>
<thead>
<tr>
<th>Sl</th>
<th>Name of the Blocks/Urbans</th>
<th>Population</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bhawanipatna (M)</td>
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<tr>
<td>2.</td>
<td>Junagarh (NAC)</td>
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</tr>
<tr>
<td>3.</td>
<td>Kesimal (NAC)</td>
<td>8570</td>
</tr>
<tr>
<td>4.</td>
<td>Mukhiguda</td>
<td>3737</td>
</tr>
</tbody>
</table>

(census town)
Kalahandi as a Micro Level Planning Region

At the micro level, Kalahandi district has some unifying problems or interest as a core. It includes all territory tributaries to this core. The areas within Bhawanipatna are characterised by an absence of serious conflicting interest between them. Its population share certain basic attitudes, values, needs and desires. Thus this micro region is designed to present “Community of Interest”, particularly with regard to dynamic types of production, market relationships and labour supply and demand. In this way Kalahandi district, contain the best possible combination of structural, organisational and functional factors. The blocks are intended to be suitable units for the formation of area development plans as they will be sufficiently close to the grass roots, affording opportunities for direct interaction between the citizens and the administration in deciding the key issues in area development.

Thus micro-region can be of three broad types:

1. There may be nodal regions consisting of urban centres and influence areas around them.
2. The micro-regions may also be primarily rural areas having a large number of minor nodes without any organisational hierarchy influencing the entire area.
3. It is also possible for micro-regions to be essentially problem area or backward area.

The Evolution of Land Use

Rural communities have emerged as a part of our socio-economic system. The amount of land utilised by specific activities and their special distribution reflect the requirement of the system. In our communities however the existing arrangement of land use, though essentially functional is not a criterion of modern community design. The pattern is to a large extent a product of past growth and activities, which do not represent the most efficient pattern.

Despite lack of proper planning in the early villages, the land use pattern that has evolved is essentially functional.

With the increasing population, the needs for inter re-arrangement of land use, and the more intensive use of land was felt.

Thus it is apparent that the land use pattern as well as the amount of land utilisation for a particular purpose and often the density of population are constantly undergoing changes. Indeed these changes reflect response to the changing needs of the community.

Basic Concepts of Land Use

Clawson has given the following major ideas or concepts about land:

1. Location or the relation of a specific parcel of land to the poles, equator and major Ocean and landmasses.
2. Activity on the land, for what purpose the piece of land or track is used.
3. Natural qualities of land including its surface characteristics and its vegetation cover.
4. Inter-relation between activities on the land and other economic and social activities.
5. Intensity of land use.

Characteristics of a Good Classification of Land Use

The six characteristics of a good category classification of land use as outlined by “Clawson” are as follows:

1. The classification should deal exclusively with activities. Non-activity data can be input at a later stage.
2. It should be feasible in detail.
3. It should be based on what is observed.
4. Field work should be based on the smallest unit, which can be differentiated.
5. It should be acceptable to machine processing.
6. The classification should be compatible with the existing system.

The term land use denotes the multiphase use of land in which we study to assess the use of the land. Land use refers to man’s activity on land which are directly related to the land.

Land use and land cover are closely related and interchangeable. The purpose for which land is used is commonly associated with the type of cover whether they are agricultural, forested, residential or water area.

**Land Use Planning**

In acute shortage of land the importance of waste land is immense and the planners take it to determine the optimum use of every acre of land. Multiple use of land must be promoted wherever possible.

Land planning must start from the present position and should be based on a careful objective and detailed survey. There are various type of use of land by man which are food, shelter, work, recreation, movement and security.

**Rural Land Use**

Von Thunen in 1826 claimed that the land use around a city depends upon the rent of a land. The economic rent of an area is the return which can be obtained from land, which is at the margin of production. He argued that circular form of land use around a city would evolve from the periphery of the city.

