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ENVIRONMENTAL ETHICS APPROACH IN THE WORLD AND IN TURKEY

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ABSTRACT

ENVIRONMENTAL ETHICS APPROACH IN THE WORLD AND IN TURKEY

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This thesis analyzes the environmental knowledge, attitudes and environmentally significant behaviors of the environmental professionals such as academicians and higher level of bureaucrats in Turkey. Additionally socio-demographic characteristics of target groups were measured to examine if environmental professionals having environmental knowledge and defending ecocentric or at least homocentric approaches do really reflect their attitudes and knowledge into actual behaviors or a paradox arises when actual behaviors are compared with expressed beliefs and attitudes. It was found that, socio-demographic characteristics such as gender, age and education were not show statistically significant difference at the respondents' behavior. There only exist a positive relationship between education and environmental knowledge. Additionally, the data herein supports the theoretical assumption that, distinct professional groups have different environmental ethical approaches and different levels of environmental knowledge. Academicians have the highest consciousness level of environmental knowledge. Finally the most striking result is; although respondents have at least moderate level of environmental knowledge; there exist a statistically significant negative correlation between respondents' environmental knowledge and their behavior.

Keywords: Environmental ethics, attitudes, environmental knowledge, environmentally significant behaviors, NEP scale.

ÖZ

TÜRKİYE'DE VE DÜNYADAKİ ÇEVRE ETİĞİ YAKLAŞIMLARININ İNCELENMESİ

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Bu çalışmada, Türkiye de çevre konularında ihtisas sahibi olmuş akademisyen ve bürokratların, çevresel bilgi, tutum ve davranışları ölçülmüştür. Ayrıca bu kişilerin sosyo-demografik yapıları da incelenmiştir. Tezin amacı, çevresel bilgiye ve ekosentrik-en azından homosentrik- görüşe sahip olan akademisyen ve üst düzey bürokratların, bu bilgi ve tutumlarını gerçekten davranışlarına yansıtıp yansıtamadıklarının ölçülmesidir. Çevresel bilgi, tutum ve bunların davranışa yansıtılması kişilerin çevre etiğini ne kadar içselleştirebildiklerinin bir ölçüsüdür. Ayrıca, yukarıda bahsedilen parametrelerle, yaş, cinsiyet, eğitim gibi sosyo-demografik değişkenler arasındaki ilişkiler incelenmiştir. Cinsiyet, yaş, eğitim gibi sosyodemografik parametrelerle, kişilerin çevresel davranışları arasında istatistiksel olarak önemli bir bağlantı bulunamamıştır. Sadece eğitim ile çevresel bilgi arasında pozitif bir ilişki vardır. Ayrıca bu çalışmanın sonuçlarına göre, farklı hedef gruplarının(akademisyenler, bürokratlar ve kontrol grubu) farklı çevre etiği yaklaşımları olduğu ve çevre bilgilerinin de farklı düzeylerde olduğu saptanmıştır. En yüksek çevre bilincine sahip grup akademisyenlerdir. Çalışma sonucunda bulunan en çarpıcı sonuç, "çevre bilgisi" ile "çevresel davranış" arasında ters yönlü bir korelasyon vardır. Yani denekler çevre ile ilgili konularda bilgi sahibi olmalarına rağmen bu bilgilerini davranışa dönüştürememektedirler.

Anahtar Kelimeler: Çevre etiği, çevresel tutum, çevresel bilgi, çevreci davranış, NEP ölçeği

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CHAPTER I

INTRODUCTION

It is evident that environmental problems are increasing rapidly day-by-day and human beings have been affected directly by those problems in Turkey as in the world. Nowadays as people are facing with destruction of natural resources, global warming, decrease in biodiversity, ozone layer depletion, accelerated rates of land degradation, desertification and have begun to feel the consequences of these problems heavily, the approaches to man-nature interaction and environmental perception have changed and developed and from the mid 20th century to today.

As the importance given to environmental issues increase, the understanding of "environment" is changed and context is expanded including man-nature mutual relationship. A transition is realized from a mechanical view that accepts man as the lord of the universe and nature can be exploited for human benefit to a more organic, functional or holistic approach that accepts, everything is connected to everything else. "The whole qualifies each parts, a change in one of the parts will change the other parts and the whole" became a dominant approach (Özdemir, 1997).

Because of this increased sensitivity to environmental changes, a great number of people became an "environmentalist". Especially in Turkey, the number of people who are interested in environmental issues has increased and being environmentalist became a trendy fashion, mostly for intellectual circles. Conservation organizations and environmental NGOs are now receiving more calls, individuals especially businessmen are being a member of these organizations and offering help who never previously demonstrated an interest to the environment, "environmental policies" take part in the programs of political

parties, several legislation on environmental issues have been declared by decision makers, environmental groups such as Greenpeace, represent an important channel for the public to express their concerns and so on.

These changes seem to indicate that people are becoming aware of the importance of nature and environment and thus their responsibilities towards environment. We might expect that, environmental consciousness should increase and attitudes towards the environment should change resulting in changes in behavior for better environmental conditions or at least betterment of present environmental problems. However, environmental problems still exist; ozone layer is still depleted, biodiversity is decreasing, terrestrial lands getting smaller since lowlands are begin to covered by water.

It is clear that; to be an environmentalist might not be enough to protect the environment or to prevent environmental problems by today's way of perception of nature and man-nature relations. People do not incorporate these changes in attitudes, in perception and environmental consciousness into their daily routine lives. They do not live in an environmentally friendly way, they do not change their consumption habits and they do not take care of environmental values in their relations with each other and with nature. If there is conflict between personal interest and protection of nature; unfortunately personal interest gains the priority. This situation makes us question- is there "hypocrisy" or not? If there is an inconsistency between environmental attitudes and behaviors, this will create a great problem. In such a situation solution of environmental problems will be more difficult than expected. Therefore this dilemma certainly required to discuss the need for a mechanism to change the code of behavior and set of values which are internalized and adopted to guide their actions by the individuals. That is, there is a need for effective ethical values haven by individuals in spite of interests world of capitalism. These values being different than the laws are informal and unwritten value based conduct of the individuals towards environment. In other words, "internalized ethical values" necessary to make individuals behave in a real environment friendly way by feeling themselves as the part of it and feeling nature inside themselves.

