Indian Streams Reserach Journal
Vol.1,Issue.XII/Jan; 12pp.1-4
Dr. M.N.Meeranaik
ISSN:-2230-7850

Research Papers

SCOPE TO INCREASE CROP PRODUCE TO IMPROVE RURAL ECONOMY OF UTTARA KANNADA DISTRICT: A GEOGRAPHIC APPROACH

Dr.G.P.Patankar
Head Department of Geography
S.D.M.Degree College,
Honavar.581334(Karnataka)

Dr. M.N.Meeranaik.
Head Department of Geography
Anjuman Arts,Science & Commerce ,College,
Dharwad.580001,(Karnataka)

Abstract

Basically India is an agricultural country. Even after 64 years of independence agriculture continues to be the backbone of the nation. But the increase in population decreases the man land ratio considerably. As such the dependency on agriculture is slowly declining. The changing needs of the time require more and more land for socio-economic activities. It keeps the land use changing continuously. Under the circumstances retaining land for the production of food grains is very essential to ensure food guarantee to the growing population. The pressure of rapid growth of population in the last few decades has been responsible for the intricate and unanticipated shift in the cropping pattern and population.

Introduction:

Out of the total geographical area of 328.73 million ha.of the nation, the land available for different uses is 306.04 million ha. The cultivated area contributed is about 142.60 million ha.(46.60 per cent) Forest area account for about 68.97million ha. (22.50 per cent). Only 30 percent of the total cropped area is irrigated. Hence nearly 50 million ha. of area is sown more than once. Even though there is movement of people from rural to urban still 72.20 per cent of people residing in rural India. Out of the total force of the nation 64per cent of worker still engaged in agriculture. Indian agriculture has made remarkable progress since independence. In taking the annual food grains 50 million tones in 1950 to more a 209 million tones at the beginning of percent century. But during this period the population also increased many folds. Even though at present the nation is self sufficient in food grains. The food grains stocks of the country have grown to 60 million tones at present. But the present population growth of the nation going to be a tough challenge to the nation in future.

Objectives:

The study area is one of the **HOT SPOTS** of the world, where protection of environment is the prime concern. The constant thrust of man's economic activities greatly transformed the physical landscape and environment beyond reorganization. The impact of forest degradation and mismanagement of crop land is responsible for increasing fallow land. It is a serious threat to rural economy. But better handling of these lands and using rich water potential of the district has much scope for the development of agricultural economy. Therefore it is necessary to find out how much of land can be reclaimed and the available crop land can use for multiple cropping for improvement of rural economy of the district.

Study Area:

Uttara Kannada district **The Land of Natural**

Indian Streams Reserach Journal
Vol.1,Issue.XII/*Jan;* 2012

Museum is one of the 30 districts in Karnataka state. It is located to the north-western part of the state between 13 0 55' to 15 0 31'North parallels to 74 0 9'to 75 0 10' East meridians (Fig-1 and 2). The climate of the district is of tropical monsoon type. An average annual rainfall for the last three decades is estimated to be 245.52 cm. This ensures rich water potential to the district. The district is characterized by seasonal rhythm with average temperature of 27 C0. The temperature increases up to 38 0 C in the month of may. The district occupies an area of 10,258.80 sq.km. with 14, 36,847 inhabitants distributed in 1,282 villages and 24 towns and urban agglomeration. The suitable climate and other geographic conditions supported luxuriant growth of forest, with wide varieties of fauna and flora. As such the forest district provides limited land for socio-economic activities. The rugged topography divided the district into distinct natural regions as coastal, malnad and semi-malnad regions

Fig-1

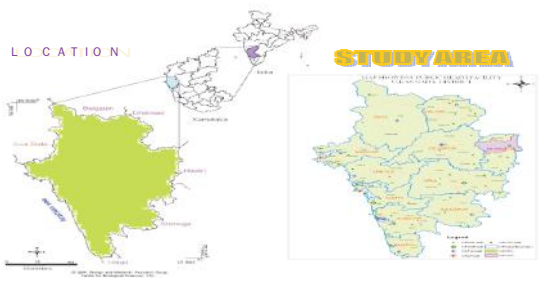
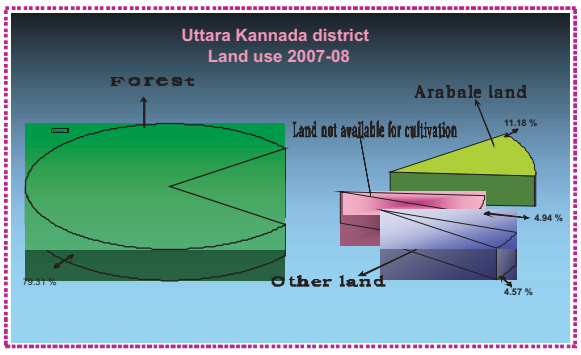