Land use planning involves:
1. Land classification
2. Land use classification
3. Types of farming classification

1. **Land Classification** - In England the spot committee in its 1942 Report divided the land of Britain into good 37.9%, medium 37.9%, poor 24.6% and residential 2.3%. Different tracks of land vary in their value for agricultural production and their suitability for different types of crops and livestock. With growing population pressure on more or less fixed supply of land, it is important that this variation in land quality should be studied and mapped in order to obtain the maximum return from this valuable resources. No country can be considered to be adequately mapped unless a land classification map of this kind on a sufficiently large scale is available.

2. **Land use Classification** - Modern technique for classification land use and delimiting relatively small scale agriculture regions have stamped very largely from the work carried out by J.C. Weaver in 1950. Agricultural regions and crop combination regions were prepared by various geographers.

3. **Types of Farming Classification**

Farming can be divided into subsistence or commercial taking into account:

A. Standard labour requirement
B. Gross output value
C. Gross marginal value

Taking into account the use of land, land use planning can be made rationally. Von Thunen’s model is concerned with optimal pattern of land use within the constraints led down by various assumptions concerning production and transport cost and market demand. The economic principle underlying Thunen’s model is worthy of study but the real world situation influences on production, irrational nature of decision making. So the optimal and ideal model is very hard to be found.
Need for Land Use

The available land resources of a country exercises a lasting effect on the economic life of the country because the production of raw material is dependent on the nature of landscape. In the hilly region agriculture and industry generally do not flourish. The space available to village people leaves a stamp on their socio-economic life. Thus the relation of life to the earth’s area is a fundamental question of rural geography.

Land is a basic economic activity and the prime resource of a man. Since the beginning of human existence man has directed his activities with reference to earth’s resources and he knows how to use this for his own benefit. At present there is a pressing need for planned land use of villages. Two factors are responsible for this trend.

Firstly population is increasing at a faster rate while the means of production are limited. They are unable to satisfy the increasing demand. Secondly with increasing population, food consumption is also increasing. Accordingly the land and water resources must be used to the greatest possible advantage so that the same land can support more population.

Types of Rural Land Use

By land use we mean the distribution of land in accordance with its use or in the study of village land, we are concerned with surface utilisation.

The concept of land use is a key concept for understanding rural land use. It includes many broad categories and their sub-division and level of management which may exist with certain defined types of land use. The present pattern of land use can be studied in the following ways:

1. **Forest**: Forest include all lands classed as forest under legal enactment dealing with forest or administered as forests, whether state owned or private, and whether wooded or maintained as potential forest land.

2. **Land under non-agricultural use**: This category include all lands occupied by buildings, roads and railways or under water. e.g. rivers and canal.

3. **Barren and uncultivable land**: This category covers all barren and uncultivable lands, including mountains, deserts etc. which cannot be brought under cultivation except at a high cost.

4. **Permanent pastures and other grazing land**: This category covers all grazing lands whether they are permanent pastures or meadows.

5. **Miscellaneous tree crops and groves not included in the net area sown**: Under this class are included all cultivable land which are not included under the net area sown but are put to some agricultural use.

6. **Culturable waste land**: This category includes all lands available for cultivation or not taken up for cultivation even once, but not cultivated during the current years and last five years or more in succession.

7. **Current fallow**: This class comprises cropped areas which are kept fallow during the current years only.

8. **Net area sown**: This term denotes the net area sown under crops and orchards, counting areas sown more than once in the same year only once.
### Table-3

#### Land Utilisation Pattern of Kalahandi District

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Blocks</th>
<th>Hect.</th>
<th>Forest area</th>
<th>Misc. tree, crops and groves not included</th>
<th>Permanent pasture and other grazing lands</th>
<th>Cultivable waste</th>
<th>Land put non-agril. used</th>
<th>Barren uncult. land</th>
<th>Current fallows</th>
<th>Other fallows</th>
<th>Net area sown</th>
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<td>1.</td>
<td>Bhawanipatna</td>
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<td>820</td>
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<td>Lanjigarh</td>
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<td>2684</td>
<td>5354</td>
<td>2688</td>
<td>543</td>
<td>15100</td>
</tr>
<tr>
<td>13.</td>
<td>Th. Rampur</td>
<td></td>
<td>3199</td>
<td>216</td>
<td>1545</td>
<td>2791</td>
<td>2326</td>
<td>37207</td>
<td>3095</td>
<td>1976</td>
<td>9598</td>
</tr>
</tbody>
</table>

