

LAND USE AND LAND DEGRADATION IN SANGLI DISTRICT (MAHARASHTRA):- A GEOGRAPHICAL STUDY

Suryawanshi U. N.

Asst. Prof. in M. P. Patil Mahavidyalaya, Borgaon. Tal. Walwa, Dist. Sangli, (Maharashtra)

Abstract

Agriculture is one of the oldest and prime activities of the human being. It has remained an important source of food. In spite of growing industrialization and urbanization in the world, nearly fifty per cent working population still engaged in agriculture. In developing countries agriculture sector has been a major source of employment and contributed to the national economy. The word agriculture is derived from the Latin word 'ager' means the land or field and 'cultra' means cultivation; it means the science and art of producing crops and livestock for economic purpose. Agriculture is an art of raising plant life from the soil for the use of mankind. The basic aim of agriculture is to raise stronger and more fruitful crops and plants and to help them for their growth by improving the soil and supplying the water.

Keywords: Agriculture, land use, Land degradation.

Introduction

Agriculture is the mile stone in the history of human civilization, due to agriculture man settled at a particular place. Agriculture is a backbone of Indian economy. In India, near about fifty seven per cent of the total population is dependent on agriculture for their livelihood. Despite of technological advancement and conquest over nature, the agricultural activities in the world are closely controlled by physical factors. Indian agriculture is not an exception for this; today India is facing two main problems concerned with agriculture. The first is meeting the increasing demand of food and other is supplying agro products for ever increasing population and the second is uneven development of agriculture and changing pattern of agricultural land use. India tried to be self sufficient in agriculture through five year plans after independence by taking systematic efforts. Due to the unique importance, agriculture gets more and more attention in every five year plans and top priority is given for the development of agriculture in our country. As land is one of the important constituents of agriculture, the study of land and agriculture from the geographical point of view gained more importance after 1950. At the beginning of 1970 and later on the Green Revolution brought a remarkable change in the field of agriculture. Due to this, India became not only self sufficient in food grains but it could also export a small quantity of it. The green revolution also known as the HYV revolution, strengthen the Indian agriculture. Even then, the process of agricultural development is not properly channelized because of uneven rainfall, unavailability of basic infrastructure facilities and unbalance allocation of resources. The green revolution is succeeded only in the areas of irrigation. In spite of lot of efforts by government, the small farmers could not get the benefit of it. This creates a large gap between small and big farmers and imbalance is created. To reduce this gap, systematic planning is required. For this purpose, it is necessary to have the detailed information of the region. The research in agricultural geography in the region can be useful to solve the problems of the region and helpful in planning for agricultural development. The present exposition has an attempt to study the Raigarh district for the better planning and development of agriculture.

The term land use is virtually self-explanatory meaning the actual and specific use to which the land surface is put to in terms of inherent primary land use namely, land under forest,

pasture, cultivation etc. "Land use means surface utilization of all developed and vacant lands for a specific point at a given time and space (Foreman T.W.-1968). Land is controlled by climatic factors, soil characteristic slope of land degree of erosion, drainage and other environmental factors. The use of land changes according to the changing needs of man. Lands are used for forest, pastures, transportation, and settlement, industrial and commercial purposes. Whereas, uncultivable wasteland, barren and fallow land are unused lands. Land degradation is a comprehensive term often used to denote the decrease in biological productivity, fertility status and property of land in general. The term degradation as used in geomorphology, indicating disintegration or decomposition of rock material is loosely used to denote deterioration of the status of the environment. Ministry of Food and Agriculture, Government of India (1962) defined this term as, 'the land available for cultivation but not taken up for cultivation nor abandoned after a few years for some reason or other'. To conclude, a piece of land which is not being utilized at present, in any manner may be called a degraded land and includes the lands which are left fallow over a period of time and unutilized, underutilized for cultivation of any crop or plant due to various constraints. The degradation of Land resources is a significant part of environmental geography as well as agricultural geography. From this view point in the present research paper an attempt has been made to analyses general land use, agricultural land use and agricultural land degradation at selecting Sangli District of Sangli district of Maharashtra state as a case study.

