

# Environmental Attitudes and Awareness



# Environmental Attitudes and Awareness:

*A Psychosocial Perspective*

By

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## PREFACE

Today, living in harmony with nature is very important for the survival of the human species. The lack of balance and harmony between humans and the environment has led to disastrous consequences for all and we thus need to look into the source of the problem from a human and psychological perspective. Environmental psychology emerged in the mid-1990s, as a field to study this relationship between humans and nature. It has since become an established, international field in the West but there is still a lot to be done in this area in the developing world and emerging developing Asian economies like India. Keeping this in mind, this research was a humble first attempt to examine the attitudes and awareness of people in India towards the issue of environmental pollution and degradation.

The environment was always worshipped in ancient Vedic India and the great scriptures like Vedas, Upanishads, and Bhagavad Gita are replete with verses dedicated to and praising the power of nature and its priceless gifts. Since time immemorial, Indian culture has believed in the “balance of nature”. The great sages have always stressed the importance of maintaining balance, and have referred to the environment as “Mother Nature”. A 3000-year-old beautiful verse in the Shukla Yajur Veda Samhita rightly summarises the essence in following lines:

*“dyauḥ śāntirantarīkṣan śanti prithivī  
śāntirāpah śāntirośadhayaḥ  
vanaspatayaḥ śāntiviswadevah śāntibrahma  
śāntiḥ sarva śāntiḥ śāntireva śāntiḥ sāmā  
śntiredhi”*

(Shukla Yajur Veda 36-17)

[Let there be balance in the space, balance in the sky, there be peace on the earth, there be calmness, let there be growth in the plants, and in the trees; Let there be grace in the Gods, Let there be bliss in the Brahman, Let there be balance in everything, and everywhere, Let such peace be with every one of us]

This empirical research study was planned to gain perspective on the attitudes and awareness of the Indian adult population. The author has

attempted to investigate the influence of socio-demographic dimensions such as gender and age on environmental concern and environmental awareness, as not much information has been available on this aspect in the Indian context. The research also examines the influence of personality traits like narcissism and altruism, along with beliefs and values, which are important in directing human behaviour.

The first chapter outlines the status of environmental degradation at global, national, and regional levels. It provides some background to the efforts being made to understand and assess the severity of the problem from the point of view of environmental scientists, governments, and local bodies. It also details the various reports on the state of environmental concerns like climate change, air, water and land pollution and degradation.

The second chapter details environmental concern from a psychosocial perspective, which is the major reason for this book to be written. Here, the author has tried to give an informative picture about why the psychologists' role is important to an understanding of the gravity of the problem and in unearthing sources. This chapter is a review of various models of environmental concern, as well as socio-demographic and psychological correlates of environmental concern, developed over the past two decades or more. It also covers the few empirical studies available in the Indian context. This chapter forms the theoretical basis for the formulation of the research study.

The third chapter is dedicated to the methodology based on the theoretical foundation, developed from previous research and studies discussed in the preceding chapter. The research questions that the researcher attempted to answer, and the specific aims and objectives of the study are reported in this chapter. The sample, tools used and the design and procedure of the empirical research are discussed.

The fourth chapter discusses the obtained results and analysis. This chapter has been divided into three sections: a) gender and age analysis; b) correlation analysis; c) cluster analysis. The section on gender and age reports the significant differences in environmental attitudes and awareness, based on socio-demographic variables. Some significant results have emerged regarding these two variables in terms of environmental concern and awareness. The terms "environmental concern" and "ecological attitudes" have been used interchangeably to mean environmental attitudes in this chapter and elsewhere in the book. The section about correlation

analysis indicates that psychological variables also play an important role in guiding the behaviour of individuals. Lastly, the cluster analysis has resulted in few expected groupings among the variables of ecological attitudes and psychological variables.

The fifth chapter deals with the original findings and interpretations of the research work. It explains the obtained results in the light of existing research and new possibilities. The sixth chapter highlights the conclusions and future recommendations for future research studies.

This book will add to the existing knowledge and help to further an understanding of psychosocial aspects of the environmental attitudes of people in general and the Indian population in particular. I hope that it will be of use to scholars, researchers, and academicians of various disciplines such as environmental sociology, ecology, conservation and environmental psychology, environmental sciences, etc. The book will also be of value to policymakers, as well as anyone interested in an understanding of the behavioural and psychosocial perspectives of environmental concern.

