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POPULATION GROWTH AND LANDUSE CHANGE: A CASE STUDY OF AKHNOOR TEHSIL

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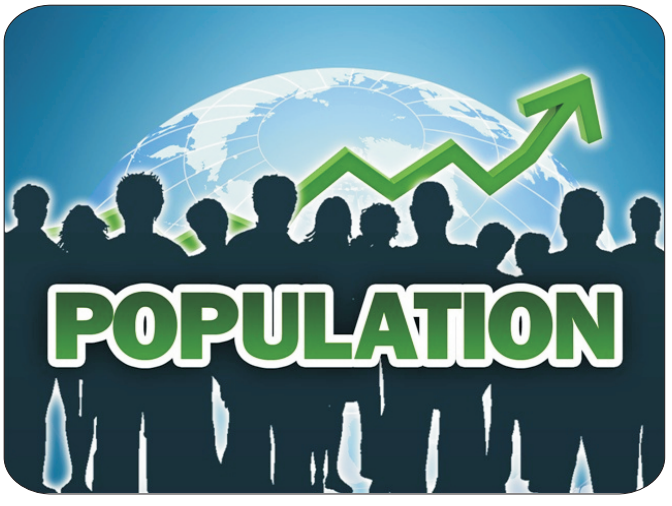

ABSTRACT

The paper examines the relationship between demographic processes and land use in the tehsil Akhnoor. The conceptual framework considers the changes in the demographic behavior being induced by population growth and increasing pressure upon land. Population of Akhnoor was 1, 22,462, 1,35, 537 and 2,14,834 persons in 1971, 1981 2001 respectively have indicated upward trend in successive census years . The tehsil experienced 57 and 58 percent rate of changes in 1971-81 and 1981-2001 respectively. Due to this increase in population landuse pattern of tehsil has undergone many changes e.g. there is increase in the share of net sown area, land put to non agricultural uses while the share of forest land, current fallow land and permanent pastures and other grazing land has been decreased. Population increase is viewed as threat to the inherent limits of arable land to provide food, shelter, and sustenance. According to Malthus the agricultural production increases in linear linear scale while the population in geometric progression.

KEYWORDS :Population Growth ,Landuse Change,demographic processes , demographic behavior .

INTRODUCTION:

Population study and its various aspects, fertility and growth, distribution, composition, migration, density have often been made somewhat in isolation as being something purely distinct from other studies. Population cannot exist apart from environment in which people live, work and shape their environment for better or worse.

It is of vital importance for understanding its dynamism as well as for planning at the social and regional context. It has been source of concern among geographers, demographers, sociologists, anthropologists, economist, political scientist, and regional planners. An increase in population give rise to basic problems pertaining to food, cloth and shelter, restricts the socio-economic progress and development. The decline in mortality, fertility and migration have adversely effected the

developmental processes.

The growth of population whether it is positive or negative, undoubtedly does reflect the history of man's response to the environment possibilities. Moreover, further trends in population growth may only be estimated from the evidences provided by the past behavior of the population growth.

Population growth of individuals depends on the physical factors as food, water, space and energy for their survival. The scarcity of any of these factors can become a "limiting factor" for the future growth of a population (Biswas and Biswas 1981). The earth resources are getting scarce because of increase in population as well as increase in consumption of different resources by more and more people to increase their standard of living.

Land, the basic resource of human society, its utilization indicated reciprocal relationship between the prevailing ecological relationship and man. The term land use employed for varied, surfacial and dynamic use of land and land surveys e.g. land under cultivation, pasture, orchard fallow, waste, settlement, forests, water bodies on varied terrain conditions and soil types. The land use pattern is determined by two sets of factors, (a) Physical like topography, climate and soil which determine the capabilities of land. (b) The human factors like the length of occupance, density of population, social and economic institutions determine the extent to which resources of land utilized

STUDY AREA

Akhnoor town situated at 2½ km below the ancient Buddhist excavation on the right bank of Chenab river. The ancient fort believed to have been constructed in contemporary with the other forts of India. The magnificent ancient tunnel which is famously known as Pandavas cave it is hearsay that the Pandavas used to live here in their exile. There are also some important historical temples on right bank of Chenab river believed to be in the era of Mahabharata.

