

Scenario of Population Growth, Agricultural Land use and Food security: An analysis of Jammu District

Dr. Shashi Prabha¹
Assistant Professor,

Hardev Singh^{2*}
Research Scholar

Amrik Singh³
Research Scholar

^{1,2,3} Department of Geography, University of Jammu, 180006.

Abstract

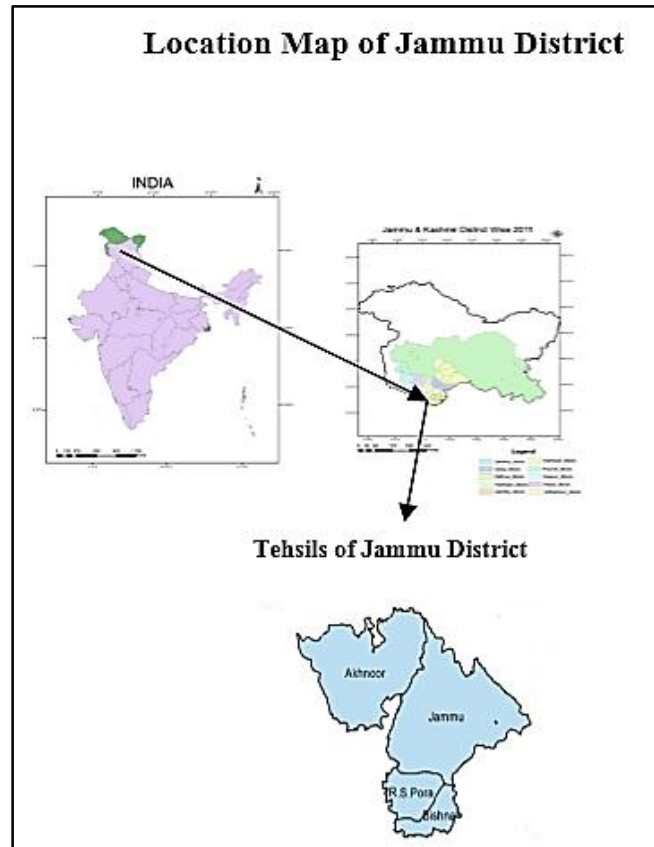
Agriculture is one of the main economies of not only the people of Jammu and Kashmir but of the whole country. As more than 58% of population of the nation still dependent on this sector. Our study region i.e. Jammu District is not even in topography. This District has also one of the most important administrative centers. Because of this, population is attracting to this region and there is rapid demographic change. The agriculture area which is more productive and fertile is being diverted to other purposes for fulfilling the demand of rising population. On the other hand, there is rapid development in infrastructure sector which covers more and more fertile land under different occupations. This is leading to imbalance in the growth of population and production of food crops. The fertile land is now shrinking at a very fast. Because of this, food security of the District is at risk as it is not self sufficient in agriculture sector. For fulfilling the demand of existing population, it has to import lot of food material from other regions. There is mismanagement in Land use, as it has uneven topography having the characteristics of kandi region. Agriculture land is limited, there is a need of proper land utilization and the diversion of agriculture land for different purposes should be stopped

so that we can enhance our most valuable resource in a very sustainable manner.

Key Words: Population, agriculture, Food security, Land use, sustainability.

INTRODUCTION

Land is very important and valuable resource on the surface of the earth. It is the land which basically supports all forms of life on the planet earth. The use of land for various purposes depends upon the nature and characteristics of the living inhabitants of that particular region. It is the human being who can shape land as per his need and desire. As desires are so dynamic so it bears a direct impact upon land use. Land use of any region is as dynamic as it never remains same because of its use for various purposes. The relief of Jammu District is uneven which is marked by mountains, plains, Hills, river valleys, kandi areas and flood plain etc. Due to this uneven topography, the land use of this study region is highly complex. Agriculture is the mainstay of economy of the people of Jammu District. About 60% of population still engaged in Agricultural activities. Agriculture in the Jammu District mainly dependent upon monsoonal rainfall which is erratic in nature because of dearth of irrigation facilities.