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# CHAPTER ONE

## INTRODUCTION

Recent studies of environmental degradation and social disorder have raised serious concerns about the long-term viability of ecological and social systems (Bratt, Stern, Matthies, & Nenseth, 2014; Koger & Scott, 2007; Scott, Koger, Amel, & Manning, 2016; Stern, 2000; Swim, Stern, Doherty, Clayton, et al., 2011; Vlek, 2000). Humankind is not using but overusing Earth's resources. Many of our planet's ecosystems are reaching critical levels of depletion or approaching irrevocable change, pushed by economic development and population growth. According to the United Nations, if present trends of pollution and degradation continue and the population grows at a similar rate, it will require three planets to sustain us by the year 2050. In recent research, Swim et al. (2011) rightly stated that global climate change is one of the biggest challenges faced by the human race in modern times.

Corson (1995) warned that the rate at which human actions impact the sustainability of the earth's sustenance is beyond the capacity of the natural cycle of regeneration and recovery. The present pace of waste generation, resource use, population growth and ecological degradation and pollution is too rapid and disastrous for the ecological systems to replace and regenerate. Researchers are of the view that some of the changes, like the expansion of arid land spaces, depletion of the ozone layer, soil erosion, pollution of groundwater, depleting fresh water resources, loss of green cover and other habitats, are irreversible and irrevocable (Ayres, 1993; Brown, Lenssen, & Kane, 1995; McKenzie-Mohr & Oskamp, 1995).

Earth's atmosphere, which plays a vital role in sustaining human life on the planet, has been greatly endangered by human actions. McKenzie-Mohr and Oskamp (1995) rightly stated, more than a decade ago, that those human actions have imbalanced the moderate and stable climate, increased solar radiations and polluted the clean pristine air of Earth's atmosphere. All these are critical for supporting and sustaining life.

Human actions have not been limited to this and have also disturbed the forest cover and soil and water quality of our planet, making life on it unsustainable. According to a report by the United Nations, the rate of deforestation increased by 50% during the 1980s (Forest Resources Assessment, 1991). Not only this, the soil has also been degraded and areas as large as the size of countries like India and China have undergone moderate to severe deterioration since World War Two (World Resources, 1992). Combined with this, fresh water in both the developing and the developed world is becoming polluted due to industrialisation, deforestation, increasing human inhabitation and faulty agricultural practices (Brown, Kane, & Ayres, 1993; Gleick, 1993).

These environmental problems across the world have typically been attributed to an anthropocentric worldview by social scientists: the belief that humans are the measure of all value, and Earth and its natural resources are valuable insofar as they satisfy human needs (Devall & Sessions, 1985; McHarg, 1970; Nash, 1989). It is a fact that humankind is the creation of nature, but the irony is that it is itself becoming the cause of the destruction of its creator. Civilisation is a testament to human interference with nature. Humans, from the time of their evolution, have tried to channel the energy of the natural ecosystem into an artificial ecosystem to support their own population and animals. Their use has not been restricted to the fulfilment of basic needs of life, but has surpassed the limits of judicious usage and ruthless exploitation of environmental resources, causing dis-equilibrium in the ecosystem and, in turn, endangering the human habitat itself. There is hardly any pocket of land, island, polar region, or space left virgin. Even the remote corners of the earth reveal the scars of human meddling carried out in a bid to realise and translate human aspirations and dreams into a reality.

The overexploitation of nature's resources by human beings has led to the degeneration of the planet and its bounties. The land is scarred and eroded, the rivers, lakes, and oceans are so contaminated with industrial waste that they have become unfit for human use. The air is filled with toxic pollutants and each agent of production and consumption is making a reckless use of natural resources without giving thought to the damage being inflicted on the environment. Perhaps a vast chunk of humanity is unaware of the fact that this will lead to an ecological disaster of a magnitude that may threaten the very existence of the human species in the long run. Garg and Tiwana (1987) have rightly stated that scientists, economists and planners have probably forgotten the law of Newton that states that every action has an equal and opposite reaction. The environmental



degradation caused by unprecedented population explosion, exploitation of natural resources, ever-increasing industrialisation and urbanisation is being returned to humanity in the form of cancer through the air and water, land pollution, and resource depletion.

## **Status of Environmental Problems at a Global Level**

The authoritative report (INUC, UNEP, WWF, 1991) on the gravity of the crisis was submitted by the three most respected organisations (World Conservation Union, United Nations Environment Program, World Wide Fund for Nature) in the world. While working at a global level towards the goal of raising concern for the environment, they have communicated a very clear message about the challenge lying ahead. They have stated that “we depend on the resources of the Earth to meet our basic and vital needs, if they are diminished or deteriorate we risk that our needs and those of our descendants will go unmet. Because we have been failing to care for the Earth properly and living unsustainably, that risk has become dangerously high. We are now gambling with the survival of civilisation.” This statement clearly indicates the extent of the misuse of natural resources, so much so that the very survival of the human species is at risk.