Akhnoor Forms one of the tehsils of Jammu district bifurcated into Kandi and plains region. Kandi experienced contains undulating, dissected relief, bearing the rills, gullies and non perennial rivulets flow from north east to south west. Akhnoor is the tehsil headquarter situated on the right bank of Chenab from where it debouches in the plain and spread over miles to traversed over 30 kms. Akhnoor Tehsil divided into two developmental blocks on the basis of homogeneous geographical phenomenon i.e. Akhnoor and Khore and consists of 205 villages. Tehsil regionalised on the basis of Dudley stamp approach physiography, geology and climate. The average altitude of Shiwalik Akhnoor in 360 mtrs. whereas plain recorded 270 mtrs. Morphology plays an important role in the cultivation of crops (agriculture) the form of the terrain throws illumination on the landuse, population growth, distribution and variety of agricultural crops. Geology of the land exercise direct influence on landuse particularly through elevation, ruggedness and slope affecting the agricultural technology and investment.

OBJECTIVES OF THE STUDY

1.To study population growth of Akhnoor Tehsil.
2.To evaluate inter & intra villagewise Land use pattern.

METHODOLOGY

The indicators selected are qualitative different in their significant evaluation is proper to evolve a methodology to identify the regional, social, economic and agricultural pattern. Evaluation of geographical phenomena assumes technical, systematic, scientific and statistical methodology. The

present attempt scientific presentation of population pressure on landuse changes have been analysed on various steps based on research techniques from primary and secondary sources of information. The research entails of primary and secondary when necessary primary sources have been generated to strengthen, support, development and update the secondary data base. Primary data have been gathered through extensive field survey.

The information has been collected with the help of 200 multi-structural questionnaires. The questions were formulated in such a way that maximum information can be generated. The major dimensions which were covered in the questionnaires were the population attributes and land under different crops. The village wise study was carried out in order to investigate the veracity, it was imperative to select samples such as Pargwal, Nandwal, Choki, Bali and Kharah that all villages has due representation.

RESULTS AND DISCUSSIONS

Population growth not always related to economic circumstances. The physical and social conditions of life determine this growth of population vary from place to place and continue to also as long as human society exists. Malthus (Essay on principles of Population published in 1798) original theory of population growth stated this relationship. The growth of population whether it is positive or negative, undoubtedly does reflect the history of man's response to the environment possibilities. Moreover, further trends in population growth may only be estimated from the evidences provided by the past behavior of the population growth.

Rapid population growth also raises the number of persons in working age group. This leads to migration from one place to another one region to other, one continent to other and rural to urban. The higher population growth leads to poverty and unemployment which is true in the case of developing nations leading to unplanned urban development and slums are appearing in almost all cities of the developing countries.

Table 1.
Population Distribution-Change

	Percent	Category	1971-81		1981-2001	
			Village	Percent	Village	Percent
Kandi	**<0**	**Negative**	**2**	**2**	**3**	**3**
	0-25	V.Low	27	23	21	18
	25-50	Low	48	42	54	47
	50-75	Medium	23	20	14	12
	75-100	High	2	2	10	9
	>100	V.High	13	11	13	11
			115	**100**	**115**	**100**
Plains	**<0**	**Negative**	5	6	19	21
	0-25	V.Low	22	24	15	17
	25-50	Low	38	42	27	30
	50-75	Medium	13	14	9	10
	75-100	High	6	7	11	12
	>100	V.High	6	7	9	10
Total			**90**	**100**	**90**	**100**

Source: Census of India, J&K

Population of Akhnoor 1, 22,462, 1,35, 537 and 2,14,834 persons in 1971, 1981 2001 respectively have indicated upward trend in successive census years . The tehsil experienced 57 and 58 percent rate of changes in 1971-81 and 1981-2001 respectively . Table 3.18 depicted 5 percent villages have registered negative growth in 1971-81 significantly increased to 10 percent in 1981-2001. Mewa Karora, Rahani Jugwal in Kandi and Rakh Dahoke, Sahamuna, Pangali, Panjtoot, Sainth, platan, Magial lalu, Malal Ahgal, Kachrial villages. Plains have registered 42 percent highest. Goru Bajorian, Mandrian, Dakhar, Jomotian, Khathar Nathal, Jogwan, Datial, Seetriala, Bandwal, Dehrian, Matoo, Danwal villages.

9 and 11 percent village in 1971-81 and 1981-2001respectively reported Very high growth i.e. above 100 percent Jothal, Balsaro, Palwan, Tila, Kandi, Rajwal, Bali, Devipur, Bamhal, Nikian, Gujral villages. The availabilities of health services in rural area sharply declined the mortality rate responsible for higher population growth. The consistency in birth rate may further be attributed to the dependence of population on pastoral and substantial agricultural activities which require more man power. Postponement of marriage can contribute substantially to a reduction in birth rate and population growth (Coale and Tye). The other factors which affect the birth rate [growth of population are age at the time of marriage, marital status, education, urbanization and socio economic conditions.