The term land use is virtually self-explanatory meaning the actual and specific use to which the land surface is put to in terms of inherent primary land use namely, land under forest, pasture, cultivation etc. "Land use means surface utilization of all developed and vacant lands for a specific point at a given time and space (Foreman T.W.-1968). Land is controlled by climatic factors, soil characteristic slope of land degree of erosion, drainage and other environmental factors. The use of land changes according to the changing needs of man. Lands are used for forest, pastures, transportation, and settlement, industrial and commercial purposes. Whereas, uncultivable waste land, barren and fallow land are unused lands. Government of India has now officially classified land under following categories like a) Reported area for land cultivation purposes, b) Forests. c) Barren and uncultivable land, d) Land put to non- agricultural uses, i) Culturable waste, ii) Permanent pasture and other grazing land, e) Land under miscellaneous trees, crops and groves not included in net area sown, i) Current fallow ii) Other fallow land, f) Net sown area, g) Area sown more than once and h) Total cropped area. These twelve categories are finally grouped into five classes such as a) Forest land, b) Net sown area, c) Land not available for cultivation, d) Cultivable waste and e) Fallow land.

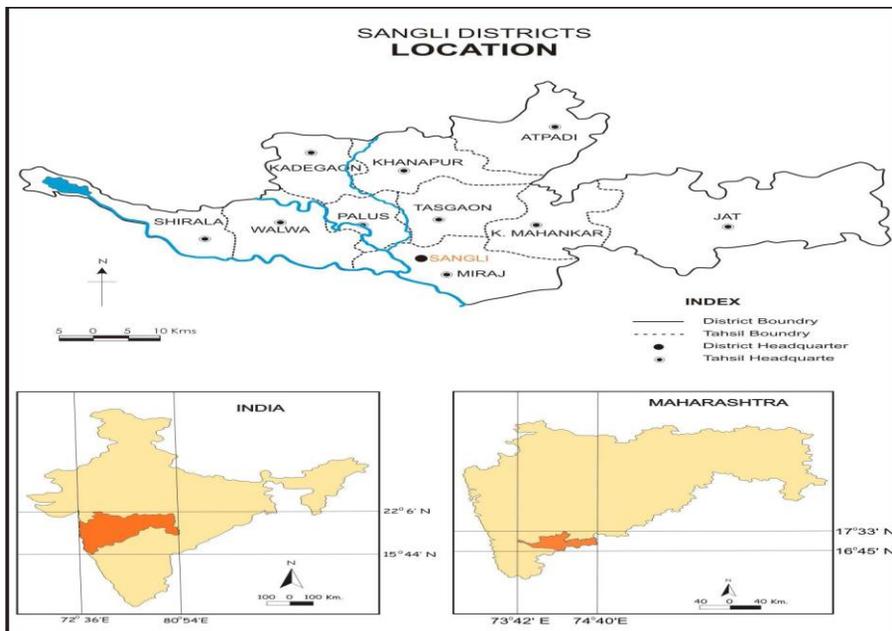
Degradation is a comprehensive term often used to denote the decrease in biological productivity, fertility status and property of land in general. The term degradation as used in geomorphology, indicating disintegration or decomposition of rock material is loosely used to denote deterioration of the status of the environment. Whittos (1984) stated that, 'the process, by which soil becomes weathered or more highly leached, denotes degradation'. According to Oxford English Dictionary, degradation is, 'a condition of being lowered of lowering in character, quality of reduction to an inferior state or a conversion into lower form'. These definitions can note that the degraded lands or surfaces have lowered quality, character, grade and properties due to wearing down of original qualities. More precisely, land degradation refers to the disturbances in the natural structure and properties of soils due to direct or indirect anthropogenic (human) influences. Ministry of Food and Agriculture, Government of India (1962) defined this term as, 'the land available for cultivation but not

taken up for cultivation or abandoned after a few years for some reason or other'. To conclude, a piece of land which is not being utilized at present, in any manner may be called a degraded land and includes the lands which are left fallow over a period of time and unutilized, underutilized for cultivation of any crop or plant due to various constraints.

Study area

The Sangli District is one of the most district of Maharashtra states. It is situated between the latitudes 16°45' N and 17°33' N and longitudinal of 73°41' East and 75°41' East.