No longer can this assault by humans on nature or, as Ramphal (1992) calls it, “ecocide” (the slaughter of nature), be excused as the tolerable side of development, growth and progress. This vertical growth minus the concern for the environment has led to a deterioration of environmental quality. The privileged minority have developed and flourished by using the planet's resources in an alarmingly selfish way and have compromised the less prosperous majority. This has created a colossal gap in the quality of life between the privileged few and the unprivileged majority. This gap has resulted in environmental stress, due to the growing demand on scarce resources by the undeveloped on the one hand, and the pollution generated by the rising living standards of the relatively affluent on the other hand.

Bartelmus (1994) identified both poverty and affluence as the driving forces behind environmental degradation and resource depletion. He broadly termed these forces as “pollution of poverty” and “pollution of affluence” respectively. The former refers to the pressure and burden on the environment in the developing countries because of increasing population. The latter refers to the environmental deterioration in industrialised countries due to the impact of high-level economic growth and over-consumption patterns.

A number of international surveys, seminars, and studies have been undertaken across the world for the assessment of the state of environmental problems. These have shown that environmental impact can be seen both in developing and developed countries, though the scope and intensity are different in each. The industrialised countries are facing a deterioration in quality of life, but life itself may be at risk in the developing countries when their natural resource base is being destroyed. These different concerns have been tabulated as follows:

**Table 1.1 Environmental Concerns of Developing and Industrialised Countries**

<b>Environmental concerns</b>	<b>Developing countries</b>	<b>Industrialised countries</b>
<b>I. Natural environment</b>	Air pollution in major cities	AIR POLLUTION
A. Air		
B. Land, soil, mineral resources (including energy)	SOIL EROSION AND DEGRADATION; DESERTIFICATION	Soil loss and deterioration; dumping of waste; risk of radioactive contamination from nuclear power production
C. Water	FRESH WATER SHORTAGE freshwater pollution (sewage, pesticides); pollution of coastal waters	Freshwater shortage; INLAND AND MARINE WATER POLLUTION
D. Fauna and flora	DEFORESTATION (especially of tropical forests); loss of genetic resources; endangered species	Loss of genetic resources; ending greed species
E. Ecosystems	Pollution of coastal ecosystems (decreasing fish catch)	Disruption of mountain, wetland, freshwater, (especially FOREST DAMAGE from acid rains and eutrophication) and coastal ecosystems
F. Natural disasters	FLOODS; DROUGHTS; STORMS; EARTHQUAKES; volcanic eruptions	Floods; earthquakes

<b>Environmental concerns</b>	<b>Developing countries</b>	<b>Industrialised countries</b>
<b>II. Man-made environment and living conditions</b>		
A. Bio productive systems	LOSS AND DEGRADATION OF ARABLE LAND; pests and pest resistance; water shortage, pressure on fish population (overfishing, pollution) IMPACTS OF FUELWOOD CONSUMPTION; food contamination, post-harvest losses	Loss of croplands to urban sprawl; pests and pest resistance; contamination of crops and fish; over-exploitation of fishing grounds
B. Human settlements	MARGINAL SETTLEMENTS (RURAL-URBAN MIGRATION, URBAN GROWTH)	URBAN SPRAWL; NOISE, LAND CONTAMINATION, TRAFFIC CONGESTION
C. Health	MAL-AND UNDERNUTRITION; INFECTIOUS AND PARASITIC DISEASES	CANCER, cardiovascular, diseases, genetic and long term effects of POTENTIALLY TOXIC CHEMICALS and HAZARDOUS WASTE.
D)Environment and development	SUSTAINABLE DEVELOPMENT	ENVIRONMENTAL EXTERNALITIES; energy and environment
<b>III. Global problems</b>	Global warming and consequential effects	Climate Changes depletion of the OZONE LAYER

Capital letters indicate issues of particular significance.

Source: Cited in Bartelmus (1994, pg. 13)

The above table clearly indicates that although the nature of problems differs, the impact of environmental pollution and degradation can be felt globally, both in the developing and in the developed world. The depletion and degradation of natural resources (land/soil, water, and forests) and the effects on food and energy supplies, marginal conditions in human settlements, environmentally-caused diseases, and natural disasters, are high-priority issues in developing countries. By contrast, industrialised countries are especially concerned about air, land and water pollution, the phenomenon of climate change, and the depletion of the ozone layer. No

longer can the developing countries consider environmental concerns as a luxury for the developed and industrialised nations, as the effects of environmental change are not restricted to the political boundaries of countries.

