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Changing Pattern Of Land Use In Panch Pargana Plain, Jharkhand

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Abstract

For a speedy and rapid development of agriculture, proper utilization of land use is essential. A study of agricultural land use development is concerned with the study of agricultural practices, patterns and agricultural productivity of land. The Panch Pargana Plain is situated on a variable terrain of Jharkhand state and bears very contrasting geomorphic aspects. As a result, this area is having distinct pattern of land use with different agricultural problem.

The main source of livelihood of people is agriculture but in Panch Pargana Plain agricultural productivity is low. Therefore the population of the area suffers from the problem of malnutrition and poverty that adversely affects the living standard .Thus it becomes necessary to make proper utilization of agricultural land, enhancement of irrigation facilities, modern machinery, use of chemical fertilizers, pesticides and insecticides, HYV seeds etc. In this way production can be considerably increased.

Thus in this research work based on various primary and secondary data of research methodology the researcher has tried to analyze the land use of Panch Pargana Plain in detail and find its problems and solution that can be adopted for the growth of agricultural productivity.

Keywords:- Land use, productivity, utilization, pattern, malnutrition.

Introduction

Land use and agriculture being associated with mankind from the very beginning of human civilization has been fundamental assets not only in India but also all over the world. The Panch Pargana Plain is a big geographical region of the state of Jharkhand where agriculture is the chief source of livelihood. It covers an area of about 211200 hectare.

It is bounded by latitude $22^0$58’24" North and $23^0$31' North and longitude $85^0$20'25" East and $86^0$00" East. The plain or plantation surface is delimited in the west and south by 300 meters contour and east by 180 meters contour.

The surface descends gradually to the east and south easterly direction and finally merges in the middle part of the Subarnarekha basin.

OBJECTIVES-

- To study the land use pattern in different years of Panch Pargana Plain
- To study the use and misuse of land in different years
- To know the use and growth of modern technology in agriculture
- To know the causes of low productivity in agriculture
- To know the prospects of agricultural land use for growth in production

METHODOLOGY

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The research work is based on observational study. Statistical account was presented by providing the collected data. Data was obtained by different sources. The data was reflected in forms of table and used for quantitative explanation. For a better presentation these data was used for preparing maps, charts and diagrams. Finally the tables and data were described for a better understanding. Thus it can be said that the study was observational, statistical and descriptive by nature. Maps, diagrams and charts support the descriptive matter.

HYPOTHESIS-

- The percentage of fallow land is high which indicates the misuse of agricultural land.
- Primitive method of agriculture is still being practiced that shows the cause of low productivity.
- The people of this area are not properly using the agricultural lands in various years and are unaware of modern agricultural practices.
- Whether the present pattern of land use indicates about misuse or under use of land resource or it is in optional condition.
- The development of transport network, agricultural infrastructure, depletion of forest has motivated the people of this area to realize the need of proper use of land and agriculture.

DISCUSSION -

"Land utilization in any part of the earth's surface is mainly governed by some inherent laws (physical, social and economic). As land is the base for human sustenance it is necessary to understand the basic principles of land use." Dr.N.K and Jana N.C (1997)

The Indian Government faced a great challenge to raise the agricultural productivity after independence. The country has been facing serious problems regarding scarcity of food before the inception of Green Revolution.

Therefore in order to solve this problem there rose a need to develop the agricultural land use. Package programme was introduced with the aim to increase the agricultural productivity. Two ways were developed i.e. first extensification of agriculture area and secondly intensification of agriculture to enhance crop production.

Under agricultural extensification, development of all available agriculture land use in the area has not been made possible in some way or the other like identifying the waste land and barren land and planning to make them use for agriculture purpose and making all efforts to raise the crop production.

The Indian Agriculture Research Centre, Agriculture University, Agriculture Research Centre, Agriculture Scientist are working towards making use of all kinds of agricultural lands for crop production by studying various aspects because the data record clearly reveals that in Jharkhand fallow land and current fallow in the form of agricultural land use is left unattended in great extent.

For the development of intensification of agriculture by adopting irrigation facilities, modern agriculture like high yield production, use of chemical fertilizers for cultivation more than once, the productivity of crops can be increased even in a limited area.

Even though the farmers here have adopted some new techniques of agriculture like chemical fertilizers, high quality seeds ,pesticides and insectisides for the growth in production but still the pattern of agriculture of this area can not be termed as developed.