ARITHMETIC DENSITY- CHANGE

Increase or decrease in population has radical change in man land ratio. The overall pattern of Arithmetic density has changed to considerable extent experienced the growth of 62 and 67 in the different growth years. It is interesting to note that the Kandi has experienced more growth than the plains.

Table: 2
Arithmetic Density- Change

	Percent	Category	1971-81		1981-2001	
			Village	Percent	Village	Percent
Kandi	**<0**	**Negative**	**6**	**5**	**3**	**3**
	0-25	V.Low	26	23	20	17
	25-50	Low	43	37	47	41
	50-75	Medium	24	21	15	12
	75-100	High	3	3	11	10
	>100	V.High	13	11	19	17
Total			**115**	**100**	**115**	**100**
Plains	**<0**	**Negative**	5	6	17	19
	0-25	V.Low	26	29	20	22
	25-50	Low	35	39	26	29
	50-75	Medium	13	14	8	9
	75-100	High	7	8	2	2
	>100	V.High	4	4	17	19
Total			**90**	**100**	**90**	**100**

Source: Census of India, 1971, 81 & 2001

It is evident from the table 3.19, 5 to 10 percent village has reported in the category of negative growth in 1971-81and 1981- 2001. Negative growth is due to the population migration. The villages at

negative growth are as follows Rahani Jagwal, Jogiani, Sahamuna, Garar, Rakh Dhok, Sainth, Rakh muthi, Platon, Kachrial, Panjtoot. 25 percent village in 1971 have experienced Very low growth, this share of villages have decreased in 2001. The villages are Bhagwan Chak, Bahopur, Bakor, Hamirpur, Laham, Basiara, Nara, Manoha Sahar, Kaleeth, Thandichoi are the villages reported very low growth. Percent share of village in very high growth category increased from 8 to 18 percent in1971-81and 1981-2001 respectively in the villages Manchak, Sajwal, Palwan. Kandi, Jothal, Tila, Bali, Thandi choi.
The pattern of land use is complex, dynamic and spatially variable. The complex land use pattern in an area manifests the outcome of trial and errors of many thousands years of settlement. The pattern of land use in India, the result of long continued operation of the whole range of environmental factors but modified by the socio-economic and historical elements (Shafi, 1966). The need of the hour a careful planning of land resources for the future which must take the present and past trends in be dynamic and not static, flexible not rigid, capable of being adopted to changing of the conditions, not forgetting the changing habits of the people (Stamp, 1962).

The landforms have marked control over the land use either directly by their slope and relied directly or indirectly, through the soil developed on them. Some landform with their hidden resources like underground water improve the quality of land, if proper exploitation of such resources carried out. Some other landforms impose severe limitations over land use due to flooding close to river or sea. A close comparison of both the land and land use maps of the area brings out very clearly the fact that landforms have certain control over the present land use. Many Scholars from different fields have evolved their own classification schemes for land use mapping, although Technical Committee on Co-ordination on Agricultural Statistics (T.C.C.A.S) in 1950 recommended standard classification and uniforms definitions adopted by the states over India. The definitions and explanations have been further revised by the committee on Improvement of Agricultural Statistics for the sake of uniform Indian land use classification. The tehsil divided into 9 fold landuse categories:- Reporting area of the Tehsil is 96048 hectares. The existing pattern of landuse is the result of interaction between physical and socio-economic factors besides these tehsil regionalised on the basis of Dudley Stamp Scheme has been adopted for regionalization of the tehsil the primarily physiography and structure secondly climate for micro region of the area. The climatic factor have a insignificant determining factor because of limited extension where as physiography have been decisive in delineation of kandi and plains. The plains are breached by main perennial river Chenab determined the variation in landuse and cropping pattern. Akhnoor tehsil (Akhnoor here after) considerable regional variation because of environmental framework of the kandi and plains of the tehsil.