Precisely due to the above considerations, Dunlap and Mertig (1995) stressed the global concern for the environment, irrespective of the countries being affluent or poor. They cited a common assumption that public concern for environmental quality is dependent on affluence and is, therefore, stronger in wealthy nations than in poor nations. Dunlap and Mertig (1995) tested this assumption: data were obtained on a wide range of environmental assumptions and opinions from citizens in 24 economically and geographically diverse nations, including India. The aggregate national level scores for a variety of measures of public concern for environmental quality were created and correlated with per capita GNP. Although the results varied considerably depending upon the measure, overall national affluence was found to be negatively rather than positively related to national concern for environmental quality. This was in contradiction to the conventional wisdom and beliefs.

The statistics also demonstrated that the major consumers of natural resources and raw material are the developed nations. Parikh and Gokran (1991) reported the results in a study conducted by the Indira Gandhi Institute of Development Research. They observed that the consumption of raw materials, energy, food, and a wide range of other products for the developing and the developed countries was in inverse proportion to their populations: 78% for the developed countries with 24% of the world's population; and 22% for the developing countries with 76% of the world's population. It therefore seems awful that the economic development of developing countries may be halted in the name of environmental concern. The recent fact sheet from the United Nations Environment Programme (2015) also reiterated the fact that we cannot continue with the present rate of growth and development, as that will require a new planet to sustain human beings.

The most pressing need is to work jointly towards the goal of eco-development as both the rich and the poor are polluting the environment in their own ways. There is also a need for a change in the attitudes of both the developed and the developing countries towards the relationship between development and the environment, and a need for a better understanding of each other's priorities. The people globally need to make a shift from the "dominant worldview" to the "deep ecology worldview"

(Devall & Sessions, 1985). The deep ecology worldview stresses the need for maintaining harmony with nature, limiting growth and valuing all the non-human species equally, rather than exploiting them for human need. Similar views were expressed by Dunlap and Van Liere (1978), who named this as the “new environmental paradigm”, emphasising the fact that the environment and humans are at equal status and the survival of humanity is largely dependent on the health of the global environment, and not just on human ingenuity (Dunlap, Van Liere, Mertig, et al. 1992). Stern, Dietz and Kalof (1993) also referred to this view as the “biospheric value orientation” towards the environment.

### **Status of Environmental Problems at a National Level**

At this time of ecological imbalance and mismanagement, India stands in a very conspicuous position due to its unique status. It is a nation developing among the developed, and developed among the developing. This unique position has resulted in a spectrum of diseases, ranging from those resulting from poverty and stark need to those resulting from prosperity, affluence and greed (Birundha, 1991). We are thus standing on a double-edged sword where we have to balance development and growth very pragmatically on one side, and environmental preservation and protection on the other side. Priorities for change should be considered scientifically and pragmatically in the context of our country. Priorities for a sustainable future have thoroughly been considered by Corson (1995). He enumerated almost 20 priority changes that are considered important for a sustainable future and a better environment. These priorities included belief, values and worldview; ethics; education; the media; governance and politics; national security; society; consumption and lifestyles; demographics; gender relations; economics; energy; transportation; technology and information management; urban design; diet; agriculture, environment and national resources.

The gravity of the problem is so great that no one section of society can overcome it single-handedly. The need of the hour is to join hands and work out a well-integrated strategy, where the drawbacks of our nation have to be converted into advantages. In other words, the challenging feature of our country is its enormously growing population. However, if stirred and mobilised in the right direction, it could change the course of rivers and move mighty mountains, metaphorically speaking. There is thus a serious need to enlighten and awaken the people of our country through

education and information about environmental problems and their long-term effects on the health of our country's citizens.

Indira Gandhi, our late Prime Minister, rightly remarked while addressing a conference on the environment in 1984, that environmental education helps in raising social consciousness and making the community aware of the fact that ecological disruption harms both the individual and the community. The large-scale participation of eco-conscious people is very important for any government to attain the goal of harnessing environmental misuse. The noted environmentalist, Prof. Nicholas Polunin, has rightly commented that "enlightened understanding by a human being of his or her environment is a prerequisite to saving it" (cited in Birundha, 1991).

Awareness about the ongoing environmental and developmental crises is said to be a prerequisite for environmental management. Although formal governmental strategies in the USA to protect the environment appeared as early as the 17<sup>th</sup> century (Grove, 1992), Rachel Carson's book, *Silent Spring* (1962) was arguably the catalyst for contemporary environmental consciousness in the USA. Her thorough and sobering analysis of the effects of pesticides on Earth's ecological system was the first alarm many Americans heard. Another landmark in this field was Garret Hardin's classic paper, "The Tragedy of the Commons" (1968). The first Earth Day was created by Senator Gaylord Nelson of Wisconsin on 22<sup>nd</sup> April 1970, to raise the environmental consciousness of Americans. It is considered another major benchmark in the modern environmental movement.