Fig-2

General Land Utilization:

The rapid growth of population in the recent past has been responsible for the intricate and unanticipated shift in the general pattern of land utilization. Not only the forest, even the cultivated lands have also been usurped in the development of hydro electric projects. Expansion of settlements and industries also grabbed their share of land (Fig-3)

Fig-3



Forest is the most dominant land-use of the district which comprises 8, 13,595 ha. (79, 31 per cent). Out of it malnad occupies highest of 4, 54,259 (44.28 per cent), coastal region covered with 2, 53,184 ha. (24.68 per cent) and semi-malnad occupied by 1, 06,152 ha. (10.35 per cent) of forest. Only 20.69 per cent of land is available for socio-economic activities which are not enough to support the growing population. The distribution of arable land is profoundly influenced by terrain condition. The topography of the district can't provide vast extensive crop land. Only the valley gaps provided cropping land in the malnad region. In the coastal region an elongated strip of land between western ghat and Arabian Sea flourishes in agricultural activities. The rolling relief of the semi-malnad region possesses little wider crop land. The average field size of the district is 1.24 ha. The semi-malnad taluk Haliyal possesses highest of 2.77 ha. and the coastal taluk Bhatkal shows the lowest of 0.68 ha. The Coastal region possesses 79,896 ha. (65.79 per cent) of fields with an average size of 0.76 ha. Where as malnad region possess as 28,615 ha. (23.56 per cent) with average field size of 1.83 ha. The rolling relief possesses comparatively larger average field size of 2.76 ha, which accounts for 12,923 ha. (10.64 per cent) of arable land. Under the Circumstances, a traditional method of agricultural practice is used for the subsistence of the farmer. As such production of surplus agricultural produce is not possible.

The heterogeneous relief, variation in climate, rainfall and soil type, moisture retention capacity, the level of ground water table is satisfactory throughout the district supported wide varieties of crops. Paddy, sugarcane, jowar, maize, ragi, and other cereals, pulses oilseeds cotton and vegetables are important agricultural crops. Whereas only 22,280 ha.of land is given to horticultural crops like areca nut, coconut, cashew nut, mango, banana, jackfruits, pineapple, citrus

Indian Streams Reserach Journal
Vol.1,Issue.XII/*Jan;* 2012

fruits, cardamom and many mixed crops. It also shows regional variation. The crops like coconut and cashew nut are concentrated more in the coastal region. Where as areca nut and fruit gardening (pineapple and banana) dominated in the malnad region. The semi-malnad region is specialized in mango and banana plantation

Water Potential of the District:

The district has rich surface and sub-surface water potential. The lithologic character, structure and topography and amount of rainfall controls the surface sources of water, which includes perennial flow of rivers and streams, ponds, tanks etc. Small embankments and dams also provide surface sources of water. The heavy down pore of water supported perennial flow and ensured discharge and recharge of underground water.

Surface Water Potential:

It is estimated that the district receives huge volume of 2, 51, 85,354 x 103 metres or 25.10 cubic km. of water potential every year. It is enough to supply water to the entire country for more than 1 year 2 month and 12 days for domestic use at the standard rate of consumption. It has the capacity to irrigate 1, 66, 62,500 ha.of agricultural land if paddy is cultivated.

Table-1

Uttara Kannada District

Total Water Potential (In ham.)