Environmental ethics impose certain limitations on human conduct with regard to nature depending on two fundamental requirements; one is "respect for nature" and the other is "moral development of individuals".[1] Moral development of individuals means, individuals form their own ethical framework to live in harmony with nature by assessing the consequences of their relationship with nature. Each individual has a capacity to change his/her relationship with nature as soon as he/she notices or is faced with the adverse impacts of existing interaction, in a way towards rehabilitated, cleaner environment. He/she should reorganize relations with nature as well as his/her capacity to destroy the nature. In one aspect, human beings have a tendency to overuse natural resources assuming they are limitless, however in another aspect they have the capacity to prevent pollution and destruction via technology and ethical values owned at the same time. (Tekeli, 2000) At that point, their freedom and preferences lead them to choose in which direction they move; destroy or protect. Here, freedom brings different choices of alternatives. What is needed to make right choice of the most appropriate alternative that fits our personality, culture, religion, and desires, is knowledge. This will help us to determine the border between our freedom and freedom of others including nature. Preferences are the good indicators of ethical approaches of individuals. Individuals could find what is bad or what is good by their conscience and comprehend what his responsibility is and act accordingly. In fact there is a close collaboration between ethic and responsibility. As individuals, we have responsibilities towards nature, (such as to guarantee the sustainability of natural resources or try to re-establish damaged balances or rehabilitate ecosystems, etc.) towards to society (we are living in the society and we have to consider the common interests, however, those interests should not be only

[1] [1] Here it will be beneficial to explain the difference between the words "ethic" and "moral". Both of these words could be used for the same meaning both in western languages and in Turkish. However, "ethics" has more expanded context and contains "morals". Morality is applied part of philosophy while ethic has more theoretical and critical framework.

human-centered) and towards future generations (that will be explained in detail in the coming chapters).

If wholesomeness of the ecosystem or fragility and sensitivity of nature is understood well by individuals and one can conceive his/her position within, and then the individual reaches the situation of consciousness. Scientific knowledge and experiences about nature increase sensitivity and may lead to facilitated consciousness that leads to the sense of responsibility. This structure lays the foundations of good-bad concepts and living and experiencing the good and the bad, we could extract our responsibilities, which help us to achieve "good" in the context of internalized environmental ethic. In the light of these discussions, individuals' relationship with nature -their both sided capacity whether to destroy or to protect the nature- and their way of harmonizing responsibilities with actions are the important problem areas that should be questioned.

To make these problems clear, it certainly is necessary to examine the inconsistency (if exists) between, what people's perception of being "environmentalist", their environmental approaches and how to adopt their environmental attitudes into behaviors or actions. Therefore by this study it is aimed to measure people's attitudes and behaviors towards environment.

Although there are different classifications of environmental approaches (O'Riordian, 1989; Eckersly, 1992), I will focus on the approaches that are classified based on the philosophical backgrounds of sources of environmental problems; not the technical, but the practical issues and their solutions. Merchant's (1992) classification of environmentalism will be taken as basis in terms of its ethics and ideological antecedents since it fits best to the aims of this study. Three main approaches take place in her classification; "egocentrism", "ecocentrism" and "homocentrism. She places "homocentrism" based on utilitarian philosophy and Marxism among other ideologies, and it is both mechanistic and holistic. In this approach human values and desires have first priority but this does not lead to the destructive and short-sighted view of nature just as in egocentrism' aggressive and competitive individualism. Homocentrism

taken here, would steward nature in the attempt to maximize the sum of human happiness and welfare. This version of anthropocentrism (homocentrism) accepts that; “an individual’s well-being depends on the well being of both its social group and ecological support system (Pepper, 1996) that exactly fits the ideas of Barry Commoner.

Barry Commoner’s approach might be considered as most extreme anthropocentric perspective in using nature rationally (Ünder, 1996). Although on thefrom an anthropocentric sidestandpoint, Commoner accepts that environmental problems result from human activities, he blames for the current environmental problems caused by industry, politicians, rich and poor people, population, profits, religion, technology and capitalism, in short; “everybody and everything.” (Commoner, 1971). In this study, while evaluating and measuringed environmental attitudes and behaviors, Commoner’s approach will be used as reference point. Therefore a detailed information discussion of his argument will be given in the theoretical framework part of the study.

In short, egocentric, homocentric and ecocentric approaches, their basic philosophical frameworks which had much more influence on the development of contemporary ethical trends will be discussed in this study. To measure if respondents’ approaches are towards “homocentrism”; two sets of questions were prepared under the subheadings of ‘man over nature’ and ‘human beings threaten the nature’. Similarly, to measure whether the respondents’ are close to egocentric, (here, egocentrism based on the approach that; maximization of individual self interest: what is good for each individual will benefit society as a whole) or ecocentric (in which unity, stability, diversity, harmony of ecosystem is accepted) approaches which are totally contrasting to each other, several questions asked under the subheadings of “limits to growth” and “nature has a delicate balance” respectively. Additionally, “environmental knowledge” and “ecological behaviors” scales are measured with a two different groups of questions.

Measurements have been done depending on the self-perception of each individual i.e. how they perceive themselves.[2] Because, as mentioned above, attitudes of environmental concern are rooted in a person's concept of self, and the degree to which an individual perceives him or herself to be an integral part of the natural environment. Then, he/she will be aware of his/her responsibilities towards environment and act accordingly. That is, the existence -or lack - of ethical values that make people behave in a responsible manner to the environment will be discussed. In other words, whether individuals succeed in using their capacity for the development of their morality towards environmental values or not will be examined.

First, to manage the aim of the study, it will beneficial to take brief look at the history of environmental development and environmentalism to be able to understand the reasons effecting environmental attitudes and behaviors of individuals. It is clear that, there is no one, objective, monolithic truth about society-nature/environment relationships. There are different truths for different groups of people in different social positions and with different ideologies (Pepper, 1996). Therefore, it is required to understand scientific developments and at least the basic philosophical backgrounds behind those ideologies or approaches to comprehend how man-nature mutual relationship affected and changed in time.

Although, humanity-nature mutually re-enforcing relationship is age old and affected by the different kinds of religions, cultures, old Greek philosophy, and other eastern philosophies, as mentioned above, I will not focus on the pre-industrial period, in this study. I will emphasize developments after the "Enlightenment Period".