In recent decades, our vocabulary has been enriched by many terms relating to the environment, which reflects the increasing attention paid to this issue. There has been a gradual change in attitude towards the relationship between development and the environment. The first step in this direction at a global level was made in 1972, when the UN Conference on Environment and Development (UNCED) was held in Stockholm. This foregrounded the environment as an issue on the world's political agenda. However, the Indian Prime Minister (Mrs. Indira Gandhi) and the Swedish Prime Minister (Mr. Olf Palme) were the only heads of government who attended the meeting; today, the situation is different with the environment being high on the agenda of all countries. The 1980s marked an increase in awareness of environmental issues due to a succession of ecological disasters that took place around the world. To name a few: the chemical leakage in Bhopal (1984); the liquid gas explosion in Mexico (1984); drought and famine in Africa (1985); the mudslide in Colombia (1985); the nuclear accident in Chernobyl (1986); four oil spill incidents in USA

coastal waters (first half of 1989), resulting in the enormous loss and destruction of wildlife. The WCED Report, also known as the Brundtland Commission's report on the state of our planet, was published in 1987. The report concluded that the only way to prevent global catastrophe was to improve the quality of life for the poor, and make lifestyles more attuned to the ecological realities of the planet, promoting eco-friendly growth rather than growth for the sake of growth.

By 1990, the message of this report had penetrated the consciousness of citizens and leaders the world over. The World Development Report (1992) also placed emphasis on sustainable and equitable development as the greatest challenge being faced by the human race. The report tried to explore the two-way relationship between development and environment as they are inextricably linked. Development without environmental protection is undermined and, without development, resources will be inadequate for the investment needed for environmental protection. The report clearly pointed out that developing countries cannot be stopped from developing since alleviating poverty is both a moral imperative and a prerequisite for environmental sustainability. The high-income and industrialised countries must play a major role in financing the protection of the environment (natural habitats; biodiversity) in developing countries, as the whole world benefits from them. They also need to play a primary role in addressing the problems of global warming and ozone depletion in developing countries, as this is the outcome of the higher consumption levels of the rich (the greenhouse gas index is four times higher than in the developing world). UNEP's Global Environment Outlook-GEO 2000 (UNEP, 1999) indicates that, along with the traditional environmental problems, new ones are emerging. The old environmental concerns like water pollution, air pollution, loss of biodiversity and urbanisation, deforestation and land degradation must be combined and, in turn, connected to the needs and hopes of the people.

This new millennium finds Earth trapped between two conflicting trends. A wasteful and invasive consumerism, along with continued population growth is causing a threat to the resources that form the basis of human existence. On the other hand, society is attempting to struggle against time in reversing these trends and introduce eco-friendly practices that will ensure the well-being of future generations.

The recently-released annual report by UNEP (2015) stated that climate change is influencing the global environment in a manner that the extent of these disastrous changes is still to be witnessed. The average surface

temperature in the last century increased to 0.89° C and is likely to further rise another 0.3° C to 0.7° C in the coming 20 years.

By now, we are very familiar with the fact that human beings are mainly responsible for environmental pollution and degradation, due to their egocentric attitudes and immediate need for gratification. As the result, they have been unfriendly to nature, wildlife and natural resources in general, and biodiversity in particular. The people of developed countries seem to have contributed more to this unhealthy environmental imbalance of nature, as their development has taken place at the cost of resources from developing countries. It is therefore justifiable to have a sense of concern for environmental protection all over the world, including India. It is thought that improved living standards and income per capita of the nation is directly related to development, but it is rightly hypothesised that development should be harmonised with the environment. As economic growth speeds up, the rate of consumption of natural resources also increases, and toxicity levels, water and air pollution, environmental degradation all increase intensively. Economic prosperity brings an increased sense of awareness and a willingness to pay for a cleaner environment. However, the loss and degradation that occurs in the course of development is irreparable and irreversible and there is therefore a need to make sustainable development a guiding leitmotif behind economic development and growth all over the world. Concern for the environment must be reflected in national and international development policies, along with acceptance of the fact that there is a need to limit economic and population growth (Brandt, 1992).