Source		Total	Water Utilized		Balance
Ground Water Draft	Tank Water Draft	Water Draft	Irrigation	Domestic/Industrial	Water Draft
70,765.00	4,324.21	75,089.21	15,212	2,241	57,636.21
(94.24)	(05.76)	(100)	(20.26)	(2.98)	(76.76)

Fig-4

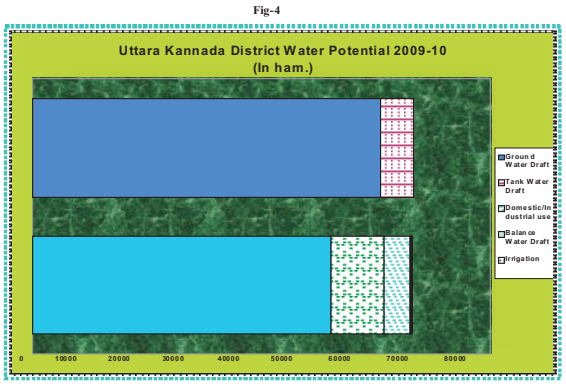


Table-2

Uttara Kannada District Distribution of tanks and water potentioal-2009 -10

Sl. No.	Taluk	No. of Tanks	Area in (sq.mts)	Water Potential (in ham)
I.	**Coastal region**	117	5,857.13	144.81 (9.82)
1.	Bhatkal	29	9.23	11.68 (0.21)
2.	Honavar	27	174.12	3.87 (7.27)
3.	Kumta	15	69.31	33.70 (0.63)
4.	Ankola	27	5,587.40	91.10 (1.71)
5.	Karwar	19	17.07	04.46 (0.08)
II.	**Malnad region**	523	445.2	974.7 (37)
6.	Sirsi	229	171.95	871.63 (35.15)
7.	Siddapur	175	97.90	34.55 (0.65)
8.	Yellapur	92	173.15	64.22 (1.20)
9.	Joida	27	02.20	04.30 (0.00)
III.	**Semi-malnad**	303	6,729.55	3,204.7 (60.18)
10.	Mundgod	172	452.23	180.79 (3.39)
11.	Haliyal	131	6,277.32	3,023.91 (56.79)
Total		**943**	**18,740.55**	**4,324.21 (100)**

There are more than 943 tanks with water potential of 4,324.21 ham. (Table-2) The crest of the western ghat has provided undulating relief, which is suitable site for tanks. Such tanks are highly concentrated in the malnad taluk Sirsi and Siddapur and the semi-malnad. Kali, Gangavali, Aghanasini and Sharavati are the main rivers provide surface water potential to irrigation, domestic and industrial supply. It is estimated that about 706 km of perennial main river courses and about 473 km of perennial main tributaries and more than 642 km of perennial and seasonal streams act as irrigational canals.

Ground Water potential:

The primary porosity, fissures and faults act as a porous media for the storage of under ground water. Alluvial occurs along the river banks posses shallow water table Depending upon the nature of relief, structure and type of rock, the depth and water holding capacity varies in the district.

On the costal plain the ground water is shallow. Whereas it varies in depth from between 10 to 20 mbgl. During post monsoon season ground water level is declining from 0.025 to 0.166 m / years. The chemical analysis indicates that ground water is suitable for both drinking and irrigation in most part of the district, the values of different constituents in ground water is within safe limits as per BIS and ISMR standards. Ground water source of the district is very rich to supply water for domestic consumption, Industries and irrigation (tab-3). Totally there are 786 mini water supply schemes about 689 piped water supply schemes, about 6,607 bore wells are supplying water to meet the need of domestic, industrial for irrigation. In addition to this there are more then 6,050 private wells to supply water for various purposes. The underground potential of the district has more

Indian Streams Reserach Journal
Vol.1,Issue.XII/*Jan;* 2012

scope to go for thousands of wells in future

Water potential and Variation in Seasonal land use:

The water potential of the district has ample scope to go for intensive cropping throughout the year. The heavy rainfall of the district normally support kharif crop. The residual moisture is enough to support 32 per cent of crop land to go for the cultivation of oilseed, pulses, fodder and other crops. Where as the low lying fields are most suitable for cultivation of rice. It is the main staple crop of the people. Which is clearly dominates the major economy of agricultural crop of the district. It occupies 79,129 ha. of crop land and produces 9,461.72 tones of paddy per year. Sugarcane, Oilseeds, Vegetables, Pulses and miner millets are the other important crops growth in the district. The subsistence farming is not enough to support the local demand. Under the circumstances it is necessary to go for intense cropping by utilizing the available water resource of the district.

