

Socio-Economic Dimensions of Environmental Degradations
A Study of Srinagar City



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Certificate

It is hereby certificate that the work presented in this dissertation entitled “*Socio-economic Dimensions of Environmental Degradations - A Study of Srinagar City*” is the original work of Mudasir Ahmed Nazar for the partial fulfillment of the requirements for the award of the degree of Master’s of Philosophy in Sociology in this University. The research work has been carried out under my supervision.

It is further certificated that this work has not been submitted either ion part or full to this university or to any other place or has it been published anywhere so far. We deem it fit for submission for the degree of M. Phil.

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DEDICATED To The Only PowerWho Is The....

Most Beneficient , Most Merciful , Best Cherisher, Best Sustainer

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Abbreviations

A D	After Death
AIDS	Acquired Immune Deficiency Syndrome
CAC	Command and Control
CBD	Conservation Biodiversity Development
CFCs	Chlorofluorocarbons
CO₂	Carbon dioxide
CPCB	Center pollution control board
CSS	Comprehensive Smoke Study
DESA	<i>Department of Economic and Social Affairs</i>
EIA	Environmental Impact Assessment
EKC	Environmental Kuznets Curve
GDP	Gross Domestic Product
GHGs	Greenhouse gases
HIV	Human Immunodeficiency Virus
HMT	Hindustan Machine Tools

IDNDR	International Decade of National Disaster Reduction
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IUCN	International union for conservation of nature and natural resources
J&K	Jammu and Kashmir
JNNURM	Jawaharlal Nehru National urban Renewal Mission
LEDC	Less economically developed countries
MBI	Markets based instruments
MGD	Million Gallons per Day
MOEF	The Ministry of Environment & Forests
MSW	Municipal solid waste
MT	Metric Tone
NCEPC	National Committee on Environmental Planning and Co-ordination
NCR	National Capital Region
NGO	Non - Government Organisations

NHAI	National Highways Authority of India
NO	Nitric Oxide
PIC	Prior Informed Consent
PIL	Public Interest Litigation
PHE	Public Health Engineering
POPs	Persistent Organic Pollutants
RSPM	Respirable Suspended Particulate Matter
SDA	Srinagar Development Authority
SPM	Suspended Particulate Matter
SKIMS	Sher-i-Kashmir Institute of Medical Sciences
SMHS	Shri Maharaja Hari Singh
UEED	urban Environmental
UNDP	United Nations Development Programme
UN	United Nations
UP	Utter Pradesh

CHAPTER 1:



INTRODUCTION

1.1. Introduction

The traditional understanding of nature has been that it is a system created for the sustenance of humans. The general belief was that the Earth was the hub of the universe and man had a central place in it. It was also believed that the environment was a static entity with little or no possibilities of change. This had been the dominant view until the advent of enlightenment in the early modern era. Science established that there has been continuous change in the nature of environment all along the history of the Earth, though the speed of change differed for different components of the nature and even this speed had not been a uniform speed. This holds true for the evolution of both living and non-living components. Prior to 1950s, for most people the term environment meant the set of conditions at home or in their work places. In the years that followed, with the publication of *Rachel Carson's* book '*Silent Springs*' (1960) as well as the occurrence of major environmental events such as the spilling of oil along the picturesque northern coast of France, the death of fish and other organisms in thousands in Swedish lakes due to long range air pollution and such publicized threats of extinction of many species, the concept of the environment gained widespread acceptance¹.

Man's awareness of his environment has grown considerably from the time the first conference on environment was held under the auspices of the United Nation at Stockholm² in June 1972. Human beings like other living creatures, live, depend on and influence the environment. On global level, increasing population pressures, urban development, industrialization and ever growing technologies are creating newer demands on every facet of the environment.

Environment has different meaning for different people. Environment is derived from French word '*environmer*', which means to encircle or surround. Most definitions include the physical, chemical and biological components that influence the life of an organism. Among biological component, the human (*Homo sapiens*) occupies a central position as one of the organisms. A recent development (post-1972 Stockholm

¹ Rachel Carson. 1962. *Silent Spring*. Boston: Houghton Mifflin Co. Pp 343.

² *UN Conference on the Human Environment*, Stockholm 1972. Sweden.

conference) has been the emphasis on impact of man's himself on his own environment i.e., the various anthropogenic activities affecting the environment at global level. For instance, several socio-economic, cultural and political factors also influence the basic physical, chemical and biological components (and their interactions) of the environment³. As a result persons led by different disciplines have approached the environment in different ways, which is evident from various definitions of the environment proposed by them.

1.2. Concept of Environment

Environment in the complex set of physical, geographic, biological, social, cultural and political conditions that surround an individual or organism and that ultimately determines its form and nature of its survival⁴.

Environment in the components of the earth include: (i) air, land, and water; (ii) the layers of the atmosphere; (iii) organic and inorganic matter and living organisms; (iv) the interacting systems that include components referred to in (i) to (iii); and (v) the socio-economic, environmental health, cultural and other items referred to in the definition of environmental effect⁵.

Environment in surrounding is the which an organization operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation⁶.

Thus, all that surrounds a designated ecosystem is called environment. The *McGraw Hill Encyclopedia of Environment Science*⁷ defines the environment as the “sum total of all conditions and influences that affect the development and life of organism”. This is quite a comprehensive definition as it stresses its totality. Since every living organism, from the lowest to the highest, has its own environment, that is why we find people from all walks of life and all manners of vocations talking about environment and be he a politician, a civil servant, a common man or a scientist finds environmentalism a fertile field.

³ P. D Sharma. 2009. *Ecology and Environment*. New Delhi: Capital Offset Press. Pp 15.

⁴ Ibid Pp 15.

⁵ Ibid.

⁶ Ibid.

⁷ *McGraw Hill Encyclopedia of Environment Science*. 1995. Pp 545

Environment⁸ is an inseparable whole and is constituted by the interacting system of physical, biological and cultural elements which are inter-linked individually as well as collectively in myriad ways. Physical elements (space, landforms water bodies, climate, soils, rocks and minerals) determine the variable character of the human habitats, that opportunities as well as limitations. Biological elements (plants, animals, micro-organism and man) constitute the biosphere a cultural elements (economic, social and political) are essentially man-made features which go into the making of cultural milieu.

*Webster*⁹ too rightly observed the environment which is the “aggregate of all the external conditions and influences affecting the life and development of an organism”. These external conditions can be social and physical; the setting can be rural and urban. Since man is an integral part of the environmental system, change in the system will certainly affect the life of the man as well as other living organism.

Environment can also be defined as that congeries of forces and influences that act upon an organism and in relation to which the organism is capable of reacting and in return influencing. In relation to man, however, the environment is not of first that one of several kinds.

Endowed with the great sense of perception man does not view environment as it is but as he thinks it is. Thus, apart from the phenomenal or real environment, there is the operational environment whose constituents are innumerable political, technological and cultural artifacts and institutions and the behavioral or virtual environment, which is the outcome of the perception and preferences of man or human groups¹⁰. Thus man is not first an organism but a socio-ecological organism living and interacting in a bio-ecological milieu¹¹.

⁸ L.RSingh. et al. 1983. *Man and Forests: A Central Himalayan Case Study*. *Ambio*, Vol. XIII, No.2, Pp. 84-85.

⁹ *Encyclopedia Britannica*, Vol. 16, 1972, Pp. 106-15.

¹⁰ DLowenthal. 1967. *Environmental Perception and Behaviour*. University of Chicago, Deptt.Of Geography. Res. Paper No. 109. Pp. 335

¹¹ HSprountandMSprout. 1965. *Ecological Perspectives on Human Affairs with Special Reference to International Politics*. Princeton: Princeton University Press. Pp. 97

1.3 Various Types of Environment

According to *Kurt Lewin*, environment is of three types which influence the personality of an individual. They are as follow:

- Physical Environment,
- Social Environment, and
- Psychological Environment.

1.3.1 Physical Environment

Physical environment refers to geographical climate and weather or physical conditions wherein an individual lives. The human races are greatly influenced by the climate. Some examples are as:

- In the cold countries i.e. European countries the people are of white colour. Likewise, in Asian and African countries, that is, in hot countries people are of dark complexion.
- The physique of an individual depends on climate conditions as the individual tries to adjust in his physical environment.
- The human working efficiency also depends on the climate conditions.

1.3.2 Social Environment

Social Environment includes an individual's social, economic and political conditions wherein he lives. The moral, cultural and emotional forces influence the life and nature of individual behaviour. Society may be classified into:

- An open society is very conducive for the individual development.
- A closed society is not very conducive for the development.

Socio-cultural elements such as economic, technological, religious and political and other social elements are essentially man-made features, which make cultural milieus.

1.3.3. Psychological Environment.

Although physical and social environment is common to the individual in a specific situation, yet every individual has his own psychological environment, in which he lives. *Kurt Lewin* has used the term 'life space' for explaining psychological environment. The psychological environment enables us to understand the personality of an individual. Both the person and his goal form psychological environment. If a person is unable to overcome the barriers, he can either get frustrated or complete by change his goal for a new psychological environment, but adopting this mechanism, the individual is helped in his adjustment to the environment.

All the organisms work to form their social groups and organizations at several levels. Thus, the social environment is formed. In this social environment the organisms work to derive matter from the physical environment for their sustenance and development. This process gives birth to economic environment. Man claims to be most skilled and civilized of all the organisms. This is the reason why his social organization is most systematic. The three aspects of man, e.g. physical, social and economic function in the biotic environment as:

The Physical Man: The 'Physical Man' is one of the organism's populations or biological community. He is in need of basic elements of the physical environment like habitat (space), air, water and food. Besides, like other biological populations, he releases waste into the ecosystem.

The Social Man: The 'Social Man' performs the following functions:

- Establishing social institutions,
- Forming social organizations.
- Formulating laws, principles and policies,
- Taking steps to safeguard his existence, interest and social welfare.

The Economic Man: The economic man derives and utilizes resources from the physical and biotic environment with his skills and technologies. The economic

function makes the man one component of the ecosystem to the other. There may be any following two situations:

- His exploitative functions may be in harmony with the natural environment. Such, functions do not necessarily involve change in the working of the ecosystem.
- The functions may exceed the critical limit. Consequently, the equilibrium of the environment/ecosystem is distributed and a great number of environment and ecological problems crop up. These are detrimental to man himself besides to whole population of human species in a given ecosystem.

Environment has remained the multidisciplinary concern and as such has sought attention from sociologists, environmentalists, biologists and legal experts

1.4. Sociological Perspective of Environment

Environmental problems are one of humanity's major concerns in the twenty-first century, and it is becoming apparent that sociologists can play an important role in shedding light on these problems and the steps that need to be taken to cope with them. While the study of environmental issues is an inherently interdisciplinary project, spanning the natural and social sciences as well as humanities, the crucial role of the social sciences in general and sociology in particular are increasingly recognized¹². This stems from growing awareness of the fact that environmental problems are fundamentally social problems: They result from human social behavior, they are viewed as problematic because of their impact on humans (as well as other species), and their solution requires societal effort. It is, therefore, not surprising that sociologists have shown growing interest in environmental issues in recent decades and that environmental sociology has become a recognized field. Yet sustained sociological investigation of environmental problems did not come easily, it is a relatively recent development in the field.

Although there was scattered sociological attention to both urban problems and natural resource issues prior to the 1970s, environmental sociology developed in that decade as sociology's own response to the emergence of environmental problems on the

¹² Gary DBrewer and C. SternPaul (eds.), 2005. *Decision Making for the Environment: Social and Behavioral Science Research Priorities*. Washington, D.C.: National Academies Press. P.329.

public agenda. At first, sociologists tended to limit their attention to analyzing societal response to environmental problems, rather than examining the problems themselves. But as sociologists gradually paid more attention to environmental issues, some began to look beyond societal awareness of environmental problems to examine the underlying relationships between modern, industrial societies and the biophysical environments they inhabit. The result was the emergence of environmental sociology as a field of inquiry¹³.

'Environment and the related issues' on the American National Agenda in the late 1960s and early 1970s led sociologists to study factors that contributed to societal awareness of environmental degradation. While there were a few early efforts to analyze the overall processes involved¹⁴, most studies focused on specific factors such as environmentalism. The environmental movement played the major role in placing environmental issues on the nation's agenda, and studies of environmentalism were a primary emphasis of early sociological work not only in North America but also subsequently in Europe, South America, and Asia. The growth of public awareness and concern stimulated by environmental activists and personal experience with degradation also received a good deal of attention. These two emphases have continued over time, while in recent decades attention to the roles played by the media and especially science in generating societal attention to environmental problems has increased. These strands of research have contributed to a broader concern with an understanding of how environmental problems are "socially constructed."

Over a period of time various approaches have been developed in sociology to study environment.

1.4.1. Functionalist Perspective

The functionalist perspective has been used to analyse various aspects of the human-environment interaction. The functionalists approach the ecological environment by examining the interconnections between the various parts composing the

¹³ Riley E Dunlap and R. Catton William Jr. 1979. "Environmental Sociology." Annual Review of Sociology 5:243-273.

¹⁴ Stan L Albrecht. 1975. *The environment as a social problem. Social problems as social movements.* A. L. Mauss (ed). Philadelphia: J. P. Lippincott. Pp. 566-605.

ecosystem¹⁵. Functionalists see the ecosystem as exhibiting a tendency toward equilibrium; in which its components maintain a delicate balanced relationship with one another. Functionalists stress that our survival depends on our ability to maintain a precarious balance among the living and nonliving component comprising the biosphere¹⁶. Where are environmental problems likely to arise? Functionalists would answer that problems develop from the system itself. Agricultural and industrial modes of production are destabilizing forces in our ecosystem. Agriculture replaces complex natural systems with simpler artificial ones to sustain select highly productive crops. These crops require constant attention in the form of cultivation, fertilizers, and pesticides, all foreign elements to the natural environment¹⁷. When it first began, industrialization entered a society that had fewer people, less material well-being, and abundant natural resources. But modern industrialization uses “more resources to make few people more productive” and as a result, “more people are chasing fewer natural resources”¹⁸. As much as agriculture, industrialization, and related technologies have improved the quality of our lives, we must also deal with the negative consequences of waste, pollution, and the destruction of our natural resources. Human activities have become a dominant influence on the Earth’s climate and ecosystems.

Sociologists contend that the impact of any human group on the environment is the product of three different factors. First is the population, second is the average person’s consumption of resources or level of affluence, and third is the amount of damage caused by technology. The *Ehrlichs* present a final formula: Environmental Damage = (Population Growth) × (Level of Affluence) × (Technological Damage). A high rate of population growth or consumption can lead to a “hasty application” of new technologies in an attempt to meet new and increasing demands. “The larger the

¹⁵ M.A Faia. 1989. *Cultural materialism in the functionalist mode*. American Sociological Review, 54: 658- 60.

¹⁶ M.Hughes, C.J.Kroechler and J.W Vander Zanden. 1999: *Sociology: The Core*. 5th Edn. McGraw-Hill College, New York. P 425

¹⁷ Paul, R.Ehrlich, Anne H.Ehrlich, and P. Holdren John. 1973. *Human Ecology: Problems and Solution*. New York: W.H. Freeman publication. Pp 375.

¹⁸ Paul Hawken, Amory Lovins and Hunter Lovins. 1999. *Natural Capitalism: Creatively the Next Industrial Revolution*. Boston: Little Brown and Con. Pp 40.

absolute size of the population and its level of consumption, the larger the scale of the technology must be, and, hence, the more serious are the mistakes that are made”¹⁹ .

There is no simple way to stop the escalation of environmental problems. Halting population growth would be a good start but by itself could not solve the problem. Reducing technology’s impact on the environment might be useful, but not if our population and affluence were allowed to grow. According to *Ehrlich*²⁰., the only way to address environmental problems is to simultaneously attack all components. Expanding human activities on land and seas lead to a vicious cycle because humans intensify their exploitation of the land in order to compensate for desertification and pollution. This can cause a lot of damage, thereby resulting in what *Merton*²¹ calls dysfunction on the land .To avoid this damage to the ecosystem, functionalists emphasise that human beings must become more sensitive to both the manifest (those consequences that are intended and recognized by the participant in a system), and latent (those consequences that are neither intended nor recognized by the participants in a system) consequences of their actions on the environment. Such precaution will lead to a state of balance or equilibrium.

1.4.2 Conflict Perspective

Like functionalists, conflict theorists focus their attention on society as a whole, studying their institutions and structural arrangements. The main source of conflict in human societies is scarcity of the resources people require, according to conflict perspective. Wealth, prestige, and power are always in limited supply, so that gains for one individual or group are often associated with losses for others²². *Power*, the ability to control the behaviour of others, even against their will determine who will gain and who will lose²³. Conflict theorists are concerned with how is it that some groups acquire power, dominate other groups, and affect their will in human efforts. Public discourse on environmental problems is often framed in terms of costs and interests. Do you save the spotted owl habitat or hundreds of logging jobs? Should you close a

¹⁹ Paul R Ehrlich, Anne HEhrlich and P. Holdren John. 1973. *Human Ecology: Problems and Solution*. New York: W.H. Freeman publication. Pp 15.

²⁰ Ibid P 20.

²¹ Robert K Merton. 1938. *Social Structure and American Sociology Review* 3: Pp 672-682.

²² Ibid p. 60.

²³ HLaswell. 1936. *Politics Who Gets What, When and How?* McGraw-Hill, New York.

factory or save the river where its waste is being dumped? From this sociological perspective, environmental problems are created by humans competing for power, income, and their own interests.

Our capitalist economic system has been identified as a primary source of the conflict over polluting (or conserving) our natural world. Competing political and economic interests ensure that this conflict will continue. *Davies*²⁴ argues that the capitalist system encourages pollution, simply because air and water are treated as infinite and free resources. Polluters don't really consider who or what is being affected by environmental problems. If a paper mill is polluting the river, it doesn't affect the paper mill itself but, rather, the users of the water or the residents downstream. If a power plant is polluting the air, the plant doesn't pay for the cost of using the air, only the cost of cleaning up a polluted area²⁵.

Generally speaking, conflict perspective does not offer a unified point of view on many issues. Issues relating to environmental matters are no exceptions. Some conflict theorists have linked environmental problems to the distribution of the world's resources than to a limited amount of resources available. That is, the main issue is not one of how much is available but one of which individuals and groups will secure a disproportionate share of what is available. Consequently, the critical decisions that affect the environment are made not in the interests of present and future generations but in the interests of those groups that can impose their will on others²⁶. Environmental problems occasionally make life unpleasant and inconvenient, but most Americans will tolerate this in exchange for the benefits and comforts associated with a developed industrial economy. A higher standard of living has been confused with consumption: More is better. Politicians encourage lower taxes so that we have more money to spend. Television and print media overwhelm us with products and services and tell us that we cannot live without them. But increased consumption requires increased production and energy, which in turn leads to environmental damage.

²⁴ J. Clarence Davies and S. Barbara Davies. 1975. *The Politics of Pollution*. New York: MacMillan Pub. Co. P 376.

²⁵ Ibid Pp 376.

²⁶ M. Hughes, C.J. Kroechler, and J.W. VanderZanden. 1999: *Sociology: The Core*. 5th Edn. McGraw-Hill college, New York. Pp424-245.

From a conflict perspective people are usually separated into two camps on environmental matters. Those who favour economic development and growth even if it results in some measure of environmental damage, and those who see environmental protection over economic goals. Although conflict theorists also see many of the same circumstances come to somewhat different conclusions. This phenomenon is concisely described in the World Bank Report in the 1980s. The Report explained the situation in five ways: one, from 1980 to 1987, African farmers increased their food output by only 1.3 percent, less than half the rise in population; two, commodity prices fell simultaneously on the world market, and this made it impossible for African nations to repay their debts; three, much of the money provided by Western aid agencies was diverted to highly visible projects such as roads, port facilities, airports, and office buildings, thereby recycling the aid money to Western corporations, to the neglect of the African farmers; four, even when Western nations provided funds for African governments, they have found an outlet for surplus food in need of market which has benefited the United States of America and European farmers; finally, assistance is often rendered to African governments that are friendly toward the donor nations, thus guaranteeing the stability of such 'cooperative' African nations²⁷.

According to conflict theorists, expanding human requirements and economic activities are placing ever increasing pressures on land resources, creating competition and conflicts and resulting in sub-optimal use of both land and land resources, and at times loss of lives and property as reported above. If human requirements are to be met in a sustainable manner, it is essential to resolve these conflicts and move towards more effective and efficient use of land and its natural resources. Integrated physical and land-use planning and management are an eminently practical way to achieve this.

1.4.3 Feminist Perspective

The feminist perspective argues that a masculine worldview is responsible for the domination of nature, the domination of women, and the domination of minorities²⁸. Ecofeminism may be the dominant feminist perspective for explaining the relationship

²⁷ C. H Farnsworth, *Report of World Bank sees Poverty lessening by 2000 except in Africa*, New York Time (July 16): A3

²⁸ Rik Scarce. 2005. *Eco-Warriors: Understanding the Radical Environmental Movement*. New York, NY: Basic Books. P 39.

between humans and the environment. Ecofeminism was introduced in 1974 in an effort to bring attention to the power of women to bring about an ecological revolution. Eco-feminists argue, “Men driven by rationalism, domination, competitiveness, individualism, and a need to control, are most often the culprits in the exploitation of animals and the environment”²⁹. According to eco-feminists, “Respect for nature generally promotes human welfare and genuine respect for all human beings tends to protect nature”. Other feminist approaches include the feminist critique of natural science, feminist analyses of specific environmental issues (work, garbage, consumption), and feminist contributions to sustainable development.

Cynthia Hamilton argues that environmental conflicts mirror social injustice struggles in other areas—for women, for people of color, for the poor. In environmental movements, Hamilton explains, what motivates activist women is the need to protect home and children. As the home is defined as the woman’s domain, her position places her closest to the dangers of hazardous waste, providing her with an opportunity to monitor illnesses and possible environmental causes within her family and among her neighbors. As Hamilton sees it, these women are not responding to “‘nature’ in the abstract but to their homes and the health of their children”³⁰.

The modern environmental justice movement emerged out of citizen protests at Love Canal, near *Niagara Falls*, New York. The movement is based on the principle that “all peoples and communities are entitled to equal protection of environmental and public health laws and regulations”³¹. For many years, the movement has effectively brought racial and economic discrimination in waste disposal, polluting industries, access to services, and the impacts of transportation and city planning to the public’s attention.

1.4.4 Interactionist Perspective

While the functionalist and conflict perspectives focus on the macro or larger-scale structure of society, the interactionist perspective has traditionally been more

²⁹ Ibid P 40.

³⁰ L. C.Hamilton. 1985. *Concern about toxic waste: Sociological Perspectives*. Washington, DC: National Academy Press. P 210.

³¹ Robert D.Bullard. 1996. *Symposium: The Legacy of American Apartheid and Environmental Racism*. St. John’s J. Leg. New York: United Nations Research Int. Soc. Dev. Pp445-474.

concerned with the micro or smaller-scale aspect of social life. Interactionists emphasize that humans are social beings who live group existence. Basically, symbolic interaction focuses upon the ways in which meanings emerge through interaction. Its prime concern is to analyse the meanings of everyday life, in a close observational work and intimate familiarity, and from these develop an understanding of the underlying forms of human interaction.

Theorists working within the interactionist perspective address how environmental problems are created and defined. *Dunlap and Catton* explain³², “Environmental sociologists have a long tradition of highlighting the development of societal recognition and definition of environmental conditions as ‘problems’”. Environmental problems do not materialize by themselves³³. As John *Hannigan*³⁴ describes, the successful construction of an environmental problem requires six factors: the scientific authority for and validation of claims; the existence of “popularisers” (activists, scientists) who can frame and package the “problem” to journalists, political leaders, and other opinion makers; media attention that frames the problem as novel and important (such as the problems of rainforest destruction or ozone depletion); the dramatization of the problem in symbolic or visual terms; visible economic incentives for taking positive action; and the emergence of an institutional sponsor who can ensure legitimacy and continuity of the problem.

The difference between people’s attitudes and their actions specifically considered here is the issue of whether people are ready to take action or not. People are generally divided into two groups – those who believe that action should be taken to preserve the environment, which is environmental protection, should take priority over economic growth, and those who believe that the economic gains should take precedence over environmental protection. Social constructionists do not deny that real environmental problems exist. Rather their interest is in “the process through which environmental claim-makers influence those who hold the reins of power to

³² Riley EDunlap and R. Catton William Jr. 1979. “*Environmental Sociology*.” Annual Review of Sociology P20.

³³ AIrwin. 1995. *Citizen Science: A Study of People, Expertise and Sustainable Development*. London: Routledge. Pp 85.

³⁴ JHannigan. 1995. *Environmental Sociology: A Social Constructionist Perspective*. London: Routledge. Pp 55.

recognize definitions of environmental problems, to implement them and to accept responsibility for their solution”³⁵. This perspective helps us understand how environmental concerns vary over time and how some problems are given higher priority than others. From interactionism, we gain an image of human beings as active agents who fashion their behaviour, as opposed to an image of individuals who simply respond passively in a manner prescribed by social rules and institutional arrangements.

1.5 Legal Perspective

Caring for the environment is agreed that it is definitely something we should think about in our daily lives, through recycling, walking instead of driving and conserving water and the like when required. On a larger scale events such as Earth Day every April, when a collaboration of countries across the globe endeavor to highlight environmental suffering through a series of activities such as an hour of darkness, when every home and business is required to turn off all of their electricity for one hour; and World Environment Day brings the world's attention to just how important conserving our environment is. Various organizations have gone a long way in ensuring that the general population offers, at least some thought to our environment, involved in lobbying, advocacy or conservation, or all, or several of these. The issues of environment are not limited to the borders of any one country. Because the harmful effects of pollution often extend to areas beyond the country where the pollution originated, the international legal system is an important means of controlling pollution. International efforts to sustain environment are numerous and complex. Notwithstanding political division of the world into national units, the oceanic world is interconnected whole and winds that blow over the countries are also one.³⁶ If the nuclear test is carried out in one part of the world, the fall out may be carried by wind to any other part of the world and such fall out of irresponsible disposal of radioactive waste from a remote energy plant in one country may turn out to have greater adverse effect on the neighboring countries than the danger of full fledged

³⁵ Ibid Pp 185.

³⁶ *M.C Mehta. v Union of India.* 1991. SCC Pp 353-4

war.³⁷ Advocates of legal prospective believe that the two primary sources of international law, are custom and treaties and both play a role in preserving environment.

Customary International Law: Customary international law emerges when countries engage in certain practices in the belief that those practices are required by international law. Many environmental activists and other observers believe that countries have an obligation through customary international law not to cause trans-boundary environmental harm. Principle 21 of the Stockholm Declaration (1972) and Principle 2 of the Rio Declaration that emerged out of the 1992 Earth Summit both clearly state this principle.³⁸ The Rio Declaration affirms that countries have "the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction." Under this principle, countries are prohibited from undertaking or allowing actions that will cause pollution in other nations.

Another important concept, known as the *precautionary principle*³⁹ or precautionary approach, addresses circumstances where significant health, safety, or environmental risks may be involved although full scientific certainty is lacking. Many countries, especially those in Europe, consider the precautionary principle to be a part of customary international law, but this legal status is debated by other countries, such as the United States. Considerable controversy also exists over exactly what the precautionary principle means. Principle 15 of the 1992 Rio Declaration reads, "Where there are threats of serious or irreversible damage, lack of scientific certainty

³⁷ Due to the agricultural chemical, solvents and mercury, which flowed into the Rhine River during a warehouse fire in Switzerland, millions of fish were killed and the drinking water in the Federal Republic of Germany and the Netherland was threatened.

³⁸ Note :*This document has been posted online by the United Nations Department of Economic and Social Affairs (DESA).*

³⁹ The *precautionary principle*, also referred to as the precautionary approach, justifies the use of cost-effective measures to prevent environmental degradation even in the absence of full scientific certainty. This principle has obvious applications to various forms of environmental pollution. The principle can be traced to German national law in 1976, which states, "Environmental policy is not fully accomplished by warding off imminent hazards and the elimination of damage which has occurred. Precautionary environmental policy requires furthermore that natural resources are protected and demands on them are made with care."

shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."⁴⁰ Another formulation is that a country is not prohibited from taking measures to protect health or the environment because of the existence of scientific uncertainty. A more aggressive formulation is that countries should err on the side of caution when dealing with environmental problems rather than wait until a risk is certain to occur before acting, by that time it will often be too late to reverse the damage. For example, under this more aggressive interpretation of the precautionary principle, if there is evidence that a pollutant might be dangerous, even if the risk is not certain, a country should take action to prevent the risk involved despite the scientific uncertainty. Under any formulation, questions remain about what level of risk warrants precautionary action and what level of precaution may or should be taken.

Treaties and Regulations: Treaties are often referred to as conventions or protocols and are legally binding agreements between countries or intergovernmental organizations. Treaties typically do not enter into force until a specified number of countries have expressed their consent to be bound by the treaty; even after the treaties enter into force, only the countries that expressed their consent are bound. A treaty is only effective to the extent it is implemented domestically by the parties to it. Each treaty raises its own questions of domestic implementation. There are hundreds of treaties and other international instruments relating to pollution. Some prominent examples include the following: The 2001 Stockholm Convention on Persistent Organic Pollutants (POPs) calls for an immediate ban on certain chemicals, severely restricts the use of others, and provides for POPs to be disposed of and managed using environmentally sound methods. To address the problem of climate change, which is caused by an increased concentration of carbon in the atmosphere, countries negotiated the United Nations Framework Convention on Climate Change, which entered into force in 1994, and finalized the Kyoto Protocol related to that convention in 1997.⁴¹ A treaty that addresses other forms of air pollution is the Convention on

⁴⁰ Note :*This document has been posted online by the United Nations Department of Economic and Social Affairs (DESA).*

⁴¹ Anil Agarwal, Sunita Narain and Anju Sharama. 2001. *Global Environmental Negotiations*. Vol. I. New Delhi: APH Publishing Corporation. Pp 84.