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For the development of agricultural landuse, community development blocks has been established. In Ranchi District on 2nd October, 1952 the scheme was introduced in the blocks of Ratu, Mandar and Ormanjhi.

The Block Development Officer is entrusted with the responsibility of development and growth of agriculture. To show the changing pattern of landuse, data for the year 1980–81, 2004–05, 2015–16 has been taken into consideration to prepare the figure shown in **Table No.4.1a. & Fig.No.4.1a**.

Table No.–4.1a

PANCH PARGAN A PLAIN : CHANGING PATTERN OF LA NDUSE

(YEAR 1980–1981 TO 2015–2016) (IN HECTARE)

S.No.		1980 – 1981	In Percent	2004 – 2005	In Percent	2015 – 2016	In Percent
1.	Forest	48153	23	43849	21	40556	19
2.	Land put to Non-Agricultural Uses	17259	8	17420	8	16529	8
3.	Barren and Unculturable Land	15789	7	14628	7	13261	6
4.	Permanent Pastures and Other Grazing Lands	--	---	--	---	--	---
5.	Land under miscellaneous trees, crops and groves not included in net area sown	7629	4	6939	3	5566	3
6.	Culturable Waste	16041	8	13929	6	11715	6
7.	Fallow land other than current fallow	26680	12	27245	13	27599	13
8.	Current Fallow	37294	18	35176	17	30113	14
9.	Net Area Sown	42355	20	52014	25	65861	31
10.	Area Sown more than once	4133	2	7876	4	11942	6
	Total Area	**211200**	**100**	**211200**	**100**	**211200**	**100**

Source : C.D Block Office and District Census Handbook,Ranchi, Jharkhand

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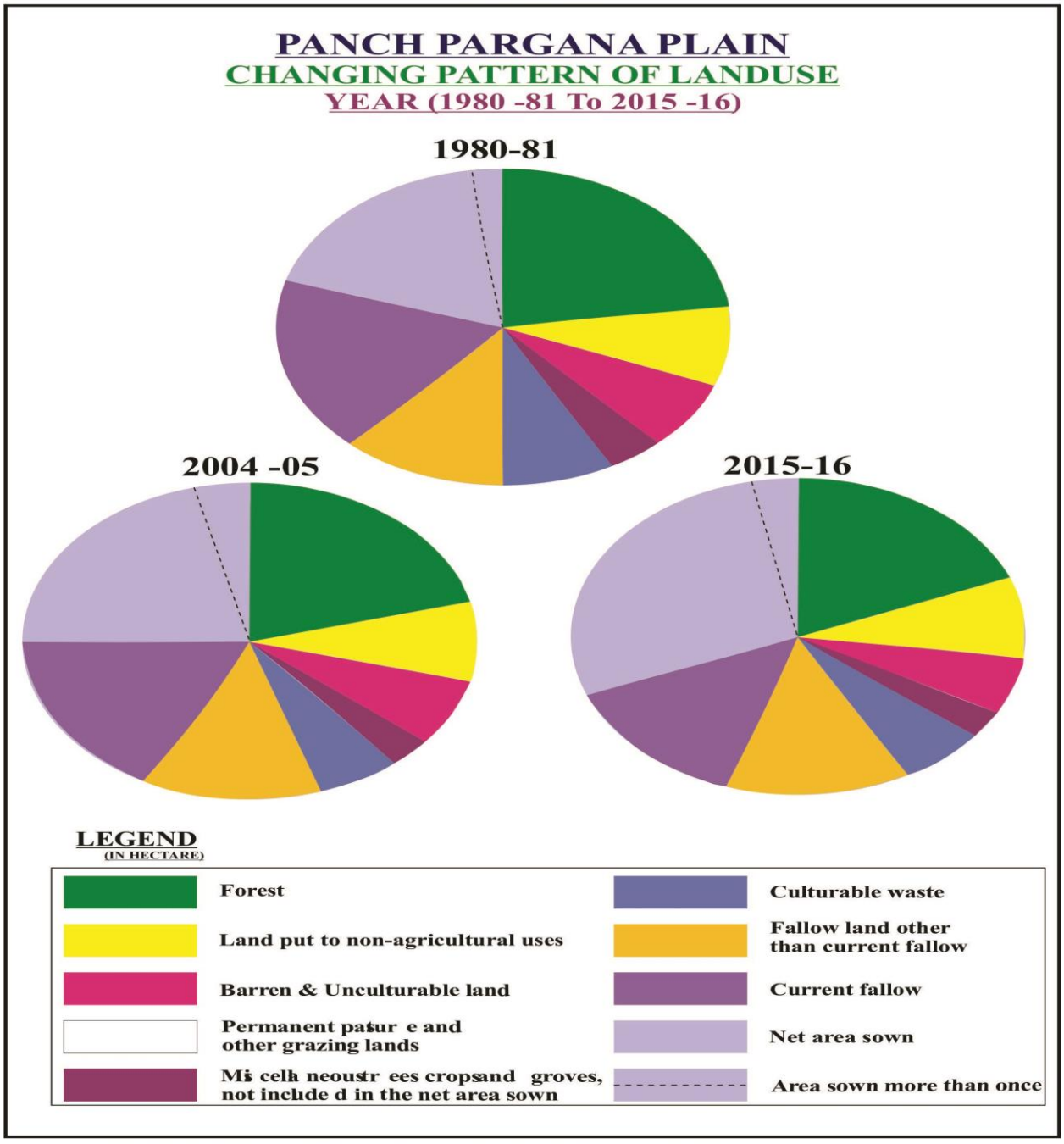
Fig.No. 4.1a