Similarly, in the third chapter of the thesis; parallel to the developments in the world, Turkey specific development of environmental issues will be discussed. These discussions will include local sources of environmental problems, development-environmental protection balance, poverty, in short environmental

[2] Advantage(s) and disadvantages of self-reporting will be discussed in Methodology.

policies depending on the external and internal dynamics that effecting Turkey such as political, economical agenda. This will help us to see the impacts of the events happening in the world and their reflections on Turkey and will be beneficial to explain the changes in the scientific knowledge and approaches on environmental issues. Thus we will be able to compare the changes in environmental developments in Turkey parallel to the world. This will help us to analyze Turkish people's attitudes, behavior and sincerity. That is ethical values of people will be investigated.

In order to discuss the relationship between scientific developments, accumulated knowledge, societal responses and movements given in Chapters II and III and their impacts on human behavior, it is necessary to comprehend the mechanism of ethics. It was realized that, more science and more technology are not enough to solve our present environmental problems (Özdemir, 1997). Since then with a deeper approach "morality" and ethics hashave become of further importancet to for a better understanding of the relationship between man and nature. Depending on that fact, aAs concern for the natural environment has been increasinged and the ecological crisis is continuesing, there has been was a call from many environmentalists for a change in people's basic values, principles and attitudes towards nature .(Devall, 1985; Drengson, 1980; Engel, 1993; Goldsmith, 1988; Naess, 1990; Passmore, 1995; Rajas, 1994). Therefore it is necessary to construct or to adopt They asked for a different worldview and a different set of values and duties towards environment, that is "environmental ethics".

Along this line, in the light of the challenges and developments given above on environmental issues both in the world and in Turkey; ethical theories and where environmental ethics take part will be discussed in Chapter IV. Then, a relationship between basic environmental approaches in the context of this study and ethical theories explained in this chapter will be correlated.

To measure and capture how individuals view environmental issues and form preferences for behavior mostly questionnaires are used which are prepared according to either known and accepted scales or newly formed scales for specific purposes (Stern, Dietz, Kalof, 1995). These scales are necessary to be able to validly and reliably measure people's belief and value systems. In the present

study, Dunlap and van Liere's modified "New Environmental Paradigm" (NEP) scale was selected among other known scales[3] since it emphasized environmental protection, limited industrial growth and population control among other issues that fits the approaches in this study. It has become more widely used measure of environmental or ecological worldview challenging the older view of anthropocentric approach. Additionally, several studies (La Trobe, et al., 2000) done to elaborate such measuring instruments has shown that; it is possible by applying NEP scale to include references to the intrinsic value of nature, as well as the moral duties people have to the rest of nature and to other human beings, with a considerable reliability that perfectly matches the requirement of the present study. The basic assumption of the NEP is that humans are equal members of the natural world rather than being distinct from nature and exempt from natural laws. All of those specifications of NEP scale are satisfactorily enough to be used for the purposes of this study. Although its dimensionality found different for different studies (even one-dimensional), generally it has three distinct dimensions; limits to growth, man over nature and balance of nature. All of these dimensions are one to one corresponds to the environmental approaches discussed and accepted as mainframe of this study. NEP items measuring these three facets of new social worldview exhibited a good deal of internal consistency and strongly discriminated between known environmentalists and the general public.

Although we are willing to include all layers of society in this study; it is impossible to manage this in the context of this thesis. Therefore depending on the above specification of the NEP, as a target group environmental academicians who are employed in universities and work with environmental issues (biology, environmental engineering, water products engineering, agricultural engineering, etc), bureaucrats (especially those in decision-making positions) were chosen as a representative of known environmentalists and randomly selected people who graduated from university and share a similar income level with the other groups and have no direct relation with environmental issues were chosen as a

[3] Detailed information about other scales is given in Chapter IV.

representative of the general public for the purposes of this study. Another reason for choosing these particular groups of respondents is; academicians and decision makers are expected to exhibit their environmental attitudes in their behaviors since they are the most conscious people on environmental issues in Turkey and in the World. To handle environmental problems created by human activities and to avoid creating new ones, we need national and international standards, produced in the light of ethical value knowledge by ethically-concerned professional *scientists and academicians.* To make these standards applicable, we need ethically concerned *decision makers*. However, being ethical is not enough; environmental or ecological knowledge and consciousness are necessary. We need academicians and decision makers who can connect this knowledge with ethical values to solve environmental problems in given situations and have a capacity to evaluate each case for itself. Additionally, the *academicians* are very important since, they as a group are highly influential in shaping the environmental attitudes of future generations. The third group was involved in the study to make reliable comparisons between environmental specialists and (laymen) ordinary people who are well educated.

In summary, if those respondents translate the necessity of reflecting environmental attitudes into personal actions, they would be revealed in their work by production of applicable, environment friendly strategies and politics. Otherwise, environmental politics, which is not prepared accordingly will not be effective in solving environmental problems, instead may even help the worsening of the situation.

In the "Material and Method" part, detailed information on the questionnaire developed will be given. To be able to measure the impacts of socio-demographic variables on environmental attitudes, behavior and environmental knowledge, these kinds of variables such as age, income, level of education and were asked. In the second part; environmental attitudes of target groups were measured by applying modified NEP scale with 16 items. In the third part; open-ended questions were asked to check respondents' actual approaches to environmental issues and finally, fourth part is prepared to measure environmental

behaviors. Additionally, four decision makers: vice-undersecretary and General Director of Environmental Management, Vice General Director of Environmental Impact Assessment and Planning of the Ministry of Environment and Forestry, and Vice Chairman of Authority for the Protection of Special Areas; further, two academicians from Hacettepe University Biology Department, (Prof. Dr. Ali Demirsoy), from Gazi University Biology Education Department (Prof. Dr. Figen Erkoç) and Associated Professor Çağatay Keskinok from Middle East Technical University (City planning Department) were interviewed.

Although there are many studies conducted to measure environmental attitudes, perception, knowledge and awareness of different target groups (students, teachers, foresters, businessman, etc.), of different cultures in different countries in the world, the number of studies examining the relationship between attitudes and behaviors are not sufficient (Maloney and Ward, 1973; van Liere Dunlap, 1981). That is, ethical dimension of the situation is not emphasized sufficiently. We said that, environmental ethics is not only understanding environmental values but also promoting these in behaviors, actions. What if achieving the former does not mean achieving the latter? A few studies that attempted to measure the relationship between attitudes and behaviors indicate that, although people express a relatively high level of concern about the environment, these are reflected only in few environmentally oriented behaviors (Maloney and Ward, 1973; Ostman and Parker, 1987; Smyhte and Brook, 1980; Scott and Willis, 1994). The mentioned studies reported no close correlation between attitudes and behaviors. This may be interpreted as: "being environmentalist does not necessarily mean that behaviors will also be environmentalist". This is one of the least explored areas of inquiry in environmental ethics (Taylor, 2005). Holding higher and effective positions in the government and having higher environmental education (having upper level of knowledge on environment) does not mean that those people live environment friendly. If so, this is the worst case since those people are in charge of shaping young generations and producing policies. Consequently problems will remain unsolved at national and international levels. By the approach as a famous Turkish

proverb "snake which does not touch me may live for thousand years" states; decision making top level people in Turkey do know which problems in environmental conservation exist, and are aware of solutions but refrain from any material or moral sacrifices to overcome the problems. This situation leads to a problem of moral hypocrisy.