### Table - 4

#### Table for wheel diagram to show land utilisation pattern of Kalahandi district

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the land utilisation</th>
<th>Area in Hect.</th>
<th>Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Forest area</td>
<td>64793</td>
<td>42</td>
</tr>
<tr>
<td>2.</td>
<td>Misc. tree, crops and groves not included in net area sown</td>
<td>2246</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>Permanent pasture and other grazing lands</td>
<td>21702</td>
<td>14</td>
</tr>
<tr>
<td>4.</td>
<td>Cultivable waste</td>
<td>26509</td>
<td>17</td>
</tr>
<tr>
<td>5.</td>
<td>Land put to non-agricultural uses</td>
<td>41372</td>
<td>26</td>
</tr>
<tr>
<td>6.</td>
<td>Barren and uncultivable land</td>
<td>56961</td>
<td>37</td>
</tr>
<tr>
<td>7.</td>
<td>Current fallows</td>
<td>58156</td>
<td>37</td>
</tr>
<tr>
<td>8.</td>
<td>Other fallows</td>
<td>26659</td>
<td>17</td>
</tr>
<tr>
<td>9.</td>
<td>Net area sown</td>
<td>259165</td>
<td>167</td>
</tr>
</tbody>
</table>
The total area of Kalahandi district is 7920 sq kms out of which 2,12,800 hectares of land are cultivated area and out of this 1,83,000 hect. are paddy area. Out of the total area of the district 1,07,889 hect. of land are irrigated for Khariff and 61,521 hect. for Rabi crops.

The cultivated lands of the district are classified as Bahal, Berma, Mal, Att and Bhatta. Bahal and Berma lands are low lying area and are most fertile, and give better yield than the other lands. Most of the cultivable lands are used for double crops i.e. Khariff and Rabi. The Bahal lands are available for paddy and after that grams like Mung, Biri, Masur, Kulthi etc are cultivated. The medium paddy requires less amount of rainfall. Generally the Bhatta are used for cereal cultivation like Horsegram, Til, Mustard and Gurji.

**Cropping Pattern**

The outstanding features of the cropping pattern of India are the wide variety of crops and the preponderance of food grains over non-food crops. Paddy is the principal crop which alone accounts for 60% of the gross cropped area of Kalahandi district. Other major crops are Wheat, Jowar, Bajra, Maize, Ragi, and Pulses.  

**Rice**

Rice is the staple food of the people. There are three regulator rice crops namely Autumn, Winter and Summer and locally known as San dhan, Bad dhan, and Am dhan. Dubri, Jhilli, Puagi, Mahipal, Asamchuri etc. are the popular local varieties whereas Parijata, Ratna, Arnapurna, T-141, Swarna etc. are the high-yielding varieties of paddy gradually gaining popularity in this region.

**Wheat**

Wheat is the another important crop of this region which is cultivated under irrigated as well as non-irrigated conditions. Sonalika and Janak are two dominated high-yielding varieties of this region.

**Maize**

Vikram, Vijaya, Jawahar, Protina etc are the well known maize varieties of this region. Major maize growing areas are Thuanul Rampur, Karlamunda, Lanjigarh, Madanpur Rampur, Narla and Jaipatna.

**Ragi**

Ragi is cultivated during khariff season and the area covered in the Rabi season is negligible. The total production is 1323 metric tonnes in 2005. Improved varieties like Dibya Singha and AKP-2 have been introduced in the district.