Source : - C D Block Office and District Census Handbook (Ranchi, Jharkhand)

In this table the landuse is divided into 9 categories and the 10th part of this table shows the area of area sown more than once, that gives us the picture of rise or fall in the production of agriculture. So that the changing pattern can easily be cleared.

Forest - The forests of Panch Pargana Plain fall under Dry Tropical type, sub-classification being dry sal type, in which sal (Shorea Robusta) is gregarious. H.H Haines (1925) "Forests included all lands classed as forest under any legal enactment dealing with forests or administered as forests, whether state owned or private, and whether wooded or maintained as potential forest land. The area of crops raised in the forests and grazing lands or the area open for grazing within the forests should remain included under the forest area."Handbook of Agriculture: 1990 ed.Sharma, J.S

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The forest area in the Panch Pargana Plain was 48153 hectare i.e.23% in the year 1980-81, that decreased to 43849 hectare i.e.21% in the year 2004-05 and further reduced to 40556 hectare i.e.19% in the year 2015-16. The percentage figure reduced in order of 23%, 21% and 19%. Now dense forest are not found that used to be found during the year 1980-81 maximum part of the forest area are not covered with shrubs and bushes. The under noted changes are found in the forest area

- Conversion of forest area into bushes.
- Diminishing measurement in forest land.
- Decreasing density of forest trees

Despite the government initiatives to increase and develop the forest area like plantation of new trees in place of old trees cut down, measures adopted to protect cutting of forest trees and to prevent the encroachment into forest area but still the data available reveals that work in this area has been very limited. The area wise data shows that maximum decrease of forest area is found in Sonahatu and the least decrease is found in Bundu.

Land Put to Non Agricultural Uses

"This category includes all lands occupied by buildings, roads and railways or under water, e.g. rivers and canals and other lands put to uses other than agriculture." Handbook of Agriculture: 1990 ed.Sharma, J.S

This category of land use includes all such lands occupied by built up areas (houses and buildings), roads, tanks, rivers, wells, canals (minor and medium), ridges and mining area etc. It can be said that those area which are being used other than agricultural purposes. The decreasing percenatge of this type of land presents a picture of underdeveloped area.Though buildings and roads is constructed in the block areas but decreasing percent of this type of land is found in the whole of the Panch Pargana Plain.In 1980-81 the percentage was 8% i.e.17259 hectare, in 2004-05 the area incresaed to 8% i.e.17420 hecatre and in the year 2015-16 it further decreased to 16529 hectare i.e.8%.The main cause of the diminishing figure is related to the remoteness of the area where facility of roads and buildings is not properly developed.. Therefore it becomes necessary to make use of this type of land for the development of Panch Pargana Plain with establishment of buildings,factories and contruction of roads.