Within this framework, it might be concluded that, actual behaviors in, and toward, the environment, often do not match the beliefs and attitudes expressed by an individual. If this paradox arises when actual behaviors are compared with expressed beliefs and attitudes will be examined through this study in the case of Turkey as an example of developing country. Additionally, the present study is expected to be beneficial since the potential reasons behind such a weak correlation between attitudes and behaviors will be examined.

CHAPTER II

THEORETICAL FRAMEWORK: A Brief History of Environmentalism and Environmental Ethics

2.1. Introduction

Since ancient times, different approaches and thoughts were developed and discussed about man-nature mutual relationship. Early people spent their entire existence for his basic needs such as food and shelter. They had limited impacts on nature. However, when farming and hunting advanced, small interference to nature began. At that timethat time, because of the changes in understanding of "basic needs" such as more food, better shelter and better clothes, human beings overused nature for the expectations beyond needs and for their self-interest, causing natural resources to be depleted and polluted. Additionally,Especially, with the industrial revolution in the Europe, in 17th and 18th centuries; a “revolution paradigm” defending “nature is a resource and can be exploited by man to improve his living standards” made man become increasingly dominant and feel that they are the masters of the universe. People have behaved accordingly and presently it is certainly recognized that; ecological and environmental problems are the cumulative product of this paradigm.

By the realization of the fact that human beings can no longer continue with such a worldview and associated consumption patterns; “environmentalism” emerged as an important concept in the 19th and 20th centuries. Since the existing relationship between humans and nature result in environmental problems, this relationship will be basic concern of this thesis trough the discussions about history of environmentalism.

In fact, man-nature relationship is ages old and there is no one, objective, monolithic truth about society-individual-nature relationships. There are different

truths for different groups of people in different social positions and with different ideologies. For instance, in Judeo-Christian tradition men is created in the image of God, therefore conqueror of nature and have no responsibility to nature. Contrastingly, Buddhism provides all the essential elements for a relationship to the natural world characterized by respect, care and compassion in South-Asian traditions.

However, it is impossible to explain all those existing approaches in the content of this thesis. Therefore, when discussing the man-nature relationship, I will not focus on the pre-industrial period; I will emphasize developments on environmental issues after the "Enlightenment Period" that has influence on human perception of nature and thus behavior. For better understanding of those environmental approaches, the philosophical dimensions behind them and developments in science influencing will be summarized. In the second part of this chapter, ethical theories behind the given environmental approaches and their development in history of environmentalism will be discussed.

2.2. History of Environmentalism

First meaningful studies in environmental science could be seen in the last quarter of the 18th century. George Louis Leclerc published 36 volumes *Historie Naturel* (History of Nature) between 1749-1788. In these books, since they belonged to pre-industrial period, the destructive role of humankind was not known well and to him, humankind lives in harmony with nature. However, in the same years, Thomas Malthus (1766-1834) noticed the negative impacts of uncontrolled increase in population and he was as pessimistic as contemporary environmentalists about future. He said that, human population "when unchecked, goes on doubling itself every twenty-five years, or increases in a geometrical ratio resulting in hunger and poverty problems in the world." He was skeptical that agricultural production could be indefinitely increased, even arithmetically because of the increasing need to use available lands (Pepper, 1996). Malthus

established a fundamental for **"limits to growth"** approach that will be explained in the coming sections of this Chapter. Malthus might be accepted as the first representative of egocentric approach following the T. Hobbes and J. Locke. The "egocentric environmental ethic" is one of the subclasses of environmentalism based on grounds for environmental ethics discussed in this study. In the light of his ideas, Adam Smith, Garret Hardin, etc. had done several studies related with the impact of uncontrolled population increase on nature.

At the beginning of the 19th century geographers like Ritter, Von Humbolt were interested in the interaction between man and nature too. Mutual relationship between man and nature took place in Ritter's analysis on a regional basis determined by theological conditions whereas Von Humbolt gave priority to the natural sciences and the mutuality of man-nature relation itself. During this period those people come to the point of "environmental determinism" in which natural conditions are effective more than the social determinants for the evolution of living things. As an important representative of "environmental determinism" Charles Darwin (1809-1882) can be regarded as landmark (Pepper, 1996) in environmental history. He identified the environment as a force, shaping plant and animal physiology and behavior and postulated the theory of competition among animals as a mechanism for enhancing species survivability. Darwin together with Huxley drew a close analogy between humans and animals emphasizing structurally similar features. The most known example is, similar features between *Homo sapiens* and apes and their common ancestry. He accepted human as one of the many species exist on earth- no less no more- and all species are linked by a web of life.

While discussing the history of environmentalism, Darwin's evolutionary theory which is very popular in 19th century, should also be mentioned since it reaches a point of "balance of nature" which is one of the approaches measured in the scope of this study. According to this theory, variations occurred between individuals in a species substantially by chance. Hence, individuals who had features that were best adapted to the environment (i.e. 'fittest'), were more likely to survive than those who were poorly adopted. That is there is a struggle for

resources and competition between individual to be 'fittest'. In the long run this competition and struggle between species are so nicely balanced that the nature remains uniform. By this aspect of his theory there is an idea of systems in dynamic equilibrium which is very important for our discussions in man-nature relationships; transition from (homocentric) anthropocentric to ecocentric approaches. Details of these approaches will be discussed in the "history of environmental ethics" sections of this Chapter in detail.