The surface and sub-surface water potential of the district is estimated to be 75,089.21 ham It is enough to irrigate the entire arable land for more than two crops. Only 23.74 per cent of the water potential is used for agriculture and domestic purposes. The total working population of the district is 5, 80,278 (33.28 per cent). Out of it about 2, 27,940 (39.28 per cent) of the people are engaged in agriculture. The land used for agriculture is 1, 49,420 ha.(11.11per cent). Kharif is a major cropping season. Only 11,158. ha. (7.47 per cent) of land is utilized for rabi crop (tab-4). On an average the district has 153 monsoon days. This helps the farmer to go for kharif crop without irrigation. The local geographical conditions of the district show regional variation in cropping. It begins with the onset of monsoon. Compared to other two regions cropping season begins and ends earlier in the coastal regions due to better climatic and soil conditions. Out of 1,49,420 ha of agricultural land 1,16,052 ha (77.67 percent) land is used for actual cropping. Only 15,212 ham (21.50 percent) of water potential is used for irrigating 26,910 ha (18 percent) of crop land. About 2,241 ham (30.17 percent) of water used for industries and domestic consumption. As a result an excess of 53,312 ham (75.33 percent) ground water potential still available which has the capacity to irrigate entire cropland of the district.

Table-3
Uttara Kannada District: Taluka Wise Utilization of Ground Water Draft For Domestic,Industry and Irrigation 2009-2010 (in ham.)

Sl. No.	Taluk	Total Ground water draft of the district	Total Agricultural land of the district	Total land irrigated	Ground water consumed for Industries / domestic	Total Ground water used for irrigation	Balance Ground water draft of the district
1	Bhatkal	3284 (4.64)	7691 (5.15)	1886 (1.26)	224 (0.32)	767 (1.08)	2293 (3.24)
2	Honavar	4604 (6.51)	12928 (8.65)	5425 (3.31)	229 (0.32)	1413 (2.0)	2962 (4.19)
3	Kumta	4155 (5.87)	14286 (9.56)	3354 (2.24)	194 (0.27)	1259 (1.78)	2702 (3.82)
4	Ankola	6406 (9.05)	11892 (7.96)	1217 (0.81)	187 (0.26)	663 (0.94)	5556 (7.85)
5	Karwar	2016 (2.85)	10022 (6.71)	1083 (0.72)	188 (0.27)	558 (0.79)	1270 (1.79)
6	Sirsi	10578 (14.35)	23937 (16.01)	2847 (1.90)	353 (0.50)	3312 (4.68)	6913 (9.77)
7	Siddapur	6177 (8.13)	14510 (9.71)	1070 (0.72)	305 (0.43)	2708 (3.83)	3164 (4.47)
8	Yellapur	10351 (14.63)	9578 (6.41)	3243 (2.17)	181 (0.26)	1069 (1.51)	9101 (12.86)
9	Joida	10835 (15.31)	7368 (4.93)	896 (0.60)	137 (0.19)	1101 (1.55)	9597 (13.56)
10	Mundgod	6041 (8.54)	15159 (10.14)	2595 (1.74)	150 (0.21)	1219 (1.72)	4672 (6.60)
11	Haliyal	6319 (8.93)	22049 (14.76)	3694 (2.47)	93 (0.13)	1144 (1.62)	5082 (7.18)
Total		**70,765 (100)**	**1,49,420 (100)**	**26,910 (18.00)**	**2241 (3.17)**	**15,212 (21.50)**	**53,312 (75.33)**

Table-4
Uttara Kannada District Seasonal Land Use (area in ha.) 2009-2010

Taluk	Bhk	Hon.	Kutm	Anko	Kar	Sir	Sidd	Yell	Joid	Mund	Hali	Total
Kharif	5605	9601	8910	7911	6564	17279	10976	8032	5663	14562	20949	116,052
Rabi	1378	1467	1585	1095	231	2116	870	219	230	778	1189	11158

Need to Reclamation of Waste and Fallow land:

About 1, 67,603 ha. of land capable of producing crop is kept fallow. It includes 11,733 ha. of fallow land 6,450 ha. of cultivable waste land (table-5). Such lands are formed due to mismanagement of land and water potential. Excessive soil erosion, silting, flooding salinity and alkalinity of soil, marshy land and other socio-economic problems of the farmer kept the land fallow. In the Malnad interior inaccessibility and uncontrolled attack on crop by wild animals kept the land fallow. A number of limitations like saline ingression, silting, flooding and tidal effect, water logging, inadequate water supply etc, cause increasing cultivable waste land. The vast area covered by forest can't be claimed for the extension of socio-economic activities due to conservation of environment. Under the circumstances it is high time to reclaim the waste and cultivable waste land for cropping.