The Jammu District is one of the main district and emerging urban centre of Jammu and Kashmir. As the population is growing at a much faster rate which results into spreading of urban sprawl in Jammu district leading towards extension of urban infrastructure causes covering of those areas under building and settlement infrastructure which was earlier under agriculture area. This leads to shrinkage of most valuable agricultural land. In district like Jammu fertile land is confined to the river banks and valley areas and infrastructure development also is having a rapid phase in these plain areas which cause lowering of fertile agricultural land and increase of area under agricultural land only extending towards Barren and other infertile land.

OBJECTIVES

1. To know about the land use of the area.
2. To study about the agricultural land use.
3. To know about the change of agriculture production, yield and area under dominant crops.
4. To access the problems by comparing agricultural production with population growth.
5. To suggest remedial measures for better land use and agricultural development for food security.

METHODOLOGY

Our methods are based on secondary data. The data required for the study has been collected from District statistical Handbook, FCI department, Directorate of agriculture department, Agricultural production department, Directorate of economics and statistics and from Census of India. The data has been tabulated with the help of graphs and tables. After that the changes has been detected with simple statistical techniques of comparing and calculation.

FINDINGS AND DISCUSSION

Table.1. Land use classification of Jammu District (2000-2001) (in Hectares)

District	Reporting area for land utilization statistics	Forests	Not available for cultivation	Other uncultivated land excluding fallow land	Fallow land	Net area sown	Total cropped area	Area sown more than once
Jammu	320119	40238	101352	38495	29280	110754	203840	93086

Source: Directorate of Economics and Statistics, J&K

Land Utilization, 2001, 2011

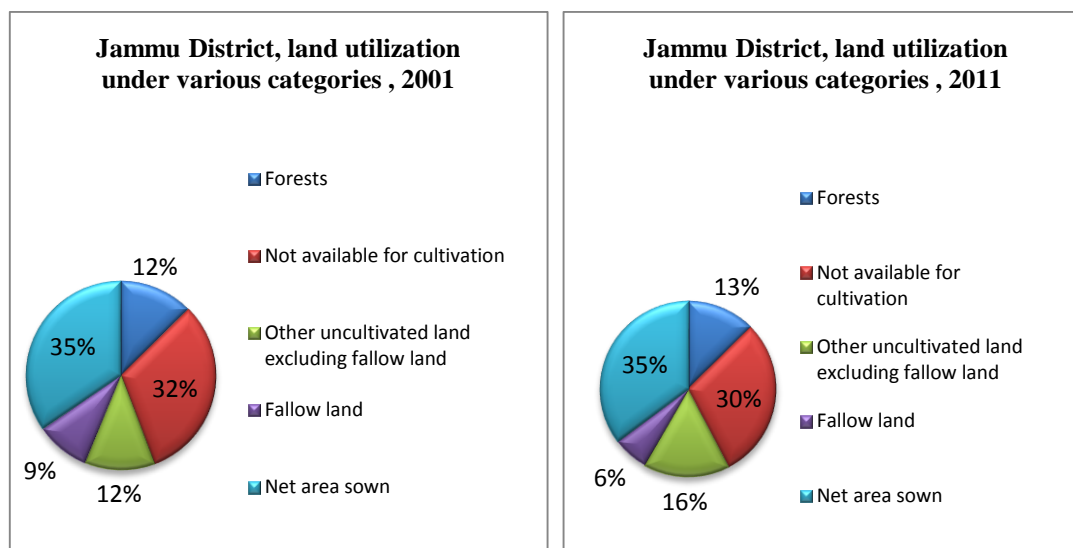


Table.2.Land use classification of Jammu District (2010-2011) (in Hectares)

District	Reporting area for land utilization statistics	Forests	Not available for cultivation	Other uncultivated land excluding fallow land	Fallow land	Net area sown	Total cropped area	Area sown more than once
Jammu	320119	40238	95299	50959	20718	112905	239780	126875