During this period, contribution of human beings to the environmental problems began to be discussed more frequently since it was realized that, man is not as innocent as it was thought. For example, George Perkins Marsh emphasized the destructive impacts of human beings on nature in his book in 1850. At the same period, Haeckel (1866), whose thoughts were parallel to Darwin developed a concept of "ecology" and defined as "the study of the reciprocal relations between living organisms and biotic and abiotic environment" (Hens and Susanne, 1998). By this definition there is a call for holistic thinking, recognizing the full implication of our place in the global ecosystem, in whatever we do to one part of that system will affect all other parts (Pepper, 1996) as opposed to individualism advocated by mechanistic approaches that are much more common in those years. Bramwell (1989) agreeing on that explained his ideas as, "Haeckel's influence on modern ecology was quite important. He helped to shift biology away from affinities with classical philosophy towards a holistic view and emphasized the importance of man-nature relationship."

At about this time, other nature writers like Thoreau (1817-1862) and John Muir (1838-1914) were talking in terms of "respect for nature" and emphasized the importance of land. Although they met opposition from the outset those with economic interests like timber companies, politicians, etc., they defended that; valuable and unique areas should be protected. Inspired by naturalists like Thoreau and Muir, environmental awareness began to spread through the western world. National parks were declared in Australia, New Zealand and Canada and Britain began to establish its first conservation-based organizations, like 'Royal Society for the Protection of Birds' (1893) and 'National Trust' in 1894.

Similarly to Thoreau and Muir, Aldo Leopold (1887-1849) was thinking wildernesses were spiritual places and their loss meant a spiritual loss to humanity. He made an important contribution to the development of the idea that, "man is not a master of the universe, only one of the parts of nature" and he established a connection with "ethics" in nature-man relationship. He believed humans should extend to nature the same ethical sense of responsibility that we extend to each other. Especially his famous article, "The Land Ethic" (1949) provided a foundation for ecocentric approaches. He claimed "something is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise" (Leopold, 1949). Merchant (1992) calls this the first formulation of modern ecocentric ethics that is another subclass of environmental approaches based on grounds for environmental ethics that will be discussed in this thesis.

Within 100 years a small number of concerned people had done something to raise environmental awareness in the World. However, until the 1960s that concern for the environment could not turned to organized movements. Many of the literature agree that the milestone marking the birth of the environmental movement was Rachel Carson's book, Silent Spring (Taylor, 2005). This book, describes the slow but absolute poisoning of the environment by pesticides and DDT in particular. The message given by the title is clear: one day there will be a spring without life. She described in detail how the chemicals, like the insecticide DDT, enter the food chain and accumulate in the fatty tissues of animals, included human, and resulted in cancer. Although she is criticized and the book is tried to be banned by the chemical industry, according to the investigations done she was found to be correct, DDT was banned, and the effects of other chemicals were scrutinized. This development was very important since it is scientifically proved that; environment was being damaged by humans. Previously, environmental problems had been the concern of just a few people. But by this publication, people understood that, their own lives were at risk and environmental issues could no longer be ignored. Therefore it is possible to say that; ecological movement was born with Rachel Carson's Silent Spring.

Similarly, Garret Hardin argued in his book "Tragedy of Commons" that, there is a tragedy of commons wherein given an ecosystem open to all and individuals use natural resources for their own interests and degrade them (Taylor, 2005). He treats the environment as a 'free' set of goods and services (Pepper, 1996). His much debated article "Living in a Life Boat" (1974) argued that aiding the poor countries causes population increase resulting in environmental degradation and human suffering (Hardin, 1974). Paul Ehrlich (1968) warned people for the possibility of unavoidable disaster, if population growth was not taken under control, in the parallel of a Malthusian approach.

These discussions are important since their widest reflections could be seen in the emergence of "Club of Rome". The "Club of Rome" was a group of some 50 appointed scientists who met regularly to try to put the world to right position in relation to the cold war. Their first report "Limits to Growth" was published in 1972 and described the consequences of the natural resource depletion. The report gives different scenarios by model analysis of five variables, namely, technology, population, nutrition, natural resources and nutrition by focusing on the limited nature of natural resources, describes how population growth rate will be effective if the production and consumption patterns do not change. Although the "Limits to Growth" has been heavily criticized, it publicized for the first time the idea that development should be in balance with the finite size of the Earth's resources.

As a result of rapid increase in environmental problems faced and intellectual developments depending on the findings of Club of Rome; the United Nations Conference on the Human Environment met at Stockholm in June 1972. It was the first event that turned the environment into a major issue at the international level. The World of 1972 was very different from that of today. The Cold War still divided many of the World's most industrialized nations; the period of colonization had not been ended (Campbell, 1998). The personal computer did not exist, global warming had only just been mentioned for the first time and threat to the ozone layer was seen as coming mainly from supersonic jets.

Although transnational corporations existed and were becoming increasingly powerful, the concept of globalization was still 20 years away

(UNEP, 2003). Pressure groups were not actively taking part in most of the public movements, state policies were dominant on the decisions related with the environmental issues. Non-governmental Organizations were not properly organized and effectively functioning yet. Under these circumstances, it was surprising that the idea of an international conference on environment to be held.

The conference drew together both developed and developing countries, having considered the need for a common outlook and for common principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment. The Conference produced a Declaration of 26 Principles and an Action Plan of 109 recommendations. A few specific targets, such as prevention of oil discharges, 10 years moratorium for commercial whaling were set. The Stockholm Declaration on the Human Environment and Principles constituted the first body of "soft law" in international environmental affairs (Long, 2000).

Those mentioned common principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment proclaims that;

1. Man is both creature and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. In the long and tortuous evolution of the human race on this planet a stage has been reached when, through the rapid acceleration of science and technology, man has acquired the power to transform his environment in countless ways and on an unprecedented scale. Both aspects of man's environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights the right to life itself.

2. The protection and improvement of the human environment is a major issue which affects the well-being of peoples and economic development throughout the world; it is the urgent desire of the peoples of the whole world and the duty of all Governments.

3. Man has constantly to sum up experience and go on discovering, inventing, creating and advancing. In our time, man's capability to transform his surroundings, if used wisely, can bring to all peoples the benefits of development and the opportunity to enhance the quality of life. Wrongly or heedlessly applied, the same power can do incalculable harm to human beings and the human environment. We see around us growing evidence of man-made harm in many regions of the earth: dangerous levels of pollution in water, air, earth and living beings; major and undesirable disturbances to the ecological balance of the biosphere; destruction and depletion of irreplaceable resources; and gross deficiencies, harmful to the physical, mental and social health of man, in the man-made environment, particularly in the living and working environment.