In a democratic country like ours, environmental concerns can only become integrated with development programmes if leaders are sensitive to them (Agarwal, 1997, May). The first prime minister to express concern for the environment was Mrs. Indira Gandhi, who took an initiative in 1976 by getting the 42<sup>nd</sup> Constitutional Amendment Act passed. This incorporated protection and improvement of the natural environment such as forests, lakes, rivers and wildlife as a “fundamental duty” of the citizens of India. Other than this, the Department of Environment and Forests was constituted at both national and state-level in her leadership. The Water and Air Pollution Control Acts, Wildlife Conservation Act, and Forest Conservation Acts were also passed during her regime.

The next prime minister to take a real interest in protecting the environment was Mr. Rajiv Gandhi. He was, in fact, the first prime minister to take sustainable development seriously. He made multi-



dimensional efforts to promote eco-development. During his tenure, the Environment Protection Act was passed, greater expenditure was diverted towards environmental regeneration, and massive afforestation and agro-ecological planning for Indian agriculture was proposed. Environmental education was included in the new education policy and the Ganga action plan was also initiated, both of which have since seen results. The Department of Environment was upgraded to the level of a ministry, which he headed himself for some time. He also accepted that he could not do much without the support of the political system and the people of India, as he also had to succumb to political pressures. His successors did not do much for the environment, except to degrade the importance of environmental issues in the name of economic development. In our country, there is thus a need for another eco-friendly leader who can balance economic development and the environment in the interests of present and future generations of Indian citizens. The current Prime Minister, Shri Narendra Modi, also initiated the “Swatchh Bharat Abhiyan” (Clean India Mission) and emphasis has been placed on sustainable development, predominantly on sanitation, clean drinking water, the cleaning of rivers, agriculture (soil health), and eco-friendly practices. He launched the mission as a tribute to the father of the nation, Mahatma Gandhi, on 2<sup>nd</sup> October 2014, and envisages a cleaner India by 2019, to mark the 150<sup>th</sup> anniversary of the birth of Mahatma Gandhi.

So, the preceding pages clearly indicate the gravity of the situation with the increasing threat to the environment. The growth of environmental consciousness the world over is a positive development although not very marked at the present time. There is still a need for a lot more effort to be made on the part of the citizens of the world. Ramphal (1992) rightly stated in his book, *The Country, Our Planet*, that “there is a need for awareness that as humans we are a part of nature, not apart from it; that we should adopt humility, not arrogance, in our dealings with nature; and that we should resolve to live in harmony, not in contention with nature” (p.3).

The following pages now present a closer look at the gravity of the environmental crisis in our country. The Indian Development Report (IDR, 1997) indicated the seriousness of environmental problems in our country in the late 1990s, and stressed the need for immediate attention. The environment of our country is in a dismal condition. Almost all rivers and lakes are polluted heavily; groundwater systems are being over-exploited and polluted. The air quality is deteriorating in more and more towns with three big metropolitan areas (Delhi, Calcutta and Bombay) earning the distinction of being among the ten most polluted cities in the

world. Less than 5% of Indian's land has pristine, untouched forests left and nearly a third of India's lands can be classified as wastelands. This clearly states that India can no longer afford to ignore environmental issues, as it may result in becoming more expensive to society.

**Air pollution** poses a major threat to the health of the people and, in most of the Indian cities, the major source of air pollution is the emission from industrial, vehicular, and household sources, along with natural processes. Urban air quality has deteriorated in all Indian cities, particularly in all metropolitans, due to the combination of industrial and vehicular emissions. The World Bank study by Brandon and Homman (1995), on the air pollution levels in Indian cities, reported that 23 cities with a population of more than one million have air pollution levels higher than WHO standards. Emission statistics indicate that though industries, thermal power plants, and domestic activity also contribute to air pollution in cities, vehicular emissions is the major contributor (64% in Delhi, 52% in Mumbai and 30% in Calcutta). They further indicated that more than 40,000 Indians die prematurely because of ambient air pollution levels (Delhi 7,491; Calcutta 5,726; Mumbai 4,477; Jaipur 1,145). The World Development Report of 1993 also reported that loss of healthy life in India due to environmental causes is 30% as compared to the average of 10% in the developing world. The report also indicated that controlling air pollution should be one of the major priorities of our country. Increasing levels of air pollution is also contributing to global warming, with India contributing 8% of the total contribution. Increasing air pollution levels are therefore likely to manifest more intense effects on health, vegetation, and land topology in the coming 20 years. Rural areas of India are also not free from the ill effects of air pollution, as a substantial quantity of non-commercial fuel (crop residues, animal dung, wood, and coal) is used by people both inside and near homes. This results in a release of biofuels that pollute the air and have a damaging effect on people's health and on the surrounding environment, with women and children suffering the most. In a recent article by Anand (2016), it was reported that more than five million people around the world die an untimely death caused by breathing polluted air, and that most of these deaths occur in India and China. This alarming situation needs immediate attention.