**Jowar**

The cultivation of Jowar is mostly practised in khariff season by the tribal people in hill slopes and its cultivation is almost absent in the plains. Improved and high-yielding varieties have also been introduced in the district.

**Til**

Til is grown on high land or Bhatta both in Rabi and Khariff seasons. The khariff crop is sown in June, September, while the Rabi is sown in October and harvested in January.

**Sugarcane**

Sugarcane is cultivated in a limited scale in the district mainly in irrigated lands and in homestead lands. But gradually its cultivation is becoming popular among the local farmers. Out of total areas of district, it is grown in 6089 hectares. Improved varieties of cane have been introduced in the district. The yield rate of 72 quintals per hectare is more than the state average.

**Coffee Plantation**

The soil and climatic conditions of Thuanul Rampur area of the district is highly suitable for the plantation coffee plantation. The average elevation of the area varies between 2500 feet to 3000 feet (750 mt. - 900 mt.) which is suitable to the growth of coffee plants. At present coffee is grown in an area of around 320 hectares. Its plantation has been taken up as a soil conservation measure.
Table - 5
Different Crops and Their Productions
Kalahandi District

<table>
<thead>
<tr>
<th>Name of the Crop</th>
<th>Production in MT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>518176</td>
</tr>
<tr>
<td>Wheat</td>
<td>94</td>
</tr>
<tr>
<td>Maize</td>
<td>116</td>
</tr>
<tr>
<td>Ragi</td>
<td>1323</td>
</tr>
<tr>
<td>Mung</td>
<td>978</td>
</tr>
<tr>
<td>Biri</td>
<td>679</td>
</tr>
<tr>
<td>Kulthi</td>
<td>1004</td>
</tr>
<tr>
<td>Til</td>
<td>270</td>
</tr>
<tr>
<td>Groundnut</td>
<td>1539</td>
</tr>
<tr>
<td>Mustard</td>
<td>56</td>
</tr>
<tr>
<td>Potato</td>
<td>04</td>
</tr>
<tr>
<td>Sugarcane</td>
<td>50346</td>
</tr>
</tbody>
</table>

Problems and Conclusion

The people of Kalahandi District are facing with a lot of problems: cultural, social and economic. Most of the people are neck-deep with the ‘vicious circle of poverty’. The poor family may not have enough to eat. This leads to inadequate diet, poor health, illiteracy, low capacity to work, inefficiency which in turn result to low income and poverty. People of this district suffer from chronic water-borne diseases particularly during rainy season. They are easily susceptible to intestinal and skin diseases, diarrhoea, dysentry, cholera, tapeworm and tuberculosis which occur due to nutritional deficiency.

Because of shifting cultivation the densely wooded tracts of Kalahandi District have been reduced to mere forests of bamboo and dry mixed scrub. Shifting cultivation usually leads to soil erosion, which affects rainfall, destroys valuable forests and deprive people of the benefits of forest and it’s products.

Most of the people in the interior rural village are illiterate. Though there are schools and colleges yet few people get education there because of lack of financial stability. The inhabitants of this district are conservative in nature. Most of the interior villages are deprived of social and economic privileges. Although town areas of Kalahandi district have gradually gained all facilities but still it is not adequate for the development of the district as a whole.

The government should take various measures for the improvements of the socio-economic life of the people. Steps should be taken to stop shifting cultivation and adopt settled type of farming practices. Government should provide better irrigation facilities, agricultural implements, High Yielding Variety seeds and fertilizers to raise the productivity of the land.

To sum up, it may be said that for development of this area emphasis should be given on creation of potential for development on one hand and optimum utilization of existing facilities on the other. Since major portion of the working population derives their livelihood from agriculture obviously this sector is to be chosen for a break through. Farmers are to be funded for development of land. Irrigation facilities are to be created. As land area is limited to increase productivity from unit area of land, intensive land based programmes should be taken-up to modernise farming business.