Barren and Unculturable Land

"This category covers all barren and unculturable land, including mountains, deserts etc, which cannot be brought under cultivation, except at a high cost, is classed as unculturable, whether such land is in isolated blocks or within cultivated holdings." Handbook of Agriculture: 1990 ed. Sharma, J. S.

In Panch Pargana Plain the barren and unculturable lands covers hills, scarps, rocky exposures, laterite caps, sites of gully erosion and sandy rocky beds of the river and streams,which cannot be brought under cultivation. Under this category of land area minimum changes has been recorded. Such as in 1980–81 the area of barren land recorded was 15789 hectare i.e.7% which decreased to 14628 hectare i.e.7% in the year 2004-05 and in the year 2015-16 the area of barren land further decreased to 13261 hectare i.e.6%. In this way during the three decades it averaged around 7% only. The area wise data shows that maximum increase in barren land is found in Bundu, Erki,Khunti and the maximum decrease is found in Sonahatu.

The rising percentage of barren land shows the development in the area is decreasing and the misuse of land.The decreasing percentage shows the area is developing.This type of land is found in the

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area of Sonahatu,Tamar and Ichagarh.Therefore it becomes necessary to make use of barren land for the development of Panch Pargana Plain with the plantation of trees in the area.

Permanent Pastures and other Grazing Land

"This category covers all grazing lands whether they are permanent pastures or areal ones or not. Village commons and grazing lands are included under this category." Handbook of Agriculture: 1990 ed. Sharma, J. S.

The land under permanent pastures and other grazing lands is not marked here. Therefore information about this category has not been given.

Land under Miscellaneous Trees Crops and Groves

"Under this class is included all cultivable lands which is not included under the net area sown, but is put to some agricultural use. Lands under casuarina' trees, thatching grass ,bamboo bushes and other groves for fuel, etc; which are not included under 'orchards' are classed under this category." Handbook of Agriculture :1990 ed. Sharma,J. S.

There are some lands which contains fuel food producing or fruit producing tree especially mangoes are planted over small pieces of land in the village of Jharkhand State. These types of lands are known as `BAGAICHA'. However these type of lands also contains suitable soil for the growth of trees and plants. Therefore these types of lands can be utilized for agricultural purposes or for the plantation of trees. Under the land of this category are either community lands or the lands under the control of Revenue Department of Jharkhand Govt. And prior to the oblation of Zamindari system these lands were under the control of land lords. Due to the lack of tenancy right some `BAGAICHA' lands were also owned by the big land holders and the cultivators of this area have not reclaimed their lands for agricultural purpose.

The data shows that the area under this category of land has more or less decreased with passing years. Main reason behind this decrease is due to establishment of houses and buildings in this area or the area has been used for agriculture purpose. In the year 1980-81 the area recorded was 4% i.e.7629 hectare which decreased to 3% (6939 hectare) in the year 2004-05 and which further decreased to 3% i.e.5566 hectare by the year 2015-16.This diminishing figure shows the development of the area in the field of agriculture and establishment of houses and buildings. It can be observed from area wise data that maximum decrease was recorded in the area of Tamar and minimum decrease was recorded in the area of Sonahatu.

Culturable Waste Land

Handbook of Agriculture published by Indian Council of Agriculture Research has defined it as following-

"This category includes all lands available for cultivation, whether taken up for cultivation or not taken up for cultivation once, but not cultivated during the current years and the last five years or more in succession, such lands may be either fallow or covered with shrubs and jungles which are not put to any use. They may be assessed or unassessed and may lie in isolated blocks or within cultivated holdings. Land once cultivated; but not cultivated for five years in succession, shall also be included in this category after five years." Handbook of Agriculture :1990 ed. Sharma, J. S.

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The culturable waste are mostly recorded as 'Gair Mazurwa Land' which is under the control of the revenue department of Jharkhand. And some of the culturable waste land also recorded as community lands. So the individual cultivators are not interested in reclaiming these lands for agricultural purposes. The Govt. had not settled these lands with the poor and land less. If settlement of these lands is done definetly the favourable culturable waste should have been reclaimed for agrcicultural purposes. The second factor is the high cost of reclamation. Generally the culturable waste occur on such lands which had never been used for agricultural purposes. Due to the cover ridges, steeply sloping depression or highy undulating portions, therefore terracing and leveling of the lands requires high cost. After reclamation these lands requires fertilizers, inputs and irrigation. The cost of cultivation is also very high beyond the capacity of the cultivators of medium, small and marginal holding sizes.In this type of land the cultivators do not have the ownership of land and the farmers lack foresightedness. Also the lack of fertile land shows the high percentage of these type of land of this area.Therefore a large portion of fallow land has not been put to agricultural uses that shows the misuse of land resource.