Indian Streams Reserach Journal
Vol.1,Issue.XII/*Jan;* 2012

Table-5

Uttara Kannada District

Land utilized and left fallow for Agriculture (area in ha.) 2009-2010

Sl.No	Taluk	Agricultural land Under Cultivation	Reclaimable land for agriculture		Total Land can be reclaimed for agriculture
			Other fallow land	Cultivable waste land	
I.	**Coastal region**	46,797 (31.32)	2,674 (22.79)	2,422 (37.55)	5,096 (3.41)
1.	Bhatkal	7691 (5.15)	244 (2.08)	173 (2.68)	417 (0.28)
2.	Honavar	12,928 (8.65)	151 (1.29)	480 (7.44)	631 (0.42)
3.	Kumta	14,286 (9.56)	1,012 (8.62)	763 (11.83)	1,775 (1.19)
4.	Ankola	11,892 (7.96)	1,267 (10.80)	1,006 (15.60)	2,273 (1.52)
II.	**Malnad region**	65,415 (43.78)	7,470 (63.66)	2,618 (40.59)	10,088 (6.76)
5.	Karwar	10,022 (6.71)	5,041 (42.95)	110 (1.71)	5,151 (3.45)
6.	Sirsi	23,937 (16.02)	120 (1.02)	646 (10.02)	766 (0.51)
7.	Siddapur	14,510 (9.71)	123 (1.05)	50 (0.77)	173 (0.12)
8.	Yellapur	9,578 (6.41)	824 (7.02)	769 (11.92)	1,593 (1.07)
9.	Joida	7,368 (4.93)	1,362 (11.62)	1,043 (16.17)	2,405 (1.61)
III.	**Semi-malnad**	37,208 (24.9)	1,589 (13.55)	1,410 (21.86)	2,999 (2.01)
10.	Mundgod	15,159 (10.14)	585 (4.99)	1,120 (17.36)	1,705 (1.14)
11.	Haliyal	22,049 (14.76)	1,004 (8.56)	290 (4.50)	1,294 (0.87)
Total		**1,49,420 (100)**	**11,733 (100)**	**6,450 (100)**	**18,183 (100)**

Finding and Suggestion:

The major thrust of this research is to find out the problems and to suggest an improvement in the utilization of water potential for the sustainable socio-economic development of the district. Therefore a constructive and a rational thinking with perfect insight is necessary to suggest a suitable solution to utilize water potential of the sensitive district.

The following suggestion can be made for the improvement of the socio-economic development of the district.

· A major part of the district is one of the hot spots of the world, an ecological zone; where forest should be protected with almost care to safeguard the ecosystem of the district

· Voluminous water collected by rains joins the Arabian sea within a short spell of time creating severe damage to nature, man and property. Therefore it is necessary to divert head-ward stream to the eastern slope to avoid excessive loss of water and its destructive effect.

· The degrading forest creates excess soil erosion and silting which in turn increasing fallow land and waste lands. Therefore immediate afforestration should be made in the degraded belt.

· Management of local tanks, ponds and bunds are necessary to ensure perennial surface water sources and enrichment of underground water which is rich and ubiquitous which should be used to develop minor irrigation schemes to provide water to local farmers.

· Rabi crops are given to those areas where easy means of irrigational facilities and protection of crop from stray cattle and wild animals are ensured. Therefore a major portion of the crop land is unused for cropping. It creates rural food shortage, rural unemployment and seasonal migration of agricultural labor. Protection of crops from stray and wild animals is a serious problem due to the loss of their natural environment. As a result most of the crop land left fallow due to animal attack on crop. Therefore attention should be given to permanent fencing and creating food in the natural habitat of wild animals.

