

LAND USE PATTERN AND ITS CHANGES: A STUDY IN THE CONTEXT OF GUJARAT STATE

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ABSTRACT

Land is a precious and limited source from nature. In India's context, there is a shortage of land in India. India has only 2.42% of the world's land against 17.5% of the world population and about 18.5% of the animal population. Per capita land is decreasing due to the growing population. In 1951, the per capita land was 0.89 hectares in India. It was reduced to 0.37 hectares in 1991 and by 2035 the per capita land is estimated to be 0.20 hectares. As far as agricultural land is concerned, the per capita land was 0.48 hectares in 1951. It has been reduced to 0.16 hectares in 1991 and by 2035 it is estimated to be 0.08 hectare per head. Per capita land is declining with growing population in India. Therefore, it is necessary to use the intensive, extensive and efficient use of the land. So in the paper, changes have been made in the land use pattern since its inception in Gujarat state till date, it has been discussed. Secondary data has been used to obtain information in the present paper. Most reliable sources have been used for this.

KEYWORDS: *Economic Development, Agricultural Land, Industrialization, Fallow Lands.*

Introduction

Gujarat is one of the most prosperous states of India. Gujarat has achieved many milestones in various sectors. Gujarat is a highly industrialized state. It is true that fast economic development everywhere has been made possible due to rapid industrialization. At the same time it is also true that sound agriculture is base. Agriculture has an important role to play in the economic development of an agrarian economy like India. Despite of many difficulties Gujarat is an outstanding performer in agriculture sector too. Gujarat has achieved high growth rate in new millennium. The state has made significant development in the agriculture associated fields such as dairy and cattle breeding. In the context of entire world, there is a shortage of land in India. India has only 2.42% of the world's land against 17.5% of the world population and about 18.5% of the animal population. Per capita land is decreasing due to the growing population. Therefore it is very important to use land efficiently and intensively in a country like India and in its various regions. The paper presented has been studied for the land usages in Gujarat, which one of the important states of India. It also examines the changes occurred in the said filed since the establishment of Gujarat as an independent state since 1960 to till date.

Concept of Land use Pattern

The land usage pattern means "the amount of land or area of various uses during a particular period." Generally, land usage patterns are collected in the context of a specific year.

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Land use Patterns in India

It is essential that optimum factor combination is possible to achieve optimum productivity. When the product is at a minimal cost, it is called the optimum factor combination. Land is the most important factor in the field of agriculture. It is necessary to be classified for its maximum and efficient usage. "Till 1949-50, the land area in India was classified into five categories known as the fivefold land utilization classification. These categories were (i) Forests (ii) area not available for cultivation (iii) other uncultivated land, excluding the current fallows, (iv) fallow lands and (v) the net area sown. This five-fold classification was, however, a very broad outline of land-use in the country and was not found adequate enough to meet the needs of agricultural planning in the country. The states were also finding it difficult to present comparable data according to this classification owing to the lack of uniformity in the definitions and scope of classification covered by these fivefold categories.¹" Since the classification under these five titles is not enough to plan land use, the land has been further classified under nine titles after March 1950, which is known as Nine-fold classification of Land Use. According to this, "Statistics on land use are collected at present, in the form of a nine-fold classification on a yearly basis. The reporting area is classified into the following nine categories:"²

- **Forests:** This includes 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 rose in the forest and grazing lands or areas open for grazing within the forests should remain included under the forest area.
- **Area under Non-agricultural Uses:** This 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.
- **Barren and Un-cultivable Land:** includes all barren and uncultivable land like mountains, deserts, etc. Land which cannot be brought under cultivation except at an exorbitant cost, should be classed as uncultivable whether such land is in isolated blocks or within cultivated holdings.
- **Permanent Pastures and other Grazing Lands:** includes all grazing lands whether they are permanent pastures and meadows or not. Village common grazing land is included under this head.
- **Land under Miscellaneous Tree Crops, etc.:** This includes all cultivable land which is not included in 'Net area sown' but is put to some agricultural uses. Lands under Casurina trees, thatching grasses, bamboo bushes and other groves for fuel, etc. which are not included under 'Orchards' should be classed under this category.
- **Cultivable Waste Land:** This includes lands available for cultivation, whether not taken up for cultivation or taken up for cultivation once but not cultivated during the current year and the last five years or more in succession for one reason or other. Such lands may be either fallow or covered with shrubs and jungles, which are not put to any use. They may be assessed or unassisted and may lie in isolated blocks or within cultivated holdings. Land once cultivated but not cultivated for five years in succession should also be included in this category at the end of the five years.
- **Fallow Lands other than Current Fallows:** This 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.
- **Current Fallows:** This represents cropped area, which are kept fallow during the current year. For example, if any seeding area is not cropped against the same year it may be treated as current fallow.
- **Net Area Sown:** This represents the total area sown with crops and orchards. Area sown more than once in the same year is counted only once.