4. In the developing countries most of the environmental problems are caused by under-development. Millions continue to live far below the minimum levels required for a decent human existence, deprived of adequate food and clothing, shelter and education, health and sanitation. Therefore, the developing countries must direct their efforts to development, bearing in mind their priorities and the need to safeguard and improve the environment. For the same purpose, the industrialized countries should make efforts to reduce the gap themselves and the developing countries. In the industrialized countries, environmental problems are generally related to industrialization and technological development.

5. The natural growth of population continuously presents problems for the preservation of the environment, and adequate policies and measures should be adopted, as appropriate, to face these problems. Of all things in the world, people are the most precious. It is the people that propel social progress, create social wealth, develop science and technology and, through their hard work, continuously transform the human environment. Along with social progress and the advance of production, science and technology, the capability of man to improve the environment increases with each passing day.

6. A point has been reached in history when we must shape our actions throughout the world with a more prudent care for their environmental consequences.

Through ignorance or indifference we can do massive and irreversible harm to the earthly environment on which our life and well being depend. Conversely, through fuller knowledge and wiser action, we can achieve for ourselves and our posterity a better life in an environment more in keeping with human needs and hopes. There are broad vistas for the enhancement of environmental quality and the creation of a good life. What is needed is an enthusiastic but calm state of mind and intense but orderly work. For the purpose of attaining freedom in the world of nature, man must use knowledge to build, in collaboration with nature, a better environment. To defend and improve the human environment for present and future generations has become an imperative goal for mankind-a goal to be pursued together with, and in harmony with, the established and fundamental goals of peace and of worldwide economic and social development.

7. To achieve this environmental goal will demand the acceptance of responsibility by citizens and communities and by enterprises and institutions at every level, all sharing equitably in common efforts. Individuals in all walks of life as well as organizations in many fields, by their values and the sum of their actions, will shape the world environment of the future.

Local and national governments will bear the greatest burden for large-scale environmental policy and action within their jurisdictions. International cooperation is also needed in order to raise resources to support the developing countries in carrying out their responsibilities in this field. A growing class of environmental problems, because they are regional or global in extent or because they affect the common international realm, will require extensive cooperation among nations and action by international organizations in the common interest.

The Conference calls upon Governments and peoples to exert common efforts for the preservation and improvement of the human environment, for the benefit of all the people and for their posterity (UNEP, 2003).

In short, although many of its recommendations remain unfulfilled, they are still on the agenda as important targets and conference produced some

successes; the World Environment Day (5th of June) was marked at the Stockholm Conference, and this conference led to the establishment of numerous national environmental protection agencies, non-governmental organizations and the United Nations Environment Program (UNEP). Equally important, conference achieved narrowing the gap between the views of the developed and the developing nations. Several international committees were established and conferences met until then.

With the establishment of non-governmental organizations, especially dealing with environmental issues, new social movements emerged at those years. Environmentalism began to define its own problematic area. Until then, the necessity of environmental protection and improvement, prevention of environmental problems and the value of nature are accepted by a large scale of people in different positions and in different countries. There was a great deal of concern over nuclear weapons and nuclear power in 1960s. To overcome this problem, environmental pressure groups like Greenpeace, Friends of Earth were established in 1971, which are more radical, taking direct action against environmental destruction. Such movements by a wide array of such NGOs have been one of the factors in shaping public awareness about environmental problems.

The best known example of new social movements that emerged at the end of the 1960s is the '1968 student movements'. The aims of this newly discussed ecology movement and the ideologies of student movements in 1968 fit into one another and new social changes together with changes in environmental conditions (to a cleaner one) were targeted. Movements such as gay liberation movements, peace movement and the "green" movement had a common target; criticizing capitalism, market economics and patriarchic order.

Environmental movements followed by inclusion of ecocentric approaches in party politics such mayoral election in France in 1977 (Simonnet, 1982). Green political activists advocate the formation of green parties that would rewrite the social and political reproduction that helps saving other species, protecting nature and human health. This encouraged environmentalists and politicizations of

environmental movements have been observed in Germany and other parts of Europe. For example, today Red-Green coalition is in administration in Germany.

These trends had found many supporters from all around the world especially from young and intellectual people. Additionally by the confliction of their ideas, these social movements led to the development of new areas in geographical arena like humanistic, radical, anarchistic, phenomenological, etc. and all these areas have different paradigms, thus different environmental perspectives (Tekeli, 2000).

While in the 1970s, there was a widespread belief that environmental problems are caused by scientific and technological progress; during the 1980s, it became obvious that environmental problems were more related to society and societal occurrences than a scientific-technical outlook science and technology alone. The defining political events of the 1980s were the breakdown of the Eastern bloc and the end of the polarization between western and communist countries and their allies in the developing world. The situation was slightly different in the developing countries which are registered little growth in income. Dealing with the cycle of poverty became particular challenge as population growth in the developing world not only continued but an increasing number of the poor were living in cities. The number of refugees doubled. As urban populations grew, cities were unable to cope with their physical infrastructural demand. Additionally in 1980s a range of catastrophic events (Chernobyl nuclear power plant explosion, oil spill from Exxon Valdez supertanker, etc.) left permanent impacts on the environment and human health. This situation led to the birth of the idea that; environmental issues are systemic and addressing them requires long-term strategies, integrated action and the participation of all countries and all members of society. Communicating the message that, environment and development were interdependent required a process which carried authority and credibility to the North and South, to government and the business sector, to international organizations and civil society. This was reflected by the report of the United Nations World Commission on Environment and Development (WCED) called “Our Common Future” (1987) which was another important landmark in this discussion. The report analyzed the

relationships between environmental degradation and economy on a worldwide scale. Public meetings were held in both developed and developing regions, and the process empowered different groups to articulate their views on issues such as agriculture, forestry, water, energy, technology transfer and sustainable development in general. The "term "sustainable development" became a new paradigm and defined as; development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

The Commission determined the new and threatening environmental problems as global warming, ozone layer depletion and concluded that; existing decision making structures and institutional arrangements, both international and national levels could not cope with the demands of sustainable developments. Thus it is necessary to strengthen non governmental sector, formation of many new organizations for the engagement of environment and development. It might be said that, there was another paradigmatic shift from ecocentrism to homocentric one, which is in between two extremes; egocentric approach and ecocentric approach.

A second conference in which "sustainability" become more dominant and discussed in a wider range of people from different sectors about this new concept was done in 1992 at the Earth Summit in Rio to decide what should have done for the worldwide application of "sustainable development principle". It emphasized how environmental problems are linked to economy and social justice issues. The main product of this Conference, Agenda 21, provides a basic framework to help the world in taking decisions on the goals and the allocation of responsibilities and resources associated with the environment and development issues that the world currently faces. The world leaders agreed to combat global warming, protect biodiversity and stop using dangerous chemicals. These intensions have been executed with varying degrees of success.