Figure No. 1



The district is bounded by Satara district on the North western side. Southern is boarded by Belgam and Bijapur district of Karnataka State. At the Centers and East Kolhapur district and the Ratnagiri district lies on West of Sangli district. The total area of the district According to 1991 censuses about 8601.5 Sq.km. According to 2001 censuses the population is 2581835 Lakh and the literacy rate is about 76.6%. The district is divided in to Five Administrative sub division mainly Khanapur, Walwa, Miraj, Tasgon, Palus. The Shirala and Walwa Talua was included in Walwa Sub Division. The Miraj Sub division Comprises of Jath, Kavthe Mhanal and Miraj. The khanapur Sub division includes Atpadi and Khanapur and Palus Sub Division Include Kadegaon and Palus.

Research methodology

The period selected for study is 20 years. The entire study is based on primary as well as secondary data. The primary data is collected by conducting field work through questionnaire method. Personal interviews of farmers, talathi and Gramsevak are taken. The data for general land use and agricultural land use is collected from village and tehsil

revenue departments. The data of agricultural land degradation is obtained from Sangli district soil testing laboratory and agricultural department. Collected data is tabulated and shown by appropriate cartographic techniques. Such type of research in applied agricultural geography can be useful to solve the problems of the farmers and helpful in better planning for agricultural development of rural areas. Remove the land degradation problems for the tehsil. Some measure the land reclamation on the study area.

Objectives

To analyse change in general and agricultural land use for the period of twenty years i. e. 1990-2010. To study the causes of agricultural land degradation.

Table 1. DISTRIBUTION OF IRRIGATED LAND (1990 to 2010)

| Sr. No. | Source of Irrigation | 1990 | | 2000 | | 2010 | |
|---------|----------------------|---------------|------------|---------------|------------|---------------|------------|
| | | Area in Hect. | Percentage | Area in Hect. | Percentage | Area in Hect. | Percentage |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | Well | 659 | 36.61 | 953 | 36.55 | 1134 | 35 |
| 2 | Lift | 1141 | 63.38 | 1654 | 63.44 | 2034 | 64.20 |
| | Total | 1800 | 100 | 2607 | 100 | 3168 | 100 |

(Source- District Agricultural Department record)

Sangli District is the one of the most important the Agricultural Activity this activity is depend upend the various sources of irrigation that is total Croped area is under the river, well and other water source this table shows the area under 1990 to 2010 under the irrigation Source the increase the area in well and river irrigation 1990 well irrigation is 36.61 per. 2000 36.55 per. and 2010 is 35 per. And river irrigation Area is 1990 is 63.38, 2000is 63.54 and the 2010 is 64.20 continuously area is increased the river irrigation on the table.

Table 2. Cropping pattern

| Sr. No. | Crops | 1990 | | 2000 | | 2010 | |
|---------|-------------------|---------------|------------|---------------|------------|---------------|--------------|
| | | Area in hect. | Percentage | Area in hect. | Percentage | Area in hect. | Percentage |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | Rice | 27300 | 1.74 | 18595 | 1.55 | 18023 | 2.01 |
| 2 | Wheat | 26800 | 1.71 | 26023 | 2.16 | 24804 | 2.77 |
| 3 | Jowar | 250200 | 15.93 | 287028 | 23.87 | 239586 | 26.75 |
| 4 | Bajara | 97107 | 6.18 | 105400 | 8.76 | 47140 | 5.26 |
| 5 | Maize | 19876 | 1.27 | 17362 | 1.44 | 31044 | 3.47 |
| 6 | Gram | 414527 | 26.40 | 32586 | 2.71 | 24758 | 2.76 |
| 7 | Total Grain Crops | 603845 | 38.45 | 563023 | 46.81 | 359934 | 40.18 |
| 8 | Sugarcane | 30087 | 1.92 | 54041 | 4.49 | 68888 | 7.69 |
| 9 | Groundnut | 46599 | 2.97 | 39921 | 3.32 | 31171 | 3.48 |
| 10 | Soyabean | 54007 | 3.44 | 58724 | 4.88 | 50393 | 5.63 |
| | Total | 1570348 | 100.00 | 1202703 | 100.00 | 895741 | 100 |

This table shows the District Cropping pattern in 1990 to 2010 is Continuously is increased the area under the Crop but the major cropped is increase occupied the area in the district 1990 to 2010 twenty years area is increased the Cropping pattern is change and first ten years is Total grain crops , Jowar , Rice , wheat area is high but next ten years change the cropping pattern so increase the sugarcane , soyabean, is change the pattern for twenty years. Agricultural Pattern and land use pattern change by 20 years the district and

maximum area under the cash crop in the total cropped area. That crop is increase the production and use of HYV seeds and Chemical fertilizers is high use and that time is land is degradation started on the last ten years.