The data shows that the area under this category of land has decreased with passing years. However it has not decreased at the rate which it should have decreased. During the period from 1980-81 to 2015-16 approximately 2% of land was utilized for agriculture purpose. In the year 1980–81 the area recorded was 8% i.e.16041 hectare which decreased to 6% i.e.13929 hecatre in the year 2004-05 and further decreased to 6% i.e.11715 hectare in the year 2015–16. The decreasing data and the minimum percent shows a good sign under this category of land.It can be observed from area wise data that maximum decrease was recorded in the area of Tamar and Sonahatu and minimum decrease was recorded in the area of Khunti.

However considering poverty,low production rate and malnutrition,it is necessary to improve the land for better production.This way the present problem can be solved.

Fallow Land Other than Current & Current Fallow

Handbook of Agriculture published by Indian Council of Agriculture Research has defined fallow land other than current as following-

"This category includes all lands which were taken up for cultivation but are temporarily out of cultivation for a period of not less than one year and not more than five years." Handbook of Agriculture :1990 ed. Sharma,J. S.

The land of this category which though are taken up for cultivation but are temporarily out of cultivation for the period of not less than one year and not more than five years. This is also called fallow or `Purani Parti'. In Jharkhand as well as Panch Pargana Plain, fallowing land is not for conservation of fertility. It is only due to the poverty of the cultivators, low yield rate of the lands, non-availability of capital, other agricultural inputs and lack of time. The poverty of cultivators did not allow them to cultivate their lands with purchased and tilling implements.Also the low yield rate of lands cause the fallowing.Uneconomic production also lead to leave the land fallow. Sometimes farmers fail to manage agricultural inputs or seeds for cultivation. So they pay attention only on managing good lands. Some cultivators finally could not cultivate their certain lands due to non-availability of time in a labour oriented agricultural activities. Handbook of Agriculture published by Indian Council of Agriculture Research has defined current fallow as following-

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"This class comprises cropped areas which are kept fallow during the current year only, for example, if any seedling area is not cropped again in the same year, it may be treated as current fallow**".** Handbook of Agriculture :1990 ed. Sharma,J. S.

This type of land comprises cropped area which are kept fallow during the current year of survey only. If any seedling are not cropped again in same year then it may also be treated as current fallow.In this area the trends of fallowing land during the current year has the same factors responsible for fallowing which were for the fallow lands other than current. And the special distribution of current fallowing are the same.

Both these category of land has witnessed an uneven increase and decrease. Like fallow land other than current fallow recorded 12% i.e.26680 hectare in the year 1980-81 and increased to 13% i.e.27245 hectare in the year 2004-05 and once again increased to 13% i.e.27599 hectare in the year 2015-16. However some changes has been recorded in the category of current fallow. It recorded 18% i.e 37294 hectare in the year 1980-81 and decreased to 17% (35176 hectare)in the year 2004-05 but again decreased to 14% i.e.30113 hectare in the year 2015-16.In these type of land the low percentage shows the development of agriculture.

It can be concluded from the available data that the farmers lack awareness for the growth in production and adoption of modern techniques in agriculture. However the area wise distribution of this category of land shows that in the area of Silli, Tamar, Ichagarh there is a decrease under this category of land. On the other hand there has been a rise in the area of Sonahatu, Bundu, Erki and Khunti.

The decrease in the area of current fallow land shows the growth in production by using fertilizers,hybrid seeds and irrigation facility whereas the increase in the area of fallow land shows lack of awareness, poverty, inability of farmers and lack of facilities.

Net Area Sown

Handbook of Agriculture published by Indian Council of Agriculture Research has defined it as following-

"This term denotes the net area sown under crops and orchards counting areas sown more than once in the same year only once." Handbook of Agriculture :1990 ed. Sharma,J. S.