For example, although many nations signed up the Kyoto Protocol, introduced at Rio, aimed to cut down carbon dioxide emissions to prevent global warming, some developed countries were given first priority to their short term interests. Countries with an economy which depend on oil like the U.S.A. and Saudi Arabia rejected being a party to the protocol, especially U.S., began a

tradition of refusing to commit to anything too binding on the carbon emissions front.

After ten years following the Earth Summit in Rio, Johannesburg Earth Summit was held in 2002 aiming to evaluate the appropriate implementation of strategies for sustainable development as determined in Rio. More concrete decisions were taken such as "to halve the number of people in the world who lack basic sanitation by 2015". Five problem areas were identified; water and sanitation, energy, health, agriculture and biodiversity. Although, developed countries (European Union countries and the U.S.) were dominant in the previous summits in Stockholm, Rio and others; in this summit the developing countries are becoming evermore aware on environmental issues, unequal distribution of natural resources, and contributions of developed countries on environmental pollution, therefore becoming more effective for their interests to be given greater consideration. However, some of the developed countries hijacked the corporate interests like in Rio. U.S., Japan and the oil companies once again discouraged the promotion of renewable energy resources in order to favor their own economic interests.

In the light of the above explanations; basic assumptions of a common environmental worldview reached today in the World could be summarized as follows:

- Destructive impacts of environmental problems have began to be felt heavily in developed countries as well as in developing countries,
- Individuals in contemporary societies have certain levels of environmental awareness and knowledge. Therefore changes in their perception and attitudes are expected,
- Basic environmental policies such as rational use of natural resources for the present and future generations;
- Polluter pays principle; prevention of pollution instead of rehabilitation of nature after pollution are accepted globally,
- The term "sustainable development" became a new paradigm,
- And finally it is the time for action.

What is meant by “it is the time for action” should be emphasized further. At the Stockholm Conference, fundamentals of above explanations were established basically. At the Rio Summit, in 1992, Action Plans under the heading of Agenda 21 at national and international levels were prepared. However in 2002, in Johannesburg Summit it was understood that, bringing into actions all the decisions taken in above-mentioned meetings is really very urgent.

It is clear that, still nothing changed too much. More and more people accept that environmental problems are caused by humans and should be protected by human and from human. However, it is not still clear or agreed on that as 150 years ago, should the environment be protected because it is a source of food, energy and other materials we need? Or should it be protected because it has value in its own right? Now, more than ever, it is important to recognize the critical crossroads we are at.

As a summary, the mechanistic worldview created during the seventeenth century, scientific revolution constructs the world as a machine made up of interchangeable atomic parts that are manipulated by human. This approach and its ethic legitimate the use of nature as a commodity and instrumental good served for the welfare of human beings. Mechanical thinking and industrial capitalism lie at the root of many environmental problems. However this mechanistic worldview, which is the product of early capitalism at that years replaced by ecocentric worldview that is holistic and emphasizes the importance of wholesomeness over the parts and does not separate humans from the environment, as the world begin to experience environmental problems. This ecological paradigm entails a new ethic in which all parts of the ecosystem, including humans, are of equal value and recognizing the intrinsic value of all beings. It pushes social and ecological systems toward new patterns of production, reproduction, and consciousness that will improve the quality of human life and nature.

2.3. Development of Environmental Ethics (Ethical Theories and Environmental Ethics)

As explained, "environmentalism" covers a broad spectrum of approaches or ideologies. So for the purposes of this study, to be able to answer the above questions from the perspectives of Turkish environmental professionals' attitudes towards environment, Merchant's (1992) classification of environmentalism based on grounds for environmental ethics will be taken as basis. She argues that the controversies about man-nature relations grounded on three different value/ethic systems: egocentric, homocentric and ecocentric. She contrasts 'egocentrism', which is equivalent to the ideologies of laissez-faire capitalism and a mechanical view of nature with 'ecocentrism' in which holistic, organic view of nature is dominant. She places 'homocentrism' between these two extremes which is based on utilitarian philosophy and both mechanistic and holistic. The main characteristics of these approaches are summarized in Table 2.1. for better understanding of the further discussions.

Table 2.1. Threefold classification of environmentalism based on grounds for environmental ethics and antecedents (Pepper, 1996)

Env. Approach	Main Philosophical Background	Main Idea	Representatives of this approach	Representative Statement(s)
Ecocentric	Mechanistic	Maximization of individual self interest. Mutual coercion, mutually agreed upon	Thomas Hobbes John Locke Adam Smith Thomas Malthus Garret Hardin	Limits to Growth
Homocentric	Both mechanistic and holistic	Utilitarian: Greatest good for the greatest number of people Social justice Duty to other humans	Jeremy Bentham J.S. Mill Peter Singer Barry Commoner Murray Bookchin Rene Dubos Robin Attfield Social ecofeminists Left greens	Man over nature Human beings threaten nature
Ecocentric	Holistic	Rational, scientific belief system based on laws of ecology Unity, stability, diversity, harmony of ecosystem Balance of nature or chaotic systems approach	Aldo Leopold Rachel Carson Deep Ecologists Restoration ecologists	Nature has delicate balance

Over the past decade, environmentalism has increasingly become an integral part of our everyday lives. For example, products, from juice box containers to disposable diapers are produced and labeled as environmental "goods" or environmental "bads" according to their uses and said to be morally right or wrong. Number of television programs and publications on environmental issues are increasing day by day. Every social, economic and legal issue is now promoted as an environmental cause. However, somehow the relationship between man and nature still creating an explosion of ecological and environmental problems. Unfortunately, rather than respecting and valuing the nature, man has exploited and abused it. We, as people should learn more about ways to protect the environment and voluntarily incorporate such actions into our daily lives. That is, nowadays as discussed frequently; our World is lacking an environmental ethic.

By definition, environmental ethic consists of the study of normative issues and principles relating to human interactions with the natural environment and to their context and consequences. It is the code of behavior and actions to bring human beings to terms with each other and with the environment. Environmental ethics focuses on the moral foundation of environmental responsibility, and how far this responsibility extends (Ghaznawi, 1994). There are different theories of moral responsibility to the environment. As mentioned in Introduction, for the purpose of this study, Merchant's classification of environmental ethical approach showing the link between people's values and their ethical orientation toward environmental issues will be taken as ground and explained.