Long-Range Trans-boundary Air Pollution formulated by the UN Economic Commission for Europe in 1979 and its protocols. The 1981 UN Convention on the Law of the Sea, several regional agreements on specific seas, and various other treaties address maritime pollution. The 1998 Convention for the Application of Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (not yet in force) would ensure that countries have the opportunity to make informed decisions on whether to allow hazardous chemicals to enter their borders. There have also been important treaties regulating oil and nuclear pollution, such as the International Convention on Oil Pollution Preparedness, Response and Cooperation in 1990, and the International Atomic Energy Agency Convention on Nuclear Safety in 1994.

A short list of international treaties pertaining to the environment is as follows:

Non-Proliferation Treaty: A multilateral treaty signed in 1968 which aims to control the spread of nuclear weapons; extended indefinitely in May 1995. The treaty has been signed by over 175 nations.

United Nations Framework Convention on Climate Change: An international agreement for dealing with climate change, adopted at the United Nations Conference on Environment and Development (the "Earth Summit") in Rio in 1992⁴².

The Kyoto Protocol: An international agreement setting binding limits on emissions of greenhouse gases from industrialized countries. This agreement was adopted in Kyoto Japan in December 1997 and supplements the United Nations Framework Convention on Climate Change adopted in 1992⁴³.

Comprehensive Test Ban Treaty: A proposed treaty to prohibit all testing of nuclear weapons in all environments: underground, underwater, in the atmosphere and in space. In 1999, the U.S. Senate refused to ratify the treaty⁴⁴.

⁴² Meinhard. 1995. *Sustainable Development- A Principle for Action and an Instrument to Secure the Conditions for Survival for Future Generation*. Law And State, Vol. 51. Pp 104.

⁴³ AnilAgarwal, SunitaNarainandAnjuSharama., 2001. *Global Environmental Negotiations*. Vol. I. New Delhi: APH Publishing Corporation. Pp 84.

⁴⁴ United Nations General Assembly. 10 September 1996. *Comprehensive Test Ban Treaty* Pp 4.

Montreal Protocol: International agreement signed by more than 150 countries to limit the production of substances harmful to the stratospheric ozone layer, such as CFCs.

If we see that in India the care and protection for environment was present from ancient to British period. But it was only after the 1972 United Nations Conference on the Human Environment in Stockholm it was a turningpoint in the history of environmental legislation in India.⁴⁵ After the Stockholm Conference, the Indian Parliament enacted the 42nd Constitutional Amendment Act whereby specific provisions for environment protection were inserted in the form of fundamental duties and the National Committee on Environmental Planning and Co-ordination (NCEPC) was established within the Department of Science and Technology.⁴⁶ In 1985 the Council became the Ministry of Environment and Forests (MoEF)⁴⁷. The MoEF is the central administrative organisation in India for regulating and ensuring environmental protection. Various laws have been framed in India for the protection of environment and some of these are⁴⁸-

Section 268 to 290 of Indian Penal Code deal with public nuisances. Public nuisance means pollution of air, water, blasting, excessive smoke, filth and other polluting activities; Section 133 and 143 of Code of Criminal Procedure Code and Section 91 of Code of Civil Procedure envisages that a person may approach a Magistrate and District Judge respectively by filing a complaint or petition about the public nuisance; Under Law of Torts, special damage can be claimed from nuisance maker and violator of environment; The Water (Prevention and Control of Pollution) Act 1974; The Environment Protection Act 1986; Wildlife (Protection) Act 1972; The Air (Prevention and Control of Pollution) Act 1981; The Prevention of Cruelty of Animals Act 1960 and the National Environment Tribunal Act 1995.

⁴⁵ *UN Conference on the Human Environment*, Stockholm 1972. Sweden.

⁴⁶ P.S.Jaswal & Nishtha Jaswal. 2004 *Environmental Law*. Faridabad: Asian Offset Press. Pp 35.

⁴⁷ *Ibid.* Pp 48

⁴⁸ P.S.Jaswal & Nishtha Jaswal. 2004 *Environmental Law*. Faridabad: Asian Offset Press. Pp 16.

1.6 Changing Scenario of Environment

The rapid economic growth achieved after globalization by some of the developing countries, has adversely affected the quality of the environment, imposed considerable social costs and livelihood impacts and has become a major threat to sustainable development. Since environment regulation tends to be weak in developing countries some of these countries have begun to specialize in pollution intensive manufacturing, particularly in products which have good export potential. However it is also extremely important for developing countries to achieve a high level of economic growth to mitigate their socio-economic problems. But the major challenge here is: how to ensure development in a sustainable manner by a proper trade-off between environment and development.

Development and environment are interrelated to each other. Improper or uncontrolled development is likely to cause adverse impacts on the environment, and environmental pollution or degradation may become a major obstacle for social and economic development. The interrelationship between development and environment has been observed throughout the world, especially in fast-developing countries such as Japan, South Korea, China, and Thailand.

Over a period of time, environmental degradation has emerged as one of the ten threats officially cautioned in 1998 by the United Nations. If vast improvements are made in human health, millions of people will be living longer and healthier lives than ever before. In the poorest regions of the world an estimated one in five children will not live to see their fifth birthday, primarily because of environment-related diseases. Eleven million children die worldwide annually, equal to the combined populations of Norway and Switzerland, and mostly due to malaria, acute respiratory infections or diarrhea illnesses that are largely preventable.

Worse environmental degradation is picking up pace in Southeast Asia (Sub continent of India) where ecosystems are not properly maintained, mountainsides eroded and our soil and waterways poisoned. Forests in the northern mountain chain and mangrove stands in the south are decimating. Moreover, the Arabian Sea is turning into a sewage dump. Desertification is on the rise and arable land is being lost to sea

intrusion at an alarming rate. The urban environment has meanwhile suffered vastly at the hands of unplanned and often rapacious development. Trees are being chopped down indiscriminately, congestion is increasing and the few open spaces left are disappearing. All this comes at a massive health risk, especially for the poor who tend to be relegated to the most polluted of areas be they rural or urban. Unsafe water is a major concern while air and noise pollution in cities are taking a heavy toll on the physical and mental well-being of citizens.

Environment is a result of the dynamic interplay of socio-economic, institutional and technological activities and as such environmental changes may be driven by many factors including economic growth, population growth, urbanization, intensification of agriculture, rising energy use and transportation.

1.6.1. Industrial Development

The Industrial Revolution marked a major turning point in Earth's ecology and humans' relationship with their environment. The Industrial Revolution dramatically changed every aspect of human life and lifestyles, the human development from health and life longevity to social improvements. Its human impact on natural resources, public health, energy usage and sanitation could not begin to register in the world's psyche until the early 1960s, some 200 years after its beginning.

Despite the gains in resource efficiency, however, global trends in resource consumption indicate that the natural resource base, on which all economies depend, is in severe danger of overexploitation and collapse. Asia, for example, already demands around twice the bio-capacity that is available on the continent. The extraction, processing and use of natural resources is a key source of a number of environmental problems and causes increasing environmental costs for Asian economies as well as the world economy. In some Asian countries, these costs are estimated to reach the annual increase in Gross Domestic Product (GDP). Generating sustainable economic growth is one of the key challenges for Asia over the next decade. Improving the efficient use of material and energy, i.e. resource efficiency, should be one key objective in industrial and environmental policies.

The biggest thing due to industrial development to the environment is in the form of various hazards that have gone into all spheres of environment and that affected human settlement and human health in general. So the industrial development has been positive stage but the remarks are different and are proving more negative in nature as it touches all sections of globe and affects them.

1.6.2. Population Growth

Population is an important source of development, yet it is a major source of environmental degradation when it exceeds the threshold limits of the support systems. Unless the relationship between the multiplying population and the life support system can be stabilized, development programmes, howsoever, innovative are not likely to yield desired results. Population impact on the environment is primarily through the use of natural resources and production of wastes and is associated with environmental stresses like loss of biodiversity, air and water pollution and increased pressure on arable land.

The population of the world grew at an alarming rate from 1650 to 1950 and onwards. The unprecedented surge in population has caused and is still causing rise in individual consumption of food, water, and exploitation of natural resources like land, water, fossil fuels, minerals, vegetation etc. The combined effects of population growth, consumption, overuse, wastage and misuse of resources has strained the capacity of the earth to sustain life. As the world's population and per capita consumption grow, the human race is using resources and generating waste with faster speed. Thus we are now beginning to see nature's limits. Pollution of the air and water, destruction of forests and loss of fertile soil are becoming critical problems, with serious consequences for health, food production, productively and perhaps even the ability of the earth to support human life. When used by so many people, the technologies that have raised living standards even as population grew now threaten to reduce living standards and even to threaten life itself. Population growth increases consumption of non-renewable mineral resources, raising their price, requiring a search for substitutes, and hastening the day when such key resources as oil may not be available at all. There is debate about whether shortages of non-renewable

resources will ever seriously threaten living standards. At the least, however, rapid population growth may force scarcity problems on us before we can find substitutes or devise new technologies.

India supports 17 per cent of the world population on just 2.4 per cent of world land area. Its current rate of population growth at 1.85 per cent continues to pose a persistent population challenge. In view of the linkages between population and environment, a vigorous drive for population control needs hardly be over emphasised.

Explosive growth in human population causes a number of serious problems like food-scarcity, overcrowding, poverty, increasing consumption, encroachment on monuments, stress on common social facilities, stress on civic services etc.

1.6.3. Urbanisation

Lack of opportunities for gainful employment in villages and the ecological stresses is leading to an ever increasing movement of poor families to towns. Mega cities are emerging and urban slums are expanding. There has been an eightfold increase in urban population over 1901-1991. During the past two decades of 1971-91, India's urban population has doubled from 109 million to 218 million and is estimated to reach 300 million by 2000 AD. 42. Such rapid and unplanned expansion of cities has resulted in degradation of urban environment. It has widened the gap between demand and supply of infrastructural services such as energy, housing, transport, communication, education, water supply and sewerage and recreational amenities, thus depleting the precious environmental resource base of the cities. The result is the growing trend in deterioration of air and water quality, generation of wastes, the proliferation of slums and undesirable land use changes, all of which contribute to urban poverty.

1.6.4. Overcrowding

There is limited habitable place on the earth. The overpopulation has caused severe stress on land which has further stressed forests and agricultural areas. People are migrating towards cities in search of jobs and cities are becoming overcrowded. Semi-urban lands and cultivable lands near cities have already gone under

construction of houses. Even government lands like railway platforms, areas around monuments, and parks etc. are being seriously encroached. Increasing crowd in cities is aggravating the problem of pollution and insanitation leading to the spread of epidemics. Green lands in urban areas and even sea beaches have been reclaimed for housing and industrial purposes.

1.6.5. Increasing Consumption

It is a simple truth that more people consume more food, wear more clothes, drink more water, need more houses to live, need more medicines for cure, make more noise, create more pollution, generate more waste etc. Some countries of the world have nearly stabilized their population but their life style has become consumption based. We may take the example of United States of America. Though, it is not overpopulated, it consumes about 40% of resources of the world alone and produces not less than 21 % of the world's carbon dioxide which is a green-house gas. It has been observed by ecologists the world over that powerful people and developed nations consume more resources than weak and poor people and developed or under developing countries. Thus, increase in the rate of consumption at one end is causing an increase in hunger and crime at the other end. Merely, 20% of the world's population lives in developed and richest countries. According to United Nations the world's richest 20% of population consumes about 86% of resources of the world. Thus, the population growth and the changing pattern of consumption are responsible for the severe stress on environment.

1.6.6. Food Scarcity

The population growth leading to population explosion causes severe economic disparities and gives birth to - competition for resources, price rise, hunger, malnutrition, and mass starvation. The gap between the rich and the poor has increased due to population growth. The rich people are exploiting more resources than poor people. Malnutrition is one of the most common effects of these problems. The poorest people in developing countries do not get adequate calories to develop their health properly. In Ethiopia, almost half of all children under age of 5 suffer from malnutrition. Most poor children and adults suffer from severe vitamin and mineral

deficiencies. These deficiencies cause failure of senses, mental disorders and damage to vital organs. There are millions of starving people throughout the world. As per estimates, from 5 to 20 million people die of starvation across the world, every year.

1.6.7. Poverty

Conditions of having insufficient resources or income are called as poverty. In its extreme form, poverty is the lack of the basic human needs like food, clothing, housing, drinking water, and health services. The world's poorest people are found in Africa, Asia, Latin America, and Eastern Europe. They always struggle for shelter and clothing. They often suffer from malnutrition, famine, disease outbreaks, epidemics and war. In developed countries, poverty has caused drug dependence, crime, and mental illness. Overpopulation, unequal distribution of resources, inability to meet the cost of living, inadequate education and employment, degradation of environment, demographic trends and welfare incentives are primary causes of poverty. Lives in developing countries represent a picture of misery, hunger and poverty. Many of these countries have entered the second stage of Demographic Transition in which a high birth and reduced death rates along with a rising life expectancy accelerates the population growth.

1.6.8. Stress on Common Social Facilities

We need facilities and facilities both on home front and on social front. More people require more use of available facilities. But facilities may be limited. So, there may be a great rush and competition for availing facilities causing severe stresses on those facilities. Community halls, bus stops, railway junctions, parks, play grounds, hospitals and even roads are some common social facilities that are facing heavy stresses due to population explosion. One can see long lines of people standing for hours for their works. There is heavy traffic on roads round the clock. All these social facilities are often heavily polluted due to careless practices of human beings.

1.6.9. Stress on Common Civic Services

Services provided by municipalities or municipal corporations to civilians are called as civic services. Those services include cleanliness, water supply, waste disposal,

maintenance of drainage systems, community health care, care of animals (dogs and cattle) on roads, basic education etc. Over population has caused severe stress on civic services. It has excessive load of work on bodies providing civic services. As a result, those services have become unable to perform properly. On the other hand, many people in our societies have lost civic sense. Some of them drop their domestic wastes (including plastics) into drains or throw away garbage on roads. Some persons draw most of the supply water through electric pumps and all the other inhabitants of the area go without water.

1.6.10. Displacement

Each year, millions of persons are forcibly displaced by development projects, whether dams, roads, reservoirs of oil, gas and mining projects. While such projects can bring enormous benefits to society, they also impose costs, which are often borne by its poorest and most marginalized members. As author *W. Courtland Robinson* points out,⁴⁹ “for millions of people around the world—development has cost them their homes, their livelihoods, their health, and even their very lives.” Impoverishment and disempowerment often become their lot, with particularly harsh consequences for women and children. Each and every development project essentially requires large chunk of land, which involuntarily displaces the local inhabitants, mostly the poorer and backward sections of population, residing in the remote corners of the country.

Involuntary resettlement involves forced relocation of people without any prior agreement or approval of the affected people. In its widest sense, involuntary displacement can be conceived as the total deprivation of the community life, amenities, facilities, assets, access to natural resources, and the hardships involved before, during and after the process. Development projects that displace people generally give rise to severe social, economic, and ecological and the environmental problems.

More than one million people in china have been displaced as a result of this project—1,200 towns have disappeared. But many cities have been rebuilt with improved housing and amenities for residents. More than 8,000 unexplored archeological sites will be destroyed and

⁴⁹ W. Courtland Robinson, 1998, *Terms of Refuge: The Indochinese Exodus and the International Response* London: Zed Books.

lost by rising water created by damming the river—1,200 existing archeological sites will vanish.⁵⁰ *Thukral* says that “this is not to say that natural resources are available only in areas where the poor live. Most significantly, these are also the areas where the powerless live. Even though it is believed that the best coking coal of the Jharia coal belt is available under Jharia town, a small business township, it has not yet been mined, and three decades after talk about its mining began. It is similarly claimed that oil is to be found beneath Gandhinagar and Baroda in Gujarat. But who will displace these cities? Is it easier to displace the poor and illiterate?”⁵¹

1.6.11 Global Climate change and Ozone Depletion

The major greenhouse gases (GHGs) consist of carbon dioxide, methane, nitrous oxide, water vapour and chlorofluorocarbons (CFCs). These gases allow sunlight to penetrate the earth’s surface, yet prevent infrared radiant heat from escaping. The Intergovernmental Panel on Climate Change (IPCC) of the United Nations has concluded that emissions, primarily from industry, and destruction of greenhouse gas sinks, via poor land use management, especially deforestation, have substantially increased the concentrations of GHGs beyond natural processes. Without major policy shifts, pre-industrial carbon dioxide levels are expected to increase, yielding a 1.0-3.5°C rise in average global temperature by the year 2100.⁵²

The two primary components of climate change include (1) temperature elevation with concomitant weather instability and extremes and (2) rising sea-level due to thermo expansion. These changes may result in an increased frequency of heat waves and hazardous air pollution episodes, reduced soil moisture, higher incidence of disruptive weather events, and coastal inundation.⁵³ Subsequent health effects may include an increase in (1) heat-related mortality and morbidity; (2) infectious diseases, particularly those that are insect borne; (3) malnutrition from food supply shortages; and (4) public health infrastructural crises from weather disasters and sea-level rise, coupled with climate-related human migration.

⁵⁰ Displacement: The Three Gorges Dam and Contemporary Chinese Art. October 2, 2008–January 25, 2009. *Art Smart Museum of Art*: University of Chicago. P4

⁵¹ Enakshi Ganguly Thukral (Ed). 1992. *Big Dam Displaced People: River of Sorrow, River of change*. P 9

⁵² Intergovernmental Panel on Climate Change (IPCC). 1992. *Climate Change 1992: The Supplementary Report to the IPCC Impacts Assessment*. Canberra: Australian Government Publishing Service. Pp. 45-48

⁵³ Ibid p 51-54

1.6.12 Infectious diseases and climate and ecosystem change

Coupled atmosphere-ocean general circulation models predict that high latitudes in the northern hemisphere will experience the largest surface temperature elevation based on current IPCC scenarios.⁵⁴ Minimum winter temperatures are expected to be disproportionately more affected, allowing for certain viruses and parasites to extend into regions where they previously could not live. In addition to direct climate effects on vectors, transformation of ecosystems could have marked implications for diseases whereby the geographic range of vector and/or reservoir host species is defined by these ecosystems.

Vector-borne diseases may spread to temperate regions in both hemispheres and intensify in endemic areas. Temperature determines vector infectivity by affecting pathogen replication, maturation and the period of infectivity.⁵⁵ Elevated temperature and humidity also intensify the biting behavior of several mosquito species. Extreme heat, on the other hand, can shorten insect survival time.

1.7.1 The Environmental Situation in India

The environmental problems in India are more health and livelihood threatening in nature. Airpollution, soil degradation, deforestation, desertification, shrinking wetlands, inadequate publichealth and sanitation, indoor pollution in rural areas, growing water scarcity, falling groundwatertables, lack of minimum flow in rivers, and over extraction of water for irrigation purposes are some of the environmental problems that need to be addressed first before any povertyalleviation programme can be truly successful.

The country can be classified into four broad geographical areas including the Himalayas (East & West), Indo-Gangetic Plains, the Thar Desert and the Southern Peninsula flanked by the Western and Eastern Ghats. In addition there are also the island systems of Lakshadweep & Minicoy Islands in the Arabian Sea and the

⁵⁴Intergovernmental Panel on Climate Change (IPCC). 1990. Climate Change: The IPCC Impacts Assessment. Canberra: Australian Government Publishing Service. p 78-81

⁵⁵JLongstreth and J Wiseman. 1989. *The potential impact of climate change on patterns of infectious disease in the United States*. In *The Potential Effects of Global Climate Change in the United States*, edited by JB Smith and DA Tirpak. Washington, DC: US Environmental Protection Agency. Pp 251-255

Andaman & Nicobar Islands in the Bay of Bengal. The country has fourteen major river systems, besides a number of smaller water bodies.

Environmental health risks emanate from a combination of complex factors. Poverty, among others, is perhaps the most crucial that puts populations at risk. Other factors include access to safe drinking water and sanitation in rural and urban areas, air quality (especially in urban areas), indoor air pollution (especially in poor rural and urban households), solid waste management and agro-industrial pollution.

The ambient air quality has deteriorated all over the country, especially in the semi-urban and urban areas. Anthropogenic activities result in air pollution on account of 3 major sources: stationary sources (use of fossil fuels in industries and thermal power plants) mobile sources (vehicles) and in-door sources (burning of bio-mass). The relative contribution of the 3 sources varies across the country depending upon various factors.

The level of urban waste being generated in different cities poses a serious threat to the environmental quality and human health. Approximately 36.5 million tons of solid waste are generated annually. Many cities generate more solid waste than they can collect or dispose off effectively. Even when there are adequate resources available by way of public provisions to the municipal authorities, the safe disposal of urban solid waste often remains a major problem.

Indian cities, like many of their post-colonial counterparts, are beset by immense environmental problems at the end of the twentieth century. As the growth of urbanization continues, these problems are escalating. While environmental problems such as air pollution and toxic wastes are occasionally addressed by governments when given publicity, the most profound of these environmental problems, the insanitary living and working conditions of large sections of the urban population are ignored. It is only when the threat of epidemic occurs that the government authorities intervene in an attempt to control the public health risk. Such was the case during the 1994 plague outbreak in western India which caused thousands of people to flee Surat

to escape infection. It was the dramatization of events by Indian and foreign media which forced the various levels of government to intervene.⁵⁶

The environmental conditions in Indian cities are in many ways comparable to those of nineteenth century cities in Great Britain and Europe. Industrial cities like Liverpool and Manchester were described by Friedrich Engels as having “...streets [that] are generally unpaved, rough, dirty, filled with vegetable and animal refuse, without sewers or gutters but supplied with foul, stagnant pools instead⁵⁷.” Such descriptions are just as appropriate to the slums of late twentieth century Calcutta, Delhi or Mumbai. The Industrial Revolution, which brought about massive migrations of impoverished rural workers to the cities, along with a rapid increase in the number of factories, exacerbated the existing environmental problems in nineteenth century cities. These conditions only improved when three factors brought about the political change necessary to implement sanitary reform. These were the campaigns by medical practitioners along with reform of local government, advance in science and engineering, and the presence of a “threat from below” in terms of diseases and organized labour.

In India, a similar pattern of urbanization has emerged. Impoverished rural migrants have moved to cities in search of employment. The consequent lack of housing has produced slums, while the factories that employ them have polluted their surrounding environments. Totally inadequate sanitation and water supply systems have turned rivers into sewers and have contaminated ground water supplies. While epidemics of cholera and typhoid occur infrequently, it is the recurring endemic diseases such as gastroenteritis, dysentery, diarrhea and malaria which have devastating and long-term impacts on the health of the poor and slum dwellers.

The environmental conditions in Indian cities are continuing to deteriorate because the middle-class is actively participating in the exclusion of large sections of the population from access to basic urban services. The consequence of such monopolization of state resources and benefits is that whilst an awareness of

⁵⁶ John, E Burns. (1994), “*Thousands flee Indian city in deadly plague outbreak*”, New York Times (national edition) 24 September.

⁵⁷ FEngel.(1987), *The Condition of the Working Class in England*, Penguin Books, London (first published in 1844), Pp71.

environmental problems is growing amongst the middle-class, to date they have been more concerned about the inconveniences they suffer on congested roads and the resultant air pollution⁵⁸ than about the risk of epidemic and endemic diseases. When the *British Queen* called Delhi a “dirty city” the municipal corporation reacted with yet another “cleanliness drive”, spending millions of rupees of a one-off campaign that only has a net effect for a day or two⁵⁹. This reaction symbolizes government environment policies - crisis intervention rather than institutionalizing a system for maintaining infrastructure and implementing policies.

The other response to environmental problems is that of a committed individual. In the aftermath of the plague outbreak in Surat, a new administrator, *S.R. Rao*, was appointed in May 1995. *Rao* transformed Surat from one of the filthiest cities in the country to the second cleanest in 1997⁶⁰ by getting broad based public support for his campaign. This support and people’s participation enabled Rao to deflect the pressures exerted by vested political, economic and religious interests against the demolition of unauthorized buildings, road-widening, the imposition of an administrative charge on leaking taps that discharged onto roads, the discharge of effluent on roads and the dumping of rubbish on streets. The Surat municipal council also recognized the need for basic services in slums and built more than forty pay-and-use toilets with the help of two non-government organizations - Sulabh and Paryavaran. The outcome was a 65 per cent reduction in the reported incidence of disease⁶¹, which directly benefits the poor.

Transport activities have a wide variety of effects on the environment such as air pollution, noise from road traffic and oil spills from marine shipping. Transport infrastructure in India has expanded considerably in terms of network and services. Thus, road transport accounts for a major share of air pollution load in cities such as Delhi. Port and harbor projects mainly impact on sensitive coastal eco systems. Their construction affects hydrology, surface water quality, fisheries, coral reefs

⁵⁸ Anon. (1997), “*Me and my city*”, *Down to Earth*, 31 March, Pp 58-9.

⁵⁹ A.D.Khanna. 1997. “*Keeping Delhi clean*”, *The Pioneer*, 18 October, p 11.

⁶⁰ *A survey by the Indian National Trust for Art and Culture ranked Surat second to Chandigarh as India’s “cleanest” city.*

⁶¹ VVenkatesan. (1997), “*Metamorphosis in Surat*”, *Frontline*, 16 May, p 99.

and mangroves to varying degrees. In most Indian cities, noise levels in residential, commercial and sensitive areas (hospitals, educational institutions and courts) exceed the prescribed standards set by the CPCB.

India's rapidly growing population along with increased economic development has put enormous pressure on the country's natural resource base. The fact that India survives on just 2.4% of the world's landmass creates its own population-resource tension. Deforestation, biodiversity loss, land/soil degradation, air pollution, poor management of waste, growing water scarcity, falling groundwater tables and water pollution are some of the key environmental challenges India faces today.

With a long, densely populated and low-lying coastline and an economy tied closely to its natural resource base, India is very vulnerable to the impacts of climate change. Between 1990 and 2002, India's carbon emissions increased by 70 per cent. The per capita carbon emissions are expected to increase further due to rapid pace of urbanization, increased vehicular usage and continued use of older and more inefficient coal-fired plants. These increased carbon emissions are likely to have severe adverse impact on India's precipitation patterns, ecosystems, agricultural potential, forests, and water resources, coastal & marine resources, besides an increase in the range of several disease vectors.

India's entire development process has been distorted by the structure of inequality outlined above. Adapted to almost wholesale from the West and characterised by unrestricted, large-scale industrialization, urbanisation, consumerism and materialism, today's path towards progress is quite evidently causing severe environmental destruction and resource depletion. It is a process that greatly benefits small sections of Indian society and has some trickle-down effects on a somewhat larger section, but almost leaves out a large section that becomes more and more impoverished.

The level and pattern of economic development also affect the nature of environmental problems. India's development objectives have consistently emphasised the promotion of policies and programmes for economic growth and social welfare. Between 1994-95 and 1997-98, the Indian economy grew a little over 7 per cent per annum: the growth of industrial production and manufacturing averaging

higher at 8.4 per cent and 8.9 percent respectively during these years. The manufacturing technology adopted by most of the industries has placed a heavy load on environment especially through intensive resource and energy use, as is evident in natural resource depletion (fossil fuel, minerals, and timber), water, air and land contamination, health hazards and degradation of natural eco-systems. With high proportion fossil fuel as the main source of industrial energy and major air polluting industries such as iron and steel, fertilizers and cement growing industrial sources have contributed to a relatively high share in air pollution. Large quantities of industrial and hazardous wastes brought about by expansion of chemicals based industry have compounded the waste management problem with serious environmental health implications.

Millions of people today are worse off than they were when our modern development process was started. Tribals have been alienated from their land and forests, nomadic communities have had their pastures taken away by mega-projects, marginal peasants and the landless have become economically more insecure. Between 20 to 30 million people have been displaced by development projects, rendered refugees in desperate search of shelter and jobs, because they had no say in the development planning of the country. For these people, "development or destruction" is not a cliché, it is a burning question. The process of liberalisation and structural adjustments which India embarked upon in the 1990s has only served to intensify the environmental and social crisis. There are at least four aspects to it:

- The drive towards an export-led model of growth is rapidly depleting natural resources in order to earn foreign exchange, particularly in the fisheries and mining sectors.
- The move towards liberalisation is resulting in a free-for-all atmosphere, with industries increasingly ignoring environmental standards and state governments sacrificing natural habitats, including their own wildlife protected areas, to make way for commercial enterprises.

- Directives to reduce the government's expenditure are resulting in cuts in social and environmental sectors. This is leading to a stagnation or reduction in programmes for the conservation and regeneration of natural resources.
- Opening up of the economy is bringing in companies with a notorious track record on the environment (including pesticide manufacturers who had almost wound-up in their parent country), and wasteful consumer goods and toxins, which are adding to the country's garbage and health problems.

The debate on the new economic policies of the 1990s has highlighted another vital aspect of the environmental crisis: the role of international organisations. Much as inequities within the country have fuelled the crisis, those between countries have resulted in considerable environmental degradation. Unequal trade regimes are forcing Southern countries to over-exploit their resources to compete in the international market and reduce their financial debt burdens. Foreign aid from multilateral and bilateral donors (notably the World Bank) primarily finance environmentally destructive projects, and aid packages (notably IMF) drive macro-economic policies further towards unsustainable and inequitable resource use.

The Ministry of Environment & Forests (MOEF) in the government is responsible for protection, conservation and development of environment. The ministry works in close collaboration with other ministries, state governments, pollution control boards and a number of scientific and technical institutions, universities, non-Governmental organisations etc. Environment (Protection) Act, 1986 is the key legislation governing environment management. Other important legislations in the area include the Forest (Conservation) Act, 1980 and the Wildlife (Protection) Act, 1972. The weakness of the existing system lies in the enforcement capabilities of environmental institutions, both at the centre and the state. There is no effective coordination amongst various ministries/institutions regarding integration of environmental concerns at the inception/planning stage of the project. Current policies are also fragmented across several government agencies with differing policy mandates. Lack of trained personnel and comprehensive database delay many projects. Most of the state government institutions are relatively small suffering from inadequacy of technical

staff and resources. Although overall quality of Environmental Impact Assessment (EIA) studies and the effective implementation of the EIA process have improved over the years, institutional strengthening measures such as training of key professionals and staffing with proper technical persons are needed to make the EIA procedure a more effective instrument for environment protection and sustainable development.