**Water pollution** is another major problem, both in urban and rural areas of our country. The WHO data and World Bank Report of 1993 indicated that 21% of all the communicable diseases in India are waterborne diseases. The major sources of water pollution are domestic and industrial wastewater, non-biodegradable industrial effluents released from paper,

textile, leather, and chemical industries without proper treatment, and agricultural runoff. The survey conducted by the Central Pollution Control Board, Delhi (1988) reported that, of the total wastewater released from the 212 Class I cities, only 22 % was treated, while for 241 Class II cities, only 2% was treated. In the villages, 80% of children suffer from diseases due to inadequate sewage disposal facilities and a mixing of night soil in open water sources (IDR, 1997). In urban areas, only 64% of people (on average) are provided with sewerage facilities (Statistical Abstract of India, 1993, cited in IDR, 1997 p.99). Drinking water is also a major problem as only 72% of the urban population has access to safe drinking water, with rural areas being in a much worse situation (Statistical Abstract of India, 1992, cited in IDR, 1997, p.99). Environmentalists predict that the situation may become even worse if proper sewerage disposal and industrial and domestic wastewater disposal facilities are not improved. An international agency, WaterAid, recently reported that 80% of India's surface water may be polluted (Dey, 2015).

**Land degradation** is also another major problem of environmental pollution and degradation in India. The causes of land degradation in India are deforestation, soil degradation, and deterioration of village commons, as well as solid waste mismanagement. As the forest area in India is just 0.08 ha against the world average of 0.8 ha, the pressures are very high. India's population has risen from 370 million in 1947 to 880 million in 1994, constituting 18% of the world's population with 2% of the geographical area, and just 1% of forest cover and 0.5% pasture land. The forest area of the total land area is just 19.5%, though it should be at least 33%. A large part of this is also degraded and productivity is low. As stated in reports by Brandon and Hommann (1995), India's loss due to environmental degradation amounts to 4.5% of its GDP which, according to Bidwai (1996), is an underestimated cost. Bidwai (who is an environmentalist) argues that the total cost of land degradation is 9% of its GDP, indicating that the development is unsustainable in India. The degradation of land has its own impact in the form of increased soil erosion, floods and groundwater evaporation, which intensifies environmental and economic problems such as low agricultural production, water scarcity for irrigation, as well as increased emissions of carbon due to deforestation, loss of biodiversity, destruction of species and their habitats (IDR, 1997). As discussed in a recent article by Vashishtha (2014), the state of land degradation is also very dismal as 25% of India's total land is undergoing desertification, while 32% is facing degradation in the form of soil and wind erosion. This has affected its productivity, critically affecting the livelihood and food security of millions across the country. Rajasthan is

among the leading states in the country facing desertification. Both the government and the people of the state therefore need to wake up and make an effort to save the land from further deterioration.

**Noise pollution** has reached alarming levels in our metropolitan cities. Mumbai is, in fact, the third noisiest city in the world, with Delhi and Calcutta closely following. These cities have an average ambient noise level of 90 dB, which is well above the WHO permissible norms (Sharma, 1995). As stated in the report published by Lentin (2014), three Indian metropolitan cities (Mumbai, Kolkata, and Delhi) have made it onto the list of the top ten noisiest cities in the world, taking first, second and fourth places. Another recent report, published in *India Today* (“Delhi Among the Noisiest”, 2016) states that Mumbai is the noisiest city, followed by Delhi, Chennai, and Bangalore. The report was based on data collected from nine metropolitan cities by the Central Pollution Control Board. The report also mentioned that ITO in Delhi and Bandra in Mumbai have noise levels higher than the busiest parts of London, New York and Beijing.

This growing menace of pollution and degradation has provoked response and awareness amongst the citizens of our country to some extent. Vigorous judicial activism coupled with a sensitisation of public conscience marked the environmental scene during the late 1990s (Staff, 1996). The first pressure group associated with a crusade against environmental degradation was launched (The National Alliance for People’s Movement) in 1996. The apex court issued orders for polluting units to shape up or ship out in many states. On the darker side, air pollution due to vehicular emissions also increased with Delhi, Calcutta, and Mumbai having earned the dubious distinction of being among the ten most polluted mega-cities in the world. The situation has also worsened in terms of water pollution, with an increase in waterborne diseases. As stated in the 1997 report from the Forest Survey of India, we have lost forest cover, which has reduced from 638,879 sq. kms in 1995 to 633,397 sq. km in 1997, due to non-regeneration and jhum cultivation. Surely, citizens have become aware and ecologically-concerned, and have realised that, to ensure survival, they need to live in harmony with nature? Changes to lifestyle are still needed: avaricious consumers of natural resources need to become people who make conscious efforts towards sustainable development.