Objectives of the Study

- To explain the concept and measurement of land use.
- To present a picture of land usage of Gujarat.
- To examine the changes in land usages of Gujarat.
- To convey its conclusions.

Methodology

"The present paper has been prepared by using secondary data. "Secondary data means data are already available i.e., they refer to the data which already been collected and analysed by someone else. Secondary data may either published data or unpublished data."³ The most reliable sources have been used for this.

Importance of the Study

Land is a precious and limited source from nature. In India's context, there is a shortage of land in India. India has only 2.42% of the world's land against 17.5% of the world population and about 18.5% of the animal population. Per capita land is decreasing due to the growing population. In 1951, the per capita land was 0.89 hectares in India. It was reduced to 0.37 hectares in 1991 and by 2035 the per capita land is estimated to be 0.20 hectares. As far as agricultural land is concerned, the per capita land was 0.48 hectares in 1951. It has been reduced to 0.16 hectares in 1991 and by 2035 it is estimated to be 0.08 hectare per head. Per capita land is declining with growing population in India. Therefore, it is necessary to use the intensive, extensive and efficient use of the land. Thus, changes have been made in the land use pattern since its establishment in the state of Gujarat. It has been discussed in the present paper, In this context, its study is useful. "For ecological balance of any regions, 33% of its total geographical area has under forests."⁴ The forest area in Gujarat is very less. In this context, the study of land under forest and various affecting elements which causes changes in it is considerable important. There is a shortage of land in India in general. As there is only 2.42% of the world's land against 17.5% of the world population and about 18.5% of the world's animal population is accommodated in India. India has only 2.42% of the world's land against 17.5% of the world population and about 18.5% of the animal population. Per capita land is decreasing due to the growing population. Therefore it is very important to use land efficiently and intensively in a country like India and in its various regions. Thus study of various usages of land:

Table: Land Use Classification of Gujarat State

S. No.	Detail	Gujarat (Area in 00' Hectares)						India (Million Hectares)
		1960-61	1970-71	1980-81	1990-91	200001	2007-08	2013-14
1	Geographical Area (Sq.Km)	187115	195984	196024	196024	196024	196024	328.73
2	Area according to Village Papers	182986	188128	188220	188219	188118	188102	305.796
3	Area Under Forest	11428	15731	19655	18307	18653	18334	71.828
	%	6.25	8.36	10.44	9.73	9.92	9.75	23.4
4	Land put to non agricultural uses	4059	7710	10670	11221	11419	11632	43.860
	%	2.22	4.10	5.67	5.96	6.07	6.18	14.25
5	Barren & Unculturable land	47386	30765	25034	26092	25997	25950	976
	%	25.90	16.35	13.30	13.86	13.82	13.80	11.38
6	Land not available for cultivation (4+5)	51445	38475	35704	37313	37416	37582	1579
	%	28.11	20.45	18.97	19.82	19.89	19.98	18.40
7	Permanent pastures & other grazing lands	10421	9485	8483	8457	8507	8525	10.258
	%	5.69	5.04	4.51	4.49	4.52	4.53	3.33
8	Culturable waste	7639	19664	19856	19700	19849	19758	12.338
	%	4.17	10.45	10.55	10.47	10.55	10.50	4.02
9	Land Under Misc.	416	137	41	40	40	35	3.187
	%	0.23	0.07	0.02	0.02	0.02	0.02	1.04
10	Other Uncultivated (7+8+9)	18476	29286	28380	28197	28396	28318	25.832
	%	10.10	15.57	15.08	14.98	15.09	15.05	8.39
11	Fallow land other than current fallow	4254	4014	3322	521	131	192	10.694
	%	2.32	2.13	1.76	0.28	0.07	0.10	3.47
12	Current fallow	3413	3492	5394	10379	9189	6227	14.154
	%	1.87	1.86	2.87	5.51	4.88	3.31	4.60
13	Total (11+12)	7667	7506	8716	10900	9320	6419	24.848
	%	4.19	3.99	4.63	5.79	4.95	3.41	8.07
14	Net Area Sown	93970	97130	95765	93502	94333	97449	141.428
	%	51.35	51.63	50.88	49.68	50.15	51.81	45.95
15	Area Sown more than once	3706	7789	11694	12846	10067	20050	59.431
16	Total Cropped Area	97676	104919	107459	106348	104400	117499	19.31
17	Per Capita Net Area Sown (Ha)	0.58	0.47	0.36	0.24	0.19		
18	Cropping Intensity	103.94	108.02	112.21	113.74	110.67	122.64	142

Sources: (i) Statistical Abstract of Gujarat State, Director of Economics and Statistics, Government of Gujarat, Gandhinagar-2014, Page-134-135.