This category of land use i.e. `Sown Area' includes all those lands which raised crops during the year of cultivation. It is also classified into two groups, viz. (a) net area sown and (b) area sown more than once. The net are sown occupied limited extent in this plain due to several physical and cultural factors. Net are sown comprises both type of lands.Uplands that is `Tanr' and low land that is known as `Don' land. The `Don' lands spreads over the valley portion of the village, which had been terraced for water storage and provide suitable environment for paddy. That is locally known as `Dhan Khet'.The 'Tanr' that is upland, lack water storage capacity, hence suits much for early maturing crops. So both lands rather producing paddy or variety of uplands crops are included in net area sown.

Block Development Schemes run by Government at block level has to increase for the growth of agricultural productivity. The growth rate during the period from 1980-81 to 2015-16 has been 11% which shows the development of this area. This land covered 20% i.e.42355 hectare in the year 1981-81 and increase to 25% i.e.52014 hectare in the year 2004-05 and further increased to 31% (65861 hectare) in the year 2015-16. This is a good achivement for this area. But in order to overcome the

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scarcity of food it is necessary to increase the percentage area of this category. Area wise distribution shows that maximum growth is found in the area of Sonahatu and minimum growth found in the area of Erki.The increasing percentage of this type of land shows the development of agriculture by using fertilizers,irrigation,availability of market,transport,hybrid seeds and implementation of government initiatives.Thus it is observed in the field study that modern techniques of agriculture is simultaneously used with the traditional method that shows the increasing rate of producton.But still a growth is expected for the development.

Area Sown More Than Once

This category of land use includes all those lands, which are used twice or thrice in a year for cultivation. This indicates the intensity of agriculture. Panch Pargana Plain however records a poor intensity of agriculture.

Area sown more than once shows the intensity of agriculture. This also shows the growth in agricultural productivity of Panch Pargana Plain. It is clear from Table No.4.1a. The growth rate in the year 1980-81 was 2% i.e.4133 hectare. This increased to 4% i.e.7876 hectare in the year 2004-05 and in 2015-16 it recorded 6% i.e.11942 hectare. This way during the period from 1980-81 to 2015-16 the growth rate remained around 4%.

But this category of land is very limited.The data clearly shows that agricultural method has not developed intensively.Lack of facilities for irrigation,shortage of funds,lack of interest among the farmers for intensive agriculture are the reason behind the percentage of land available as area sown more than once. For the development of intensive agriculture it is necessary to adopt modern agriculture by providing HYV seeds,chemical fertilizer and irrigation facilty.This way the production of crops can be increased in a limited area by using area sown more than once.The land use pattern of the Panch Pargana Plain shows that intensive agriculture is still not being used to optimum level.However even though the farmers here are doing the agriculture work by using chemical fertilizer,HYV seeds,pesticides & insecticides but even then the agriculture method cannot be termed as developed.And the scope for further development in the field of agriculture in this area exists.

In this way the changing pattern has recorded a growth but at a slow rate of production that gives a picture of poor condition and lack of modernization in agriculture. Hence from this point of view for the development and intensification of agriculture such programmes should be introduced. With the use of such programmes there can be an increase in the agricultural production. This way problem of poverty and malnutrition can be overcome.

CONCLUSION- The analysis of comparative studies makes it clear that in the forests of the Panch Pargana Plain, a continuous decrease has been recorded, the effect of which is evident from the irregularity of rainfall and decrease in the water level. Whereas there is no significant change in almost all the areas with little fluctuation in the percentage of land put to non agricultural uses and barren land.

No significant change has been reported under the miscellaneous trees crops and groves and culturable waste even though these areas also come under Cultivable Land. The percentage of fallow land is almost similar to net area sown in Panch Pargana Plain and is higher in some area like Erki and Khunti C.D Block which is a concern for the agriculturally dominant area. Thus the percentage of cultivable land except the Erki area is approximately more than 50% in all the areas. The percentage of net area sown is lower in all other areas except Sonahatu area. Similarly, maximum growth under area

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sown more than once is recorded only in Silli C.D Block, while the growth rate in other areas is slow. Hence the Panch Pargana Plain which is a agriculture based region this backwardness reflects the plight of this area. Therefore, it is necessary that agricultural land should be used in a modern way to develop the region and to remove the pathetic condition of farmers. Government schemes should be used at the ground level. Along with this, the government should bring convenient schemes for the economic development of the farmers so that the farmers get direct benefits.

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