1.8. Environmental Situation in Kashmir

The State of Jammu and Kashmir is situated between 32.17 degree and 36.58-degree north latitude and 74.26 degree and 80.30-degree east longitude; the total area of the State of Jammu and Kashmir is 22, 22,236⁶² square kilometers and a population of 1, 25, 48,926 in 2011⁶³ with an increase of 24,05,226. The geography of the Kashmir valley stretches for about 84 miles from the northeast to the southwest and is approximately 20 to 25 miles broad.⁶⁴ Its height above the sea level is over 5,000 feet. The topography of the state is such that the low-lying valleys surrounded by mountain ranges characterize it; the most important of them all is the Kashmir valley that lies 1700 meters above the sea level, encompassed by the mighty Himalayas. Some of these valleys are the Tawi valley, Chenab valley, Poonch valley and Sind Valley. The state constitutes of three distinct geographic regions, namely, Jammu, Kashmir and Ladakh which differ widely from each other in terms of their physical framework, socio-economic conditions, religio-cultural and even in political condition. It would be worthwhile rather quite in accordance with the demand of the problems to study environment as one of the emerging problem of urbanization in Srinagar city. The level of urbanization shows increase of about 2.41% over 1971 census⁶⁵. The percentage of urban population in the state has increased from 24.81 in 2001 to 27.21 in 2011.⁶⁶

⁶² Selected *Socio-economic Statistic*, India, 1998, p.2.

⁶³ *Census of India* 2001.

⁶⁴ M. I Khan. 1978. *History of Srinagar*. Aamir Publication, Srinagar. P27

⁶⁵ *Ibid*.p27

⁶⁶ *Census of India* 2001.

Table 1.1**Population Growth in Jammu and Kashmir 1901- 2001**

Year	Population	Absolute Change	Decadal Variation		Average Annual Growth Rate
			J & K	India	
1901	2139362	0	0	0	0
1911	2292535	153173	7.16	5.75	0.69
1921	2424359	131824	5.75	-0.31	0.56
1931	2670208	245849	10.14	11.00	0.97
1941	2946728	276520	10.36	14.22	0.99
1951 [#]	3253852	307124	10.42	13.31	1.00
1961	3560976	307124	9.44	21.64	0.91
1971	4616632	1055656	29.65	24.80	2.63
1981	5987389	1370757	29.69	24.66	2.63
1991*	7718700	1731311	28.92	23.86	2.57
2001	10069917	2351217	30.46	21.34	2.69

Source: Census of India, Jammu and Kashmir 2001.

[#] There was no census in 1951. The figure given by the Census department is the authentic mean of 1941 and 1961 population.

* The 1991 census was not held in J&K. The population of India includes the projected population of J&K as on 1.3.1991 made by the Standing Committee of Experts on population projections (Oct.1989). The projected population of J & K excludes the population of area under occupation of Pakistan and China.

The increasing concentration of population in the urban areas of Jammu and Kashmir has created the usual problems of shortage of houses, inadequate supply of drinking

water and problems of drainage and sewerage, pollution, unemployment, poverty, etc. The continuous growth of population pressurizes the housing market, demanding more houses. With the demand for houses having increased, the quality and condition of housing have received much less attention. The mushrooming growth of private housing colonies, which are either ill planned or un-planned, have created various problems for urban local bodies in providing basic amenities to these colonies. For instance, against the demand of 63 MGD drinking water in Jammu city, the present availability is 50.80 MGD⁶⁷. The problem of water supply has been so acute that the PHE department has also started exploitation of ground water in a big way due to the depletion of surface water resources. With a high growth of urban areas and increase in developmental activities, the quantum of untreated wastewater and solid waste is rapidly increasing. Various sewerage schemes have been taken up by the state to tackle the problem. The continuing urbanization and relentlessly growing urban population have increased the problem of urban poverty.

Kashmir's ecological balance has been severely disturbed as a result of unabated environmental destruction over a period of nearly five decades. Permanent snowfall on mountains has receded, average temperatures in the valley have risen and the amount of rain and snowfall has significantly diminished. The combined effect of deforestation and mismanagement of water resources has resulted in soil erosion which is responsible for frequent flash floods now seen in the state of Jammu and Kashmir. Rainfall and snow has decreased to an alarming level. The chilling winter season of valley, locally called as '*ChiliaKalan*' has changed a lot and the people due to this change have starting throwing away the conventional defenders of chiliakalan such as kangri, phiran etc.

Global warming, ozone layer depletion and greenhouse gases, which have gravely disturbed heat and radiation balance of earth's atmosphere, appear to be alien to people at the helm of affairs in Jammu and Kashmir. "Consequently, glaciers in Jammu and Kashmir are now melting at a faster pace, threatening the survival of habitations in low lying areas," said Prof *Dutta*, adding, "with depletion in the ozone

⁶⁷ Srinagar Development Authority. 2000. *Master Plan 2000-2021 Srinagar Metropoliuatan Area*. Government Press, Srinagar. Pp 107-125.

layer, the incoming ultra violet rays and outgoing infra-red rays have disturbed heat and radiation balance of the earth to certain extent⁶⁸.” However, it may not be out of place to mention here that over 30,000 green trees had come under the axe last year for widening the Kunjwani-Sidhra bypass road and countless trees were also felled under four-lane project of NHAI right from Lakhanpur to Jammu.

The prestigious railway project, which has escalated to Rs 11,000 crores from Rs 3000 crores, to connect Kashmir valley with rest of the country in its fold has also brought mass degradation to the environment of Jammu and Kashmir posing threat to jungles, rivers and natural springs. Even Union Minister of State for Railways *R Velue* during editors’ guild at Srinagar had admitted that the project has been causing environmental degradation in the state and claimed that measures are being initiated to check it. Well informed sources told News Agency of Kashmir that the Northern Railways five years back launched the project without conducting a detailed geological survey not only resulting into delays and cost escalation but causing degradation to the environment as well.⁶⁹

1.9. Environment Scenario of Srinagar

Srinagar is known as the city of lakes, but now this heritage is in the very jaws of its extinction. Lakes are especially vulnerable to pollution. Tourists and its dwellers are dumping rubbish, refuses and garbage in the waters of the lakes which in old days used as drinking water by its neighbours and the localities around.⁷⁰ Major lakes and rivers in Kashmir harbor serious diseases due to lack of maintenance, neglect and pollution. Dal Lake, one of the world’s largest natural lakes housing hundreds of floating house boats and home for vast reserves of aquatic life is rapidly shrinking in size. Compared to 15 years ago, the changes that have taken place in the Dal Lake are shocking and drastic in proportion. According to a study done recently by a group of experts from India, new vegetation in the form of a mysterious red weed seen on the periphery of the lake is an indicator of serious degree of pollution.

⁶⁸ MeriNews Times. Sat, Oct 13, 2007

⁶⁹ Inner Voice News Network. Friday, April 15, 2011.

⁷⁰ Red Data Book of IUCN (international union for conservation of nature and natural resources). New York.

The city witnessed increase of tourist rush every year. Tourism is major source of income for urban population of the state. Tourism involves a host of population including boatmen, hoteliers, taxi drivers, guides, and tour operators, and these compound mainly urban areas of the state. When there is increase in tourist rush there is need of new construction of hotels, houseboats, tourist huts and there is also increase in transport vehicles and they also requires parking. So the increase in tourism also means increase in pollution and pressure on urban population and land. As water bodies and beautiful gardens are located in the urban areas of the state they get polluted direct or indirectly by the tourists. So the environment gets degraded and in the long run it will give it a shape of big social problem for the people of the state.

A non-existent sewage and drainage system is just one of the examples poor rules in Srinagar. As a result, raw sewage can be seen in the city centers of the valley. As the drainage system is still open and not under grounded. With heavily traffic on the roads has increased by more than 2 ½ times against 1¼ times increase in the road network during 1989-2000⁷¹. In addition to the traffic growth, there are other operational and commercial problems faced by the transport sector like frequent landslips, narrow roads and short working season of about six-seven months. With the process of widening of road in the state more and more trees are cut down for this reason. Even the chair trees that were all along the main road of valley have also been cut down. So the environment of the state is changing rapidly with changing system of state policies. Thus it would be seen from open eyes that environment has greater loss in the process of development of the state.

⁷¹ *Socio-Economic Profile of Jammu & Kashmir* 2008. Directorate of Economics & Statistics Jammu & Kashmir.

Introduction

As the potential human impact on the planet increase with the expanding population seeking a higher material standard of living the impact will become an actual impact in the absence of policy to prevent it. Hence what is required is a package of policy measures to identify and monitor pollutant (negative externalities), to identify their economic, ecological and sociology effects and to internalize their effects within levels, which are not only safe for survival but also fully appropriate to the quality of life expected.

Environmental sociology is typically defined as the study of societal- environmental interactions, or the relationships between modern societies and their biophysical environments. Environmental sociologists study the factors that cause environmental problems, the societal impacts of those problems, as well as efforts to solve the problems. In addition, considerable attention is paid to the social processes by which certain environmental conditions become socially defined as problems, particularly by scholars with a “social constructivist” orientation.

Although there was sometimes acrimonious debate between the constructivist and realist “camp” within environmental sociology in the 1990s, the two sides have found considerable common ground as both increasingly accept that while most environmental problems have material “reality” they nonetheless become known only via human processes such as scientific knowledge, activists efforts, and media attention. In other words, most environmental problems have a “real” ontological status despite our knowledge /awareness of them stemming from social processes, processes by which various conditions are “constructed” as problems by scientists, activist, media and other social actors. Correspondingly, environmental problems must all be understood via social processes, despite any material basis they may have external to the human. This interactiveness is now broadly accepted, but many aspects of the debate continue in contemporary research in the field. During the last two decades, however, these have been increasing concern about its adverse effects on the environment. To redress this, environmental policies have been formulated and implemented, but rarely have they been fully integrated with socio-economic polices.

It is clear that sustainable development requires an integration of environmental and socio-economic factors.

Experience in environmental policy making during the last three decades in both developed and developing countries reveal that countries must choose an enabling legal and administrative system and a mechanism for enforcement of environmental policies. The available policy options range from Command and Control (CAC) instruments to Markets based instruments (MBI). Though the actual mix of policy instruments varies from country to country depending on its goals, stage of development, institutional capabilities and political preferences, there has been a gradual shift in favour of Market based instruments. The reason for the shift being (1) the alleged superiority of MBI's in achieving environmental goals at lesser cost compared with CAC instruments (2) enormous information requirement for the design and enforcement of CAC instrument (3) demise of central planning and (4) adoption of outward-oriented policies by many developing countries to reap the benefits of globalization. The nations of the world have begun to realize that the Earth's carrying capacity is finite, and that global consumption, production, and demographic patterns must become sustainable as a result, if future generations are to live healthy, prosperous and satisfying lives.

The poverty, malnutrition and health ailments currently afflicting more than a billion people world-wide are indicative of today's unsustainable pattern. "Every day, over 800million people go hungry, many of them are children. Some one and half billion people do not have primary health care, and are threatened by a host of diseases, many of them easily avoidable. In the light of present demographic pressure, meeting the needs of all the world's inhabitants will become an ever greater challenge. Alleviating poverty is a moral imperative and it is essential for sustainable development.

At the same time, the last century has been seen a massive increase in the world's production and consumption, particularly in developed countries. Although stimulating economic growth in the short term, governments now recognize this globally unsustainable use of the Earth's resources has degraded the environment and generated unmanageable amounts of waste and pollution.

Achieving sustainable living for all requires an environmentally responsible global approach to modify these unsustainable patterns, involving efficiency and waste minimization changes in production processes, less wasteful consumption, reducing demographic pressures and ensuring access to health care.

With the dawn of the new millennium, it is important that the world community makes a social transition to poverty alleviation and sustainable consumption patterns. Global cooperation and a reinforcing partnership are essential to achieving the fundamental goal improving human welfare through the world.

India's ongoing population explosion has placed great strain on the country's environment. This rapidly growing population, along with a move towards urbanization and industrialization, has placed significant pressure on India's infrastructure and its natural resources. Deforestation, soil erosion, water pollution and land degradation continue to worsen and are hindering economic development in rural India, while the rapid industrialization and urbanization on India's booming metropolises are straining the limits of municipal services and causing serious air pollution problems.

Following the 1984 Bhopal disaster – in which a toxic leak from the city's Union Carbide chemical plant resulted in the deaths of more than 3,000 people – environmental awareness and activism in India increased significantly. The Environment Protection Act was passed in 1986, creating the Ministry of Environment and Forests (MoEF) and strengthening India's commitment to the environment, which was enshrined in the 42nd amendment to country's constitution in 1976. Under the 1986 Environment Protection Act, the MoEF is tasked with the overall responsibility for administering and enforcing environmental laws and policies. The MoEF established then importance of integrating environmental strategies into any development plan for the country.

Nevertheless, despite a greater commitment by the Indian government to protect public health, forest, and wildlife, policies geared to develop the country's economy have taken precedence in the last 20 years. While industrial development has contributed significantly to economic growth in India, it has done so at a price to the

environment. Not only is industrial pollution increasing public health risks, but abatement efforts also are consuming a significant portion of India's gross domestic products (GDP). As such, one of MoEF's main responsibilities continues to be the reduction of industrial pollution.

India's strong support of air quality and alternative fuel initiatives has brought progress as well as growing pains to the country. However, in the absence of coordinated government efforts, including stricter enforcement, air pollution is likely to continue to worsen in the coming years as urbanization picks up pace and vehicle ownership increases. The Indian government's ability to safeguard the country's environment will depend on its successes in promoting policies that keep the economy growing while providing adequate energy needs to satisfy the populace's growing energy consumption requirements in a sustainable manner.

2.1 Relevance of the Study

Environment of any society is directly related to its natural resources and the tourism which directly determines the socio-economic fate of the respective societies. The city of Srinagar is hub of such environment which is on one hand providing livelihood to thousands of people and its deterioration is decreasing such avenues. Simultaneously the changing socio-economic trends and the new developmental processes contribute to the environmental degradation in terms of increasing pollution and developing tourist activities.

Srinagar City, the largest urban centre in the hierarchy of urban settlement system of J&K State is growing at a rapid pace. It is likely to continue to be the Apex urban centre and centre of administration, business, technology, information and a major tourist centre. With the upgradation of Airport into International Airport, Srinagar is likely going to be a global city and radical changes are expected to take place with respect to tourism, trade and commerce, level of infrastructure etc., which is likely to make city development more challenging in nature.

At present Srinagar City has virtually attained the status of metro polis and is going through metropolitan metamorphosis. The present city structure, amenities, facilities and services need to be revamped and upgraded to cope up the metro city demands

likely to arise in years to come. Being a historical city most parts of the Srinagar present an amorphous outlook which also need to be changed to give city structure a new shape and make it sustainable for the future. The city also bears the testimony of rich heritage elements which also need to be preserved and conserved.

The present urban form of Srinagar Metropolis is a reflection of amorphous growth especially along radial corridors with core oriented unidirectional work-place-folk movement which has generated a situation of excessive pressure of core activities in the principal city. The sprawl of urban activities and lack of unifying element between them not only renders social and cultural integration with the city impossible but also increases the cost of infrastructure. A plan based on self-contained urban nodes supplemented with the phased strategy of decongestion is ideal for Srinagar Metropolis. Central Business District which has grown into a shopping hub is unable to function efficiently due to over-crowding conditions.

It appears that the phenomenon of primacy is closely linked with the size of population in small States, the state capital has emerged as the prominent primate city which is the case with Srinagar city. Being the capital of the state, all the developmental processes and infrastructural advancements are made available here which attract people from all sizes of the state. It could be understood with the fact that Srinagar is the only Class I urban centre of the state which has shadowed growth of other urban areas.

As Srinagar city is a center for all tourists' activities. The 974669 figure indicates how much pressure has being increased on the city environment. The main pressure of this degradation is on the water bodies of city who got most hit by the over flow of the tourists. The exquisite water bodies of Srinagar city are of great environmental and socio-economic implication. The most well know of these are Dal Lake, Nagin Lake and River Jhelum of the main city with their multi-faceted ecosystem and magnificence. The constructions of hotels and converting houses into guest houses have further added the load on the environment of city.

As tourism is smokeless industry in the world and fasts economic growing sector in countries but on other side how much pressure it creates on other means that are

countless. It does not only effect the physical environment of nature but social life of local or host community too. It accepted with growing tourism the economy life of state will change but we are also losing number of other things too. Increased 'alcoholism' found in the tourist a centre is identified as a major negative factor of tourism. A group of young tourists who were contacted during the pilot study very frankly stated that "the most thrilling aspect of a tour is the trill of an alcohol." From that it could be understood that the casual attitude shown by the foreign and domestic tourists in the use of alcohol in the tourist centres had led to the development of some misconception among the host community that alcohol is apart of tourism and all tourist enjoy the same. The difference in cultures of tourists and host population makes prostitution an immoral activity in the tourist destination of Srinagar city. It had been observed that the immorality in prostitution makes very high negative effects upon the host community. The growth of tourism in a region causes as abnormal increase in the value of land. It may be noted that the increase in land value causes friction between households over disputes of land. It also prevents the use of the land for other social purposes like schools, hospitals, extension of roads and other similar social uses. Other negative impacts of Tourism on the host community of city are theft in tourist centres. The price level prevailing in the tourist centres is found to be higher than that of the price level prevailing in the other places.

From last few decades there is tremendous increase in transport sector of valley particular Srinagar city. Urban areas are spreading and are associated with a number of negative environmental and public health outcomes, with the primary result being increased dependence on automobiles. Srinagar city is located at high level of accumulation and concentration of economic activities and are complex spatial structures that are supported by transport systems. The most important transport problems are often related to Srinagar urban area and take place when transport systems, for a variety of reasons, cannot satisfy the numerous requirements of urban mobility. Urban productivity is highly dependent on the efficiency of its transport system to move labor, consumers and freight between multiple origins and destinations.

The pollution created by the urban transport of city has directly effects human health for example; watery eyes, hearing problems, psychosocial stress, lung diseases, immune response deficiency etc. and some of them may be for long period time. It has not affected air but water too, with increase in vehicles so there need for there other demands too. One of them is services station in urban areas and whose outlets are connected to drains or to water bodies directly. And that pollute the water bodies of the city. As the people live in these water bodies or around the along the river banks will get effected by the water born diseases that are created by the pollution of these service station. Even it can affect the aquatic species of these water bodies.

Over the past three decades unplanned haphazard developments of housing clusters have spread in the outlying areas of Srinagar City in a leap frog manner. To that extent water supply has been depleted to the main city resulting in unequal distribution of piped water supply. Safe drinking water supply system to the Srinagar city has been under tremendous pressure all the time. The system has definitely undergone expansion but the supplies have all along lagged far behind the demand. Srinagar city is expanding in every direction. New colonies have come up and the existing system which is old aged needs improvement due to tremendous urban extension .It has created immense pressure on the basic life amenities and the drinking water is the basic necessity. Many areas of the summer capital are reeling under immense shortage of potable drinking water causing huge inconvenience to the inhabitants. The demand for water and supply of water is not matching, and this shortage of water would be easily found in summer season when some water bodies are dry up with full rush of tourists. The shortage of supply of drinking is too due to number of new construction of hotels, guest house, commercial mail, and other different structures that requires a lot of amount of water for construction purpose as well as to maintain it.It is quite likely that much of this system must have become obsolete to the present conditions, particularly when the density of population in old has been rising incessantly.

The inhabitants of houseboats and the boatmen living in *dongas* dispose of their refuse in the Dal Lake or the Jhelum, thereby polluting the water. It has been shown that the drinking water supplied to some parts of Srinagar city was worse than the polluted

water of the Jhelum. This polluted water does pose a serious threat, not only to human life only but also to wildlife, particularly in the Dachigam National Park.

The problems of Srinagar City and its environs constituting the metropolitan area are becoming more and more critical with the increase in population and deterioration in existing level of services. The problems are assuming serious proportions in all aspect of urban living and are extremely critical in major sectors of sewerage, drainage, traffic and transportation, housing for urban poor, conservation of natural or cultural heritage. For instance at present Sewerage generated in city is directly draining or pumped into water bodies, traffic and transportation problems have begun to impose serious constraints on orderly development and mobility rising cost of land and construction has put lower incomes out of housing market. The city despite having water available in plenty is confronted with acute shortage of potable water supply. Similarly large deficiencies in amenities or facilities and other sectors have begun to impose serious constraints on the orderly and planned development. The increased pace of urbanization has further aggravated the problems.

Keeping in view the above mentioned facts, it becomes mandatory to assess and evaluate the problems which the Srinagar city and the people living there are facing. There is need to carry out a comprehensive study in order to put up the suggestions in order to have better and appropriate environmental policy frame work which would not only help in eradicating the rising problems of environment in Srinagar but would also make the city more conducive for its inhabitants and the coming flow of tourists as well.

2.2 Hypothesis

- The environmental aspects of society reflect adverse situation, thus creating social inequality.
- The environmental degradation is related to the socio-economic development of the people and the society
- Increasing urbanization patterns in Srinagar city have influenced the land use in Srinagar city.

- The environmental degradation of the society has deteriorated the socio-economic status of the society and the people.
- Excessive flow of tourists in Srinagar city has degraded the environment of Srinagar

2.3 Objectives

- To study the various dimensions of environment related to the social fabric.
- To study the various socio-economic factors responsible for the environmental degradation in Srinagar city
- To understand the changing patterns of land use in relation to the changing demographic setup of Srinagar city
- To study the subsequent impact of the environmental degradation on the socio-economic status of the society in Srinagar city
- To understand the role and impact of tourism on the environment on Srinagar city

2.4 Universe of Study

The universe of the present study is Srinagar City. As of 2011 census, Srinagar city's population was 1,192,792 and Srinagar urban agglomeration had 1,273,312 population. The population density in the city is 556 inhabitants per square kilometre (1,440 /sq mi) while the overall population density is 99 /km² (260 /sq mi). The languages spoken are mainly Kashmiri, Urdu and English. Muslims make up more than 97% of the population, Hindus 2% and Sikhs and others 1%.

Males constituted 53.0% and females 47.0% of the population. Sex ratio was just 888 females per 1,000 males compared to national average 940. Srinagar had an average literacy rate of 62.2%, lower than the national average of 64.3%. Male literacy was 67.9%, and female literacy was 55.7%. Children under six years of age numbered 148,178 and were 12.4% of the population in 2011.

2.5 Data Collection

Methodology is about method, and method is the vehicle for getting a true representation of social phenomena one is observing. No method is good or bad in it, its suitability depends upon the problem at hand and the nature of data that has to be collected. The collection of data depends upon the nature of the problem and the socio-economic environment in which the researcher is placed and the method of data collection must be related to the sort of problem on hand and to the social situation which represents itself to the sociologist.⁷² As such for an efficient and reliable research various interviewing techniques are essential for having insight into the problem. To carry out this study, the data collection was carried out following an empirical modus operandi so as to get objective and reliable findings.

At the very out-set, data (both statistical and non-statistical) was collected from secondary sources viz. concerned Departments, records of the Gazetteers, books, research papers, and other relevant unpublished archival material available on this subject. Data was analyzed, tabulated and then interpreted systematically with logic and in the light of the facts of the laid objectives and hypothesis that enabled to come up with this objective study of the of the environment. Unstructured interviews also complimented the data collection.

In order to gather the preliminary idea about the study, the researcher went for the pilot study by visiting the various areas of Srinagar City and by having an overview of the existing literature which subsequently helped the researcher to formulate the methods for the data collection and subsequently refine, facilitate and yield precise direction to the research.

2.6 Problems Encountered in the field

It would not be sensible to allege that the present work is entirely perfect. Generally the researchers are exposed to innumerable difficulties during the data collection. The difficulties were new and unexpected because collection of data in social sciences is itself a difficult task, requiring a considerable patience and encouragement on part of

⁷² P. Worsely. 1970. *Introducing Sociology*. London: Penguin Books, p. 96

the researcher. It is always difficult for a researcher to convenience an ignorant person to cooperate knowing that it no way helps them monitory or in other forms, but only wastes their precious time, as they are busy in their routine job right from dawn to dusk. As the study was based largely on secondary sources, it was very difficult to seek data as the records were usually available with the government offices and they were very reluctant to provide that. However on continuous persuasion, the researcher managed to get the required data.

Literature Review

Prior to taking up the analysis of the available data pertaining to the main premise of this work, it is essential to scan the conceptual and theoretical structure as also to review the historical perspective briefly so that the background of the research problem will be more clear. As such this chapter will make a modest attempt to review few of such efforts taken from time to time by various subject experts to make the problem more simplified and relate such ideas with the present study.

There is no dearth of studies available on environmental degradation. However its sociological dimension has not been studied at large. After searching a series of studies available or related to the issue, the researcher selected the studies of international, national and Kashmir level. The review of the parts of the study related to my research topic is put in sequence as under:

3.1 International

*Barrow*⁷³(1999) describes that many developing countries struggling to maintain living standard in the face of growing poverty have little to spend on countering environmental problems. The growing populations of developing countries currently consume less per capita of the world's resources and cause less pollution than do the population of rich nations. While increasing population of developing may turn into socio-economic problem. As the developing countries face double threat: a crisis of development and a crisis of environment, the first of these involves debt, falling commodity prices and poverty. The second is the result of global environmental change, the impacts of resources exploitation. He had given the reference of Africa, which is frequently singled out as having or being close to an environmental crisis, a development crisis or both, although there are some who feel this is exaggerated. Another problem, HIV/AIDS, has taken a particular hold in parts of sub-Sahara Africa, and contributes increasingly to the continents' problems by depleting agricultural labour. He points out that, since the mid-1980s large portions of the world have shifted from centrally planned socialist government to more 'free enterprise' and

⁷³C.J.Barrow 1999. *Environmental Management for Sustainable Development*. New York: Routledge.

‘western system’. Although the transitional states had been radically different from western models of development there had still been massive environmental degradation and disasters. He mentioned that over-exploitation of common resources, rapid urbanization, increase in tourism, deforestation, islands, coral reefs, wetland, dry-land, etc. all are treated same that is the degradation of all these elements. Giving examples of different nations and the environmental degradation in them, in order to have proper maintenance of them there is need of proper management, so that can preserved.

*Egendorf*⁷⁴ (1999) examines today’s most important social and political issues. Each chapter presents a diverse selection of primary sources representing all sides of the debate in questions. He argues that in developed nations economy plays an important role in environmental degradation while in undeveloped or developing nations the lack of utilization of resources and implication of policies cause the main problem in environment. He analyses that media, which is primary sources of information to local people plays both positive as well as negative role in presenting the clear picture of environmental issue. ”Eco-realists”, or journalists who argue that there is not an environmental crisis, propagate mistruths. Despite the claims of Gregg Easterbrook and other writers, problems such as the rise in sea level and the effects of chemicals on lakes and human health should be concern of people. The inaccurate media coverage poses a threat to successes of environmental regulation. The developed nations blame the developing nation as main sources of environmental degradation but while another picture show that developed nation are cause for environmental degradation and overconsumption of resources resulting from their economic strength. Even though conferences were held on environmental concerns, but did not show any kind of signs of impact in developed nations. In this content of environmental problem none wants to be blamed for this crime. But it increases day by day, as we observe the changes in climate, temperature, water level, pollutions etc. They are just throwing ball in other’s court and the process is continuing, as it is sure the results in future will be no better than worse as it is today.

⁷⁴K. Egendorf Laura. 1999. *Conserving the Environment*. San Diego: Green Heaven Press.

Picou⁷⁵ (1999) suggests that the general issue is that the modern societies are striving to enhance rational decision-making for resource management through expanding the “nature of” and “participation in” environmental discourse. For example, we have seen that for concept of “risk” an expanded field of players is now required. As the National Research Council’s recent panel on understanding Risk stated that “intersected and affected parties” take part in a discourse on “risk characterization,” it is apparent that technical assessments of risk cannot stand alone while as extension of stakeholder participation is occurring. But what is the relevance of a “fuzzy concept” like discourse to the rational management of environmental resource. The different theoretical models which were given for prevention of environment were not able to come with the standard and they failed, so new models should be appeared for the prevention, development and conversation of environment. As the degradation of environment increases with due course of new development, it has direct effect on the human population and its surrounding. So to keep check on these new technological risks and hazards poses a challenge that can only be over-come through sub-political reorganization of environmental policies and democratization of technical knowledge. There must be a development of ‘constructive relationships’ between industry, government, NGO’s and the public need to be achieved. The results discourse should be “grounded in good faith and the free exchange of information”. The theory must be useful both in the ecological-symbolic approach also identifies various elements of the Social Constructivists frame work by viewing continuous claims-making and litigation as part of a “corrosive community” response to the failure of tradition institutional support systems for diagnosis and compensation of damages from contamination. There should be linkage between culture and economic rather than life scape assumption. This expansion should also include Traditional Ethnic Knowledge (TEK) of indigenous populations. Therefore, the discursive integration of TEK in resource management and risk characterization should be a primary objective for the next millennium.

⁷⁵J .Steven Picou. 1999. *Theoretical Trends in Environmental Sociology: Implication for Resource Management in the Modern World*. Utah: Social and Economic Planning Conference, Minerals Management Service.