(ii) Indian Economy, Pratiyogita Darpan (Extra Issue) 2017, page-113.

Table has shown the pattern of land use of Gujarat in the year 1960-61 (the year of the establishment of the state) to 2007-08 (the last year in which land utilization figures have been finalized). It has also been compared to the whole of India. Total geographical area of Gujarat is of 196024 sq. km. Out of that 188102 sq.km lands information is available. It is clear from the study of the land use of Gujarat that agriculture has a significant importance in economy of the state. In 1960-61, 93970 hectares of land was available under the net sown area when Gujarat was formed as an independent state, It was 51.35 area in percentage. This proportion increases to 97449 hectares, 51.81 % of total available information in 2007-08. Thus there has been an increase in net sown area over time in Gujarat. However, there is no special turnaround in percentage terms. However, in the state of Gujarat, which is characteristic of the industrial state the increase in net sown area is very significant. So Gujarat is drought prone. Most of the rivers flowing through the state are seasonal and the irrigation potential is only 42.72 % of cultivated area. The state also faces severe environmental degradation like in the nature of declining vegetation, soil erosion, deforestations, water logging, salinity problem and water arising from the over use of canal water and over drawl of ground water. "As the irrigation panel report of Ajit Prasad Jain's presidency (1972) shows that the most severely scarcity areas in the country are in Gujarat and Rajasthan. According to the findings of the commission, 19% of the country's districts are in water shortage, While 60% of Gujarat's districts are suffering from water scarcity. 16% of India's area is scarce, While 43% of Gujarat's area and 60% of the land under cultivation is below the impact of drought. 11% of the country's population is suffering from shortage, While 27% of Gujarat's population is suffering from shortage of rain."⁵ Of course, the fact cannot be ruled out that net sown area has increased only 3479 hectares (3.70%) from 1960-61 to 2007-08. It can be considered low.

The total forest cover of the country, as per current assessment is 701673 sq km which constitutes 21.34 per cent of the geographical area of the country. The total forest area of Gujarat state is 18334 (9.75%) of its total geographical area 196024. "The total forest cover of the country, as per current assessment is 701673 sq km which constitutes 21.34 per cent the geographical area of the country. The total forest cover in Gujarat State, as per current assessment is 14660 sq km which constitutes 7.48 per cent of the geographical area of the state."⁶ For ecological balance of any regions, 33% of its total geographical area has under forests. Therefore, the Government of India has declared national policy for 33% of the country's total land area, which should be forests. Gujarat has also made a lot of efforts to increase the forest area. As a result, the area under forest in Gujarat increased from 11428 hectare (6.25%) in 1960-61 to 18334 hectares (9.75%) in 2007-08. However, it is also a fact that the forest area in Gujarat is still low. There is no forest area of more than one third of the requirement for environmental sustainability. Imbalance of forest affects the environment of Gujarat. 13.80% (25950 hectares) area of Gujarat's total land area was Barren & Uncultivable Land in 2007-08. This proportion was 51445 hectares (28.11%) in 1960-61. Thus, it has been successful in reducing the non-use of land for agriculture compared to 1960-61. Even so, it is still possible to say that this proportion is very high. The proportion of Barren & Uncultivable Land in all India is 43.860 million hectares (14.25%).