Table 3. Use Of Chemical Fertilizers (Metric Tons) 1990 to2010

| Sr. No | Tahsil | 1990 | Use of % | 2000 | Use of % | 2010 | Use of % |
|--------|------------------|--------|----------|--------|----------|--------|--------------|
| 1 | Walwa | 23452 | 22.48 | 27999 | 17.05 | 39512 | 16.68 |
| 2 | Kadegaon | - | 0.00 | 11653 | 7.10 | 18936 | 7.99 |
| 3 | Khanapur | 7654 | 7.34 | 11502 | 7.01 | 15948 | 6.73 |
| 4 | Palus | - | 0.00 | 14532 | 8.85 | 23425 | 9.89 |
| 5 | Tasgaon | 13785 | 13.21 | 16543 | 10.08 | 28506 | 12.03 |
| 6 | Miraj | 21342 | 20.45 | 27689 | 16.86 | 35194 | 14.86 |
| 7 | Kavathe Mahankal | 10167 | 9.74 | 13488 | 8.22 | 19197 | 8.10 |
| 8 | Jat | 11489 | 11.01 | 19876 | 12.11 | 23265 | 9.82 |
| 9 | Atpadi | 5467 | 5.24 | 7658 | 4.66 | 11732 | 4.95 |
| 10 | Shirala | 10989 | 10.53 | 13245 | 8.07 | 21160 | 8.93 |
| Total | | 104345 | 100.00 | 164185 | 100.00 | 236875 | 100 |

(Source- District Agricultural Department record)

The table shows the use of fertilizers in the last twenty years district and the increase the district production and the 1990 to 2010 the use of fertilizers is increased the impact of landuse pattern the study aera and the fareners is highly used the fertilizesran in cash crop and impact of the soil and the production and watrepollution the study area that higly impact for the land degradation in study area.

Table No. 4Total Us of Fertilizers (Metric Tons)

| Sr. No | Year | Total | % |
|--------|------|--------|--------------|
| 1 | 1990 | 104345 | 20.65 |
| 2 | 2000 | 164185 | 32.49 |
| 3 | 2010 | 236875 | 46.87 |
| Total | | 505405 | 100 |

The table shows the percentage of last twenty years in use chemical fertilizers 1990 is used fertilizers 20.65 per., 2000 is 32.49 per. and last 2010 is used the 46.87 per. of fertilizers and the table shows the increased the use of chemical fertilizers is study area and the impact of land use and land degradation of the study area . the cash crop is cover by large area on the district and impact of the land degradation.

Land degradation

Can lead to land degradation Bad farming techniques are often responsible for land degradation. Leaving fields bare, or plugging them up and down the sides of a hill can cause severe soil erosion when it rains heavily as the soil has nothing keeping it in place. When the left over parts of crops and animal manure are ploughed back into the soil they serve to

replenish and fertilize it. However, if the crops are cut to be fed to animals and the manure is burnt as a fuel, the soil will have no way of replenishing itself, and decreases in fertility. Sometimes landowners make changes in the way they use the land in an attempt to make the land more productive, but often these changes damage the land and actually make it less productive.

Causes of land degradation

Over cultivation

Over cultivation happens when a farmer does not allow a piece of land to recover in between plantings, exhausting the soil. Left unchecked this can eventually lead to land degradation as the land is being used in a way which is unsustainable.

Overgrazing

Overgrazing is when more animals than a piece of land can support are allowed to graze in that area. This can cause serious damage to the land. When too many animals are allowed to graze on a piece of land they eat the plants that hold the soil in place. Too many animals may mean that the grass is eaten down to the roots faster than it can grow back. This in turn leads to overgrazing. Overgrazing can cause and accelerate soil erosion and with it a loss of soil fertility. When large herds are concentrated around one particular area the animals compact the soil by trampling on it resulting in the soil being unable to retain as much moisture as it needs. Once the animals have overgrazed an area it is often left barren with no protection, and the wind blows away the topsoil.