*Cohen*⁷⁶ (2000) gives a detail about the impact of global industrialization on the planet's biosphere perhaps provides the most obvious and compelling example of the shared global nature many problems. It is not solely the materialistic lifestyle of the world's rich minority that is responsible for global environmental devastation. In many developing countries, even the poorest and most marginalized people have been driven to abuse their own environments. This arises from rapid population growth and pressure on governments- from international financial institutions such as the World Bank-to finance huge debts by extending various forms of cash-crop production. Poor people are then forced to cultivate steep hillsides and semi-desert, while companies and wealthy farmers seize the best rain-fed and valley land for cash crops. The less fortunate are compelled to over-graze pastures already crowded with live stock and strip dry-land zone of their tree covering for fuel. By contributing unwittingly to soil erosion, rainfall depletion and deforestation the world's poorest people also pay a role in global climate change that affects us all. Sometimes this is partly anecdotal, increased storm damages, shrinking of glaciers worldwide and series of severe droughts. Now these problems are becoming global because natural conditions such as the flow of winds, sea currents and tides transport particles, gases, minute amounts of toxic poisons or radioactivity from nuclear power stations. The number of locations across the world that contribute to environmental degradation is increasing fast both because of its huge population and rapid economic growth. There are many countries which have shortage of safe drinking water as Water River and lakes are polluted like in China, Africa etc. Poverty is also reason to accepted hazardous waste from rich, environmentally conscious countries because to generate foreign exchange for debt repayment has encouraged some developing countries to accelerate the rate at which their forests a being cut down. This also became cause for large displacement which in turn creates many social problems for the government.

*Jean Dreze and SenAmartya*⁷⁷ (2002) proposed a perspective broader than the more standard economic analysis of development by focusing on the complementarities between economic advancement and social opportunities. India's environmental

⁷⁶Robin Cohen and Paul Kennedy. 2000. *Global Sociology*. New York:Palgrave Macmillan.

⁷⁷JeanDreze and AmartyaSen. 2002.*India Development and Participation*. New Delhi: Oxford University Press.

record has many alarming features. India may be adding less but with rapidly growing consumption level of a large population, the local environment shows many signs of being under stress and in some cases, thoroughly ravages. Environmental decline can be major shrinkage of social opportunities, no matter how these opportunities may be enhanced in other way. The pressure on environmental resources is strong in many different ways that go well beyond the perspective of food production and consumption. There is much evidence of rapid deterioration of the local environment across the country and Indian contribution to global environmental degradation, with a wide range of adversities, varies from overcrowding of habitats and increase in man-made pollution to the denuding of forests and vegetation.

With rapid population growth leads to heightened pressure not only on the environment but also on the social infrastructure, including sewage systems, hospital facilities, railway networks, power grids, garbage-processing plants, and many other components of the 'stock' of public amenities. On the one hand we polluted the environment and on the other hand forests have been decimated, groundwater tables have fallen, rivers and ponds are massively polluted, and the air that city dwellers breathe has grown increasingly noxious and foul. They say in these of contrary trends, there has been a temptation in public discussion to think of 'development' and 'environment' in antagonistic terms. Many of the things are attached with the economic development such as industrial growth, increased energy consumption, more intensive irrigation, commercial felling of trees and other such activities that tend to be linked with economic expansion. Even the environmental degradation is caused by women who live in rural areas. The displacement caused in the name of development further added to the fuel in the degradation of environment and military expenditures too put pressure on the resources.

*Robertson*⁷⁸ (2003) says that globalization is a dynamic component of human experience. It is not and has never been a single event, let alone a single process of change. Far from being a technological or capitalist juggernaut, globalization reflects the material consequences of our desires for security and well-being. The nations that

⁷⁸Robbie Robertson. 2003. *The Three Waves of Globalization, A History of a Developing Global Consciousness*. London: Fernwood publishing.

embraced globalization were regularly informed, not to go for war with one another. Instead they should compete on the global economic playing field and prosper. The trading societies were not always different in this regard. Their desire to monopolize trade and satisfy the lust for instant fortune frequently destroyed the potential for future. It attracted the attention of unwelcome predators. The response of many industries has been simply to export their pollution to countries less conscious of the risks, or to those whose leadership believes that benefits, at least for a minority, outweigh the risks. The development was totally dependent on the resources of nature and with large scale development of industries. By which uncontrolled pollutants were added to the environment which caused many physical as well as social problems to human society. The industrial wastes go directly into water, air or get dumped in soil and they pollute them. This in turn affects the human societies from various forms, e.g. health, population explosion, displacement, formation of slum etc. By this the people of undeveloped or Third World nations have to suffer more, as there is trend for sustainable development at global level. He also says that global warming will not be instantaneous, and humans will have time to react to it. But with increasing energy-hungry populations, expanding and vulnerable high-rise cities and shanty towns on low-lying coastlines and floodplains, the course increased wind damages, and more unpredictable storm surges and thunderstorm activity will be much higher than in the past.

*Delcemascolo*⁷⁹ (2004) in his study sets out to find the empirical evidence for the impact of environmental degradation on disaster risk; however, the location specific impacts on environmental protection on hazard risk are only describable in the few locations. 26 million people in Southeast Asia live below the poverty line; environmental degradation continues to pose formidable challenges to poverty reduction and the achievement of the millennium development goals throughout Asia. Meeting the challenges of both environmental degradation and disaster risk remain high on the regional agenda and, more recently, researchers, planners and policy makers have come to recognize how intricately these two factors are related. The

⁷⁹Glenn Delcemascolo. 2004. *Environmental Degradation and Disaster Risk*. Bangkok: Asian Disaster Preparedness Center.

International Decade of National Disaster Reduction (IDNDR) concluded that “environmental protection, as a component of sustainable development and consistent with poverty alleviation, is imperative in the prevention and mitigation of natural disasters’. As the region is home to about half the world’s terrestrial and aquatic resources, alarming rate of deforestation, degradation of reefs and coastal ecosystem, atmospheric pollution and depletion of fresh water resources continue to lock vast population in downward spiraling cycles of poverty in which the poor pursue unsustainable resource managements. The poverty cycle is exacerbated by frequent natural disasters. In all, 80% of the natural disasters worldwide occur in Asia: and of those 80% are hydro-meteorological or climate-related. In the decade from 1991 to 2001, natural disasters affected over 1.7 million Asians, costing 369 billion dollars in damage. This study suggests that while environmental management is an important tool for disaster risk reduction, the ability to quantify the *prevention dividends* accruing from investment in environmental management is highly dependent on local models of disaster risk, which are not widely available at present. Despite the challenges of quantifying prevention there seems to be little argument that, in qualitative terms, prevention pays.

*Chung*⁸⁰(2005) attempted to develop a relation between environmental quality and economic growth. Since early 1990s, however the rapidly expanding empirical and theoretical literature on the Environmental Kuznets Curve (EKC) has suggested that the relationship between economic growth and the environment could be positive. The economic growth or the increase in GDP of a nation has effect on environmental sustainability, controlling population density and civil-political liberty. The primary contribution of this was to address the different characteristics of eco-efficiency measures of environmental sustainability in comparison with the common measures of pollution. While as revealing different characteristic it appears that income has a beneficial effect on pollution measures, it has a detrimental effect on most eco-efficiency measures of environmental sustainability. It suggests that the Environmental Kuznets Curve needs to be renamed as the “Pollution” Kuznets Curve

⁸⁰Rae Kwon Chung. 2005. *On the Relationship between Economic Growth and Environment Sustainability*. 5th Ministerial Conference on Environment and Development in Asia and the Pacific, 26 March 2005, Seoul, Korea.

in order to give correct impression that all environmental measures not only pollution measures may improve with income. As the conventional policies focus more on pollution control, they need to combine with policy options focusing on eco-efficiency aspects of environmental sustainability in the process of economic development. Otherwise, economic growth will continue to degrade environmental sustainability in most countries. This will create many problems for society in various forms like, health, poverty, displacement etc.

*Gould*⁸¹ (2006) highlights the various dimensions of ecology and has made an attempt to relate the role of population growth with the environment degradation. Intensification is caused by population growth. This means that when number of mouths to feed increases greater efforts are needed to produce food and other necessities of life and so people exploit more intensively the resources they have been exploiting. This usually leads, in turn, to ecological degradation because all human production processes use up the natural environment. More production leads to greater environmental degradation. This occurs because more resources are extracted and because of the polluting consequences of production and consumption activities. Nomadic hunter-gatherers depleted the herds of big game, and Polynesian horticulturalists deforested many a pacific island. Environmental degradation is not new phenomenon. Only it is on global scale now. There were negative effects on economy due to increase in population and environmental degradation which caused people to migrate to other places for sustainable life. Migration eventually leads to circumscription. Circumscription is the condition that no new desirable locations are available for emigration, because all the alternative locations are deserts or high mountains, or because all adjacent desirable locations are already occupied by people who will effectively resist immigration. The condition of social circumscription in which adjacent locations are already occupied is under condition of population pressure, likely to lead to a rise in the level of intergroup and intragroup conflict.

⁸¹Chase-Dunn, Christopher and Babones, Salvatore J. 2006. *Global Social Change, Historical and Comparative Perspectives*. Baltimore: The Johns Hopkins University Press.

Jorgenson⁸²(2006) has given the detail of environmental degradation with references from historical background. Analysis of the problem of environmental degradation shows it does begin from very early period of human development. As he says that, historically, ecological degradation, population growth, and population pressures are driving forces leading to economic intensification and hierarchy formation between societies. Population growth increases the decline in natural resources, leading to greater environmental degradation. This population pressure leads to emigration to new regions where natural resources might be less pressured. This competition over scarce resources often increases inter-societal conflict and warfare. In the modern world-economy, like earlier periods, this largely involves environmental degradation displacement by more powerful societies to less powerful ones, much like the peripheral exploitation of formal colonies by their colonizers. He also says that urbanizing areas required vast amounts of materials for construction of housing for intensifying populations. Thus, urbanization is a resource-dependent and resource-intensive process, which casts a disruptive shadow on the peripheral areas of core urban regions. He says that some social scientists have argued that ever increasing consumption in the contemporary world- a byproduct of the logic of capitalism and its need for continual growth and interrelated social and ecological contradictions-is ultimately destructive and self-defeating. Less developed societies have many problems which in general effects the environment in various forms, like export dependence often involves extraction of precious resources, thereby making the country less able to meet basic human needs, including adequate health care. Even these countries agree to dump hazardous material for foreign exchange. This form of degradation affects both built and natural environment which take several forms, including inadequate drinking water, poor sewage services, insufficient housing, improper garbage disposal, and air and water pollution. The uneven levels of natural resources consumption and concomitant environmental degradation are largely grounded in socio-historical processes of global social change.

⁸²Chase-Dunn, Christopher and Babones, Salvatore J. 2006. *Global SocialChange, Historical and Comparative Perspectives*. Baltimore: The Johns Hopkins University press.

3.2. National

*Katiyar*⁸³ (1997) states that there has been a great connection between man and his environment, but with changing nature of human society this relationship does not remain the same. Today the life on earth has become most seriously threatened by two sets of apparently independent factors, though in reality, the two are most deeply inter-meshed; one is the environmental degradation and pollution and the another is human degradation caused by malnutrition, ill-health, bad sanitation, absence of clean drinking water and poor quality of houses. Inequalities in income, wealth, resources, emphasis on growth and the rising expectations accompanied by inequalities are at the root of the problem. There are controversies which were surrounded the several major development and infrastructure projects in India during the last decade. Objections raised on the projects-whether there be a dam, major development projects, roads, railway lines and fragile areas like wetlands and mangrove swamps-have centered on the extant of environmental destruction they will cause. The absence of environmental consciousness in the decision-making process has led to conflict between the project authorities and the local environment groups. Sometimes, the manner in which the acrimonious debate is being conducted is generating more heat than light. The developers are hell-bent on what they call 'development' and asking the same rhetorical question: "Do you need electricity for irrigation?" The environmentalists, on the other hand, keep asking, "But can development be at the cost of environment? At the cost of long-term sustainability? At the cost of high risks to society and enormous social trauma? What good are such developments?" These environmental and social costs have been justified by the Government or project authorities as essential for any kind of development. This dichotomy reflects the essence of the debate around sustainable development.

*Mohnanty*⁸⁴ (1998)says that the natural and human developments are mutually so intimate but now they are so inimical as to compel the contemporary dialogue to take note of them. Right from the Paleolithic time till industrialization man interacted with

⁸³V.SKatiyar. 1997.*Environmental Concerns, Depleting Resources and Sustainable Development*. Jaipur: Pointer Publishers.

⁸⁴S.NPawar and R.BPatil. 1998. *Sociology of Environment*. New Delhi: Rawat Publications.

and adapted himself to environment cordially and sagaciously. But after industrialization man lost his primordial innocence and with the introduction of exploitative technology he mechanized himself. 'Armageddon' is not very far if the present situation is not tackled properly. For the smooth running of social system it takes inputs from the environment which includes fuel, petroleum, food, wood, and so on. But we human beings often do not pay back to nature for what we have taken. Thus functionalist model sees today's environmental problem as latent dysfunction of industrialization. The economic changes that helped create modern industrial society threw the environment out of balance. He also points out that conflict theorist looks it as an exploitation of the environment as just one more result of social exploitation. The word 'development' was used for the betterment of whole human kind without realizing its unanticipated harmful consequences. Consequently, in course of development, they turned to be the 'tomb stone' for our ecosystem. Even Indian planners try to create rapidly development but they overlooked the indigenous values system and tried to impose an alien model of development in which environmental considerations and people's attitude were not given due weight. As there was large scale deforestation, construction of dams, roads, and so on which in long run has created several social problems for government and people in general? If the people feel development is the main reason for this then the whole world will come to choke but we have to create sustainable development which will be safe for society and environment. He sees that Gandhian model for India was fit, as for him small is always beautiful and therefore he advocated for small scale and cottage industries for India and for other developing countries as these are friendly to environment and are less resource-depletive.

*Sudarshan*⁸⁵ (2001) suggests the high level of economic growth has given rise to global, region and local environmental problems. The result of uneven economic development had led to environmental degradation and it varies from state to state. So the states which have high level of economic development are creating more environmental problems than those who are poorer and economically backward states;

⁸⁵SudarshanIyengar. 2001. "*Environmental Concerns in Economic Development of State in India: Malthusian Pessimism or Condorcet's Optimism*", P.R. Brahmananda& V.R. Pancharukhi. Development Experience in the Indian Economy: Inter-State Perspective. New Delhi: Bookwell.

it is alleged that the poverty and destitution have also led to the environmental degradation, especially with respect to land use. The core zone is first destroyed by the forest department and then people living there start their activities. The plans for regeneration and systematic cutting are hardly put into practice by the department. Most of the times the department has been party to wanton destruction of the forest. When there has been sudden realization that the forests are gone and there are serious implications, the department suddenly becomes very possessive about the forest area. The earlier development policies of the government did not touch the tribal's for the development. It is true that earlier, the forest provided good life support system to the tribal's. However, after the clear felling of trees, they did not have option and hence they started cultivating the forest land. Some of the land is fragile and not suitable for agriculture, but devoid of any other viable economic activity, the tribal's continue to cultivate the land. To combat the environmental problem, the government has responded by creating more national parks, sanctuaries and reserved forest areas. Just by such declarations the conservation and preservation is not likely to take place. Economic development of the local population is a necessary condition for the growth and regeneration of the forests. In all the states where there is a problem of forest and marginal land being brought under cultivation, a viable alternative economic activity will have to be initiated to prevent environmental degradation.

*Verma*⁸⁶ (2004) states that, we the human beings cannot live without the development in the wake of the challenges coming from the both orthogenetic and heterogenetic sources. Time and again, it has been proved that any development project essentially requires certain fundamental elements as raw material and a large piece of land is one of them. Now, because of continuous modernization activities and population explosion, unused land is hardly available. In the absence of barren land, planners have started looking towards small hamlets and surrounding agricultural lands, existing in the remote corners of the country. As a result, last few decades have witnessed a large scale forced displacement of the poor and mostly illiterate masses from their native places. Ejection out of the place of inhabitation is in itself a painful

⁸⁶Manish Kumar Verma. 2004. *Development, Displacement and Resettlement*. New Delhi: Rawat Publications.

experience and in the absence of a proper policy and requisite advanced planning, coupled with inexperienced administration, the situation has further worsened. The result was the breakdown of social and economic structure, landlessness and joblessness; cultural degeneration, ebbing values and beliefs; and most importantly due to the inherent attachment to the locale a psychological fear of leaving the place of ancestors. Thus this drew the attention of the government as well as the World Bank because of their involvement in several important projects as benefactor agencies. Both the national and international NGOs shared the apprehensions on the issues with their counterparts. Doubts were raised whether the process of development is going in the right direction. Whether it would lead to a sustainable development of the region overall?

*Singh*⁸⁷ reveals that migration and urbanization has become one of major problems on front of the country like India. Unlike the big cities in rich countries, Indian cities are not able to take in more and more people because of poor urban management and resource constraints. The people continuously confront problems of safe drinking water, power and sewerage and garbage disposal. Since most of the migrants to cities are poor and homeless, slums shantytowns spring up to accommodate them. The people in slums live under the most deplorable conditions, with little access to effective social and healthcare services. This rapid urbanization has caused wide spread of environmental degradation in the country. Increase in pollution in urban areas is also fuelled by ever-growing traffic and as the number of vehicles increases. He also says that a survey has been carried out on ten major cities in India and the pollution rate has been high and increasing day by day. Urbanization at this rate and with other associated problems of shelter and provision of infrastructural facilities has caused a pernicious effect on the eco-stability of the country. Yet, another serious problem is related to treatment of sewage collection and disposal of waste materials. Hardly any city of India has 100 percent sewage collection treatment and waste disposal facilities. Today Indian cities also have serious problem of noise pollution. It is considered to be a very big health hazard. Noise affects man physically,

⁸⁷J.P Singh. *Challenges of Urbanization and Environmental Degradation in India.*

psychologically and socially. So the Indian cities have become hub of environmental and social problems.

*Nayak*⁸⁸ maintains that inspired by the worldwide debate on the issue, the present paper is a humble attempt to test the nexus between poverty and environmental degradation in rural India based on secondary sources of data. Though the study does not reveal any definite pattern of linkage in the context of rural India it examines the probable causes of failure in the link, highlights the status of poverty and environmental degradation across states and over time and concludes by highlighting the urgent need for undertaking micro level studies in the North Eastern States based on primary survey for policy intervention. According to the Brundtland Report, poverty is a major cause and effect of global environmental problems (World Commission on Environment and Development 1987). The poor are the victims of environmental degradation and also are the agents, the perpetrators of the degradation. They are basically short-run maximisers; they try to meet the needs of the present at the cost of the future. Poor and hungry often destroy their immediate environment for their survival. They cut down forests; their livestock overgraze grasslands; they overuse marginal lands; and they crowd into congested cities in growing numbers. The cumulative effect of these changes is so far-reaching as to make poverty itself a major global scourge. It is in this context that the first report on Human Development mentions, "Poverty is one of the greatest threats to the environment" (UNDP 1990).

3.3 Kashmir

*Bhat*⁸⁹ (2004) describes in brief the status of Kashmiri language after 1990 in and outside the valley. While giving main focus on certain important customs and ritual of Kashmiri Hindus the author also describes the living problems, crises, social interaction, climatic and environmental problems, adaptation to new circumstances, etc. He studied the cultural facets of Kashmiri Hindu Diaspora and made an analysis in relation to what and how they practiced various religio-cultural customs and rituals prior to displacement and in what ways and what extent have these been influenced or

⁸⁸Nayak Purusottam. *Poverty and environmental degradation in rural India*.

⁸⁹M.K Kaw. 2004. *Kashmir & its People*. New Delhi: A.P.H. Publishing Corporation.

eroded after the displacement. While dealing with the cultural aspect, these are bound to be references to the linguistic erosion as well. The insurgency has hampered growth of Kashmiri in Kashmir and the use of Urdu and other alien languages has increased. A deliberate attempt is made to alienate Kashmiris from the national main stream by belittling their language and culture. The press in Kashmir is already dominated by Urdu language. The picture outside Kashmir is equally. Governed by the factors of resettlement and readjustment in new environment, after displacement from Kashmir, the attitude of displaced Kashmiris towards their mother tongue is very disturbing. The new generation after displacement sacrifices its language and culture for better financial opportunities or settlement. It may be added that the younger generation born after displacement have no concept of these rituals and these words do not exist in their diction. After the displacement, the whole concept and mode of celebrations of important festivals have changed to a greater extent. Changed environment, climatic conditions and structure and architecture of the houses and flats where Kashmiris have recently resettled has made a lot of difference. All this was of great religio-cultural significance to Kashmiri Hindus before displacement.

Kaur⁹⁰ (2006) reveals that the rapid urbanization had increased pressure on the environment and its allied processes have made a profound impact on the environment of the cities and towns. It had added several problems that in general affect human its society and his surroundings such as slums, insanitation, environmental pollution, scarcity of housing, worsening water quality, noise and hazardous waste, etc. As the cities are hub of commercial actives, the people migrate for opportunities and improve their standard of living. The most rapid growth in urbanization has occurred in less economically countries (LEDCs) in South America, Africa and Asia. During the last three decades in India the link between urbanization and environment and the threat to the quality of life emerged as a major issue. The state of Jammu and Kashmir too was affects by urbanization process. The main districts of the state are Srinagar and Jammu and have being the state capitals. These two districts are hub of the political, social and economic activities of the state. Slums are new phenomena in the state. The dweller of

⁹⁰RavinderJitKaur. 2006. *Kashmir Journal of Social Sciences*. Vol. 1, No. 1. University of Kashmir: Dean, Faculty of Social Sciences.

these are hailing from other states and are doing sundry jobs like rag picking and broom making and even beggary. However they also indulge into immoral activities. They places are always without civic amenities. The other problems which were generate due to the rapid urbanization are increase in motor vehicles, vehicular emission load, noise pollution, ambient air quality, problems of solid waste, water pollution and housing and living condition etc. All these generate a threat of spreading of those diseases which are outcome of these pollutants and carry its negative impact on society.

*Bhat*⁹¹ (2010) says that the mountains that surround the village are excellent sources for gypsum and other minerals. And government has given these sites for extraction of these minerals. But the mining process can have environmental repercussion and pose health hazards for village residents. The residents of the villages of Noor Khah-Uri say, “Mining can lead to mountain sliding, which can turn disastrous and this may lead to collapse of the entire village”. Medical Professionals says that those associated with mining cause workers and those living nearby to suffer from chest-related disorders, due to the dust that is created during extraction of these minerals which remain suspended in air. It pollutes not only the atmosphere but also the river bodies, like river Jhelum which flow down the mountains near to the sites where gypsum is extracted. The water is now contaminated, environmental advocate claim. Most of the residents use this water for drinking, washing and other household purposes without filtration. The increase in the suspended particulate matter increased greatly in the area due to gypsum, limestone and other minerals. This combined with deforestation, has led to grave health concerns. This mining also destabilizes the slopes that can lead to soil erosion and the water table gets affected. So the problems increase with increase in extraction of these minerals in the area and in the long run it would show series of negative effects on human society of the area and the physical environment surrounded to it.

⁹¹AfsanaBhat. March 18 2010. *Gypsum Extraction in Kashmir: Impacts Health, Environment*
Canada: The Press Institute

*Rehman*⁹²(2010) Describing the impact of war on environment the author of the paper says that, “there are no ultimate winners in war – neither people, nations nor the planetary ecosystem. War is indiscriminate and can bring harm or destruction to life anywhere” Australian Conservation Foundation, 1996. Destruction of the natural environment has itself become a tactic of war. To protect the natural environment as one of our fundamental security needs, recognizing that all species have a right to exist, that humans should only take what the natural environment can sustainably contribute to our life support system, and that nations should not assume that warfare and training for warfare justify environmental destruction. Armed conflict has multiple, long- and short-term impacts on development, and on environmental and human well-being. Conflict undercuts or destroys environmental, physical, human and social capital. It results in the loss of lives, livelihoods and opportunity, as well as of human dignity and fundamental human rights. Livelihoods are directly affected through decreased access to land and inadequate access to natural resources, as a result of exclusion, displacement and the loss of biodiversity and trigger new tensions and conflict over critical resources, such as water or food. Each injury in the environment accumulates and interacts with all the other injuries, the welfare of future generations is endangered. Generally, one of the most robust findings in the quantitative conflict literature is that impoverished and institutionally weak countries, usually measured by low GDP per capita, have an exceptionally high risk of armed conflict and civil war. Environment represents the hope and future of every society. Destroying the environment means destroying the society itself. There is number of wars in which attempts have been made to annihilate the enemy by assaulting the environment.

⁹²Ejaz Ur-Rehman, May 2010. *Impact of Armed Conflict on Environment in the State of Jammu and Kashmir: An overview*. Pakistan: BaraliKassKotli (Azad Kashmir)

Findings

Environment forms the basis of our existence and human development. The relationship of man and environment has influenced the development of human society. The advancement of industrial revolution in 19th century and the emergence of science and development of sophisticated technology embittered the friendly relationship between man and his natural environment. The impact of modern technology on natural environment is highly complex. The contemporary era is witnessing indiscriminate exploitation of natural environment which has created most of the present day environmental problems. Major problems which have come to forefront over a period of time have been due to variations in climatic factors and the activities of the species of the communities themselves. These influences have brought a marked change in the dominance of the existing community in this part of the globe also.

We have seen that man, equipped with modern technologies and modern scientific knowledge has become an important factor in changing the environmental processes. It has to be realized that disturbances in one of the elements of nature (i.e. air, water, land, flora and fauna) gives rise to an imbalance in others. Natural processes or human factors sometimes aggravate natural environmental process to cause disaster for human society.

Based on the field work carried out in Srinagar city and drawing inferences from secondary sources, following inferences were drawn which reveal a real sociological picture of the environment in the selected universe.

4.1. Historical Development

The present day Srinagar City is the collection of long period of time with rich and variegated history. Though the city has served as the capital of Kashmir throughout the ages and could not experience any significant growth during the ancient and the Medieval period mainly because of the political instability, internecine strifes between rulers and frequent changes in capital sites. However, the city has successfully survived against all odds mainly because of its centrality. The present day city has

grown as a blend of number of ancient sites which had served as capital cities from time to time for various rulers. The present day socio-cultural artifacts of the city are expansion of the city since beginning of the century which has brought in its jurisdiction different capital sites. The genesis of Srinagar City has rich historical credentials as it has evolved and grown to its present complex structure after being considerably shaped by political and urban forces operating from ancient to the present period. Thus Srinagar is vivid testimony of one of the historical cities of the country reflecting the rich and complex historical background. The histo-genesis of Srinagar City dates back to the pre-historic period when earliest process of humanization is said to have started during the Neolithic period which has been established by the excavation of Burzahama and Harwan sites. These two sites and Srinagar are situated at the juxtaposition of Dal Lake.⁹³

The city expansion took place without any planned directives which resulted in unplanned, haphazard development of residential areas, congestion with acute problems of drainage, irregular narrow lanes and streets littered with filth and dirt. River Jhelum the main source of water and communication channel was polluted due to slush from houses draining directly into it. This resulted as a great threat to the public health creating unhygienic and in-sanitary conditions. In the later part of the Dogra rule (1900 A.D) Srinagar recorded some developmental and construction activities. The residency with its grotesque gardens, a number of educational institutions, first intermediate College (S.P. College, 1938) and Library were established. Potable water supply and modern means of transportation were also made available for the first time in the city which necessitated the construction of metalled road and accelerated the process of development in the city. The opening of cart road over Banihal pass and 196 km long Jhelum Valley cart road connecting Srinagar with rail head at Rawalpindi (now in Pakistan) were also constructed. Silk Factory and Woollen Mills also were established (1921-31), besides this, medical facilities and other public utilities and services were also provided. It was also during the Dogra rule in 1886 that first Municipal Act was passed. In 1913 a new Act introducing an elected

⁹³ City Development Plan' *Under Jawaharlal Nehru National urban Renewal Mission Scheme* for Srinagar City

element in constitution of local bodies of Srinagar was enacted. All these efforts geared up the development activities during Dogra rule which were made possible through the courtesy of Britishers proved of significant value because they not only helped in eradicating the epidemic diseases but also solved to a larger extent the socio-economic problems of the city.

During the modern period (1947-1997) the city recorded more or less an uninterrupted growth through successive and concerted efforts after launching Five Year Plans which marked a beginning of the Planning era in the State. The process further got strengthened as it became the seat of power and summer Capital of the State. The development of most of the administrative, education and medical institutions and residential colonies in and around the commercial hub (LalChowk) changed the form and morphological structure of the city. The establishment of a number of education and medical institutions namely University of Kashmir, Medical College, Regional Engineering College, Agricultural University, Post Graduate Institute of Medical Sciences and a number of planned colonies viz Jawahar Nagar, Karanagar, Nursing Garh, GogjiBagh, Batmaloo, Channapora, Bemina etc. have resulted in the extensive sprawl of the city limits.⁹⁴

Construction of Bye Pass road, establishment of Fruit Mandi at Parimpora, Hindustan Machine Tools (HMT) factory at Zainakote, State Industrial Complex at Zewan and Khanmoh in south east and sub-urban area of the city with the intentions of establishing satellite townships at Zakura in north, Zawoor-Balhamain south east, YayilHumhama (under process) in south west, the corporate limits of the city are likely to engulf the three small towns namely, Pampore, Badgam and Ganderbal with intervening areas in its jurisdiction forming part of its zone of immediate influence. The policy directives of shifting regional bus terminal to Parimpora (north) and Panthachowk(south) is also likely to stimulate process of development and expansion towards these areas. Besides this, the impact of increased trade activities and tourism has brought significant transformation in the physical and socio-economic structure of

⁹⁴ Ibid

city. Srinagar which initially was an administrative-cum-religious centre, has now been transformed into multi-functional city.⁹⁵

4.2. Regional Setting

Srinagar is well connected with other District Headquarter Towns, Tourist Resorts, Ladakh and Jammu Division of the State. Because of its locational advantage of being located in the heart of Kashmir Valley, it has acquired greater degree of centrality despite the constraints which the surroundings and physiography of the region pose to the physical growth of the city. Being the capital city and the largest urban settlement, it has become hub of major administrative, political, economic, commercial and other activities. It also acts as major tourist destination and terminating centre in Kashmir Valley. It constitutes 73.18 per cent of the urban population of Valley and 48.55 per cent of the urban population of the State which has given it complete supremacy in urban settlement system in Kashmir with pronounced regional urban primacy.