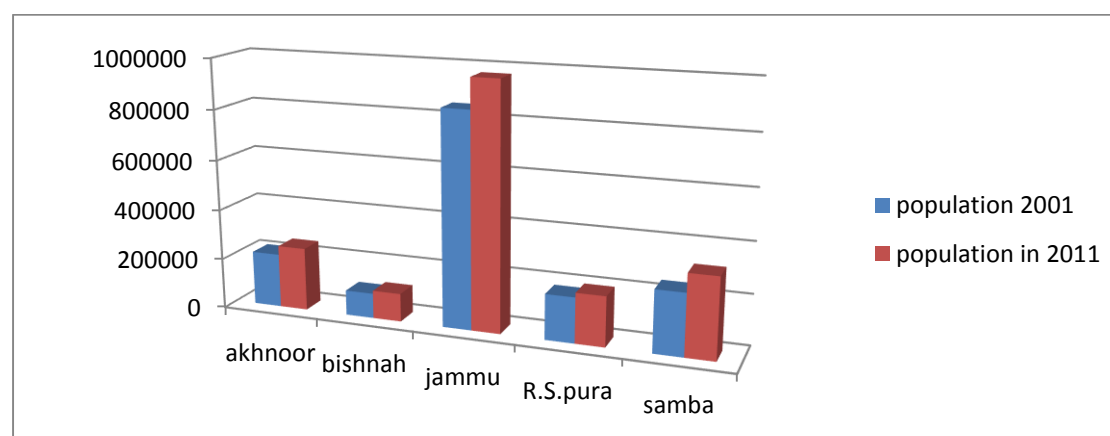
Source: Directorate of Economics and Statistics, J&K

The above table shows the decadal land use changes of Jammu District. It is clear that the area under uncultivated land excluding fallow land has been increased from 38495 hectares to 50959 hectares in 2011. There is 32.37% increase in the area under uncultivated land other than fallow. The net sown area increased only to 1.94 % from 2001 to 2011 which is very less in comparison to decadal growth of population. It claims that the area under agricultural land is not increasing at the rate as the population increased. In spite of different agricultural land reforms taken by the government and investment in it still do not give reliable results. The net sown area of Jammu District among the total reported area is only 35.26% as against the national average of 46%.

Table.3. Tehsilwise population of Jammu District (2001, 2011)

S.No.	Name of tehsil	Population in 2001	Population in 2011	Decadal growth
1	Akhnoor	214834	250446	16.57
2	Bishnah	99239	111438	12.29
3	Jammu	850070	970335	14.14
4	R.S.Pura	179613	197739	10.09
5	Samba	245016	318898	30.15

Source: Census of India 2001, 2011

**Figure 1**

In the above perusal it is clear that the population is increasing at a fast rate. The decadal growth rate of Jammu district from 2001 to 2011 is 16.37 %. It is nearer to national average.

Table.4. Tehsilwise Production of Maize in District Jammu (2001, 2011)
(In Lakh qtls.)

S.No.	Tehsils	Production of maize in 2001	Production of maize in 2011	Decadal growth
1	Akhnoor	0.876	0.737	-12.44
2	Bishnah	0.019	0.010	-47.36
3	Jammu	2.181	2.285	4.76
4	R.S.Pura	00	00	00
5	Samba	0.688	0.665	-3.34

Source: Department of Finance Commissioner Revenue, J&k

The above data shows that the production of maize is decreasing from 0.68 lakh quintals in 2001 to 0.66 lakh quintals in 2011. In Tehsil Akhnoor, there is -12.44% decline, in Bishnah -47.36%, in R.S. Pura 00, in Samba -3.34% decline whereas in Tehsil Jammu there is slightly increase of 4.76% in production of maize. This is very less as per the required production.

Table.5. Tehsilwise Production of Wheat in District Jammu (2001, 2011)
(In Lakh qtls.)

S.No.	Tehsils	Production of wheat in 2001	Production of wheat in 2011	Decadal growth
1	Akhnoor	0.845	1.77	109.46
2	Bishnah	1.408	2.95	109.51
3	Jammu	2.647	5.55	110.80
4	R.S.Pura	3.160	6.636	110
5	Samba	1.096	2.30	109.85

Source: Department of Finance Commissioner Revenue, J&k

It is clear from the above data that the production of wheat doubled during the decade of 2001-2011 which is positive because of various input policies and farmers initiatives.

Table.6. Tehsilwise Production of Paddy in District Jammu (2001, 2011)
(In Lakh qtls.)

