

Socio, Economic, Cultural Factors, Leading To Environmental Degradation: A Case Study of Kodagu District of Karnataka-India

Girish. H. R.

Asst.Prof. Sarvodaya College of Education, Virajpet, S.Kodagu, Karnataka, India. 571218.

Abstract: *Kodagu is an administrative district in Karnataka, India. It occupies an area of 4,102 square kilometers (1,584 sq mi) in the Western Ghats of southwestern Karnataka. Agriculture is the most important factor that upholds the economy of the district and rich in natural resources which included timber and spices. Kodagu is considered rich with wildlife and has three wildlife sanctuaries and one national park:*

The study has projected that the district's urban population may increase by an astounding 1.5 percent compared to a relatively moderate growth of rural population. And sees the threat of decrease of raining and increase of temperature could have an adverse impact on the biodiversity and ecology of the district. The district's natural climate has been constantly changing. Present day water flow in the rivers of the district are practically naught during certain months of summer in a year and increase withdrawal of water can have a negative impact on the reverine ecosystem.

The study warns that the rapid growth of small scale industries, urbanization and culture of resorts & home stays may pose a great threat to the green belt of the district. The findings have implications for the whole system of biosphere.

Key words: - *Socio cultural environment, Climate change, Kodagu district.*

1.0 Introduction: -

Socio cultural environment consists of all those things that are developed by man. It comprises complicated societal and individual actions originating from culture. In other words all aspects of culture are part of the man made environment. Today poorly planned socio-cultural activities in different bio physical environments can have detrimental and irreversible consequences on the environment and many variables affecting the carrying capacity of the biosphere. Addition of unwanted substances means pollutants adversely affecting our environment. Pollutants which are changing physical, chemical, biological, characteristics of air, water, soil, that may harmfully affect the life or create a potential health

hazards of living organisms.

Kodagu is an administrative district in Karnataka, India. It occupies an area of 4,102 square kilometers (1,584 sq mile) in the Western Ghats of southwestern Karnataka. In 2011 its population was 5, 54,519 and 15% of which resided in the districts urban centers. The principal town and districts capital is Madikeri with a population of around 35,000. The district is divided into the three administrative taluks- Madikeri, Virajpet and Somvarpet.

Government of India and state government have taken various legislative measures in order to protect our environment. Despite the initiations of central and state governments, the changing life style of the people due to various factors is constantly affecting our environment leading to climatic change.

2.0 Statement:-

“A study on the extent of changing life styles with respect to Modernization, Urbanization, and Industrialization leading to environmental degradation in Kodagu district.”

3.0 Objectives of the study:-

1. To find out the impact of Modernization, on climate change in Kodagu district.
2. To find out the impact of Urbanization, on climate change in Kodagu district.
3. To find out the impact of Industrialization, on climate change in Kodagu district.
4. To offer alternatives for solving the problems of environmental degradation.

4.0 Methodology: -

A case study research method was used for blending qualitative data-collection methods to obtain a detailed and reliable picture of the Kodagu district. I recognized members of the experts capable of analyzing their own experiences. I involved them in exploring and analyzing their experiences of climate change. 10 key-informant interviews were conducted. Key-informants included Journalists, Assistant director, Dept. of statistics-Kodagu district and members of Eco club. Extensive field observations were conducted to

understand the climate changing process in the district; I ensured active involvement of the Key-informants in all phases of the study.

4.1 Variables of the study: - The present study consists of the single variable, which is the 'Extent of Factors contributing to climate change in Kodagu district'

4.2 Procedure of the study: -

Phase I: - Identification of variables.

Phase II: - Preparation of the tools.

Phase III: - Collection of data.

Phase IV: - Analysis of data.

Phase V: - Identification of the findings.