The selection of this as the site for a Capital City reflects both the strategic advantage it provided and the ease of communication which linked its various wards with one another internally. Located mostly on the right bank of River Jhelum, the City's development was determined by the natural physical barriers of the site. River Jhelum and Anchar Lake acted as the natural limiting barriers on the north and west respectively, while Dal Lake curtailed any development on its eastern fringe. The Hari Parbat and Takht-i-Sulaiman hillocks served both as a limiting barrier and natural landmarks of the City. Hence, uptill late 19th century Gojwara-Idgah-Chattabal corridor in the north and Maisuma-Shergarhi corridor in the south marked the actual physical limits of the City on the ground on its two opposite ends.⁹⁶

⁹⁵ Ibid.

⁹⁶ *Inventory of Historic Properties: Cultural Resource Mapping-Srinagar City*, J&K INTACH Chapter, Pp.23-25

4.3. Changing Land use in Srinagar City

Land use is a product of interaction between a society's cultural background, state and its physical needs on the one hand and the natural potential of land on the other hand. An urban centre is a collection of houses of non-agricultural people where various uses of land are found on account of the forces of attraction and integration, the forces of dispersion and disintegration and the forces of spatial differentiation. Urban land use deals with the problem emerging in urban centres in the process of selecting and translating into action, the optimum utilization of limited land between shopping centres and residential areas. Long term understanding on land use and land cover need to propose a more dynamic framework that explicitly links what is often divided into separate natural and human systems into a more integrated model. Land use is influenced by economic, cultural, political, historical and land-tenure factors at multiple scales. Land cover, on the other hand, is one of the many biophysical attributes of the land that affect how ecosystems function. Knowledge of the nature of land use and land cover change and their configuration across spatial and temporal scales is consequently indispensable for sustainable environmental management and development. Urban landscapes are exemplified by the large concentration of population and fast expansion of urban zones which lead to alteration in the land use and land cover configuration that consequently impacts the landscape environment. Land transformation is one of the most important fields of human induced environmental transformations, with an extensive history dating back to antiquity. Alteration is nearly inseparable from human occupation and use, and the goal is to encourage degradation. The degradation of water bodies are largely attributed to extensive agricultural reclamation, resulting in negative ecological consequences such as frequent floods, a decline in biodiversity and the extinction of a number of endemic species. Largest changes in terms of land area, and arguably also in terms of hydrological impacts, often arise from afforestation and deforestation activities. Studies have utilized remote sensed data to examine urban land changes in modern times with conclusions showing varying degree of different patterns of urban expansion and development in which could be associated with specific environmental factors. Land use planning is basically concerned with the location, intensity and

amount of land development required for various uses of space, functioning of the city, e.g., industry, wholesaling, business, housing, recreation, education, religious, and cultural activities of the people.⁹⁷

Table 4.1
Land use land cover of Srinagar city

S No	Land use	1971	1971	2008	2008	2011	2011
		(Hectares)	(% age)	(Hectares)	(% age)	(Hectares)	(% age)
1	Residential	1074.5	4.58	3851	16.42	4013.11	17.20
2	Commercial	143.5	0.61	268.5	1.14	283.92	1.21
3	Industrial	90.5	0.39	226.5	0.97	226.5	0.97
4	Parks/Gardens	140	0.59	372	1.59	373.04	1.62
5	Restricted Area	446	1.9	715	3.04	715	3.05
6	Vacant	517	2.2	255	1.08	245.3	1.05
7	Agriculture	14408	61.45	10949	46.7	10957.1	46.73
8	Plantation/Orchard	1266.5	5.40	2622	11.18	2623.03	11.19
9	Forest	346.5	1.47	153.5	0.65	153.5	0.65
10	Barren	539.5	2.3	480	2.05	480	2.05
11	Marshy	1667	7.1	468.5	2.00	467.5	1.99
12	Water body	2145.5	9.15	1895	8.08	1893.90	8.08

⁹⁷ Wani, R. A and Khairkar.V.P. 2011. *Quantifying land use and land cover change using geographic information system: A Case Study of Srinagar city, Jammu and Kashmir, India*, International Journal of Geometrics and Geosciences Volume 2, No 1, 2011, 110-120

13	Others (Education, Government, Hospital, Religion)	662	2.82	1190.5	5.07	1014.46	4.33
14	TOTAL	23446.5	100	23446.5	100	23446.50	100
15	Total Built up	2556.50		6623.5		6626.03	
16	Total Non-built up	20890		16823		16820.47	
SOURCE: Journal of Environmental Protection, 2011, 2, 142-153 & International Journal of Geometrics and Geosciences Volume 2, No 1, 2011, 110-120, Based on Town planning map of Srinagar city 1971 on 1:15000scale and IRS-1D LISS; III + PAN 2008 merged satellite imagery of Srinagar city.							

The enormous pressure of the population has exerted enormous pressure on the existing land use or land cover of Srinagar city. There has been loss in natural vegetation, agriculture, water bodies, residential, restricted etc. It is evident from table 4.1 that the city has witnessed enormous change in terms of land transformation. The built up area of the city has increased from 2556.50 hectares in 1971 to 6623.5 in 2008 to 6626.03 hectares in 2011 whereas non-built up area had drastically decreased from 20890.00 hectares in 1971 to 16823 in 2008 to 16820.47 hectares in 2011.

The salient feature of this land transformation is that Srinagar city has recorded a significant increase in built up area and this is mainly because of population growth and development in secondary and tertiary occupation structure which has attracted population from its hinterland as these areas are under developed in terms of opportunities and lack of private sector. But this built up expansion was haphazard and without much planning which has given rise to many urban problems like drainage failure in most parts of the city, conversion of marshy areas either into agriculture or built up etc.

The core of the city which engulfs the current Central Business District stretching from Dal Gate to Batamaloo is characterized by narrow lanes, open drains, poor solid

waste collection and dumping facilities, lack of open spaces, poor infrastructural facilities etc. Expansion has taken place largely in a radial manner along the roads. However, the unique geographical personality of city has generated certain physical impediments in its growth and development. Srinagar city has significant interchange of land among various land use classes from last four decades. These changes are because of the development of city resulting in increased demand of land for residential, commercial, industrial etc. purposes.

This demand of land along with site attraction, functional convenience, functional magnetism and the land value of that particular area ultimately influence the pace and direction of urban land transformation. The important land transformation was witnessed among residential, vacant, plantation/orchards, agriculture and water bodies/marshy lands. The residential area has increased from 1074.50 hectare in 1971 to 4013.11 hectares in 2011, capturing land mainly from agriculture, marshy, vacant land and plantation. The area under collectively under water bodies and marshy land has drastically decreased from 3812.50 hectares in 1971 to 2361.40 hectares in 2011. The marshy land is converted either into residential or agriculture whereas the land under water bodies has lost its dimension mainly to marshy land. Changes in vegetation and cover can have a significant influence on the hydrological cycle and climate system. Largest changes in terms of land area and arguably also in terms of hydrological impacts, often arise from afforestation and deforestation activities.

The main transformation of the land has occurred mainly in the marshy and agriculture land. The land under the water bodies is illegally encroached and is used for agriculture especially floating gardens producing vegetables. Significant area under marsh got shrunk leading to water logging and floods. The marshy area are under tremendous pressure of urban growth converting it into built up or agriculture to produce crops and vegetables. The land under agriculture has drastically decreased which occupied 61.45 percent of the land of the city in 1971 to 46.73 percent in 2011.

At present Dal Lake provides shelter to about 50 hamlets with a population of over 50 000 people, who have property rights over 300 hectares of agricultural land and 670 hectares of water area. Besides this, a large number of commercial and residential

buildings such as hotels, guest houses and restaurants have sprung up in and around the Dal Lake. These settlements spill all their wastes into the lakes. This results in increasing levels of solid waste from the peripheral areas and from the ham-lets into the lake resulting in sedimentation and excessive weed growth. Moreover, reduction and clogging of water channels within the lake because of encroachments leads to reduction of fresh water inflow into the lake. House boats are one of the most preferred attractions of Srinagar city, presently there are more than 1200 house boats inside the Dal Lake. These house boats also eject out their wastes directly into lake again resulting in sedimentation and excessive weed growth. Presently the 1 200 house boats inside the Dal Lake and an estimated 9 000 metric tons of waste annually disposed directly into Dal Lake.

The highest percent of change is witnessed by residential land whereas the percent land under marshy area has drastically decreased by 71.96 percent. In general, the total built up has increased by 159.61 percent from 1971 to 2011 whereas non-built up area has decreased by 19.48 percent. No other organism like human beings has always influenced their environment. It is only since the beginning of the industrial revolution in mid-18th century that the impact of human activities has begun to extend to a much larger scale. Land use changes due to urbanization and agriculture etc. affect the physical and biological properties of the earth's surface.

4.3.1. Residential use

Residential use including residential guest house-cum-residential covers an area of about 4013.11 hectares accounting about 60.56 per cent of the total built up area and 17.20 percent of the total land. The residential land use has also increased with the passage of time. The table 1.4 reveals that as against 4.58 percent of total land use, the residential usage of land has considerably increased to 16.42 percent in 2008 and 17.20 percent in 2011. The main reasons responsible for higher share of residential use is that most of the residential development has taken place in unplanned and haphazard manner by individual by themselves, wherein no attention has been paid for the provision of other facilities. With respect to residential landuse, city can be demarcated in distinctive zones:

- Area of planned residential use
- Area of unplanned residential use
- Region of mixed commercial cum residential use

Planned residential localities have an orderly manner of buildings, building line, roads, parks and physical amenities and developed on a sanctioned layout. It is striking feature that in Srinagar City only a small proportion of 15 percent of the city localities is planned which makes it clear beyond doubt that concerned urban local bodies have not taken any step to provide accommodation to growing population and in a planned manner. On the other hand unplanned residential areas whose mushrooming growth is taking place in the city in haphazard manner, without any approved layout plan. City development authorities are accepting these localities without any authorization which is not only increasing burden of provision of extending services and infrastructural facilities but has accelerated pace of development/unplanned colonies in the city. Therefore, before extending any facility/service to such dwelling/locality, it need to be seen whether the locality is authorized or not, if residences of locality is to be authorized, it must be evaluated whether locality fits in overall city environment or not. After it is found compatible, an authorization fee shall be charged from the dwellers of these localities.

4.5.3. Commercial Use

Being the capital, Srinagar has attained the status of principal city with respect to trade and commerce. Even though main function of the city happens to be administrative, yet because of its strategic location within the region as well as its relation to the State, it has been gradually attracting growth of commercial activities, mostly in unplanned manner. Problems arising out of this phenomenon, has begun to emerge which are successively reducing the functional efficiency of the city, hampering economic development. Invasion of commercial activities into residential use is taking place at stupendous pace along the major arteries and other activity areas. As table 1.4 reveals, At present about 283.92 hectares of land accounting to 1.21 per cent of total land is under commercial area including wholesale, retail, go-downs, hotels and storage. Commercial use of land has also considerably increased along past few decades. In

1971, 143.5 hectares of land were used for commercial purpose which increased to 268.5 in 2008 and to 283.92 hectares in 2011.

Generally in the course of city growth many specialized markets come to stay and maintain their specialized character. However, in Srinagar City, these have come in an inorganic manner. The grouping in terms of specialization is not easy as is case in most of well unplanned Indian Cities. Wholesale and Retail markets in the city have intermingled at various places. Specialized markets, however, can be identified in patches at following places in the city.

Srinagar city has been functioning as a regional centre of trade and commerce and whole sale. The markets developed in MahrajGunj, LalChowk area and in neighbouring areas acted as main CBD. Wholesale markets in the city are functioning mostly in retail shopping areas and are identifiable as a separate activity only in certain pockets. In fact no markets in the city except Fruit MandiParimpora seems to have been planned to function as a wholesale market. With the sudden increase in trade, most markets sprang up in a haphazard manner and have infiltrated into retail shopping areas to such an extent that it has created serious problems of overcrowding, intermixing of goods traffic with movement of pedestrians and passenger traffic, residential houses even those which are located along narrow lanes are being converted into go-downs.

Fruit Mandi and Vegetable Mandi functioning in the city are located on Baramulla Road. Vegetable Mandi which is located in low-lying area near Batmaloo Bus Adda faces problem of accessibility and generates problems of traffic conflict between goods and passenger traffic, therefore, needs to be relocated. Fruit Mandi, which is situated at Parimpora has a well-planned layout, unfortunately, due to continued negligence, it is in shambles. Its roads are in a state of complete disrepair.

Most of the Transport Agencies are concentrated near Batmaloo area being in close vicinity of LalChowk and MahrajGunj Commercial Centres. Forwarding agencies along the narrow roads especially in Magarmal area create numerous problems. Adequate space for loading and unloading of the goods, parking of trucks and circulations space for movement of trucks is not available. It is imperative to shift

these transport agencies from this area. The future location will have to be in conformity with the location of Mandis and other wholesale markets.

Tin and Steel market are located in the triangular space near Hari Singh High Street and Batamaloo Bus Adda. These shops have very little space and often unload their goods on the road side which is creating problems for the movement of vehicles and pedestrians. As city is growing very fast demand for such items is likely to increase, therefore, it is necessary to reserve some space for this purpose.

Fast food chains accelerate suburban extension and help set its tone with their expansive parking lots, flashy signs and plastic architecture thereby reinforces a destructive pattern of growth in an endless quest to move away from the extension that only results in creating more of it, but the fast food centres are coming up fast in almost all city areas. This is particularly true of new urban areas like Nowgam, Hyderpora etc. This is throwing new challenges to the urban planners and environmentalists alike.

An efficient system with appropriate hierarchy is a pre-requisite for rapid economic development of an urban area. Core of the city is the central and the oldest part of the city which is continuously worked upon by a set of centripetal and centrifugal forces. Concentration of activities, greater accessibility proximity to work areas etc. act as centripetal forces whereas the old and dilapidated housing conditions, degraded environmental conditions, stress and strain, inadequate infrastructure etc are the centrifugal forces. Many of the inner areas surrounding the centers of our cities suffer from economic decline, physical decay and adverse social conditions. The inner parts of our cities ought not to be left to decay. It means leaving large number of people to face a future of declining job opportunities, a squalid environment, deteriorated housing and declining public service.

4.5.4. Administrative and Industrial Use of Land

The industrial development of Srinagar has not fully diversified. The industrial atmosphere in the city is dominated by small scale and cottage industries with very few large scale light manufacturing units cover an area of 226.5 hectares in 2008 accounting for 0.97 percent which was 0.39 percent in 1971 covering 90.5 hectares.

Since then the industrial land use has remained constant. Most of the Industrial Units located in the city belong to recent past when Government established industrial estates and encouraged entrepreneurs in terms of grant of free land, cheap power, relaxation/ exemption on import duty for machinery and raw materials, road linkage, easy loans and subsidies.

Major industries in the city are located in the defined industrial zone. Only household and small scale units including service and repairs, grill making, furniture, Band-saw, trunk making etc. are functioning in old market areas of the city. Such units are mainly located on major roads or in incompatible surroundings generate the problems of encroachment, noise pollution, traffic problems etc.

Major industrial estates viz. Zainakot, Barzulla, Rangrath, Zewan, Bagi Ali Mardan, Zakura account for 188.1 acres of the industrial area. Also random quarries in and around the city in south-east and Harwan side are posing problems by creating dereliction land, erosion of hills, deforestation, besides indiscriminate blasting every day. It is, therefore, essential to preserve some specific quarry sites with period and extent of quarrying and some of the hills which offer interesting landscape elements in setting should be prohibited. Suitability of location of industries is related to the performance characteristics of each unit. Although performance characteristics of some industries keep on changing owing to change in methods of production. The suitability has to be based on the present method of production and its effect on the environment and proper functioning of the surrounding area of the city. A field survey organized by the Town Planning Organization, Kashmir has identified incompatible industrial units on the basis of performance characteristics. These units will therefore, need relocation and shifting from the present sites which are yet to be implemented.

Srinagar being the summer capital of the state, houses offices of the State Government, Central Government, Semi Government Organisations, Autonomous Bodies, Banking Institutions and other State/Regional Offices. The city has entire range of hierarchical administrative Offices. The administrative use which covered about 82 hectares in 1961 had increased to 176 hectares in 1998 constitutes about 1.31 per cent of the total developed area. Out of the total Offices in the city, about 115 are

located in and around Central Business District from the foot hills of Shankaracharya hillock to the Batmaloo Bus Stand. A large number of Offices are scattered in other parts of the city. Their unrelated and incompatible location are greatly impairing their efficient functioning, causing inconvenience to general public. This has also effected the nature of relationship which otherwise should have existed between the various offices for efficient discharge of administrative functions.

The Offices which are having own/government buildings are concentrated in CBD area while a sizeable number of Offices house in private buildings are scattered in different parts of the town. The offices houses in private buildings have inadequate facilities with poor working condition and environment leading to decreased efficiency. Therefore, in order to foster inter-departmental activities and help the State/District administration to work in harmony there is a dire need to develop Government Office Complex to provide accommodation for various Offices which are either short of accommodation or housed in rented buildings or have sub-standard office accommodation.

Srinagar city has the status of regional educational centre which forms one of its major functions. It provides for higher order of academic and professional institutions covering specialization in many branches of art, science, engineering, computer, physical education, music, technology etc. as a result it acts as nerve center of educational facilities in the region.

Srinagar city, over a period of time, city has witnessed a mushroom growth of Educational institutions. As table 1.9 reveals, as on 2011, there are 241 primary schools, 405 middle schools, 285 secondary schools in Srinagar City while as there are 10 colleges, one engineering, one dental and two medical colleges catering to the needs of students coming out of schools. Besides we also find one university and one agricultural university also.⁹⁸ there are 02 Allopathic Hospitals, 15 Allopathic Dispensary 09 Primary Health Centers, 04 private Nursing Home and 90 other facilities including Medical Aid Centers, Sub-Centers, Urban health Posts and Urban Health Centers. Besides Srinagar city also has SKIMS hospital and Medical Colleges

⁹⁸ District Education Officer, Srinagar and Kashmir University

which also assists the people of Srinagar City in health issues. Above all, the Government Medical College of Kashmir is also available in Srinagar city which provides the people seven specialized and super-specialized health services. At present medical college offers these services through Bone and Joint Hospital, Chest Diseases Hospital, G. B. Children Hospital, Maternity Home Sanant Nagar, LalDed Maternity Hospital, Psychiatric Diseases Hospital and SMHS Hospital. All these educational and health facilities have further encroached the land of the Srinagar city and has subsequently invited may environmental problems. Besides, Srinagar city has an advantage of being host to Sher-i-Kashmir Institute of Medical Sciences (SKIMS) and SKIMS Medical College which also caters to the needs of the people of Srinagar.⁹⁹

4.4.1 Demographic Structure of Srinagar

Since the beginning of this century Srinagar city has recorded a slow but consistent increase in its population and has shown marked variation from decade to decade. During first three decades (1901-31) it recorded a steady increase in population which grew 2.9 per cent in 1911 and 11.4 per cent in 1921 and 20.16 per cent in 1931. During the same period, Srinagar experienced a moderate spatial growth, its size increased from 12.80 square-kilometres to 14.48 square-kilometres only. Since 1931, population growth of the city has been subjected to the stresses and strains of slow increase and a haunting experience of stupendous growth. During 1941-61, the growth of population slowed down (see table 4.2) mainly because of the widespread epidemics (1921), political unrest and partition of sub-continent in 1947 which led to the large scale migration of people. Srinagar witnessed an accelerated growth in its population. It increased from 2.85 Lakhs in 1961 to 4.57 Lakhs in 1971, 6.06 Lakhs in 1981 and 11.10 Lakhs in 2001. The main factors which could be attributed to accelerated population growth during these two decades have been immigration, territorial annexation, auto-urbanization and definitional changes. The increase in growth rate of population has also brought in its old excessive concentration of economic activities which provided great impetus for the growth of subsidiary urban activities. Besides this, increase in population was too sudden for the city either to

⁹⁹ CMO, Srinagar & Principal, Government Medical College Srinagar

accommodate growing population or to provide urban services like proper sanitation, water supply, transportation, education, recreational and health. During this rapid increase in population, mushroom growth of unauthorized colonies sprang up, environmental conditions deteriorated; encroachment of water bodies and hill slopes has been going on in an unabated manner.^{100,101,102}

Table 4.2
Population of Srinagar City

Census Year	Population	Decadal Growth Rate
1901	1,22,618	-
1911	1,26,344	+ 2.9
1921	1,41,735	+ 11.4
1931	1,73,873	+ 20.16
1941	2,03,787	+ 17.92
1951	2,46,522	+ 17.05
1961	2,85,257	+ 14.56
1971	4,57,511	+ 46.38
1981	5,94,825	+ 26.10
2001	9,46,166	+ 41.62
2011	12,34,245	+ 32.37

Source: Census 2011, Census 2001 and 'City Development Plan' Under Jawaharlal Nehru National urban Renewal Mission Scheme for Srinagar City

The dynamic trend in population growth of Srinagar suggests accelerated rate of growth of city in future. The anticipated increase in population and changes in demographic dimensions of the city is bound to create an impact on the socio-economic structure of the city and may accelerate the urban problems.

4.4.2. Components of Population Growth:

¹⁰⁰ Census 2011

¹⁰¹ Census 2001

¹⁰² City Development Plan' Under Jawaharlal Nehru National urban Renewal Mission Scheme for Srinagar City

Generally, phenomenon of population growth is measured with respect to natural increase (excess of births over deaths) and net migration. But in case of fast expanding cities like Srinagar, which has recorded widespread extension, another most important dimension i.e. territorial annexation also contributes to its urban growth. Looking back into urbanization pattern of Srinagar city, it has combinedly taken place due to auto-urbanization, in-migration and territorial annexation.

Table 4.3
Components of Population Growth

Year	Total Growth	Auto – Urbanization	Net Migration	Territorial Annexation
1921-31	31,836	6050 (19.00%)	19864(62.39%)	5927(18.60%)
1951-61	38,735	18889(48.76%)	17700(45.69%)	1044(2.70%)
1961-71	1,21,595	47295(38.36%)	19438(15.98%)	54862(45.11%)
1971-81	1,82,749	79720(43.62%)	37378(20.45%)	65615(35.90%)
1981-91	2,57,119	87401(33.99%)	75617(29.41%)	94203(36.63%)

Above table 4.3 clearly reveal that auto-urbanization which involves the study of vital statistics i.e. birth and death rates have significantly contributed towards the population growth of the city. However, there has been remarkable increase in the share of territorial annexation towards the urban growth of the city especially after independence when city expanded at radical pace. Migration has also consistently contributed for the population growth of the city, mainly because of excessive concentration of economic, political, administrative and socio-cultural activities in the city which pull people from various parts of the State. The socio-economic survey finds depict that out of the total migrants of the city about 81.86 per cent are from within the Valley, 10.21 per cent outside the Valley but within the State and 7.94 per

cent are from outside the State. As in-migration is predominantly comprised of people of rural and small urban areas it has lent Srinagar a pseudo-urban character in some concentrated pockets. It has also strengthened the economic, socio-cultural integration of the city with other parts of the Valley.

The residential status of population of the city also gives some idea about the magnitude of migration during last 7 years. The findings of the primary survey reveal that about 6.81 per cent people consist of in-migrants. The spatial distribution of recent in-migration also revealed that outer wards viz Soura, Channapora, Sonawar, have recorded comparatively more in-migration due to sub-urbanization and expansion of the city in these wards. Batamaloo and Rajbagh wards have also recorded high in-migration because these two wards locate two busy commercial and administrative area.¹⁰³ It is assumed that growth trends exhibited by Srinagar during preceding decades will not decline because the capital contents in the city are still in the formative stage. Also the major city function (elaborated in this chapter), advantageous location, climate and unique landscape will stimulate the growth and development process. Srinagar which is the only metro city in the State, will also go through metropolitan metamorphosis. In view of this it is desirable to plan it as metro city for a population 23.50 Lakhs by 2021 A.D.¹⁰⁴

4.5. Urbanization Scenario

Over the last three decades Jammu and Kashmir State has recorded massive urbanization. This stupendous growth in urban population resulted in substantial increase in terms of area expansion and population growth of major urban centers on the one hand and on the other most of the small and medium urban centers have either recorded sluggish growth or have shown signs of stagnation. This twin process has made urban growth very complex phenomenon and a challenging task for city planners to ensure a reasonable quality of life and environment to the inhabitants. In Kashmir and Jammu Divisions of the State, main determinants responsible for such a situation are growing drift of population from rural and small urban centers, unplanned

¹⁰³ 'City Development Plan' Under Jawaharlal Nehru National urban Renewal Mission Scheme for Srinagar City

¹⁰⁴ Ibid.

and leap-frogging accretion of main cities, lack of diffusion of benefits of development in the hinterland of main cities.

The overall urbanization trend in the State shows that it had altogether about 56 urban centers of different sizes, with 21 per cent of total population in 1981 which increased to 67 centers in 1997 constituting roughly about 24 per cent of the (estimated) population. One of the serious concerns of urbanization in the State is distributional pattern of urban population amongst the settlements classified under different categories of towns. Srinagar and Jammu, the Class I urban settlements, account for 73.18 per cent and 53.17 per cent of urban population, in their respective regions. The share of Srinagar as per 2001 Census has further increased to 76.34 per cent (Urban Population 14.54 Lakhs of Valley and 11.10 Lakhs of Srinagar City). These cities are growing faster than other smaller urban centers and dominate the urban scene of the State. This imbalanced growth has made Srinagar and Jammu as principal cities in their respective Divisions which are effecting the growth and development of remaining towns adversely.

The unprecedented influx of people and unplanned accretion is adding to the complexities of Srinagar City with strained urban services, increased demand for housing and transport, generating environmental problems and deterioration in quality of urban life. Apart from this planning efforts which are mostly compartmentalized/fragmented and concentrated on economic aspects have also steered an unplanned settlement pattern and wide-spread disparities in degree of development of various urban settlement and their regions. The impact of such a process of urbanization is directly manifested in the distorted settlement pattern, inequitable distribution of population, imbalanced regional development, unidirectional migration pattern, unbalanced urban growth, lack of rural-urban continuum and excessive dependence of hinterland population for specialized services on main city.

The distribution of urban population according to size of towns in Kashmir shows striking variations, Srinagar City, only Class I town constituted about 73.18 per cent of the total urban population while as remaining 34 urban centers comprised only 27.82

per cent respectively in 1991 (estimated population). Although the number of towns except Class I town has increased in all categories since 1991, yet the distribution of urban population is neither even nor balanced. More centers have increased since 1951, the year in which the era of planning started in J&K State. The big city oriented planning in Valley has resulted in skewed distribution in growth of population and settlements. Over these four decades, the efforts for planning have stepped up an endless theoretical abstraction (emphasis on economic planning) and conceptual elaborations but there has been very little appreciation for physical and spatial planning in Kashmir Valley which is an essential and integral component of balanced and articulated urban development. In other words there has been lack of symbiosis between economic dynamism, physical determinism and spatial integration within an institutional framework in which urban growth flourished in an unplanned and discordant manner generating all sorts of urban ills easily reflected in our urban centers.

Urban extension also known as suburban extension is the spreading of a city and its suburbs over rural land at the fringe of an urban area. Residents of extension neighborhoods tend to live in single family homes and commute by automobile way. Low population density is an indicator of extension. Urban planners emphasize the qualitative aspects of extension such as the lack of transportation options and pedestrian friendly neighborhoods. Conservationists tend to focus on the actual amount of land that has been urbanized by extension.

4.5.1.Housing

Housing constitutes one of the most important part of the social environment where an individual is nurtured, grows and nurtures as a human being, becomes part of the society and a citizen. Housing also plays a significant role in improving the national economy and generation of employment. It has multiplier effect on the economy and industry of the country. It does not provide merely a shelter but gives an identity and status to the human being besides making him comfortable. Over quality of housing or absence of appropriate shelter is an indicator of lower standard of life and low level of overall development. Housing has been considered to have a critical role in

maintaining the social health and stability and in ensuring the people a decent quality of life. As it has been observed that city's population has been growing rapidly, similarly the residential houses and the number of households have also increased at a rapid pace.

Table 4.4 divulges that Srinagar City is possessing 257721 census houses with 17873 lying vacant while as 239848 stand occupied. As such the data reveals that 93.06 percent of the total houses in Srinagar are occupied compared to 6.94 percent which are lying vacant.

Table 4.4
Census Houses and the Uses to which they are put

Occupied Census Houses used as												
Total No of Census Houses	Total number of vacant census houses	Total number of occupied Census houses	Residence	Residence-cum-other use	Shop/Office	School/College	Hotel/Lodge/Guest House	Hospital/Dispensary	Factory/Workshop/Workshed	Place of Worship	Other non-residential Use	No. of Occupied locked Census Houses
257721	17873	239848	152983	2441	42693	1356	1352	366	3575	2417	27287	5378
Source: Census 2011												

4.5.2. Condition of the Houses

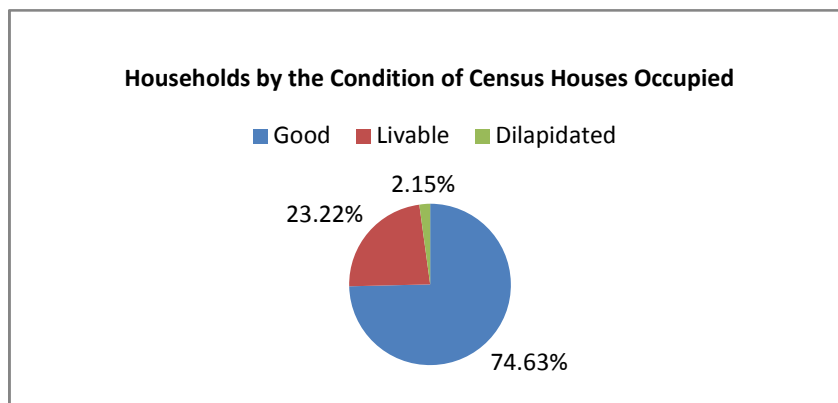
The total number of households living in Srinagar city according to census 2011 is 164758. As the table 4.5 reveals that among the total number of households, 162365 were typically meant for residential purpose while as 2393 are of residence-cum-other use. The condition of the census house wherein the households are putting in is found to be varied. As is revealed by figure 5 74.63 percent of the houses are in good condition, whereas 23.22 percent are in livable condition and 02 percent houses are found to be in a dilapidated condition.