## **Status of Environmental Problems at a Regional Level**

The environmental situation in Rajasthan is also not very encouraging. Statistics show that, about three decades ago, Rajasthan was assessed as an industrially-backward state with only Jaipur and Kota having some chemical industrial units. However, there are now many large and medium-sized industrial units and they are steadily increasing in number. The major environmental problems in Rajasthan are air and water pollution along with poor sewerage facilities. The annual report of the Rajasthan State Pollution Control Board RSPCB (1995) identified 49 highly-polluting large and medium-sized industrial units in the state. The report also stated that the major cities were facing air pollution due to industrial and automobile emissions, with SPM levels as high as 400 ug /m<sup>3</sup> in Jodhpur and 475 ug / m<sup>3</sup> in Delhi (the fourth most polluted city in the world). The textile units in Bagru, Sanganer, Pali and Jodhpur were causing chemical water pollution, while the thermal power, fertiliser and chemical units were responsible for water pollution in Kota. More recently, an article by Ali (2014) reported that, according to the WHO (which includes five cities from Rajasthan in its database of 1,600 cities in 91 countries) an assessment of air pollution levels found Jodhpur and Jaipur to be the top most polluted cities of Rajasthan.

Jaipur, the capital city from where the sample of respondents for the present study were taken, faces air, land and water pollution due to the haphazard growth of the town on all sides. Industrial areas, new residential colonies, increasing population and traffic congestion have all resulted in a deterioration of environmental quality. A report on air pollution levels found the total pollution load of the state to be around 1,145 tonnes per day (TPD), of which Jaipur accounts for 280 TPD (RSPCB, 1994-95). Surana and Bhargava (1997a), in an assessment report on air quality in residential areas, reported SPM (Suspended Particular Matter: airborne smoke, dust) levels of 380 ug/m<sup>3</sup>, which was much higher than the permissible levels of 200 ug/m<sup>3</sup>.

High SPM levels have harmful effects on respiratory organs. In a study conducted by Dr. Singh in the early 1990s (cited in Sebastian, 1994), on the rise of asthma and chronic obstructive pulmonary disease in Jaipur, the children of Jaipur were found to be 1.5 times more prone to asthma due to increased air pollution, compared to the neighbouring districts. Approximately 20 years later, in a recent study by Sharma and Sharma (2016), it was reported that most of the Indian cities in the north are suffering from an unusually high concentration of PM<sub>10</sub> in an ambient

environment, posing a serious threat to the health of the people, leading to illnesses such as asthma, irregular heartbeat, coughing, and heart and lung diseases. They also reported that the status of the air quality of the city of Jaipur is similar to other cities. It is a matter of great concern, and the government and citizens should take stringent methods to control pollution levels.

Another type of pollution that has not received much attention is noise pollution. It has a very damaging effect on both physical and psychological well-being. Surana and Bhargava (1997b) reported ambient noise levels for residential, commercial, industrial and sensitive areas are 75 dB, 78 dB, 78 dB and 77 dB respectively, which clearly indicates that they are higher than the permissible level in all the areas (+ 20 on an average), except in industrial areas where it is marginal (+3). All this suggests that there is a need to study the attitudes and awareness levels of Jaipur residents regarding pollution and degradation of the environment, since they are exposed to high levels of air, water, land, and noise pollution on a daily basis.

The preceding pages clearly indicate the seriousness of the environmental problems all over the world, including in our country. Our environmental problems at a national and state level, as well as the localised problems of Jaipur city, have also been pointed out. Environmental problems have been explored by different groups of scientists, but the psychologist's concern is conspicuous by its absence in this area in our country. Within psychology, the subfield of environmental psychology primarily focuses on how the environment is affected by human behaviour, so a recognition of the dangerous impact of human actions on the environment was relatively slow to develop (Darley & Gilbert, 1985).

Environmental attitudes and their relationship to behaviour has been a major topic of study for Western environmental psychologists. However, the study of the environmental movement and public attitudes concerning the environment in developing countries only started to receive considerable attention during the late 1990s (Adeola, 1996). Some social psychologists in our country have shifted their interest within the field of environmental psychology. They have significantly studied crowding behaviour and noise pollution. Indian studies, however, on attitudes and awareness towards environmental pollution and degradation have not raised much concern in behavioural scientists, with a few exceptions (Larijani & Yeshodhara, 2008; Shobeiri, Omidvar & Prahallada, 2006). Therefore, it occurred to this investigator to carry out a study on people's