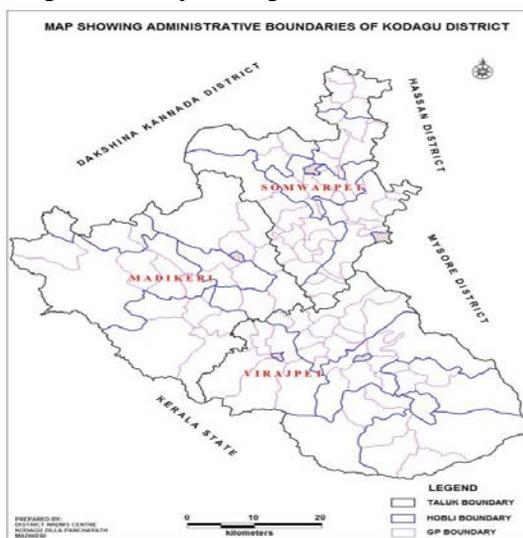
4.3 Tools used for the study: - The following tools were used for the study,

1. A data sheet prepared by the investigator to collect information in different variables of the objectives.

2. Interview schedule for key-informants to collect the information about the climate change in Kodagu district.

4.4 Analysis of the data: - Statistical techniques used, the data was analyzed in terms of percentage.

Kodagu district Map showing administrative boundaries.



5.0 Geography of the Kodagu district:-

Kodagu is located on the eastern slopes of the Western Ghats. It has a geographical area of 4,102 km² (1,584 sq mi). The district is bordered by D.K. district to the northwest, Hassan to the north, Mysore district to the east, Kasaragod district in west and district of Kerala to the southwest, and Wayanad district of Kerala to the south. It is a hilly district, the lowest elevation of which is 900 meters (3,000 ft) above sea-level. The highest peak, Tadiandamol, rises to 1,750 meters (5,740 ft), with Pushpagiri, the second

highest, at 1,715 meters (5,627 ft). The main river in Kodagu is the Kaveri (Cauvery), which originates at Talakaveri, located on the eastern side of the Western Ghats, and with its tributaries, drains the greater part of Kodagu. Agriculture is the most important factor that upholds the economy of the district and the main crops cultivated in this region are rice, black pepper, cardamom and coffee.

In July and August, rainfall is intense, and there are often showers into November. Yearly rainfall may exceed 4,000 millimeters (160 in) in some areas. In dense jungle tracts, rainfall reaches 3,000 to 3,800 millimeters (120 to 150 in) and 1,500 to 2,500 millimeters (59 to 98 in) in the bamboo district to the west. Kodagu has an average temperature of 15 °C (59 °F), ranging from 11 to 28 °C (52 to 82 °F), with the highest temperatures occurring in April and May.

5.1 Flora and fauna:-

Kodagu is considered rich with wildlife and has three wildlife sanctuaries and one National Park: the Brahmagiri, Talakaveri, and Pushpagiri wild life sanctuaries and the Nagarhole National Park, also known as the Rajiv Gandhi National Park. Kodagu is also rich in natural resources which included timber and spices.



A view of hill Thadiandamol,

The flora of the jungle includes *Michelia champaca*, *Mesua* (iron wood), *Diospyros* (Ebony and other species), *Toona ciliata* (Indian mahogany), *Chukrasia tabularis*, *Calophyllum angustifolium* (poonspar), *Canarium strictum* (Black Dammar), *Artocarpus sp*, *Dipterocarpus sp*, *Garcinia sp*, *Euonymus sp*, *Cinnamomum sp*, *Myristica sp*, *Myrtaceae*, *Vaccinium sp*, *Melastomataceae*, *Rubus* (three species) and a rose. In the under growth are found cardamom, Areca, plantains, canes, wild black pepper, cyatheales and other ferns, and arums.

In the forest of the less thickly-wooded Bamboo country in the west of Kodagu the most common trees are the *Dalbergia latifolia*. (Black

wood), *Pterocarpus marsupium*. (Kino tree), *Terminalia tomentosa*. (Matthi), *Lagerstroemia parviflora*. (Benteak), *Anogeissus latifolia*. (Dindul), *Bassia latifolia*, *Butea monosperma*, *Nauclea parviflora*, and several species of Acacia, Teak, and Sandalwood also grow in the eastern part of the district.

The fauna include: the Asian elephant, tiger, leopard, dhole, gaur, boar and several species of deer. Kodagu also offers a wide variety of birds; roughly around 300 birds have been sighted and reported over the years.