Table 4.5

Households by the Condition of Census Houses Occupied

	Good	Livable	Dilapidated	Total
Total	122962	38251	3545	164758
Residence	121571	37326	3468	162365
Residence-cum-other Use	1391	925	77	2393

Source: Census 2011



4.6.1 Urban Expansion

The term urban expansion has generally negative connotations due to the health and environmental issues that extensions create. Residents of straggly neighborhoods tend to emit more pollution per person and suffer more traffic fatalities. Extension is controversial, with supporters claiming that consumers prefer lower density, neighborhoods and that extension do not necessarily increase traffic. Extension is also linked with increased obesity since walking and bicycling are not viable commuting options. Extension of city has negatively impacts land and water quantity and quality and may be linked to a decline in social capital. The increasing magnitude of urbanization laid a considerable impact on the usage of Land in Srinagar City.

Urban extension is characterized by several land use patterns which usually occur in unison and are described as under:

Single use Zoning: This refers to a situation where commercial, residential and industrial areas are separated from one another. Consequently, large tracts of land are devoted to single use and are segregated from one another by open space, infrastructure, or other barriers. As a result, the place where people live, work, shop and recreate are far from one another, usually to the extent that walking is not practical, so all these activities generally require an automobile (though a bicycle may also be feasible). This is happening in Srinagar city with new urban areas of Hyderproa, Humahama, Ahmed Nagar, Harwan, and Nishat from where residents have to commute long distances for shopping to Srinagar mainland.

Low-density land use: Extension consumes much more land than traditional urban development because new developments are of low density. The exact definition of low density is arguable, but a common example is that of single family homes, as opposed to apartments. Buildings usually have fewer stories and are spaced farther apart, separated by lawns, landscaping, roads or parking lots. Plot sizes are larger and because more automobiles are used much more land is designated for parking. The impact of low density development in many communities is developed or urbanized land which is increasing at a faster rate than the population, which is true of Kashmir, in general and Srinagar city in particular. Architectural innovations in the name of

extension of this city where people live in single family homes and consume large chunks of land is what is called farmhouses in modern parlance.

Another kind of low density development is sometimes called leap-frog development. The term refers to the relationship, or lack thereof, between one subdivision and the next. Such developments are typically separated by large green belts i.e. tracts of undeveloped land, resulting in an average density for lower even than the low density described above. This is a 20th and 21st century phenomenon generated by the current custom of requiring a developer to provide subdivision infrastructure as a condition of development.

Usually the developer is required to set aside a certain percentage of the developed land for public use, including roads, parks and schools. In the past, when a local government built all the streets in a given location, the town could expand without interruption and with a coherent circulation system, because it had condemnation power. Private developers generally do not have such power and often choose to develop on the tracts that happen to be for sale at the time they want to build rather pay extra or wait for a more appropriate location. This situation is so prevalent in the Srinagar city because new residential areas are being developed without any planned development and pre construction surveys about the suitability of this colony 25 years hereafter. This concept is generally referred to as Environmental Impact Assessment studies which should have been part of each and every plan in the Srinagar city plans.

Housing Sub-divisions: Srinagar city has undergone three major planning efforts, out of which the Master Plan 1971-1991 and 2001-02 are the two statutory documents out of which 1971-1991 has been prepared by Town Planning Organization and 2001-02 by the Srinagar Development Authority. The major colonies in the city include Botakadal, Soura (East), Natipora, Balgarden, Shertrashahi, Rawalpora, Jewahangir, Bemina, Barthana, Soura (West), Nuundreshi Colony, Bemina, Tibetan Housing Colony, Kathidarwaza, Bagi-ali-Mardan Khan, Bag-i-Mehtab, Zakura and Habak. The planned colonies are not only economically more efficient but also are the only means of countering the process of urban extension which results in inefficient form of development and consequently in the wastage of natural and monetary resources of the

state and creation of Housing sub-divisions. These areas are facing the brunt of urban extension.

Besides, this rapid urbanization has also taken its toll in the form of accretion into these wet lands by way of filling and has given rise to virtual slums due to sub-standard living condition. These have attracted lower sections of the society due to low land values. Not only this, these areas get inundated by frequent floods causing damage to property and human life and have above all, given rise to different but dilapidated habitations briefly discussed as below:

Urban Poor and Slums

In Srinagar City about 40% of the Population lives in slums¹⁰⁵ and urban poor colonies, out of which 19% constitute the people living below poverty line. In the absence of developed and affordable land and clear policy to address their problems, the urban poor in Srinagar suffer from many inadequacies in terms of access to the basic services and socio-economic needs. It is, therefore, imperative that articulated policies and programmes are to be charted for the slum communities and urban poor of the city, both in terms of infrastructure and basic services and socio-economic development. Most of these people live in informal housing sector or in the core of the city where dilapidation, congestion, lack of services and facilities is a prevalent problem. About 69 localities mostly located in old city with environmental conditions almost unfit for better urban life have been identified as slums.

Till recent times phenomenon on a “Khoperi-Pahari” (comparable to Juggi-Jopdis) was missing in Srinagar City. However, in view of sudden spurt in the migration of non-state subjects from Rajasthan, Bihar, UP and from other parts of the State including Jammu and parts of Valley, about 7 such sporadic Khoperi-Pahari settlements have come up in the city e.g. near General Bus and Batamaloo, on the both sides of

¹⁰⁵ *Slum areas are to be identified on the basis of total living conditions. Slums are generally characterized by overcrowded Kuchha buildings, dilapidated structures with unhygienic living conditions, inadequate basic amenities, poor layout, accessibility and poor ventilation. For the purposes of study, slums in Srinagar have been divided in two categories viz. Kuchha - Pucca areas and “Kohperi and Pahari” (tented/small illegal structures) settlements. Barring a few good localities most of the old residential areas in the inner city and traditional urban villages have slum conditions.*

Bye-Pass road near Fruit Mandi, near Iqbal Park in front of Naaz Cinema, at river Jhelum bund near Abiguzar, Bus Terminal Panthachowk and in Doodganga Channel, near Shergari Police Station. In these settlements there are about 561 units with a population of 3981 persons. The main occupation of these “Khoperi-Pahari” dwellers is casual labourers 22 percent shoe-making 16 per cent production toys and small household items - 38 per cent, begging- 27 per cent and rest are working in hawkers and vendors. About 29 per cent are from Rajasthan, 21 per cent from Bihar, 18 per cent U.P., 28 per cent from within the State and 4 per cent from other States. Because of the harsh climatic conditions most of the settlements are temporary in nature except near Bus Stand, Batamaloo and Fruit Mandi where these people have erected temporary structures and stay there even during winters.¹⁰⁶

Housing Activities and Development of Land

In Srinagar city housing stock is provided by private individuals, Government, Semi-Government agencies and Co-operatives. Detailed survey of house construction by different agencies have been conducted which reveal that Government and Semi-Government concerns have added 1482 flats/units to the existing stock, while as more than 98 per cent of residential houses have been constructed by the individual themselves and less than 0.02 per cent by Housing Co-operative Societies.

It has been observed that about 11681 sites have been developed and provided by SDA and Housing Board and 1107 flats are under the possession of Estates Department which is rented to government officials. This makes evident that in about 80.28 per cent of the city residential houses have developed in an unorganic manner, which is also an indication of dismal role of Housing Board and SDA in city.

Urban Villages

In the process of spatial expansion of the city a number of village settlements have been annexed into city limits from time to time. These village settlements which were purely rural in nature do not fit in urban character. These villages have retained indelible rural character in juxtaposition to urban activities. All these village

¹⁰⁶ CBD p. 62

settlements which have grown in organic manner mainly to cater to rural needs, are in most unhygienic conditions. The quality of life has declined to irretrievable extent and if measures for improvement/redevelopment are not taken, it will pose a serious problem.

Out of the total village settlements annexed in the Master Plan 1971 - 1991 about 38 settlements have completely merged into city while as remaining villages have still retained their rural character because spatial expansion of urban activities have not taken place in their vicinity. The plan has extended the territorial limits of the city and thus a large number of village settlements are expected to be part of the Srinagar Metropolitan Area. Therefore, a policy will have to be spelt out for integrating these village settlements within the urban spread. Following are some of the village settlements which need improvement and redevelopment to make them part and parcel of the Srinagar city. These villages have been grouped into five major categories which are as under:

- **North East along Zabarwan Mountain:** Bagh-i- Chandpora, Harvan, PazwalPora, Brain, Lam, Bani Gam, Gupt Ganga, Teilbal, Nishat, Dara and Theed.
- **North of the City:** Wani Hama, Gassu, Yenderhama, Khumber, Chatra Hama, Burzhama, Ahal, Dani Hama, FaqirGujri, Mufti Bagh and Habak.
- **North West and West:** Zonimar, Haran, GundiRehman, SaidporaAchan, Sangam, Anchar, Noorbagh, Dangarpora, Khushipora, Bakshipora, Palpora, Shalteng.
- **South-West:** Barzulla, Hyderpora, Humhama, Narkara, Rawalpora
- **South and South-East:** Soiteng, Kralpora, BaghtiBarzulla, Natipora, Old Channapora, Nowgam, Mauchu, Ranger, NaiderGund, Shankerpora, Chandihar, Khonmoh, Balhama, Zoowara, Achanambal, Sampora, Zewan, Panthachowk and Lasjan.

4.7. Displacement Issues

Srinagar city has grown sixteen times in the size during the last century from 1901 to 2001 and particularly this growth has been substantial during the last four decades from 1961 to 2001. The process of urbanization and increase in population led to the development of markets and other business centers in the city. This increased the inflow of people from other parts of the state for work or to permanently reside there. This made the city overcrowded and densely populated. Illegal grabbing/ encroached by people took place. Construction of private buildings coupled with government buildings took place in a haphazard manner.

Similarly in the south-east along the Nation Highway BadamiBagh side, the city was witnessed unprecedented physical expansion of many expansion but congested residential settlement pockets namely Shivpora, Batwara, Panderathann, Athwajan, Panthachock, Sempora, Zewan and Zaffran colony.

Despite the constraints posed by the urban water bodies and the wet land of Dal Lake and the mountains in the east, Nambal (Marshy) land and the Anchar Lake in the north-west, low lying and flood prone area in the south, the city is experiencing urban sprawl in these areas because of rapid urbanization which is evident from the fact that building activities are heavily taking place in and around the Dal Lake and Wet lands of the city. Thus, the unwarranted growth of the city is becoming a haphazard for scenic beauty that in turn will have retarding impact on the tourism which is one of the key sectors of the state economy. Restriction have, however, been imposed on the building activities inside the Lake. Along the Lake front and foot hills near the lake which is being supervised by the lake and Waterway Development Authority. With the rapid urbanization, the process of conversion of vegetable land and orchard gardens (like Padshahibagh, Alohabagh, Wazirbagh, Batapora, Habbak, Parimpora, Ram Munshibagh, Bucuhpora,) into different urban uses has gained momentum and was accompanied with the haphazard growth and development, stemming different problems like drainage, sewerage and civic amenities and all other facilities in all most all the newly developed parts of the city. The available arable land was used for construction purposes; water bodies were filled with soil and used for agricultural

purposes and so on. The over-crowdedness and haphazard establishment of buildings forced the government to frame policies of rehabilitation and resettlement which in turn gave rise to another big problem of displacement.

According to the study of Srinagar Development Authority, the present housing shortage is of the order of 18750 housing units or plots and for additional population of 1.5 lakhs for next twenty years the requirement for housing plots/units will be 37500. In view of huge gap in demand and supply, the price of land has gone terribly high and the residents of the city especially the economically weaker sections, Low income groups and even the Middle Income Groups are unable to purchase the land in the open market. Besides the land purchased in the open market is undeveloped without any basic infrastructure like Roads, Drains, Water Supply, Electric Infrastructure and sanitation. The Supply and demand gap has also led to encroachments on River and Nallah Banks and other state lands including green belts and water Bodies.

To start with, the SDA has initiated acquisition of 4200 kanals of Rakh land in Village Rakh-Gund-Aksha which has been transferred by Government to SDA but the land is under the possession of kamas for which the SDA has to pay compensation to kamas. The payment of compensation /improvement charges to kamas has been started and Rs. 190.00 Lakhs has already been disbursed. Development of Township in Rakh-Gund-Aksha by involving Joint sector have been initiated and the modalities for development of this township on most modern lines are being worked out.

As many as 11000 families have been and are scheduled to be displaced from Dal Lake to 5000 kanals of land of Rakh-e-Arth Housing Colony for which the Central Government has sanctioned Rs 356 crore for the rehabilitation people affected.

Consequent upon the displacement, it was revealed during the field study that the habitations wherein they are rehabilitated are dilapidated and are lacking almost all basic amenities. They more look like slums or urban villages. The concentration of a large number of people in these areas has raised concerns for sanitation and bacteriological contamination of surface and groundwater. The standard solution is the construction of pit latrines.

Their displacement and its humanitarian consequences have created short and long-term developmental impacts affecting human and social capital, economic growth, poverty reduction efforts, and environmental sustainability and societal fragility. The elderly claim to have particular difficulty adjusting to new location. They have particular difficulty adjusting to new surroundings and establishing new social ties. Residents with mobility limitations, such as persons with disabilities and low-income individuals, are finding it difficult to meet daily needs due to the loss of facilities and services they depend on. These individuals also tend to have greater reliance on community-based social networks. The social and psychological impacts of relocation to a community facility can be significant. Many community facilities are supported by and supportive of specific neighborhoods. Relocation out of those neighborhoods can remove the reason for some community facilities to exist. The displaced people even claim to have lost their identities.

4.8. Changing Dimensions of Environment

Also at present the City is going through the process of rapid urbanization accompanied with the problems of haphazard expansion, depressing services and utilities, lack of amenities, traffic chaos, environmental problems of pollution and eutrophication of wet lands and water bodies. Explosive growth in human population in Srinagar City has also caused a number of serious problems like, overcrowding, poverty, increasing consumption, encroachment on monuments, stress on common social facilities, stress on civic services etc. Over population has caused severe stress on civic services. It has excessive load of work on bodies providing civic services. As a result, those services have become unable to perform properly. On the other hand, many people in our societies have lost civic sense. Some of them drop their domestic wastes (including plastics) into drains or throw away garbage on roads. Some persons draw most of the supply water through electric pumps and all the other inhabitants of the area go without water.

The city is also lacking comprehensive sewerage and drainage system and beset with the problems of water scarcity in plenty. These problems have been further accentuated due to unprecedented migration from hinterland which has put

tremendous pressure on infrastructure, housing, traffic and transportation and services. The growing population has significantly altered the land use and land cover of the area. According to census report, the population of Srinagar city was 122618 in 1901 which increased to 403413 in 1971 to 971357 in 2001.

The city which had balanced land use consisting of forest, water bodies, wet lands, rich agricultural land, kerawas, mountains, hillocks and built-up area, used to attract a variety of birds in large number. Wet-lands used to provide an important function of regulation of water regimes especially during floods and habitats of characteristic plants and animal communities. Many wild life species also depend on these water bodies for their survival. These wet lands Rakh-i-Nowgam, Rakh-i-Suthu, Rakhi-Narkara, Rakh-i-Gandakh Shah, Rakh-i-Arat, Rakh-i-Palpora, Rakh-i-Rabitar, Rakh-i-Mirgund, Rakh-i-BrariNambal and KhushalSar have been threatened either by explosive spread of obnoxious weed growth, increasing pollution load or due to indiscriminate discharge of domestic effluents and run-off from agricultural fields. Besides, this rapid urbanization has also taken its toll in the form of accretion into these wet lands by way of filling and have given rise to virtual slums due to sub-standard living condition. These have attracted lower sections of the society due to low land values. Not only this, these areas get inundated by frequent floods causing damage to property and human life.

Dal Lake and Nagin Lake which has reduced from around 36 sq.kms to around 12.5 sq.kms on account of sewage, drainage, garbage disposal, siltation due to soil erosion, agricultural run-off and deforestation of catchment area. The process of shrinkage has further accelerated by the growth of floating gardens and construction of houses in and around the lake. All this has increased the process of eutrophication of the lakes and has put the very existence of these water bodies and aquatic life in an obvious danger of extinction. The situation regarding Anchar Lake, River Jhelum, Doodh-Ganga River is no different.

River Jhelum rises from a beautiful spring called Verinag south east of Srinagar city. It drains the whole of the study area while flowing diagonally in south east to North West direction. It is spread over 454 hectares of the study area. Jhelum had numerous

tributaries which included Kuth-i-kol, Tsont-i-kol, Mar or snake canal etc. the river Jhelum is also under urban anthropogenic pressure and there are evidences of deterioration in water quality. BrariNambal is located about 2 kms in the north of LalChowk. Its northern part constitutes of water while its southern part was inundated with the marshy lands. The lake was spread over 77 hectares, consisting of 21 hectares water body and 56 hectares of marshy area. Rakh-i-Gandakshah is located about 7 kms from the city center in the western part of the study area where presently Bemina and KhumaniChowk exists. The area under this marsh was 494.5 hectares in the year 1971 and up to the year 2008 it got completely transformed to other land uses.

Water bodies have suffered degradation in both the area as well as in the quality of water, whereas marshy areas have been converted either into built-up land or floating vegetable gardens and floating gardens. The total area under water bodies was 2 145.5 hectares in 1971, which decreased to 1895 hectares in the year 2008 i.e., decreased by 250.5 hectares, losing its area to agriculture (148 hectares), marshy (92 hectares) and others (3 hectares). whereas, water bodies gained area from marsh (35 hectares). Similarly, Marshy area has decreased from 1667 hectares to 468.5 hectares during the study period, recording a decrease of 1198.5 hectares, it lost area to agriculture (1081.5 hectares), plantation/orchards (108 hectares), residential (77 hectares), others (49 hectares) and water body (35 hectares).

Table 4.6

Causes and consequences of transformation of water bodies and marshy areas in Srinagar.

Nature and location of Transformation	Area transformed (1971-2008)	Main activities	Impacts
<p>Water body to Agriculture:</p> <ul style="list-style-type: none"> • West of Dal Lake: adjoining Hazratbal (25 hectares) • Rainawari (40 hectares) • Lokut Dal (83 hectares) 	148 hectares	<p>Illegal encroachments of the lake area and practicing of agricultural activities especially, floating gardens producing mainly vegetables.</p>	<p>Shrinking of the Lake, sedimentation and pollution.</p>
<p>Water body to Marshy:</p> <ul style="list-style-type: none"> • East of Dal Lake (58 hectares) • Gagribal (17 hectares) • Lokut Dal adjacent to Gagribal (10 hectares) • Brarinambal (7 hectares) 	92 hectares	<p>Effluents from houses, hotels, restaurants and especially the house boats lead to over growth of dense weed.</p>	<p>Conversion of Water body to Marsh.</p>
<p>Water body to plantation:</p> <ul style="list-style-type: none"> • West of Nigeen Lake 	7 hectares	<p>Tourist related activities</p>	<p>Shrinking along the western side of the lake</p>

<p>Marshy to Agriculture:</p> <ul style="list-style-type: none"> • Both in Lokut and Bud Dal basins in West of Dal Lake (621 hec-tares) • Dal Lake adjoining to Jogilankar (15 hectares) and Rainawari (12 hectares) • Rakh-i-Gandakshah-Bemina(198 hectares) • KhumaniChowk (243.5 hectares) 	<p>1081.5 hectares</p>	<p>Marshy lands are filled to convert into floating gardens to produce crops and vegetables.</p>	<p>Complete conversion of Marshy areas to Agriculture, leading to water logging and flooding.</p>
<p>Marshy to Plantation/Orchard:</p> <ul style="list-style-type: none"> • Southern Khuhalsar (33.5 hectares) • In Rakh-i-Gandakshah (34 hectares) • Lokut Dal (24.5 hectares) • BrariNambal (16 hectares) 	<p>108 hectares</p>	<p>Urban forestry</p>	<p>Significant area under marsh got shrunk leading to water logging and flooding.</p>
<p>Marshy to others:</p> <ul style="list-style-type: none"> • Rakh-i-Gandakshah (29 hectares) • Some patches in the west of Dal Lake at Hazratbal (20 hectares) 	<p>49 hectares</p>	<p>Conversion into built-up land</p>	<p>Complete transformation of marshy area leading to extinction of this marsh</p>

Water body to Agriculture: During the study period 148 hectares of area under water was transformed to agriculture. The significant transformation of water bodies to agriculture has been observed in the west of the Dal Lake, the area adjoining to the Hazratbal (25 hectares), Rainawari (40 hectares) and in the southern part or Lokut Dal area of Dal Lake (83 hectares). Here the Dal dwellers (Hanjis) have illegally encroached upon the lake area and practicing various agricultural activities especially, floating gardens producing mainly vegetables. This vegetable cultivation is to cater the city demand, which is also crucial to city economy as an estimated vegetable worth 35 crores are produced and supplied from these floating gardens every year.

Water body to Marshy: The Srinagar city has observed 92 hectares of area under water was transformed to marshy lands. This transformation was mainly along the eastern part of Dal Lake (58 hectares), some scattered patches in Gagribal basin (17), adjoining Lokut Dal basin (10 hectares), where rapid undergrowth of weeds, especially the recent grown up weed *AzollaPinnata* has converted the water into dense marsh. This growth of weeds was mainly because of various nitrogen and phosphorous effluent discharge from houses, hotels, restaurants and the house boats. Also this type of conversion has been experienced in the BrariNambal water body (7 hectares) where people have illegally converted water into floating gardens.

Water body to Plantation and Orchard: This transformation has been observed on the east and the west banks of the Nigeen Lake where 7 hectares of water area has been converted into plantation.

Marshy to Agriculture: The Srinagar city has witnessed large scale land transformation of shallow marshy area. The Srinagar city has lost 1081 hectares of marshy area to agricultural lands. This transformation was prominent at Bud and Lokut Dal region of western Dal Lake (621 hectares), some patches in Nigeen Lake, and Dal waters adjacent to Jogilankar (15 hectares) and Rainawari (12 hectares) etc. Here marshy area was converted into the Floating/vegetable gardens (Rad) by the boat man people (Hanjis) of the lake which is the major source of their income. Similarly, Rakh-i-Gandakshah marsh at Bemina (198 hectares) and KhumaniChowk

(243.5hectares) in the west of Srinagar got completely converted into agricultural land because this is a leveled plain with good road accessibility.

Marshy to Plantation and Orchard: The Srinagar city has recorded 108 hectares of marshy land transformed plantation and orchard class. This was mainly in the south of Khushalsar Lake in the north (33.5 hectares), south of Rakh-i-Gandakshah (34 hectares). Some patches have also been transformed in Lokut Dal area of south Dal Lake (24.5 hectares) and 16 hectares in BrariNambal.

Marshy to others: Marshy land got also transformed to other class i.e. Educational, Governmental, Hospital and Religious class mostly, in the west of the study area at Bemina (29 hectares) and in the west Dal Lake (20 hectares).

The water bodies of Srinagar city are important landscapes of the city because they are not only tourist attractions but are embedded with city's economic, social and cultural existence. These water bodies are also crucial for ecological balance of the city. The present study reveals that the expansion of Srinagar city and land transformation therein has severely affected the aerial extent of water bodies as well as the quality of water. The noticeable impacts and their consequences are as follows:

Settlements around water bodies: The water bodies of Srinagar city is experiencing mushrooming of settlements around the water bodies. The prime victim of this trend is Dal Lake which is being occupied by people for residence and over the years it has expanded as well as became denser. At present Dal lake provides shelter to about 50 hamlets with a population of over 50 000 people, who have property rights over 300 hectares (6000 kanals) of agricultural land and 670 hectares (13400 kanals) of water area. Besides this, a large number of commercial and residential buildings such as hotels, guest houses and restaurants have sprung up in and around the Dal Lake. These settlements spill all their wastes into the lakes. This results in increasing levels of pollution because of the ingress of untreated sewage and solid waste from the peripheral areas and from the ham-lets into the lake resulting in sedimentation and excessive weed growth. Moreover, reduction and clogging of water channels within the lake because of encroachments leads to reduction of fresh water inflow into the lake.

In an attempt to restore the water and marshy land, another problem these people face that live near or in these water bodies is displacement or forced displacement by government authorities or by many illegal constructions for economic purpose. So it create choke in domestic life of these people. As they have some different type of culture than those who live on the land. By this activity many lose their jobs and even some lose their business, so it put impact on their economic activity. And on other side it put negative effect on social relationship, it loosen social kinship this type of society have in their own environment they have in water bodies societies. The places where they were shifted and the people those who live before these people have drift between each other. One class of society thought they are better than those who were settled their by the authority. So it disturbs both social and economic life of these people and with that there is also pressure on environment and environment related problems as water is essential for sustainable life on this part of the world. Displacement inevitably imposes "physiological, psychological and socio-cultural Stress", Relocation can be a death sentence to a community. Even where planning is effective, some (especially the aged) will never come to terms with their new homes. For them, the transition period ends only with death.

4.9. Increase in traffic

Srinagar city is characterized by radial pattern of development and the transportation corridors have primarily been responsible for the development of certain areas as compared to others. Transportation infrastructure is grossly inadequate to cater to the present intensity of traffic and most of the street system including major arterial network has a level of service which is far below the prescribed standards. Traffic congestion is most acute in this city and inadequacy of pedestrian facilities compound the problem of traffic congestion due to increased traffic conflict. Inadequacy of accessibility of traffic infrastructure has resulted in the obsolescence of the core city and hence stagnation. There are clear distortions in the hierarchy of the transportation network and the absence or lack of grade separators, intra-city terminals and parking facilities have resulted in the overstraining of deficient infrastructure.

Srinagar city is connected with Jammu and rest of India. National Highway - 1A connects Ambala to Srinagar via Jammu. Srinagar is also well connected by air and laying of railway track is in progress. Transportation system of Srinagar city is characterized by radial form of development with East-West and North-South corridors forming major radials and National Highway Bypass is the only bypass. 43% of the arterial and sub arterial road network within the town has carriage way width less than 7.0 m. 32% of the road length has carriageway width of 7.0 m, while 25% of the road has carriage way width of more than 7.0 m. Share of goods vehicles and slow moving vehicles is low, while the passenger fast moving vehicles including cars, van / taxis, auto rickshaws, Mini Bus and two wheelers are predominant modes of transport.

Srinagar city seems to burst with the volume of traffic which is increasing day after day. With easy finance available to people, the regional transport office in this city is about to register around two lakh vehicles in this city. According to official statistics of police, the vehicle population in Kashmir in the year 2005 was 1, 23, 319 and in year 2009, it gained 27% increase in three years and reached up to 1, 56,991. While till march 2010, the amount of vehicles touched the margin of 2, 77, 198, which shows an increase of 76.56% of vehicular population only in a single year. The vehicle population according to the official data of the Regional Transport of Kashmir has now reached more than three lakh as on 31st March 2011, an increase of 11% which is an overall increase of 38% in these five years.

For the past several years, the traffic volume in the Srinagar city has increased manifold. There is almost steeping increase in commercial as well as non-commercial vehicles. Within the municipal limits of Srinagar city, there were more than 48,000 non-commercial vehicles registered with the regional transport office, Srinagar, almost a year before. Similarly, the light motor vehicle and two wheelers are fast approaching to mark the one lake in numbers during the same period. The minibus services which are the main component of the public transport of the city constitute only 8 percent of the total traffic volume. And the passenger vehicles-Human population ratio is 1:144. Apart from this, there are almost 12,000 auto rickshaws plying in the city. 59 percent of the 71048 commercial vehicles ply through LalChowk, 63 percent of 2,06,150 non-commercial travels to the city centre, 66 percent of the 5794 ambulances operate via

city centre, 54.19 percent valley's total 6237 minibuses take the same route, 60.93 percent of the 79,243 cabs zoom past Lalchowk. This is not the end here. According to the data released by traffic police department, there are about 40 percent of taxis including Sumos out of total 14299 ply in Srinagar's main city. When the restriction period is over, 31 percent of the 5642 tractors, 50 percent of the 1245 tippers and 62.09 of the 18,187 trucks registered in the Valley ply past the City centre during the early morning and the late night hours. Besides, the other heavy duty vehicles plying in the Valley, the City centre bears the peak load, that is, 74 percent of the 150 platforms, 78 percent of the 1,244 Tankers and 100 percent of the registered 53 trolleys take main city's route.¹⁰⁷

As Srinagar continue to become more dispersed, the cost of building and operating public transportation systems increases. An urban area are spreading and is associated with a number of negative environmental and public health outcomes, with the primary result being increased dependence on automobiles. Srinagar city is locations having a high level of accumulation and concentration of economic activities and is complex spatial structures that are supported by transport systems. The most important transport problems are often related to inner urban areas and take place when transport systems, for a variety of reasons, cannot satisfy the numerous requirements of urban mobility. Urban productivity is highly dependent on the efficiency of its transport system to move labor, consumers and freight between multiple origins and destinations. This increased traffic in Srinagar has largely contributed towards following issues:

Increase in traffic and traffic related mortalities: A heavy reliance on automobiles increases traffic throughout the city as well as automobile crashes, pedestrian injuries and air pollution. Motor vehicle crashes are the leading cause of death between the ages of five and twenty four and is the leading accident-related cause for all age groups. Residents of more extensioning areas are at greater risk of dying in a car crash. The vehicular traffic have increased manifold in Srinagar city and there is no traffic planning in place. The irony of the fact and lack of scientific and environmental

¹⁰⁷ *Traffic information of traffic police department in 2010.*

knowledge to our administration have led to a very dismal traffic scenario. In Delhi where Euro-II and III emission standards are in force and cars without EURO emission standards are not registered in NCR. The old vehicles, rejected by Delhi traffic registration authorities are being purchased by the State and run on our roads creating emission of obnoxious gases. This is responsible for many health related problems in the state, particularly respiratory diseases and bouts of asthma attacks to the kids of city. It also creates obesity and hypertension. Presumably living in a car centered culture forces inhabitants to drive everywhere, thus walking far less than their urban (and generally healthier) counterparts.