Table 3
Akhnoor -Landuse

Category	1971		1981		2001	
	Area (hectares)	Percent	Area (hectares)	Percent	Area (hectares)	Percent
Net sown area	20188	21	24811	26	32526	34
Current fallow land	13214	14	9204	10	6937	7
Fallow land	4387	5	4717	5	2987	3
Barren land	10889	11	11069	12	11130	12
Land put to non agricultural uses	4604	5	6802	7	10445	11
Culturable waste	8333	9	9610	10	7835	8
Permanent pastures &other grazing lands	8180	9	7202	7	3154	3
Land under miscellaneous	4557	5	4348	5	3903	4
Forest	21698	23	18288	19	17132	18
Total	**96048**	**100**	**96048**	**100**	**96048**	**100**

Source: Department of Revenue, J&K, 1971, 1981 and 2001

The Kandi includes the transitional Shiwalik mounds, the rugged topography, lack of irrigation facilities, infertile soil, larger area under forest and barren land or land which is not suitable for agricultural activities and other human dwelling due to in accessibility and other infrastructure development in Kandi renders less development. and plains includes the outer plains which is the extension of Punjab plains and outer plains Jammu. Chenab river debouches from Akhnoor through this plains breached the plains and ultimately joins Jhelum river. The landuse categories have been described separately of kandi and plains.

Table: 4
Kandi-Landuse

Category	1971		1981		2001	
	Area (hectares)	Percent	Area (hectares)	Percent	Area (hectares)	Percent
Net sown area	9521	14	11901	18	16865	25
Current fallow land	8161	12	6120	10	5169	8
Fallow land	3264	5	2897	4	1836	3
Barren land	9317	14	9249	14	9249	14
Land put to non agricultural uses	3060	5	4420	5	6801	10
Culturable waste	4964	6	7168	11	6324	9
Permanent pastures &other grazing lands	5372	8	5236	8	2176	3
Land under miscellaneous	2788	4	2720	4	2448	4
Forest	21558	32	18294	27	17137	25
Total	**68005**	**100**	**68005**	**100**	**68005**	**100**

Source: Department of Revenue, J&K, 1971, 1981 and 2001

Analysis revealed that the current fallow land about 12 percent in Kandi and 13 percent in plains and shown downward trend. Current fallow land, Fallow land, permanent pastures and forest registered significant variation in 1981 and 2001. Percent share under land put to non agricultural have registered increase. Land use categories land under miscellaneous, culturable waste recorded slightly low decrease in different study years.

Table 5
Plain- Landuse

Category	1971		1981		2001	
	Area in hect.	Percent	Area in hect.	Percent	Area in hect.	Percent
Net sown area	10667.36	38	12915	46	15666	56
Current fallow land	5052.96	18	3088	11	1769	6
Fallow land	1122.88	4	1825	6	1151	4
Barren land	1572.032	5.6	1825	7	1881	7
Land put to non agricultural uses	1543.96	5.5	2386	8	3650	13
Culturable waste	3368.64	12	2442	9	1516	5
Permanent pastures & other grazing lands	2807.2	10	1965	7	983	4
Land under miscellaneous	1768.536	6	1628	5.8	1460	5
Forest	0	0	0	0	0	0

Source: Department of Revenue, J&K, 1971, 1981 and 2001

FINDINGS AND CONCLUSIONS

Landuse analysis revealed the net sown area consistently increased in three decades and current fallow, cultural waste, permanent pasture have been and other grazing consecutively have declined its areal coverage because of the development of intra structural facilities. The Fallow land, and land under miscellaneous category have registered in significant variation in the spatial coverage and the regressional trend in landuse have pointed out the net sown area have significantly enhanced which have brought out a breakthrough in the landuse in the plains.

Landuse in kandi have also reported the similar trend as evident from the landuse in plains. It is pertinent to pinpoint here that the barren category almost remains the same because of restrictive factors of the topographical conditions and altitudinal frequencies. The current fallow has indicated the declining trend significantly. The other categories have insignificant regressional trend of the areal coverage.

Analysis of population density, constantly increased from 212 in 1971 to 600 persons in 2001, plains have recorded higher density because of attractive fertile soil, irrigational & better surface road connectivities in plains. Kandi have reported lesser because of topographic environment conditions. Plains have adopted modern agricultural technology and mechanical power has entered in the field in ploughing, cultivation, transportation, thrashing, reaping and binding. Kandi experienced traditional agricultural sector because of the restrictive topographic factors and likely to continue in decades to come. Analysis of population and landuse have revealed and established that land use have its strong bearing because of the increase in population conforms the changes in land use pattern the tehsil carries population as great as the environment can support without degeneration, and it will call for all the knowledge and skill irreparable damage before we achieve stable population, The current fallow,

fallow, and permanent pastures and others grazing land have significantly declined and established the finding the land use have changed proportionate with the increase of population.

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