S.No.	Tehsils	Production of Paddy in 2001	Production of Paddy in 2011	Decadal growth
1	Akhnoor	1.326	2.011	51.65
2	Bishnah	2.514	3.025	20.32
3	Jammu	3.129	5.014	60.24
4	R.S.Pura	3.666	6.219	69.63
5	Samba	2.367	3.051	28.89

Source: Department of Finance Commissioner Revenue, J&k

From the above table it is clear that the production of paddy increased 51.65% in Tehsil Akhnoor, 20.32% in Bishnah, 60.24% in Jammu, 69.63% in R.S. Pura and 28.89% in Samba Tehsil respectively.

Table.7. Tehsilwise area under maize in District Jammu (2001, 2011) (000 Hectt.)

S.No.	Tehsils	Area under Maize 2001	Area under Maize 2011	Decadal growth
1	Akhnoor	4.505	5.327	18.24
2	Bishnah	0.136	0.087	-36.02
3	Jammu	12.729	9.037	-29.00
4	R.S.Pura	00	00	00
5	Samba	3.580	4.882	36.36

Source: Department of Finance Commissioner Revenue, J&k

The area under the cultivation of maize crops has been decreased from 20.95 thousand hectares in 2001 to 19.333 thousand hectares in 2011. It is also one of the main reasons of declining of maize production in the District of Jammu during the decade of 2001-2011.

Table 8. Tehsilwise area under Wheat in District Jammu (2001, 2011) (000 Hectt.)

S.No.	Tehsils	Area under Wheat 2001	Area under Wheat 2011	Decadal growth
1	Akhnoor	20.535	23.92	16.48
2	Bishnah	9.432	10.98	16.41
3	Jammu	26.665	31.06	16.48
4	R.S.Pura	19.718	22.96	16.44
5	Samba	24.697	28.779	16.52

Source: Department of Finance Commissioner Revenue, J&k

The above table shows that the area under wheat in District Jammu in 2001 was 101.047 thousand hectares to 117.699 thousand hectares in 2011. There has been increasing of 16.47 % of area under wheat from 2001 to 2011.

Table 9. Tehsilwise area under Paddy in District Jammu (2001, 2011) (000 Hectt.)

S.No.	Tehsils	Area under Paddy 2001	Area under Paddy 2011	Decadal growth
1	Akhnoor	5.423	8.201	51.22
2	Bishnah	10.282	12.311	19.73
3	Jammu	11.605	16.123	38.93
4	R.S.Pura	13.646	18.918	38.63
5	Samba	9.220	10.851	17.68

Source: Department of Finance Commissioner Revenue, J&k

The above table shows that the area under paddy has been increased from 50.176 thousand hectares in 2001 to 66.404 thousand hectares in 2011. There has been an increase of area under paddy of 32.34 % during the decade of 2001 to 2011. This is because the agriculture land which was previously under the utilization of maize crop has now been diverted to paddy crop.

Table.10. Tehsilwise average yield of Maize in District Jammu (2001, 2011)
(Kg/Hectt)

S.No.	Tehsils	Yield of Maize in 2001	Yield of Maize in 2011	Decadal growth
1	Akhnoor	1945.23	1384.50	-28.82
2	Bishnah	1375.67	1663.59	20.92
3	Jammu	1713.21	2529.42	47.64
4	R.S.Pura	00	00	00
5	Samba	1921.23	1362.19	-29.09

Source: Department of Finance Commissioner Revenue, J&k

Table.11. Tehsilwise average yield of Wheat in District Jammu (2001, 2011)
(Kg/Hectt)

S.No.	Tehsils	Yield of Wheat in 2001	Yield of Wheat in 2011	Decadal growth
1	Akhnoor	411.42	1664.38	304.54
2	Bishnah	1492.54	2370.56	58.82
3	Jammu	992.8	2352.24	136.96
4	R.S.Pura	1602.51	2391.15	49.21
5	Samba	443.99	2322.33	432.05

Source: Department of Finance Commissioner Revenue, J&k

It is clear from the above table that the yield of each district in wheat has been increased from 2001 to 2011. The maximum increase of yield has been increased in Akhnoor and Samba. This may be because of inputs of new technology and enhances of other facilities like irrigation and fertilizers etc.