Various development programmes such as soil conservation, the spread of irrigation facilities and the adoption of improved agricultural practices are introduced as element of dynamism in the land-use and cropping pattern. It is necessary to adopt a planned approach to land utilization with the following objectives:-
1. The development of all arable land for agriculture keeping in view the requisite balance among farming, pastures and forestry.

2. The achievement of an apportionment of land between different uses and a combination of land with other factors which would help to produce the needed quantity and quality of different agricultural or forestry products at lowest possible cost.

3. Improvement in the quality of used land through irrigation and conservation of the fertility of land.

4. To facilitate such shifts in land-use as would increase the returns to the factors employed in agriculture.

For achieving these objectives, proper land-use planning is required. Before the land use planning is done, it is necessary to have a detailed classification of the country into agro-climatic regions and zones, based on the data on rainfall, temperature, humidity, soils, existing cropping pattern, irrigation, density of population, livestock etc. After such a classification is done, it would be necessary to work out the optimum land-use and cropping pattern for each area, consistent with the overall demands for agricultural commodities to satisfy the domestic and export requirement.

Agriculture is the backbone of our economy but agriculture in this region is mostly seasonal, which provide seasonal employment and the farmers have to sit idle for the rest of the season. Most of the agriculturists of this region live in discouraging cultural environment. Most of them are illiterate, ignorant conservative, fatalistic and custom-bound and do not have progressive speed. So the first and foremost duty of Govt. is to educate and train the people. From the land use survey we found that the west land is abundantly available. So proper measures should be taken to increase the quality of waste land. Instead of using more and more of fertilisers, steps should be taken to produce compost for eco-farming manufacture. The productive soil on the land surface should be preserved by large-scale afforestation, contour bunding and regulation of land use. Agricultural research institution should be opened at the regional level to test the suitability of the soil and climatic conditions in different areas for growing different crops. Such institutions have to develop low cost technologies which would suit the needs of small and marginal farmers. Irrigation and fertilisers should be developed which opens up opportunity of the double and multiple cropping.

The imbalance in the occupational structure of this region need a time-bound programme. The pressure of population on land should be reduced by diversification of occupation. This would be possible if we encourage the development of labour-intensive industries. The tertiary sector needs development through creation of self-employment.

In order to remove the regional imbalance in Western India Sugar and Chemical Industry Projects were set up in Kalahandi district with a large investment project of 200 crores. By utilising the by-products like paper pulp, molasses and bagasses, many ancillary industries can be developed, for manufacturing variety of products like paper, spirit and alcohol. From the implementation stage WISCIL has initiated cane development activity but still now it has failed to achieve the desirable target because of lack of co-ordination among various agencies.

The rapid spread of the co-operative marketing society should be encouraged to put the small farmers in a more advantageous position.

Kalahandi is rich in forest, water and human resources but we are not in a position to utilise
these resources. For achieving the goal of developing this region the following points need fast and foremost consideration :-

1. Sugarcane industries should be renovated to accommodate the vast potentials of Kalahandi to produce sugarcane which has very high sugar content.
2. Waste-land should be utilised for forestry.
3. Agricultural research institutes should be set-up.
4. Improved technologies transfer should be done in :
   (a) Mushroom cultivation
   (b) Poultry
   (c) Fishing
   (d) Horticulture
   (e) Animal Husbandry
   (f) Textile and handloom industries

References

2. Ibid
3. Ibid
7. Ibid, p.6-7
8. Ibid, p.7-8
9. Ibid, p.30
13. The data about soil classification is collected from the Soil Conservation Department, Bhawanipatna, Kalahandi.
15. Information is collected from District Statistical Office Record, Bhawanipatna, Kalahandi.
17. Information is collected from Department of Agriculture, Bhawanipatna, Kalahandi.
18. Information is collected from Statistical Office Record, Bhawanipatna, Kalahandi.
20. Information is collected from Department of Agriculture, Bhawanipatna, Kalahandi.

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