· The agrarian economy of the district provides seasonal employment. As such local unemployment prevails after kharif season. No large scale industries are recommended to the sensitive district .Therefore it is necessary to utilize available water potentials to use land for more then one cropping.

· The dependency of farmer on fragmented holding is not possible. These tiny bits of land can't give regular employment. Consolidation of such land is necessary to provide dependency on such land.

· The district is known for its scenic beauty. The water potential of the district gifted waterfalls and beautiful lakes and estuaries such places should be developed properly to attract people for recreation which in turn generate local employment.

· The surface water potential of the district has wide scope to promote further pisciculture. Earlier these tanks are local sources of water for irrigation. Pisciulture, domestic and other uses. Loss of forest and its degradation in the recent past has its impact on these tanks. Most of them are swallowing due to mismanagement of its bunds and embankments. As a result the local ecosystem is seriously affected. Action should be taken to maintain this natural water bodies.

Reference:

Agricultural Statistics at a Glance, 2008

Annual publication of crop report, (2007): "Directorate of Economics and Statistics Govermment of Karnataka" Banalore.

Ateque Ahmad & Syed Kausar Shamim, (2009): "Regional imbalance of agriculture productivity" A study of Upper Ganga-Yamuna Doab, U.P. Indian Journal of Regional Science vol XXII No 2.

Barbhan Ray B.k: Forestry discovered needed Reforms" The Indian forestry (India) vol.51pp.744-749.

Bhat L.S.(1988) : Strategy for North Kanara

District,(Karnataka).First Edition, Concept Publication, NewDelhi –15.
Champion H.C and Seth S.K (1968): "The forest types of India" Manager of publication Delhi.
Deshpande C.D (1954): "Landscape pattern in lower Kari basin" Bombay geographical journal vol.2.p.54.
Gautam N.C and Narayan L.R.A (1988): "Waste-land in India" First edition pink publishing house, Mutura (India).
Harrgreaves R.P (1957): farm fences in pioneer New-Zealand the New-Zealand geographical socity.vol.21.p.14.
Honrao M.S (1957):" The lower kali basin (north canara district)"A study in regional economy. An unpublished thesis presented to Karnataka university dharwad Karnataka state (India)
Hussin Majid (1999): "Systematic Agricultural Geography", Rewat Publication, New Delli
Hussin Majid (2002): "Systematic Agricultural Geography", Rewat Publication, jaipur
Khoshoo T.N (1986):"Environmental priorities in India and sustainable development published by India science congren association, New Delhi
Mukherjee S.N (1968): Changing land-used pattern in Howarh district. Geographical review of India, Calcutta (India) vol.30.pp43-47.
Murali Krishna and Ramesh Reddy K Year 2009 Identification of ground water potential zones using gis and remotem sensing. Vol..II p.23 – 60
Pal, Mahaded and Chalraborti R.K (1987): Planning for the forest resource of jalpaiguri district, West Bengal. Indian journal of
Patit S. (1992): "people participation in forest management" the Indian forester vol.118.No.(7)PP44-455.
Puri G.S.1968):"Indian forest ecology Oxford book stationary co. New Delhi.
Purohit S.S and ranjan.R: Ecology Environment and pollution
Sarkar kumar (1976): Forest resource of Goa development during the post liberation period. Geographical review of India vol.38p.293-306.
Shafi M (1950):"Forest in the national economy in India" the geographer Aligarh (India) vol.4.pp.63-69.
Shankarmurthy.H.G, Vijayakumar.H.S Kunal, L.B and Karnool N.N (1997) Alternate farming system for Uttara Kannda District (in Kannada) Publication by horticultural dept. and Zilla panchayat. U.K district.
Singh G.B (1987): "Forest Ecology of India" Rawat publication, jaipur.
Vijay Bhole (2009) Is rapid urbanization leading to loss of water bodies.Vol–II Journal of spatial Science. P. 43 -50.
Raghavendra Rao B Judson p and Srinivasalu c (2008) Biodiversity conservation and human well –being p1-2.
Prof. Rekha Verma, Pramod Kumar janoliya: "Agricultureal problems in tribal Areas (With special Reference to Meghnagar Block of Jhabua District) environment, agriculture & food security in india (Proceeding of the XXXI IIG Meet) 2011