Table .12. Tehsilwise average yield of Paddy in District Jammu (2001, 2011)
(Kg/Hectt)

S.No.	Tehsils	Yield of Paddy in 2001	Yield of Paddy in 2011	Decadal growth
1	Akhnoor	2445.44	2453.00	0.30
2	Bishnah	2445.03	2457.29	0.50
3	Jammu	2774.03	3110.00	12.11
4	R.S.Pura	2686.33	3287.55	22.38
5	Samba	2567.29	2812.34	9.54

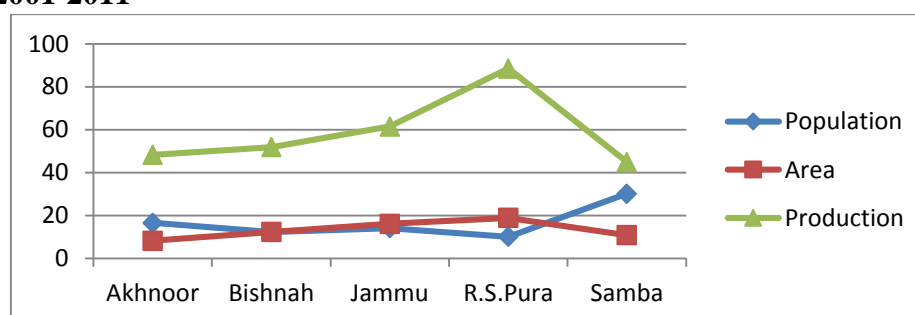
Source: Department of Finance Commissioner Revenue, J&k

The above table shows that the yield of paddy has been increased from 2001 to 2011 is 8.96 %.The maximum yield has been increased in Tehsil R.S. Pura is 22.38% because it is the most productive and fertile land and the sources of irrigation are also there which helps a lot in enhancing the capacity of the region.

Table 13. Tehsilwise growth of population, Area and production (main food crops) in District Jammu

S.No.	Name of Tehsils	Population	Area under main food crops	Production of main food crops
1	Akhnoor	16.57	8.201	48.27
2	Bishnah	12.29	12.311	51.86
3	Jammu	14.14	16.123	61.48
4	R.S.Pura	10.09	18.918	88.48
5	Samba	30.15	10.851	44.92

Source: Department of Finance Commissioner Revenue, J&k, Census of India 2001, 2011

Growth of population, area and production (main food crops) in District Jammu from 2001-2011**Figure 2**

The population of the study region is growing at a very fast rate which results decline per capita availability of arable land. The physiological density of the district is 8 persons/hectare. The land man ratio is 0.12 ha/person which is lesser than the country's man- land ratio. The need of the time is to convert barren and waste land towards agricultural purposes by applying effective and scientific methods.

FOOD SECURITY

Food security is basically a condition in which there is an assurance of availability of food. Food security exists when all people at all the time have economic and physical access to nutritious and safe food to meet the dietary and food preferences for a healthy life. Food security of any region is influenced by many factors like droughts, floods shipping disruptions and fuel shortage. In an area like Jammu district, there is an undulating terrain and highly erratic nature of rainfall which does not provide a production that can meet the required demand. It has also been observed that the production of crops in the study region has increased but the land area under the main food crops has remained nearly constant or increased slightly. It indicates that the farmers of the study region exploited arable land a lot to extract more and more production by applying intensive input methods. But this type of agriculture leads towards exploitation of land and in the coming future, the exploitation will reach at its limit.

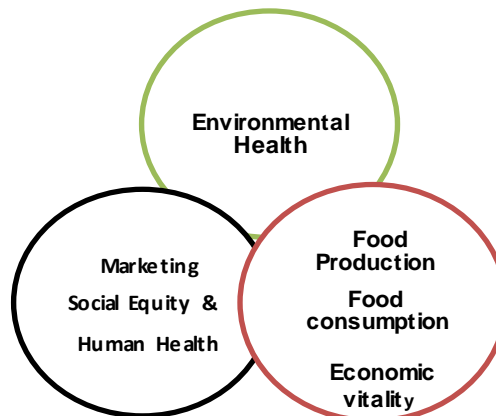


Figure 3

For food security, it's important to have a good relation between environmental health with food processing, distribution, marketing, social equity, human health, food production, food consumption and economic vitality. For fulfilling the demand of emerging population, Jammu has to import a large quantity of food crops from other regions. Because of this Jammu district is not a self dependent in respect to its food security. So this is one of the most serious issues which need to be attention as we have great geographical area but the pattern of land use for different purposes is not as it should be. We have great percentage of barren land so we must use it for

infrastructure instead of fertile land. As we already discussed that the fertile land is very less in the District and the development especially of infrastructure is also taking place at those areas which is agriculturally productive. The need of the time is to frame such policies which can control the diversion of agricultural land for other purposes.