Pollution

Pollution is also an important factor in causing environmental degradation. Soil can be damaged as a result of waste products and pollutants being deposited and left in it. When rubbish from factories, mines and households are dumped in the natural environment it pollutes the land and leaves its toxins within the soil. The soil is therefore unfit to support any plant growth or animal life. The increase in the global population has caused an massive increase in levels of waste and pollution, adding to increasing environmental degradation. It is often the people living in degraded environments are responsible for the damage that as occurred, but this is often as a result of underlying social and economic problems.

Poverty

Poverty is a major contributing factor to land degradation as it forces millions of people to Destroy the resources that are around them in order just to survive. Poor people often do not have access to the best land, leaving them to depend on the most fragile areas and resources. Their situation may mean that they have no other choice other than to use what resources are available to them, even if these result in the degradation of the land.

Foreign debt

Foreign debt often forces Governments in poor countries may to pursue policies and practices which are harmful to the environment in order to keep up with their debt payments, such as intensive farming for export. These are important for the national economies of these countries but may take the place of traditional land uses which may have been more ecologically friendly and provide food for people to eat. As well as population growth, natural disasters such as floods and droughts and national emergencies such as war and political tensions can also add to the pressures which are placed on the land.

Unfair land allocation

Unfair land allocation in Namibia is often the root of land degradation and is closely linked to poverty. This is because poor people often have little choice over how to use their land. In conditions of poverty people do not have access or money to purchase the most appropriate or effective resources for farming. During the colonial period people were often forced to live in designated areas, this resulted in overcrowding and subsequently overuse of the land.

Conclusion

Study reveals that the cropping pattern in the Sangli District is a reflection of physiographic, soil type, slope, irrigation and other socio economics factors. Study also reveals that unsuitable agricultural practices, excess rainfall, flooding, erosion, Stalinization, water logging, deforestation, over cutting of vegetation, shifting cultivation, over grazing, improper crop rotation, imbalanced fertilizer use, mismanaged irrigation, over pumping of ground water, poverty, population increase, economic pressure, attitude of farmer and artificial soil loss are the major forms of problem of land degradation

Bio-physical Planting trees over degraded land or **a forestation** can help to protect the soil from strong wind and from being washed away by soil erosion. If trees are planted in rows along the edges of field they can be very effective in sheltering both crops and soil which does not have crops in it. Soil salinisation and water logging can both be avoided by using **drip irrigation** which delivers only as much water as is needed to a specific area as opposed to high-pressure sprinklers which cause the soil to be permanently covered with water. There are certain traditional farming methods which are better for the land and are more sustainable than some of the methods used by commercial farmers. Rather than monoculture (a practice which involves only the growing of one just crop type) which removes all of the goodness from the soil and leaves crops very susceptible to disease, **mixed crops or crop rotation** can be a good way to replenishing valuable nutrients in the soil along with maintaining a high level of biodiversity in the area. Effects of overgrazing can be minimized by **carefully stocking your land** so as to ensure that it is not being grazed by more animals than it can support. It is therefore more likely to stay healthy and to be able to sustain cattle for a longer time. Bush encroachment can be hindered through many processes: Bulldozing is one possible way of stopping bush encroachment, but it is very expensive and labour intensive. It is also not always as effective as the manual felling of bushes since the trees soon regrow Using fires is another method, but this too is also time consuming and labour intensive and not always effective at killing the trees. Using chemicals is a very risky method of de-bushing as it is non-selective and kills lots of vegetation that helps to support the ecosystem. It is also very costly and is likely to have long-term ecological implications. One group in Namibia, the Cheetah Conservation Fund, has developed a method of compressing the wood from the encroaching bush into bricks that burn much longer and with more heat than normal wood. Therefore by using the bricks you are helping stop encroachment, and gaining a useful source of energy.

References

- Majid Husain.**, 2008., "Agricultural Geography", Published by Rawat Publication (Page No.,45)
Savindar Singh., 2008., "Environmental Geography", Prayag Pustak Bhawan Allahabad
Government of India., 2001, 2011., "Census of India" Socio-Economic Review, District Statistical Abstract of Sangli District Year 2004 to 2008 and 2011
Coppock J. T., 1968., "The Geography of Agriculture" Journals of Agricultural Economics,
 Dasnman Raymond F. "Environmental Conservation" John Wily & Sons. Inc Newyark, Landon (Published Book)
Bennet H.J., 1947., Elements of conservation, Second.