6.0 Forest types in Kodagu: -

In kodagu evergreen forests, deciduous forests and tropical grass land forests are seeing. In the areas of Western Ghats evergreen forests grow, where the monsoon period lasts for several months. Deciduous forests are found in regions with a moderate amount of seasonal rainfall that lasts for only a few months. Most of the forests in which teak trees grow are of this type.

6.1 Threats to the forest ecosystem: -

Developmental activities such as rapid population growth together with urbanization, industrialization and the increasing use of consumer goods leads to the over utilization of forest produce. The forests are rapidly shrinking as our need for agricultural and plantation land increases, it is estimated that forest cover of the kodagu has decreased from 45% to 22% in the last century. The increased use of fuel wood results in continual forest loss. Wood is being illegally extracted from many forests, leading to a highly disturbed ecosystem. We are now creating more and more goods that are manufactured from raw materials derived from the forest. This leads to forest degradation and finally changes the ecosystem into a wasteland. If timber is filled beyond a certain limit, the forest cannot regenerate. The gaps in the forest change the habitat quality for its animals and the more sensitive species cannot survive under these changed conditions. Over utilizing forest resources is an unsustainable way of using our limited forest resources. As forests grow very slowly, we cannot use more resources than they can produce during a growing season.

7.0 Urbanization: -

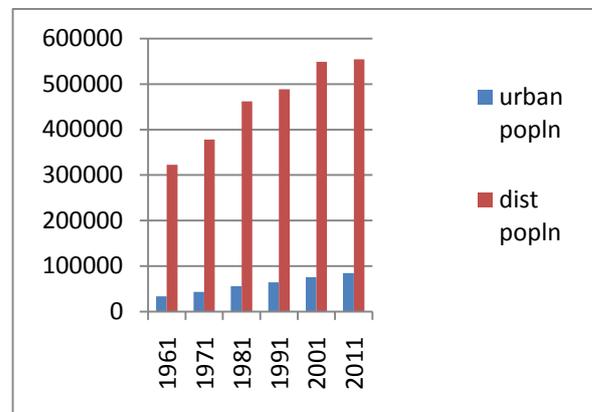
Urbanization refers to general increase in population and it includes increase in the number and extent of cities. Kodagu is consists of five major cities in these cities number of concrete houses are increasing day by day. Basically kodagu is a hilly region, due to scarcity of land for dwelling man has moved upon to these hills which has directly affected the mountain eco system. Wet lands are also been converted to house sites. It

symbolizes the movement of people from rural to urban areas. Urbanization happens because of the increase in the extent and density of urban areas. Due to uncontrolled urbanization, environmental degradation has been occurring very rapidly and causing many problems like land insecurity, worsening water quality, excessive air pollution, noise and the problems of waste disposal.

Table showing the Population of cities / towns of kodagu district in the six decades (As per population census)

Sl. no	Urban area	1961 census	1981 census	2001 census	2011 census
1	Madikeri	14453	24724	32496	35204
2	Kushalnagar	2902	6936	13186	15990
3	Somvarpet	5137	6936	7220	07665
4	Gonikopal	2749	5391	7267	08536
5	Virajpet	8138	11676	15213	17263
6	Total	33379	55663	75382	84658
7	District total	322829	461888	548561	554519

The above data is presenting in graphically below.



7.1 Analysis:-

The pattern and trend of urban population in kodagu during 1961 to 2011, shows that total urban population has been increased 2.5 times from 33,379 to 84,658. Where as total population has increased only 1.7 times from 3, 22,829 to 5, 54,519, since 1961 to 2011.



Waste disposal affect of urbanization

7.2 Findings on Impact of Urbanization: -

- Conversion of green belt areas for domestic purposes.
- Shrinking of green spaces.
- Construction of cement structures concrete jungles etc.,
- Conversion of villages into towns and cities.
- Deforestation.
- Increased demand on natural resources, coupled with pollution of these resources- air, soil, water, etc.,
- Migration of people from villages to urban and unhealthy settlements.
- Excessive demand on public transport.

8.0 Industrialization: -

Industrialization is the development of industry on an extensive scale. Kodagu being situated in the serene beauty covered with forest has given rise to culture of resorts and home stays in large number. They are almost built amidst the forest. For this purpose a large number of trees are cut down and has also affected the forest ecosystem. Even roads are constructed in the forest area to connect these resorts and home stays. As on 31/03/2013 there is 1683 small scale units are registered under government in the district. And more than thousands of industries are illegally engaged. Moreover they are established in the wetlands and forest areas.