Decrease in both Land Water Quantity and Quality: Due to the larger area consumed by spreading suburbs compared to urban neighbourhoods, more farmland and wildlife habitats are displaced per resident. As forest cover is cleared and covered with concrete in the suburbs, rainfall is less effectively absorbed into the ground water aquifers. This threatens both the quality and quantity of water supplies. Spread of city increases water pollution as rain water picks up gasoline and oil runoff from parking lots and roads. Extension of urban areas led fragments in land which increases the risk of invasive species spreading into the remaining forest.

Increased Infrastructure Cost: Living in a larger, more spread out space makes public services more expensive. Since car usage often becomes endemic and public transport often becomes significantly more expensive, city planners are forced to build large highway and parking infrastructure, which in turn decreases taxable land and revenue and decrease the desirability of the area to such structures. Providing services such as water, sewers and electricity is also more expensive per household in less dense areas.

Increase in Personal Transportation Cost: Residents of low density areas spend a higher proportion of their income on transportation than residents of high density areas. This is also increase by banks and other agencies which provide loan to the people on easily schemes. In colonies it has become passion to keep more and new models of cars. Even one car was sufficient for one family but there are separate car

for almost every members of the family which has increase cost of transport per person more than people living in the other parts of the city.

Traffic blocking and parking difficulties: Congestion is one of the most prevalent transport problems in large urban agglomerations. It is particularly linked with motorization and the diffusion of the automobile, which has increased the demand for transport infrastructures. However, the supply of infrastructures has often not been able to keep up with the growth of mobility. Since vehicles spend the majority of the time parked, motorization has expanded the demand for parking space, which has created space consumption problems particularly in central areas. The spatial imprint of parked vehicles is significant.

Longer commuting: On par with congestion people are spending an increasing amount of time commuting between their residence and workplace. An important factor behind this trend is related to residential affordability as housing located further away from central areas (where most of the employment remains) is more affordable. Therefore, commuters are trading time for housing affordability. However, long commuting is linked with several social problems, such as isolation, as well as poorer health (obesity).

Civic transport inadequacy: Many public transit systems, or parts of them, are either over or under used. During peak hours, crowdedness creates discomfort for users as the system copes with a temporary surge in demand. Low ridership makes many services financially unsustainable, particularly in suburban areas. In spite of significant subsidies and cross-financing (e.g. tolls) almost every public transit systems cannot generate sufficient income to cover its operating and capital costs.

Difficulties for pedestrians: These difficulties are either the outcome of intense traffic, where the mobility of pedestrians and vehicles is impaired, but also because of a blatant lack of consideration for pedestrians in the physical design of facilities.

Loss of public space: The majority of roads are publicly owned and free of access. Increased traffic has adverse impacts on public activities which once crowded the streets such as markets, agoras, parades and processions, games, and community interactions. These have gradually disappeared to be replaced by automobiles. In many

cases, these activities have shifted to shopping malls while in other cases, they have been abandoned altogether. Traffic flows influence the life and interactions of residents and their usage of street space. More traffic impedes social interactions and street activities. People tend to walk and cycle less when traffic is high.

Environmental impacts and energy consumption: Pollution, including noise, generated by circulation has become a serious impediment to the quality of life and even the health of urban populations. Especially the schools that are located in urban areas faces this problem at alarm rate. Further, energy consumption by urban transportation has dramatically increased and so the dependency on petroleum.

Land consumption: The territorial imprint of transportation is significant, particularly for the automobile. Between 30 and 60% of a city area may be devoted to transportation, an outcome of the over-reliance on some forms of urban transportation. Yet, this land consumption also underlines the strategic importance of transportation in the economic and social welfare of cities.

Automobile Emission:Automobiles emissions are those emissions which are emitted by motors vehicles into the air in large quantities' in the form of gaseous volatile compounds and particulate matter. These emissions include CO₂, Hydrocarbons, NO and toxic substances like lead. Each of these can cause adverse effects on health and environment because of the growing vehicle population and the high emission rates. Serious air pollution problems have been increasingly common phenomenon in modern life. Until recently most of the air pollution problems were considered local in nature, but over the last three decades the evidence of such problems has increased. Some of the most serious impacts may be over physical and biological environment over long periods of time with the effect for remote from the sources.

4.10.1 Sanitation

Society as whole as well as the individual's health and hygiene are largely dependent on an adequate availability of drinking water and proper sanitation. There is therefore, complete relationship between health, water and sanitation. Unsafe drinking water, improper disposals of human excreta and improper environmental sanitation are the main cause for the spread of communicable diseases.Srinagar City ranks at 420 among

the 423 cities of the country in Sanitation thereby achieving the distinction of being the 4th dirtiest city of India as per the recent survey conducted by the Urban Development Ministry.

All the very high income household¹⁰⁸ category have latrine facilities inside their houses and all have flush Latrines. 89.11% of the High and 82.33% of the Medium Income category have latrine inside the house. 10.89% of the Very High Income category and 17.67% of the High Income category have latrine facility in the courtyards. The city under study has 81.91% of the total household latrines inside their houses whereas 18.08% still has latrine facility available in the courtyard. The condition of the Low Income category is affected the most as only 69.12% households have latrine facility available inside their houses and 30.88% still uses latrine facility of the courtyard posing a great threat to the population of the area especially Children and women as the area is politically very unstable compared to other states of the country. The normal life of the people usually comes to a halt after 7.00 P.M. due to the unrest in the area from late 80's.

4.10.2 Sewerage

Srinagar, the city of lakes and wet lands had no underground sewerage system till nineteen sixties except in few areas. Besides this, only houses of few elite and some institutional buildings had their septic tanks. Rest of the city had country type disposal system with human waste directly going into underground trenches into different nallah or water bodies. Though UEED department has charted out a comprehensive sewerage disposal plan but unfortunately this has been implemented in compartmentalized or segmented manner with the result city is facing problems of acute sewage disposal. With the growth of population and spatial spread problems of sewerage are assuming challenging proportions due to unprecedented growth of residential colonies on hill slopes and in the low-lying areas of the city, sullage water drains into the precious water bodies including the Dal, the Nagin, the Anchar and the

¹⁰⁸R. A. Wani and V. P. Khairkar. *Socio-Economic and Quality of Life of Srinagar City*, Journal of Arts, Science & Commerce, Vol.– II, Issue –2, April 2011, p. 123-139

Marshy and Wet Lands which not only threatens the survival of these ecologically sensitive areas but also generate a number of health disorders.

4.10.3 Drainage

Though 85.13 per cent of the Very High Income¹⁰⁹ category has drainage system but 37.89 percent of the households are not satisfied with the current drainage system. 81.17 per cent of the High Income group and 77.14 per cent of the Medium Income category has drainage system but the drainage system of the Low Income group is again affected the most. Though 71.39 per cent of the total households of the Low Income group have drainage system but 59.79 percent of the drainage system in this category is not in a proper condition. Similarly the drainage system of the medium income group has bad drainage system due to frequent blocking and chocking of the drainage system. It is therefore clearly evident that the most of the households in the Very High Income category has drainage system but 37.89 per cent is not in a proper condition due to narrow drainage system leading to frequent choking and blocking especially during the rainy season. The condition is worse in Medium Income category and Low Income category as 48.60 per cent in the Medium Income category and 59.80 per cent of the Low Income category have bad drainage system. Overall 22.10 per cent of the Srinagar city is devoid of any drainage system thereby flooding the area during rainfall and lead to water logging. Therefore, amelioration in the drainage system is required for the proper disposal of water from the households.

The situation in old and civil line parts of city where facilities of surface drains have been provided, sullage waters are directly disposed into these drains where from it is draining either directly in River Jhelum and other Khuls or disposed into deep drains, which gets finally drained into different water bodies without any treatment. With the result almost entire interior city population besides living in polluted residential environment, pollutes the river Jhelum and other Khuls. Even though UEED established the two major treatment plants in the city one at Baba-Demb and another at Allochibagh, former has been made functional while another one is not as yet

¹⁰⁹R. A. Wani and V. P. Khairkar. *Socio-Economic and Quality of Life of Srinagar City*, Journal of Arts Science & Commerce, Vol.– II, Issue –2, April 2011, p. 123-139

functioning as a result whatever sullage is collected from these parts of the city is still disposed in raw form without treatment.

It has been estimated that considering the water supplied by the PHE Department about 80 per cent of water return back as sullage and which accounts 40 million gallons is directly draining into different water bodies, wet lands and depression which has declined their health and threatened their survival.

City's topography and landform are such that in the absence of comprehensive sewerage and drainage system, city's surface drainage is draining into nallah, lakes, rivers or ditches. Thus, the scenario pertaining to the nature of drainage disposal also presents a dismal picture.

The construction of residential, commercial, and institutional establishments as well as the construction of the embankment for the highway bypass, results in disturbance of natural drainage pattern which led to the problem of water logging especially during rainy and winter season. There are about 50 existing drainage schemes having about 119 km of primary and secondary storm water drains¹¹⁰.

4.10.4 Solid Waste

Quite often due to insufficient conservancy services in the city garbage is seen littered on the road sides, open spaces and is even dumped in water bodies leading to unhygienic living environment in the city. In most of the areas of Srinagar solid waste is manually collected in two stages - initially from streets, lanes and bye-lanes in the absence of garbage bin to any place which is generally an open area, road side or at few places garbage dump, then it is taken in load carrier or tractors to land fill sites for final disposal. Usually due to delay in disposal of waste these sites become public nuisance city.

Estimated quantity of solid waste generation in Srinagar is 450 grams per capita per day. Taking March 2006 populations as 1.035 million, the total quantity of municipal solid waste (MSW) generated in Srinagar in 2006 was 467 MT. During peak tourist

¹¹⁰ Jammu and Kashmir *Urban Sector Development Investment Program — Srinagar City Parking Subproject*, Economic Reconstruction Agency Government of Jammu and Kashmir for the Asian Development Bank. April 2012

season of summer, these figures increase by 3 to 4 percent due to garbage generated by tourists. It is estimated that less than 50% of waste is collected and disposed at the dumping site at Achan, Srinagar. The total solid waste generated in 2009 in the Srinagar city, including those from the fruit and vegetable market was 680 tons/day i.e. about 0.5 kg/head/day. The existing picture about the waste disposal facilities in the city is reflected below table 4.7.

Table 4.7
Solid Waste Management

Solid Waste	2001	2011
Average generation (tons/day)	390	511
Average collection (tons/day)	234	260
Disposal methods for solid waste	Open dump	Open dump & Dumping on Sanitary Land fill
Percentage of households having access to regular waste collection service	23	31
Monthly Amount charged by local bodies for solid waste collection		Rs.30 to Rs.500 (Ranging from residential to commercial areas)
Source: Srinagar Municipal Corporation		

Table 1.17 reveals that city generates about 511 MT of solid waste per day while as around 260 MTs is being collected every day which is around 50 percent of the generated waste. Only 31 percent of the inhabitants of Srinagar city have access to the

facility of regular solid waste collection which is too less even though having increased from 23 percent in 2001 to 31 percent in 2011.

If we build new developments in the countryside as is happening in Narabal area and has already happened at Humahama in the airport side, it brings umpteen environmental problems with it. The Humahama locality will definitely pose a grave threat of birds to the airport because the solid waste will lie unattended and without any treatment. Furthermore new schools and other infrastructural needs like roads, shops etc. have come up, that in turn will take up more land. With less countryside, towns and villages start blending into a continuous urban extension that leads to the breakdown of communities and accompanying social problems. The solid waste disposal site at Achan is a nuisance for the population who are living in its vicinity and for the municipal authorities who are not managing it scientifically as per the guidelines of the Solid Waste Management and Handling Rules 1998¹¹¹ issued under the Environmental Protection Act 1986 by the Ministry of Environment and Forests, Government of India.

4.10.5 Public Toilets in Srinagar City

Although public toilets count among the essential services meant for the citizens, however, with the increase in the population of Srinagar city, the number of these toilets has decreased. As per the information given in table 4.8 there were only 91 toilets available in 2011 for the whole population of Srinagar and to those who on daily basis visit the city which accounts for millions of people.

¹¹¹R. A. Wani and V. P. Khairkar. *Socio-Economic and Quality of Life of Srinagar City*, Journal of Arts, Science & Commerce, Vol.– II, Issue –2, April 2011, p. 123-139

Table 4.8**Public Toilets in Srinagar City**

S. No	Description	Srinagar Municipal Corporation	
		2001	2011
1	Number of Public Toilets	112	91
2	Average users per day	14000	8500
3	Average Expenditure of maintenance	Rs 30,000	Rs. 50,000
		SulabhSauchalaya	
1	Number of Public Toilets	Nil	13
Source: Srinagar Municipal Corporation			

All the very high income household category have latrine facilities inside their houses and all have flush Latrines. 89.11% of the High and 82.33% of the Medium Income category have latrine inside the house. 10.89% of the Very High Income category and 17.67% of the High Income category have latrine facility in the courtyards. The city under study has 81.91% of the total household latrines inside their houses whereas 18.08% still has latrine facility available in the courtyard. The condition of the Low Income category is affected the most as only 69.12% households have latrine facility available inside their houses and 30.88% still uses latrine facility of the courtyard posing as great threat to the population of the area especially Children and women as the area is politically very unstable compared to other states of the country. The normal life of the people usually comes to a halt after 7.00 P.M. due to the unrest in the area from late 80's.

4.11. Drinking Water Facilities:

The source and supply of water constitutes one of the significant components of urban services. In the past, people of Srinagar were using the waters of lakes, rivers and different khuls and canals for domestic purposes. It was in 1894 A.D when piped water supply was for the first time introduced in some parts of the Srinagar City during Dogra Rule.

A study¹¹² reveals that within the city distribution of water supply is more or less even. Most of the surveyed households have regular state of water supply amounting to 68.52 per cent. Very high income category has the highest regular state of the water supply amounting to 82% whereas the low income section has only 55.62% regular state of water supply. As far as the quality of the water is concerned in the area surveyed, it is mostly average or poor for all the income groups in the area. For the very high income category, 53.83% of the households have average or poor quality of water supplied. High and Medium income category groups have 41.13% and 44.31% good quality of water available respectively. The Low income category has 39.22% good quality of water available and 60.78% is supplied with poor or average quality of water. The quality of water is more or less the same in all the income groups of the city under study.

Safe drinking water and its supply is one of the basic amenities of life as well as the key programmes of our developmental plans. Its necessity and importance for human population can be described next to air. Water supply programme in the state is being funded mainly out of the state resources and partly under CSS. To provide proper water supply to the people of Srinagar city and adjacent areas various sources has been identified and developed. The table 4.9 shows the water supply for the Srinagar city from various sources.

¹¹²Ibid.p. 123-139

Table 4.9**Sources of Water supply available**

S. No	System	Source	Type	Total
01	Nishat	DachigamNallah	Gravity	15.00 MGD
02	Alusteng	Power Canal (S.E. Canal)	Gravity	6.80 MGD
03	Doodganga	DoodgangaNallah	Lift	7.75 MGD
04	Rangil	Power Canal (S.E. Canal)	Gravity	20.00 MGD
05	Pokhribal	Nagin Lake	Lift	4.00 MGD
06	Tube wells	Various	Lift	0.49 MGD
Source: Master Plan of Srinagar 2000-2011				

To ensure efficient water supply to Srinagar city, three sub-divisions of Public Health Engineering Department have been created. As per the official records, whole city receives water through piped water supply. No other source is available to the common people. Besides throughout the decade of 2001-11, the supply has been constant i.e. 36.92 mgl although there has been remarkable increase in the population. However, Safe drinking water supply system to the Srinagar city has been under tremendous pressure all the time. The system has definitely undergone expansion but the supplies have all along lagged far behind the demand. Srinagar city is expanding in every direction. New colonies have come up and the existing system which is old aged needs improvement due to tremendous urban extension. It has created immense pressure on the basic life amenities and the drinking water is the basic necessity.

The shortage of supply of drinking is also due to number of new construction of hotels, guest house, commercial mail, and other different structures that requires a lot of amount of water for construction purpose as well as to maintain it. As they store a

huge amount of water in their tanks for use and these constructions now mainly done in new place that are either close to residential areas or within it. As the trend in urban areas change with the changing pattern of economic life's of the urban areas.

People living in areas without access to safe and adequate water, basic sanitation and lack of Hygiene¹¹³ are mostly prone to various diseases. Table 6 clearly depicts that 76.36 per cent of the surveyed households store household waste in closed containers. The Very High Income category with 100 per cent storing household waste in closed containers has hygienic conditions at home. Nearly 42.17 per cent of the Low Income category reported of disposing household waste in open containers increasing the breeding ground of flies and mosquitoes which ultimately affect the health of the family. The High Income category is still stable with 84.11 per cent disposing the household waste in closed containers 73.73 per cent of the Medium Income category dispose the household waste in closed containers.

The site of the disposal of the household waste is uneven especially with respect to low income category. The survey reveals that 33.59 per cent of the household dispose waste on the roads or in the neighboring plot. The Very High Income category dispose 83.10 per cent in the Municipal dustbin and 16.9 per cent dispose it in on the roads or neighbouring plot. But, the condition of the Low Income category again draws attention as 50.87 per cent dispose household waste in the neighbouring plot or on the roads. The High Income category has 75.13 per cent households disposing the household waste in the municipal dustbin. Not a single household from the Very High Income category dispose household waste in the neighbouring plot but still 16.90 per cent of them dispose the household waste on the road side.

Other environmental issues which have subsequently developed in Srinagar City are briefly summarized as follows:

Dilapidated Land: In Srinagar City stone quarrying and earth excavation for brick kilns is carried out at a number of places. The stone quarrying carried out in Harwan, Panthachowk, Athwajan and Zewan areas are rendering the precious hill slopes non-usable besides leaving behind degraded land. The brick kiln areas which were initially

¹¹³ Ibid p. 123-139.

concentrated in the south of the city in Lasjan and Sumberbug areas have left behind huge chunks of land as non-usable and derlict land. This area is not fit for agriculture use because it remains water logged. The scattered abandoned brick kiln in the areas has further deteriorated/added to the problems of derliction of land. As a result of incessant floods, brick kilns have been mushrooming indiscriminately on the Karewas of south and south-east in Chadura and Badgam areas. If this activity is not regulated and controlled, it may have dangerous consequences on the ecology of the area.

Agriculture Deficit: Srinagar has more than 62227 farms operating families, having an average holding size 0.36 hectares spread over in 320 villages. Against the total reported area of 51000 hectares, only about 24000 hectares are available for bringing under cultivation per season. Irrigated area - available for cultivation of major crops is 17200 hectares Paddy and Maize is grown on an area of 13000 hectares and 4600 hectares respectively; Pulses are grown on an area of 1700 hectares during Kharief and 1700 hectares during Rabi. Similarly, 5700 hectares are covered under fodder crops (both seasons). The total area covered under vegetable crops is about 4800 hectares during 2002-03. Needless to mention that popularizing oil seeds, pulses and fodder cultivation is the thrust area aimed at to achieving multiple cropping patterns in the District. The primary reasons for low yields are small average size of holding which the urban extension has brought with it due to land use change into mostly residential centres, adoption of primitive/obsolete agriculture crop production techniques, sustainability of major crop varieties to plant disease etc. Emphasis of the department is on improving productivity per unit, area and time by seed replacement, balanced fertilizer application, irrigation management on plant protection measures and increase in the per holding capacity. However this is becoming increasingly impossible due to huge concrete construction activities going on and migration from rural areas leading to urban extension.

Industrial Pollution: Though most of the industries located in major industrial estates in Srinagar are non-polluting and eco-friendly but some of the industries e.g. stone crushers which have come up in scattered manner in south and south-east have gradually declined the quality of environment. The undesirable environmental effects of these industries are noise, dust and dirt, vibration and aesthetic problems. The dust

pollution due to these industries has generated a number of health disorders among the residents living in their vicinity. The stone crushers located in the vicinity of residential areas and along National Highway need to be immediately relocated at some other appropriate places.

Water Pollution: In the absence of appropriate drainage and sewerage disposal system, city's effluents are directly or indirectly drained into various water bodies. The disposal of drainage and sewerage have assumed the challenging proportions due to rapid increase in population and coming up of unauthorized residential colonies in low-lying areas of Srinagar. It has declined the quality of water in these water bodies besides degrading environment and generating a number of health disorders. In addition to this, major parts of the solid wastes of the city are dumped at many places in the water bodies particularly the River Jhelum. The pollution of land due to drain of sullage into agricultural land has been found in Firdousabad and Mominabad areas along Bye-Pass road.

Air Pollution: Though in Srinagar, air seems to be more or less fresh and free from pollution, however, these are some pockets where incidence of air pollution have stemmed on account of vehicular emission and dust pollution. In Srinagar city, vehicular traffic is major contributor for air pollution. Automobiles contribute significantly to the noise pollution especially in congested areas such as crowded commercial areas and market places. Due to increasing number of vehicles, the noise pollution caused by them will soon reach alarming proportions. High level of noise pollution is created due to old age, poor maintenance and poor performance of the vehicles; narrow roads, poor geometrics, frequent jams and congestion aggravate the situation. The shortage of power coupled with unreliable and poor quality of power supply together with poor planning for the installations of generator sets and absence of acoustic treatment/enclosure, leads to excessive noise pollution. All these sources contribute significantly to noise pollution in the city in general and subproject area in particular. The table 4.10 shows the air quality of Srinagar city from 2009 to 2011.

Table 4.10
Air Quality of Srinagar City

SPM	RSPM	SPM	RSPM	SPM	RSPM
April 2009		May 2009		June 2009	
141.37	42.54	127.59	38.30	150.73	63.59
July 2009		August 2009		September 2009	
123.55	52.68	-	71.93	194.79	80.43
October 2009		November 2009		December 2009	
221.62	88.38	-	-	100.09	74.15
July 2010		August 2010		September 2010	
136	86	125	83	132	89
October 2010		November 2010		December 2010	
131.48	86.02	131.7	82.63	120.89	90.67
January 2011		February 2011		March 2011	
112.2	76.44	110.04	73.09	129.62	91.56
April 2011		May 2011		June 2011	
86.16	50.57	242.11	109.81	130.18	73.84
Source: State Pollution Control Board, Srinagar					

Energy and Environment: The nature and magnitude of energy consumption reflects the level of development as it is key input and main driving force of all economic activities. Contrary to the energy sources used in rural areas, use of more diversified both renewable and non-renewable sources are being used in the city. In the process of development a gradual conventional source of energy are replaced by environment friendly energy source which have, least problems of disposal and pollution. However, in Srinagar City which still encompasses in its jurisdiction a large number of village settlements and semi-urban areas use both traditional as well as commercial energy.

The City Development Plan under JNNURM Scheme reveals that In Srinagar about 12.71 percent population use wood, 8.58 per cent cow-dung, 1.63 per cent coal, while as 96.45 per cent use Kerosene and 45 per cent use liquefied petroleum. One of the significant findings of the study is that even if majority of the population acquire Kerosene and LPG through public distribution system, still 82.21 per cent use electricity as source of energy for domestic purpose. The study revealed that majority of the population in outer wards viz. Hazratbal, Nishat, Soura, Zonimar, Dal area, Satellite town and fringe villages use conventional sources of energy like wood and cow-dung that could be attributed to their rural characteristics where people still grow the wood for commercial and domestic energy purposes through agro-forestry practices. In the areas which are located at the foot hills of the mountains and hillocks deforestation is taking place which has become grave threat to already scarce forest resources and has generated number of ill-effects on the environment.

Noise Pollution: Automobiles contribute significantly to the noise pollution especially in congested areas such as crowded commercial areas and market places. Due to increasing number of vehicles, the noise pollution caused by them will soon reach alarming propositions. High level of noise pollution is created due to old age, poor maintenance and poor performance of the vehicles; narrow roads, poor geometrics, frequent jams and congestion aggravate the situation. The shortage of power coupled with unreliable and poor quality of power supply together with poor planning for the installations of generator sets and absence of acoustic treatment/enclosure, leads to excessive noise pollution. All these sources contribute significantly to noise pollution in the city in general and subproject area in particular. The ambient noise levels along

these sections are observed to be higher than the permissible limits that may be attributed to frequent traffic jams by road flooding and blowing of horns. At these locations traffic volume is quite high and the areas are crowded with commercial and other activities.

4.12. Influence of Tourism

Tourism holds a significant position in altering the various dimensions of environment. The quality of the environment, both natural and man-made, is essential to tourism. However, tourism's relationship with the environment is complex. It involves many activities that can have adverse environmental effects. Many of these impacts are linked with the construction of general infrastructure such as roads and airports, and of tourism facilities, including resorts, hotels, restaurants, shops, golf courses and marinas. The negative impacts of tourism development can gradually destroy the environmental resources on which it depends.

Every year there is increase in number of tourists both national as well as international. As per the available data, in 1951m 1059 visitors entered the state in which 1246 were foreign visitors. This figure inclined to 24,455 in 1961 and to 184,790 in 1975 which shows nearly an eight times increase in the arrival of the tourists in the state between 1951, 1961 and a double presence in the subsequent decade. There were 222,214 foreign visitors in the year 1975.¹¹⁴ There was always increase in the tourists as new place were founded and new sites were open for their attraction. It is pertinent to mention here that people of Kashmir also opt for leisure and tourist activities within the Srinagar city and there number usually assumes considerably intensity than those coming from outside.

¹¹⁴*Department of Tourism, Government of Jammu and Kashmir.*

Table 4.11

Year wise number of tourists and Amaranth pilgrims who visited valley

S. No	Year	National	Foreign	Amaranth Yatris	Total
01	2001	66732	5859	119037	191628
02	2002	24670	2686	110793	138149
03	2003	182205	8959	153314	344478
04	2004	358095	18634	400000	776729
05	2005	585702	19680	388000	993382
06	2006	412879	20009	265000	697888
07	2007	417264	24576	213565	655405
08	2008	551041	21588	498198	1070827
09	2009	577345	23905	373419	974669

Source: Department of Tourism, Government of Jammu and Kashmir.

Table 4.12

Hotels in the Srinagar city

S.No	Hotels	Number	Bed Capacity
1	2 Star	6	739
2	A-Class	38	3769
3	B-Class	50	2552

4	C-Class	60	2490
5	D-Class	14	553
6	E-Class	15	413
	Total	183	10516

Source: Department of Tourism, Government of Jammu and Kashmir.

As Srinagar city is a center for all tourists' activities. So above figures indicates how much pressure has being increased on the city environment. The main pressure of this degradation is on the water bodies of city who got most hit by the over flow of the tourists. The exquisite water bodies of Srinagar city are of great environmental and socio-economic implication. The most well know of these are Dal Lake, Nagin Lake and River Jhelum of the main city with their multi-faceted ecosystem and magnificence. The constructions of hotels and converting houses into guest houses have further added the load on the environment of city.

Recreational lands in Srinagar city, as per information supplied by the Parks and Gardens Department about the locations and areas enveloped and have been grouped under different groups viz from Group A (Nehru Memorial Botanic, Nishat, SirajBagh (near Cheshmashahi), Dachigam Park, Shalimar, Green Park Harwan, Cheshmashahi, Parimahal, Fair View Park, Chachinari Park, Nehru Park, Lake View Park), Group B (Local parks of Jawahar Nagar Parks, Rawalpura Park, Chanapora Park, Soura Park, Batamaloo Park and Balgarden Park), Group C (Iqbal Park, Rosee Garden, Zainakote H.M.T, PoloGround Park. Children Park at Hazuribagh, Partap Park, New Kashmir Park Sheri Kashmir Park, Rajbagh Park, Srinagar, Buchpora Park, Sonwar Park, Rambagh Park and SaidaKadal Park) and Group D (GasiMohalla Park, SafaKadal, Khanyar Park, Alamgari Bazar/KhushalsarZadibal Park, MaharajGunj Park, Waniyar Park, Nalmar Road, Naidyar Park, Chotta bazaar Park, KaniKadal, Karan Nagar Park, Sakidafar Park, Nalamar Road, Reshanhar Park, Nalamar Road, Arampora Park, Nawakadal, Noorbagh Park, Nallamar Road, Kaksarai Park and Hyderpora Park).