However, efforts are being made to reclaim such waste land through various remedies. There are coats of land in some areas of Gujarat. Attempts are being made to bring the depth and the low-lying area of the fields by the bulldozers. When the Narmada plan gets over, many areas of Gujarat can be brought under agriculture. Some areas of the barren land of Kutch can also be cultivated. It is necessary to make efforts to reclaim such lands still further, due to the high levels of non-utilitarian land in Gujarat and the growing population of the country. Gujarat is always recognized as an industrial state. Gujarat continues to occupy a distinctive position in the Indian economy. In Gujarat state with high industrial development and more urbanization the land put on non agricultural uses was 4059 hectares (2.22%) in 1960-61, it increased to 11632 hectares (6.18%) in 2007-08. This proportion of the whole of India is 43.860 million hectares (14.25%). In Gujarat, the proportion of land under permanent pasture was 10421 hectares (5.69%) in 1960-61. It has fallen to 8525 hectares (4.53%) in 2007-08, where as this whole country is in 10.258 million hectares (3.33%). The soil with shallow or thin slopes, which are not useful in farming, is mostly used as permanent pastures. However, the proportion of land in which there is systematic pasture is less in Gujarat. Whereas the proportion of permanent pasture land in India is less than in Gujarat. Thus, very less land is under Permanent pastures than required in the whole of India and Gujarat state. Furthermore, it is declining. In Gujarat, the extent of Cultivable waste in 1960-61 was 7639 hectares (4.17%). This proportion has increased to 19758 hectares (10.50%) in 2007-08. This proportion of the whole of India is 12.338 (4.02%).. Thus, the share of land that can still be brought under agriculture in the country and the state of Gujarat is significant. It can be cultivated on the land, the lowest cultivable

waste land in Dang district. Since most of the land is inundated in Dang district, the land lying there is negligible. When the forest area in Gandhinagar district is less than 1% and irrigation facilities are also less, the Cultivable waste of land is much higher. Land under Miscellaneous trees crops, which was 416 (0.23%) in 1960-61, has dropped to 35 hectares (0.02%) in 2007-08. Fallow land other than current fallow has decreased from 4254 (2.32%) in 1960-61 to just 192 hectares (0.10%) in 2007-08. Current Fallow has increased from 3413 (1.87%) in 1960-61 to 6227 hectares (3.31%) in 2007-08. With the development of irrigation, the area of sown more than one has increased from 3706 hectares in 1960-61 to 20050 hectares in 2007-08. Hence, the crop intensity has increased from 103.94 to 122.64% in this period. This is less than the proportion of the whole of India (126.86%). In Gujarat, there has been a rise in irrigation facilities. But that is not much sufficient yet.'

Due to the ever increasing population, per capita net area sown has dropped from 0.58 to less than 0.19. Thus, the proportion of agricultural land per capita in the state of Gujarat has gone up to fourth in comparison to 1960-61. Therefore, it is necessary to use land intensively. When the per capita land is declining, it is very necessary to increase the productivity of the soil through more irrigation-micro irrigation. There are many possibilities to increase productivity of agricultural crops in Gujarat. As Gujarat state has much more productivity than the national average productivity in oilseed crops like groundnut, and cotton. In addition, many crops like wheat flour have more productivity than national average. Still in comparison to international productivity, it is quite lower. For example, in the country and Gujarat, rice production per hectare is 2391 kg and 2329 kg respectively. There is the highest productivity of rice in the world is in China 9420 kg. per hectare. Similarly, wheat production in the country and Gujarat state is 2751 and 2750 kg respectively. The highest productivity per heater in wheat in the world is 7670 kg in China. The peanut productivity in the country is 1552 kg per hectare. While the production of groundnut in Gujarat is 2154 kg more than the national average. But the world's highest groundnut product in China is 3710 kg. So there is a possibility as well as challenge to improve productivity.

Findings

- Despite of many agricultural inequalities in Gujarat, .There are 51.81 % area of total geographical area is net area sown. This is a lot noteworthy. And there has been an increase of 3479 hectare from 1960-61 to 2007-08. However, this increase, while decreasing the per capita agricultural land with increasing population, the effort to bring down the net area sown more land is considered slow.
- The proportion of forests in the state of Gujarat is very low. There has been a general increase even after several efforts and plans. This affects its environment and the rain.
- The quantity of cultivable waste is still high as high as 19758 (10.50%).
- Increased irrigation facilities have increased in area sown more than once. This ratio increased from 3706 hectares in 1960-61 to 20050 hectares in 2007-08.
- Per capita Net Area Sown is continuously declining. Agricultural land in the 1960s was 0.58 hectare, it was 0.19 hectare in 2001-01 and according to the census of 2011. Cropping intensity was 103.94% in 1960-61 with the development of irrigation facilities. It has increased to 112.64 in 2007-08. This increase can be considered lower than the state's agronomic and overall state of dynamic image.

Conclusion

In the present paper, the study of land usage of Gujarat State has been discussed. More than 50% of the land in Gujarat is net area sown. And it has also increased. However, the total Cultivable waste of farm land is very high in the country and in the state. Forests are essential for the environment prosperity of any region. But it is much lower than the requirement. On the basis of various factors, it can be concluded that it is necessary for the economy to utilize the most important land resources in many ways. There is a lot of importance of proper policy determination in this regards.

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