8.1 Findings on Impact of Industrialization:-

- Development of unhygienic and unhealthy environment, industrial establishments.
- Pollution of air, water, land, etc.,
- Resource deterioration.
- Problems of industrial waste disposal and its impact.

- Migration of people from rural to urban areas.
- Transportation and traffic congestion.

9.0 Modernization:

Modernization is a making modern in appearance or behavior, is an improvement of a condition superior to an earlier condition. Modernization is a concept of social changes that completely transform the lives of individuals.

Today in kodagu almost all are using cellular phones of having advanced applications. According to census 2011 every house is furnished TV, nearly 90% of them with refrigerator and 50% of them owning computers. This has in turn led to modernized district.

9.1 Findings on Impact of Modernization:-

- Misuse and abuse of science and technology.
- Use of modern gadgets like TV, telephone, computers, etc., for communication.
- Excessive competition between societies leading to destructions.

10.0 Present day major environmental problems in Kodagu are:-

- 25% of the land is degraded in one way or another,
- Top soil is eroded every year.
- Over 10% of the plant species are threatened.
- Some species of mammals, birds, some varieties of reptiles, amphibians, and large number of butterflies, moths, and beetles are threatened.
- More threat on renewable resources, like trees, soil and water.

11.0 Interpretation:-

Population is an important resource for development, yet it is a major source of environmental degradation when it exceeds the threshold limits of the support system. Our forest wealth is dwindling due to over grazing, over exploitation both for commercial and house hold needs, encroachments, unsustainable practices including certain practices of shifting cultivation and developmental activities, such as roads, buildings, irrigation, and power projects. Our unique wetlands, rich in aquatic and bird life providing food and shelter are facing problems of pollution due to over exploitation; major rivers are facing problems of pollution and siltation. Our mountain ecosystems are under threat of serious degradation. Water table is receding because of over exploitation of ground water. A large number

of small scale industries have been incorrectly sited. Safe drinking water is luxury in many parts of the district.

The study has projected that the district's urban population may increase by an astounding 1.5 percent compared to a relatively moderate growth of rural population. And sees the threat of decrease of raining and increase of temperature could have an adverse impact on the biodiversity and ecology of the district. The district's natural climate has been constantly changing. Present day water flow in the rivers of the district are practically naught during certain months of summer in a year and increase withdrawal of water can have a negative impact on the reverine ecosystem. The study warns that the rapid growth of small scale industries, urbanization and culture of resorts & home stays may pose a great threat to the green belt of the district. The findings have implications for the whole system of biosphere.

12.0 Alternatives for solving the problems of environmental degradation / suggestion:-

- Schools have an important role in environmental education. Environmental concepts can be taught in many ways as part of the curricula or through specific programs both indoors and outdoors by teachers or resource persons. Teachers have considerable influence over the children they teach.
- Public concern can help to stop projects which are environmentally unsafe. A heightened public concern can also mobilize the government to act for environment. More and more research should be done to reduce energy costs and to find alternative and indigenous sources of energy such as biogas biomass solar wind and waves.
- Adopt and practice eco-friendly life styles, which may help redress several of the environmental problems which we are facing today. Human beings are capable of reducing and reversing their negative impact on the environment, because they can think, plan, act and educate themselves.
- Minimum and judicious use of natural resources.
- Use of biodegradable materials in place of non-biodegradable ones.
- Consciously practicing the 4- Rs, namely, refuse, reduce, reuse, and recycle.

13.0 Conclusion:-

Effective ways to conserve resources both renewable and non renewable, include reducing wasteful consumption by reusing and recycling wherever possible. True conservation of resources requires ending the excessive use of natural resources. We should not exhaust our resource capital, but should use it judiciously. The quality of life of our future generations depends on how we use our resources. We have to use the resources of the earth very carefully and without seriously disturbing their balance in nature. To achieve this we have to initiate major conservation measures and learn to reuse our resources on a much larger scale than we are doing at present.

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