SUGGESTIONS

The above discussion about the growth of paddy, wheat and maize, it is clear that the production, yield and area of wheat and paddy has been increased but the production, yield and area of maize has been decline or near to constant. This is because during this decade of 2001-2011, the main emphasis has been laid on the development of two main crops of wheat and maize. The population of the district also increased, because of which the fertile and good agricultural land has been diverted to settlement and other developmental infrastructure. During this decade, many steps and initiatives have been raised for agricultural production but the target of desired production could not achieve because of shrinkage of fertile land. The area for various infrastructures has been used without proper planning; even a most fertile land has been diverted for it.

Despite of increase in food grain production from 2001 to 2011 as per the report of Jammu and Kashmir Production department, still we have to import more than 40% of food grains from outside. This is because the population is so high that the growth in food grains is not compatible with it

- Framing of such policies which can control diversion of agricultural land use.
- Many people are still unaware about the different policies of agriculture. So, there should be certain provision with the help of which they can aware about the importance of agricultural land.
- Many land reforms initiative has been taken by the government under different programmes like development of wastelands, integrated watershed management programme (IWMP), Technology Development Extension and Training Scheme (TDET) etc. But the harsh realities are that the fertile land is diverting for other non - agricultural purposes. So the main aim of the programmes must be to control the diversion of agricultural land. Before establishment of settlement and other developmental infrastructure it should be kept in mind that it should not harm to agriculture land.
- Initiatives must be taken to control the misuse of agricultural land.
- There must be certain provision which contain rules and laws for avoiding settlement or other kind of infrastructure on the agriculture land and the violation of this must be punished.

REFERENCES

- [1] Kushwaha, R.A.S, Devi Nandini, Okendro, M., Goel, O.P., 2007, "Landform and Land-use Analysis of Thongjaorok Basin, Manipur," Transactions, vol.29 no.2, summer, pp.194-199.
- [2] Jha, M., Singh,R.B., 2008, "Land use reflection on spatial informatics agriculture and development," Concept publishing house, New Delhi.
- [3] Husain Majid.,2009, "Systematic Agricultural Geography," Rawat Publication, New Delhi.
- [4] Nagare Vikas, Joshi, Veena., 2010, "Temporal changes in the Land-use/Land-cover for the last one Decade along the Pravara River Basin, Maharashtra," Transactions, vol.32 no.2, summer, pp.183-190.
- [5] Gupta Rupesh., 2012, "Monitoring Urban Land-use cover through Remote Sensing and GIS: A case study," Transactions, vol.34 no.1, winter, pp.75-80.
- [6] Shakeel.S., Kanth,T.A., 2012, "Landform and Land-use Analysis of Lidder River Basin, Kashmir," Transactions, vol.34 no.2, summer pp.257-264.
- [7] Jaiswal Jitendra Kumar., Verma Narinder., 2013, "The study of the Land-use / Land-cover in Varanasi District using remote sensing and GIS," Transactions, vol.35 no.2, summer pp.201-208.
- [8] Bhat, M.M and Shah A.R., 2011, "Agricultural land use and cropping pattern in Jammu and Kashmir," Research Journal of Agricultural sciences, pp.710-712.
- [9] Niru, Kushwaha., 2008, "Agriculture in India: Land use and sustainability," International journal of rural studies vol.15 number 1.
- [10] Singh Hardev and Singh Rohit., 2014, "Population and Sustainability Issues in Mountains: A Case Study for the Jammu Province." Change in Cryosphere its Impact on Ecosystem Services and Rural Livelihoods, Excel India Publishers, pp.398-405.
- [11] Ingram, JSI., PJ Ericksen and DM Liverman., 2010, "Food Security and Global Environmental Change," Earthscan, London, pp. 361.
- [12] Chavas, JP., 2000, "The Microeconomics of Food Security," The Australian Journal of Agricultural and Resource Economics, 44 (1), pp.1-29.