The frequent tourist activities have given rise to following issues in Srinagar City:

Pollution: This is a great cruse for tourism. The waste, night soils of hotels, motels, guest houses, house boats etc., are being added in bulk quantities to the fresh water lakes and river. As the flow tourists increases so the residents in the old Boulevard have converted their houses into guest houses or small motels and shifted themselves to other places. Due to the poor drainage system, it has become a nuisance for upkeeping of the ecological aspects of this heaven on earth. As increase in tourists flow so there increases in transport. So the air pollution from tourist transportation has impacts on the global level, especially from carbon dioxide (CO₂) emissions related to transportation energy use. Not only transportation increases physical in connivances but health hazards are always on rise Asthma and Lung related diseases increases day by day with every new vehicle to already existed myriad urban transportation. By the increase in emission gasses there is increase in temperature which in turn has caused melting of snow and glaciers. This is great threat to the people living in low plain areas of valley especial the main city will be in target of this great havoc. Noise and commotion created by tourists have adverse effect on their behavioural pattern. And the noise pollution from tourist's vehicles is an ever growing problem of modern life. It also causes annoyance, stress and even hearing loss for it humans. To get salvation from this people relocate themselves and prefers rural areas for rehabilitation to upkeep tranquility and serene. On the other hand they are encroaching nature, cultivated and forest lands dwindle with every passage of time. To acquire tranquility we enrage nature.

In areas with high concentrations of tourist activities and appealing natural attractions, waste disposal is a serious problems and improper disposal can be a major despoiler of the natural environment – river, scenic areas, and roadsides. For example, we can see what the position of the Dal Lake is; we can find ever type of waste things through in it by tourists. This Solid waste and littering can degrade the physical appearance of the water and even can cause for the death of fish in these water bodies. Introduction of mechanized boards to cash in on tourists damages the flora and fauna of ecosystem as the both leave tresses of oil, petrol and diesel in the water. Beside this we can also find the waste spread in the gardens that are located in the city area. People who come to

enjoy the scenic beauty often litter the places with polythene and left over food without thinking about its adverse impact on the environment.

Construction of the hotels, recreation and other facilities often leads to increases sewage pollution. Wastewater has polluted rivers and lakes surrounding tourist attractions, damaging the flora and fauna. Sewage runoff causes serious damage and it stimulates the growth of algae, which could be great threat for the scurvies of these water bodies in future. Changes in salinity can have wide-ranging impacts on these water bodies' environments. And sewage pollution can threaten the health of human and animals.

Illegal Construction: Tourism has provided several opportunities of employment. This has led to the construction of unauthorized Juggis, Jhompris, some other illegal occupation on the waysides, park sides, etc. Unauthorized construction at the elite tourist locations in order to utilize this summer surge leads negative impacts on our eco-system and social environment. There is so harm in accommodating tourist and why not, but acting on the guidelines of Municipal Corporation is necessary. For last decade or so there is considerable increase in the encroachment due to materialism to earn more bucks in jiffy without taking into account care and preservation toward his environment. Talking of Dal Lake, its dwellers filled every nook and corner with in demarcation to set up. Shanties to accommodate more and more tourists and such activities dwindle active water area of Dal Lake. Construction of commercial buildings and hotels along the road of Braine, Nishat, Shalimar till Harwan has been a concern. As those area are at the foothills and in vicinity of our "wild life sanctuary" and that is tremendous threat to the vegetation, forest and natural habitation of fauna. It is feared that our wild life sanctuary is at verge to lose its charm as fewer wild life are left there. Construction of road to carry tourists deeper into forest area for their close view and recreation, and has hence indirectly disturbed their habitation.

Filthy Garbage: Due to additional number of tourists, there is an increase in the garbage. It is seen lying here and there which gives foul smell and thus deteriorates the environment. The garbage brings several types of diseases which spread and affect the civic life. The best examples can be cited from these water bodies, especial Dal Lake.

There is increase in the hotel garbage due increase of hotels and we also see garbage outside hotels and those which are in the mohallas have ever great risk of spread of diseases by foil smell of this garbage.

Unhygienic Conditions: This is also a significant factor affecting the ecology of the area with the virtue of tourists. The unplanned and haphazard town planning has greatly reduced the modernity of the capital city. The immigrants have deteriorated the hygienic standard of city. It has been seen that every day, they go to the all of nature around the city parks, springs, gardens, rivers, street, nallahs, etc. These actions of the city dwellers pollute the entire atmosphere of these cities. These actions lead to the unhygienic conditions which bring several kinds of problems.

Shortage of Commodities: Due to the more construction of different structures, For example, Guest Houses, Hotels, Motels, Dak Bungalows, Tea Steals, etc. so the tourism have created great pressure on local resources like energy food, and other raw material may already be in short supply. Increased construction of tourists and recreational facilities has increased the pressure on resources and scenic landscape. Greater extraction and transport of these resources exacerbates the physical impacts associated with their exploitation. High demands in placed upon these resources to meet the high expectations tourists often have (proper heating hot water, etc.). Water, and especially fresh water, is one of the most critical natural resources. Tourism industry generally overuses water resources for hotels, swimming polls, golf courses and personal use of water by tourists. This result in water shortage and degradation of water supplies, as well as generating a greater volume of waste water. In recent year's golf tourism have increased in popularity and number of golf courses has grown rapidly. Golf courses require an enormous amount of water every day and, as with other causes of excessive extraction of water, this can result in water scarcity. As the water due comes from wells, overpumping which causes saline intrusion into groundwater. So the people living near these areas said that there is shortage of drinking water and that during the summer it is high. And the golf course maintenance also depletes the fresh water resources which have been seen in the areas where they have been made.

The above mentioned point indicates that how we damage our own natural environment and with that how we affect the hosts' socio-cultural environment. The negative factors, in order to make an impact on the host community, must affect them by providing a direct or indirect experience. The impact of negative factors on the host community will come out in the form of strong reactions. The harmful growth of negative factors is likely to make strong reactions in the host community. Hence the reaction of the host community over the harmful growth of the negative factors need be assessed as a prerequisite to the assessment of the experience of the host community.

As tourism is smokeless industry in the world and fasts economic growing sector in countries but on other side how much pressure it creates on other means that are countless. It does not only effect the physical environment of nature but social life of local or host community too. It accepted with growing tourism the economy life of state will change but we are also losing number of other things too. With increasing flow of tourists there are number of things that are added to tourist industry so that to maintain the flow of tourist but with time these thing show adverse effect on the host community in multiple ways and choke the social system.

The growth of tourism in a region causes as abnormal increase in the value of land. A rise in the price of land causes a rise in general prices level. It had been founded that those areas which where residential and are slow turning into commercial areas the value of land prices are touching to sky. It may be noted that the increase n land value causes friction between households over disputes of land. Limiting the use of land for agricultures and other purposes was found to be another negative effect of increase in land value. It also prevents the use of the land for other social purposes like schools, hospitals, extension of roads and other similar social uses. It is understand that the increase in land value affects the society through a general increase in the price level of the area.

Conclusion

The greatest change in the urban communities is perhaps a result of growth itself. With the increase in population through natural accrual or by migration, new living and working space must be added to the community. This demand may be satisfied by peripheral expansion, by the internal rearrangement of land use either through the displacement of one use by another or by the infilling of vacant property or by the more intensive use of land and existing buildings. But the predominant type of growth occurs in the form of lateral expansion in to surrounding agricultural areas where raw land is converted to urban purposes. The city of Srinagar is no exception to this phenomenon of accelerated population growth and resultant urban expansion.

Although the rules and reigns have kept on changing from time to time, the city has survived all odds. The city has experienced slow growth rate up to 1900's, but has always been the primate city dominating the urban scene of the region. During the last century the city has grown from 12 Sq-km in 1911A.D. to 416 Sq-km in 2011 A.D. Presently the city accounts for more than 65 percent of the total urban population of Kashmir valley.

The enormous pressure of the population has exerted enormous pressure on the existing land use or land cover of the Srinagar City. There has been loss in natural vegetation, agriculture, water bodies, residential, restricted etc. The city has witnessed enormous change in terms of land transformation. The salient feature of this transformation is that Srinagar City has recorded a significant increase in built up area and this is mainly because of population growth and development in secondary and tertiary occupation structure which has attracted population from hinter land as these areas are underdeveloped in terms of opportunities and lack of private sectors. This built up expansion was haphazard and without much planning which has given rise to problems like drainage failure and conversion of marshy areas into either agriculture or built up area etc.

Residential building and commercial building around the Dal and boats inside the Dal are disposing thousands of metric tons of waste into Dal lakes annually. The highest percentage of change is witnessed by residential land where the percentage of land

under marshy area has drastically decreased by 71.96%. In general, the total built up area has increased by 159.61% from 1971 to 2011 where as non-built up area has decreased by 19.18%. it is only since the beginning of the industrial revolution in the mid of 18th century that the impact of human use activities has begun to extend to a much large scale. Land use change due to urbanization and agriculture etc. affect the physical and biological properties of the earth's surface.

The present structure of the Srinagar city, its problems and the magnitude of the problems, to be faced by it in future due to population growth has been indicated. Population of the city has increased from 1.2 lac persons in 1901 to 4.57 lakhs in 1971 to 5.94 Lacks in 1981 and 9.46 lakhs in 2001 and is expected to increase to 23.50 lakhs in 2021. The existing problems which require immediate attention and large magnitude of investment would assume challenging propositions, in case not addressed and taken care of. The city of Srinagar despite its physical threshold and constraints is likely to expand and grow. In case the growth is not channelized and regulated it is likely to intrude ecological areas of wet lands, flood absorption basin, low lying areas, uphills of Zabbarwan mountains and would inflict serious damages to environment and ecology.

During the first half of 20th Century there has been a concentrated urban development but during later half, especially after 1970's the pace of spatial expansion has been higher (407.32 percent) than the population growth rates of the city which highlights the sprawling nature of the urban center.

Srinagar has not only been the largest urban center, both in terms of population size and areal expanse, but it is also the rapidly growing city amongst all the urban centers of Kashmir. The city has functioned and prospered throughout its long history as the regional focal center owing to its strategic and advantageous location. It has been functioning as the central place in socioeconomic life, the nerve center of political activities, the seat of religio-cultural movements and the epicenter in its spatial framework. The urban pattern of Kashmir valley has emerged in the urban primacy of Srinagar resulting into the polarization of economic activities and concentration of urban population of the Srinagar city and virtual stagnation in other urban centers of

the region. The Srinagar city constitutes 66.30 percent of the total urban population of the region and is ten times larger in population size to the next urban center in the region.

Over the last three decades Jammu and Kashmir State has recorded massive urbanization. The overall urbanization trend in the State shows that it had altogether about 56 urban centers of different sizes, with 21 per cent of total population in 1981 which increased to 67 centers in 1997 constituting roughly about 24 per cent of the (estimated) population. One of the serious concerns of urbanization in the State is distributional pattern of urban population amongst the settlements classified under different categories of towns. Srinagar and Jammu, the Class I urban settlements, account for 73.18 per cent and 53.17 per cent of urban population, in their respective regions. The share of Srinagar as per 2001 Census has further increased to 76.34 per cent (Urban Population 14.54 Lakhs of Valley and 11.10 Lakhs of Srinagar City). These cities are growing faster than other smaller urban centers and dominate the urban scene of the State. This imbalanced growth has made Srinagar and Jammu as principal cities in their respective Divisions which are effecting the growth and development of remaining towns adversely. The unprecedented influx of people and unplanned accretion is adding to the complexities of Srinagar City with strained urban services, increased demand for housing and transport, generating environmental problems and deterioration in quality of urban life.

Data reveal that 93.06% of the total houses in Srinagar occupied and 6.94 % of are lying vacant. 74.63% of the houses are occupied in good condition, whereas 23.22% are in livable condition and 2 % houses are found to be in a dilapidated condition.

The increasing magnitude of urbanization laid a considerable impact on the usage of Land in Srinagar City. This refers to a situation where commercial, residential and industrial areas are separated from one another. This is happening in Srinagar city with new urban areas of Hyderproa, Humahama, Ahmed Nagar, Harwan, and Nishat from where residents have to commute long distances for shopping to Srinagar mainland. Extension consumes much more land than traditional urban development because new developments are of low density. The impact of low density development in many

communities is developed or urbanized land which is increasing at a faster rate than the population, which is true of Kashmir, in general and Srinagar city in particular. Architectural innovations in the name of extension of this city where people live in single family homes and consume large chunks of land is what is called farmhouses in modern parlance. Another kind of low density development is sometimes called leap-frog development. The term refers to the relationship, or lack thereof, between one subdivision and the next.

Usually the developer is required to set aside a certain percentage of the developed land for public use, including roads, parks and schools. In the past, when a local government built all the streets in a given location, the town could expand without interruption and with a coherent circulation system, because it had condemnation power. Private developers generally do not have such power and often choose to develop on the tracts that happen to be for sale at the time they want to build rather pay extra or wait for a more appropriate location. This situation is so prevalent in the Srinagar city because new residential areas are being developed without any planned development and pre construction surveys about the suitability of this colony 25 years hereafter. This concept is generally referred to as Environmental Impact Assessment studies which should have been part of each and every plan in the Srinagar city plans.

In Srinagar City about 40% of the Population lives in slums and urban poor colonies, out of which 19% constitute the people living below poverty line. About 69 localities mostly located in old city with environmental conditions almost unfit for better urban life have been identified as slums. Till recent times phenomenon on a “Khoperi-Pahari” (comparable to Juggi-Jopdis) was missing in Srinagar City. However, in view of sudden spurt in the migration of non-state subjects from Rajasthan, Bihar, UP and from other parts of the State including Jammu and parts of Valley, about 7 such sporadic Khoperi-Phari settlements have come up in the city comprising of about 561 units with a population of 3981 persons. The main occupation of these “Khoperi-Pahari” dwellers is casual labourers. In Srinagar city housing stock is provided by private individuals, Government, Semi-Government agencies and Co-operatives. About 80.28 per cent of the city residential houses have developed in an unorganic manner, which is also an indication of dismal role of Housing Board and SDA in city.

In the process of spatial expansion of the city a number of village settlements have been annexed into city limits from time to time. Out of the total village settlements annexed in the Master Plan 1971 - 1991 about 38 settlements have completely merged into city while as remaining villages have still retained their rural character because spatial expansion of urban activities have not taken place in their vicinity. A large number of village settlements are expected to be part of the Srinagar Metropolitan Area. Therefore, a policy will have to be spelt out for integrating these village settlements within the urban spread.

The city is experiencing urban sprawl because of rapid urbanization which is evident from the fact that building activities are heavily taking place in and around the Dal Lake and Wet lands of the city. Thus, the unwarranted growth of the city is becoming a haphazard for scenic beauty that in turn will have retarding impact on the tourism which is one of the key sectors of the state economy. The haphazard growth and development has created different problems like drainage, sewerage and civic amenities and all other facilities in all most all the newly developed parts of the city. The available arable land was used for construction purposes; water bodies were filled with soil and used for agricultural purposes and so on. The over-crowdedness and haphazard establishment of buildings forced the government to frame policies of rehabilitation and resettlement which in turn gave rise to another big problem of displacement.

Consequent upon the displacement, it was revealed during the field study that the habitations wherein they are rehabilitated are dilapidated and are lacking almost all basic amenities. They more look like slums or urban villages. The concentration of a large number of people in these areas has raised concerns for sanitation and bacteriological contamination of surface and groundwater. The standard solution is the construction of pit latrines.

Their displacement and its humanitarian consequences have created short and long-term developmental impacts affecting human and social capital, economic growth, poverty reduction efforts, and environmental sustainability and societal fragility. The elderly claim to have particular difficulty adjusting to new location. They have

particular difficulty adjusting to new surroundings and establishing new social ties. Residents with mobility limitations, such as persons with disabilities and low-income individuals, are finding it difficult to meet daily needs due to the loss of facilities and services they depend on. These individuals also tend to have greater reliance on community-based social networks. The social/psychological impacts of relocation to a community facility can be significant. Many community facilities are supported by and supportive of specific neighborhoods. Relocation out of those neighborhoods can remove the reason for some community facilities to exist. The displaced people even claim to have lost their identities.

Rapid urbanisation with problems of haphazard expansion, depressing services eutrophication of wetland and explosive growth in human population has caused a number of serious problems like overcrowding, poverty, increasing consumption, encroachment on moments, stress on common social facilities and civic services etc. These wet lands Rakh-i-Nowgam, Rakh-i-Suthu, Rakhi-Narkara, Rakh-i-Gandakh Shah, Rakh-i-Arat, Rakh-i-Palpora, Rakh-i-Rabitar, Rakh-i-Mirgund, Rakh-i-BrariNambal and KhushalSar have been threatened either by explosive spread of obnoxious weed growth, increasing pollution load or due to indiscriminate discharge of domestic effluents and run-off from agricultural fields. Because of urbanisation, the filling of these wet lands has given rise to vital slums due to sub-standard living condition. These have attracted lower sections of the society due to low land values. All the major water bodies of the city have been affected by disposal of water, sewage, garbage into them. Dal Lake and Nagin Lake have reduced from 36 Sqkms to around 12.5 SqKms. The growth of floating garden and construction of houses in and around the lakes has accelerated the process of shrinking. The situation regarding Anchar Lake, River Jhelum, Doodh-Gange River is no different.

Water bodies have suffered degradation in both the area as well as in the quality of water, whereas marshy areas have been converted either into built-up land or floating vegetable gardens/floating gardens. The total area under water bodies was 2145.5 hectares in 1971, which decreased to 1895 hectares in the year 2008 i.e., decreased by 250.5 hectares, losing its area to agriculture (148 hectares), marshy (92 hectares) and others (3 hectares). whereas, water bodies gained area from marsh (35 hectares).

Similarly, Marshy area has decreased from 1667 hectares to 468.5 hectares during the study period, recording a decrease of 1198.5 hectares, it lost area to agriculture (1081.5 hectares), plantation/orchards (108 hectares), residential (77 hectares), others (49 hectares) and water body (35 hectares).

This drastic conversion has served consequences like sedimentation, pollution, water logging and flooding. In an attempt to restore the water and marshy land, another problem these people face that live near or in these water bodies is displacement or forced displacement by government authorities or by many illegal constructions for economic purpose. So it creates a choke in domestic life of these people. As they have some different type of culture than those who live on the land. By this activity many lose their jobs and even some lose their business, so it puts impact on their economic activity. And on the other side it puts a negative effect on social relationship, it loosens social kinship this type of society has in their own environment they have in water bodies societies. The places where they were shifted and the people those who live before these people have drifted between each other. One class of society thought they are better than those who were settled there by the authority. So it disturbs both social and economic life of these people and with that there is also pressure on environment and environment related problems as water is essential for sustainable life on this part of the world. Displacement inevitably imposes "physiological, psychological and socio-cultural Stress", Relocation can be a death sentence to a community. Even where planning is effective, some (especially the aged) will never come to terms with their new homes. For them, the transition period ends only with death.

Transportation infrastructure is grossly inadequate to cater to the present intensity of traffic and most of the street system including major arterial network has a level of service which is far below the prescribed standards. Traffic congestion is most acute in this city and inadequacy of pedestrian facilities compounds the problem of traffic congestion due to increased traffic conflict. Inadequacy of accessibility of traffic infrastructure has resulted in the obsolescence of the core city and hence stagnation. There are clear distortions in the hierarchy of the transportation network and the absence or lack of grade separators, intra-city terminals and parking facilities have resulted in the overstraining of deficient infrastructure. Srinagar city seems to burst

with the volume of traffic which is increasing day after day. With easy finance available to people, the regional transport office in this city is about to register around two lakh vehicles in this city. There is almost steeping increase in commercial as well as non-commercial vehicles.

The increased traffic in Srinagar has largely contributed towards following issues. in Srinagar city and there is no traffic planning in place. The old vehicles, rejected by Delhi traffic registration authorities are being purchased by the State and run on our roads creating emission of obnoxious gases. This is responsible for many health related problems in the state, particularly respiratory diseases and bouts of asthma attacks to the kids of city. It also creates obesity and hypertension. Spread of city increases water pollution as rain water picks up gasoline and oil runoff from parking lots and roads. Extension of urban areas led fragments in land which increases the risk of invasive species spreading into the remaining forest. And have its effect on overall life of the people e.g., Increased Infrastructure Cost, Increase in Personal Transportation Cost, Traffic blocking and parking difficulties, Longer commuting, Civic transport inadequacy, Difficulties for pedestrians, Loss of public space, Environmental impacts and energy consumption, Land consumption, Automobile Emission etc.

Unsafe drinking water, improper disposals of human excreta and improper environmental sanitation are the main cause for the spread of communicable diseases. Srinagar City ranks at 420 among the 423 cities of the country in Sanitation thereby achieving the distinction of being the 4th dirtiest city of India as per the recent survey conducted by the Urban Development Ministry. Though UEED department has charted out a comprehensive sewerage disposal plan but unfortunately this has been implemented in compartmentalized or segmented manner with the result city is facing problems of acute sewage disposal. Estimated quantity of solid waste generation in Srinagar is 450 grams per capita per day. During peak tourist season of summer, these figures increase by 3 to 4 percent due to garbage generated by tourists. It is estimated that less than 50% of waste is collected and disposed at the dumping site at Achan, Srinagar. Only 31 percent of the inhabitants of Srinagar city have access to the facility of regular solid waste collection which is too less even though having increased from

23 percent in 2001 to 31 percent in 2011. Furthermore new schools and other infrastructural needs like roads, shops etc have come up, that in turn will take up more land. With less countryside, towns and villages start blending into a continuous urban extension that leads to the breakdown of communities and accompanying social problems.

Besides, the water and Sanitation conditions of the Low and Medium income category are such that it carries the biggest risk of health. The overall exposure to water and sanitation related risk factors are maximum in the Low income group followed by Medium income group. Nearly 29% of the Low income group and 23% of the Medium income group have no drainage facility. The Low income group is at great risk and they are the most vulnerable group.

Also, the study reveals that there exists wide variety of imbalance & inequalities in Literacy, possession of Assets & Rooms available. Therefore, the state should provide sufficient amenities and facilities for socio-economic development & improvement in the levels of literacy.

In the past, people of Srinagar were using the waters of lakes, rivers and different khuls/canals for domestic purposes. It was in 1894 A.D when piped water supply was for the first time introduced in some parts of the Srinagar City during Dogra Rule. . As per the official records, whole city receives water through piped water supply. No other source is available to the common people. Safe drinking water supply system to the Srinagar city has been under tremendous pressure all the time. Srinagar city is expanding in every direction. New colonies have come up and the existing system which is old aged needs improvement due to tremendous urban extension. It has created immense pressure on the basic life amenities and the drinking water is the basic necessity.

In Srinagar City stone quarrying and earth excavation for brick kilns is carried out at a number of places. The stone quarrying quarrying carried out in Harwan, Panthachowk, Athwajan and Zewan areas are rendering the precious hill slopes non-usable besides leaving behind degraded land. The brick kiln areas which were initially concentrated in the south of the city in Lasjan and Sumberbug areas have left behind huge chunks

of land as non-usable/derlict land. If these activities is not regulated and controlled, it may have dangerous consequences on the ecology of the area. The primary reasons for low yields are small average size of holding which the urban extension has brought with it due to land use change into mostly residential centres, adoption of primitive/obsolete agriculture crop production techniques, sustainability of major crop varieties to plant disease etc. Most of the industries located in major industrial estates in Srinagar are non-polluting and eco-friendly but some of the industries e.g. stone crushers which have come up in scattered manner in south and south-east have gradually declined the quality of environment. The dust pollution due to these industries has generated a number of health disorders among the residents living in their vicinity.

In the absence of appropriate drainage and sewerage disposal system, city's effluents are directly or indirectly drained into various water bodies. It has declined the quality of water in these water bodies besides degrading environment and generating a number of health disorders. In Srinagar city, vehicular traffic is major contributor for air pollution. Automobiles contribute significantly to the noise pollution especially in congested areas such as crowded commercial areas and market places. In the areas which are located at the foot hills of the mountains and hillocks deforestation is taking place which has become grave threat to already scarce forest resources and has generated number of ill-effects on the environment. Automobiles contribute significantly to the noise pollution especially in congested areas such as crowded commercial areas and market places. The ambient noise levels along these sections are observed to be higher than the permissible limits that may be attributed to frequent traffic jams by road flooding and blowing of horns. At these locations traffic volume is quite high and the areas are crowded with commercial and other activities.

Tourism holds a significant position in altering the various dimensions of environment. The negative impacts of tourism development can gradually destroy the environmental resources on which it depends.

Every year there is increase in number of tourists both national as well as international .As Srinagar city is a center for all tourists' activities figures indicates how much

pressure has been increased on the city environment. The main pressure of this degradation is on the water bodies of city who got most hit by the over flow of the tourists. The exquisite water bodies of Srinagar city are of great environmental and socio-economic implication. The most well know of these are Dal Lake, Nagin Lake and River Jhelum of the main city with their multi-faceted ecosystem and magnificence. The constructions of hotels and converting houses into guest houses have further added the load on the environment of city.

The frequent tourist activities have given rise to pollution, illegal construction, filthy garbage, unhygienic conditions, shortage of commodities and other related problems are deteriorating the physical and social environment.

The growth of tourism in Srinagar causes an abnormal increase in the value of land. A rise in the price of land causes a rise in general prices level. It had been founded that those areas which were residential and are slow turning into commercial areas the value of land prices are touching the sky. It may be noted that the increase in land value causes friction between households over disputes of land. Limiting the use of land for agricultures and other purposes was found to be another negative effect of increase in land value. It also prevents the use of the land for other social purposes like schools, hospitals, extension of roads and other similar social uses. It is understood that the increase in land value affects the society through a general increase in the price level of the area.

Suggestions

Land has been identified as a function of virtually all forms of production. Land is required for various uses in both the urban and rural areas of all society. As nations grow in size and rural areas become urban centers and urban centers become large metropolitan areas, there is always increased competition as well as demand for land for different purposes. This requires adequate planning and control to ensure harmonious development and functional efficiency of these uses and settlements.

Srinagar City can be taken as a core area of urban influence within the region which is getting rapidly urbanized. This area is served by the city-based essential services, such as transport, water supply, health care, education, retailing and credit facilities. This is

the area of direct participation in key city functions and amenities for this reason it has been designated as the Srinagar Metropolitan Region and may be treated as primary planning area for Srinagar metropolis. Government Intervention is often required to guide urban development for achieving an orderly development of the different areas of the city so as to improve the quality of the city and the standard of life of the people. Various proposals for arresting urban sprawl and encouraging the planned and orderly development of the fringes of our metropolitan city have to be started. The practice, which will involve spatial planning to ensure the best land use, distribution of necessary urban infrastructure and services judiciously, proper implementation of the plan and smooth management of urban functioning of the services have to be encouraged. The process of urbanization operating in the fringe has given rise to typical land use associations

Where the contemporary and dynamic land use pattern is developing side by side in the contemporary context, the various land uses. Old villages, new residential extensions, commerce and industry , city service and farming are not neatly sorted out into homogenous areas but are intermingled in a random fashion which gives a distinctive quality to the land use pattern of rural urban fringe. The haphazard development of slums, unauthorized colonies, piecemeal commercial development, intermixes of conforming and non-conforming uses of land coupled with inadequate services and facilities have become common features in the fringe. The dynamic change from rural to urban land use is so fast that the resultant need and complex uses coupled with shortage of land have led to the speculation and increase in land values.

Given below are some of the planning measures ought to be taken not only in the planning and development of main city.

It has been observed that the fringe area lacks most of the facilities and infrastructure base like education, health and other community services. Therefore infrastructure facilities should be uniformly distributed in the City. This will make life pleasant in fringe areas and also lift extra pressure on the existing facilities of the city which is necessary for their smooth functioning.

There is wave of in migration towards Srinagar city, which has resulted in increasing population density both in city and fringe villages. This rapid growth of population mainly due to rural-urban migration has caused congestion, traffic jams and road accidents as the city roads are not able to accommodate the ever increasing traffic. Therefore, regional approach in planning should be adopted. The population retaining capacity of the various urban centers of the valley has to be increased by providing the basic community amenities and services in these urban centers.

The foremost remedy lies in restricting any increase in the settlements in and around these water bodies and marshy lands. In this perspective, the governments' pro-active approach is essential because state high court in 2003 has already banned all kinds of constructional activities within 200 meters from the periphery of Dal Lake. Further, the already settled population in and around the lake area should be relocated and rehabilitated out-side the Dal Lake periphery. In this context some efforts have already been made by some agencies, where some 1221 families living in 441 houses have been resettled but their total rehabilitation is still pending. Government again requires taking initiative to relocate and rehabilitate the remaining 5029 families left there. Further, Srinagar city requires operational sewage treatment plants so that no untreated sewage is disposed off in any of the water bodies. Studies have also suggested using weed as raw material to produces organic manure; this will serve dual purpose of cleaning of water and utilizing the waste.

Urban sprawl in the form of ribbon development should be discouraged, as it is economically disadvantageous to provide various civic amenities like water supply, electricity etc. similarly, leapfrog urban development should also be discouraged and the unproductive land should be devoted to urban uses.

Local planning procedures should include regional, such as the provisions laid out in the Regional planning and the Core Strategy, are obscure and difficult to understand. Many people consider planning processes to be too remote from themselves to be concerned about. Yet the decisions made by the planners produce results that affect all our lives. Our Endeavour to inform the public about these planning processes, and make sure that local people understand how much countryside around Srinagar city

might be lost to new housing developments, what impact the loss of this countryside will have and to explain what actions you can take to influence the decision making process. They will also be asking crucial questions about the economic projections on which projected housing numbers have been based. Have targets been set for more new homes than are really needed? Will the growth in homes reflect a parallel increase in jobs and investment in local infrastructure and services?

People in general have to be part of local governments so that they are very much abreast with all the developments in the planning. Urbanization has evinced interest from a wide section of the society including experts, amateurs, and novices. The multidisciplinary scope of the subject invokes the interest from ecologists, to urban planners and civil engineers, to sociologists, to administrators and policy makers, students and finally the common man. With the development and infrastructure initiatives mostly around the urban centres, the impacts of urbanization and sprawl would be on the environment and the natural resources. The wisdom lies in how effectively we plan the urban growth without -hampering the environment, excessively harnessing the natural resources and eventually disturbing the natural set-up. The research on these help urban residents and policymakers make informed decisions and take action to restore these resources before they are lost. Ultimately the power to balance the urban ecosystems rests with regional awareness, policies, administration practices, management issues and operational problems.

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