While discussing classification of environmental ethical approaches to prevent confusion of concepts, first I will make clear the terms; egocentric and homocentric ethical approaches. Here by egocentrism, "traditional anthropocentric approaches" the belief that man has dominion over nature and that people may manipulate their natural environment in their own interest is meant (Passmore, 1980) and with homocentrism, "contemporary anthropocentric approaches" which are also human-centered but grounded on ecological

perspective facts such as Barry Commoner's ecological laws and approach of the "sustainable development" are accepted. Similarly, Bryan Norton categorized anthropocentrism as "weak" and "strong" depending on the preferences of individuals. Vincent describes an intermediate position called "weak anthropocentric". According to this approach man is regarded as part of the system and any change in the system effects man himself. This version of anthropocentrism accepts that; "an individual's well-being depends on the well being of both its social group and ecological support system (Pepper, 1996), that exactly fits into "homocentric approach" of Merchant (1992) given in this study.
It is clear that, this approach takes place in between two extremes of conventional anthropocentric approaches and ecocentrism. Ecocentrism, involves a radical shift in how humans perceive themselves in relation to the environment. Originally, we used to see ourselves as conquerors of the land. Now we need to see ourselves as members of an ecosystem that is totally holistic approach.

2.3.1. Egocentric Ethics

Merchant describes the philosophical background behind the anthropocentric ethical approach as the maximization of individual self-interest that is what is good for each individual will benefit society as a whole and named it as "egocentric ethics". Untill then the term "egocentric approach" will be used in the same meaning with traditional anthropocentric approach in this thesis.

An egocentric ethic is historically emerged during the 17th century and associated with the capitalism and mechanistic worldview. This approach is based on the view that human welfare is the only determinant of nature use. Protection and conservation of nature are important just because, the survival of man depends on the natural environment for his basic needs such as shelter and food. Therefore nature can be exploited for human benefit. In other words nature has an instrumental value (an entity is instrumentally valuable if its existence or use benefits another entity, usually a human being) serving for human interest (Ünder, 1996). One can solve the mechanism of nature by knowing the basic building

blocks of nature and by forces that control them. In case of moral community, humans have been the only objects of the moral concern. According to the Kantian approach, only individuals with mental and physical health were accepted as members of the community. Merchant summarized several characteristics of "egocentric approaches" that are in common as;

- Matter is composed of atomic parts.
- The whole is equal to the sum of the parts.
- Knowledge is context-independent.
- Change occurs by the rearrangement of parts.
- May involve a form of Cartesian dualism with a mechanical universe invaded by a superior mind (Merchant, 1992).

Thomas Hobbes (1650) used as a mainframe the egocentric ethic for his ethic of human struggle for limited common resources. Malthus might be accepted as the first representative of egocentric approach and the followers were, T. Hobbes and J. Locke. This approach is represented today by Garret Hardin's 'Tragedy of Commons' and "Living in a Life Boat".

Detailed information about the measurement of "egocentric approach" under the subheading of "limits to growth" is given in Chapter IV (Research Design and Methodology).

2.3.2. Ecocentric Ethics

Parallel to the developments in egocentric approaches, a new trend based on the concepts of ecology and ecosystem has emerged. The ecocentric ethical approach is the one that can bring a balance between human progress and conservation of the nature. Nature should be protected because it provides life support systems to all living organisms, maintains biodiversity and to sustains eco-balance. Additionally and most importantly it should be protected because of its intrinsic value, for itself, regardless of its value to human beings. As opposed to mechanism, you must take a holistic view. Everything is connected to everything else. The whole qualifies each parts, a change in one of the parts will

change the other parts and the whole (Özdemir, 1997). In other words, humans are no longer the only objects of moral concern; the moral community is enlarged to become an ecological community.

Deep ecologists advocate coupure in science and worldview from "egocentric approaches" to "ecocentrism". Arne Naess first made the distinction between "deep" and "shallow" ecology in 1973. The idea behind this approach is that; humanity is inseparable from nature. Neither individuals nor living organisms are important alone, only the totality of nature has a moral value. Human actions are only valuable if they benefit the ecosystem as a whole. We again see holism brought forward. It strongly argues that, Western culture's anthropocentric, dualistic and utilitarian attitudes towards nature are destroying the carrying capacity of nature (Pepper, 1996).

The main points of deep ecology can be summarized as follows:

- The flourishing of human and non-human life on earth has inherent value. The value of non-human life forms is independent of the usefulness of the non-human world for human purposes.
- The richness and diversity of life forms are also values in themselves and contribute to the flourishing of human and non-human life on earth.
- Humans have no rights to reduce the richness and diversity expect to satisfy vital needs.
- Present human interference with non-human world is excessive, and the situation is rapidly worsening.
- The flourishing of human life and culture is compatible with a substantial decrease of human population. The flourishing of non-human life requires such a decrease.
- Significant change of life conditions for the better require changes in policies. These affect basic economic, technological and ideological structures.
- The ideological change is mainly that of appreciating life quality rather than adhering to a high standard of living. There will be a profound awareness of the difference between big and great.

- Those who subscribe to the foregoing point have an obligation directly or indirectly to participate in the attempt to implement the necessary changes.

Another importance of deep ecology together with being a representative of ecocentric ethical approach within the context of this thesis is that; it accepts that social change focuses on transformation at the level of individual consciousness. First, there is need for each individual to have a holistic approach of the environment then to change personal attitudes, values and behavior to emphasize respect for nature. When enough number of individuals has done this, then all society will change. This point of view will be used in our study while evaluating the relationship between environmental perception and its reflections on individual behavior.

Some philosophers like Leopold (1949), Schweitzer (1966), Taylor (1991), extended the moral community to all living organisms including plants. According to Elliot (1997), moral considerability is extended to such things as rocks, fossils, mountains, rivers, waterfalls and dunes. According to him, moral extensionism which includes not only living things but also all natural entities would seem to provide a basis for a powerful environmental ethic may be for radical environmentalists. But there were opposite approaches to extending the moral community. Guthrie (1994) said that; "inclusion of other organisms as primary participants in our ethical system both is illogical and operationally unfeasible.

Ecocentric ethics are rooted in a holistic metaphysics and general characteristics of this approach that is common can be summarized as;

- Everything is connected to everything else in the ecosystemic web of life.
- The whole is greater than sum of the parts.
- Knowledge is context-dependent unlike mechanism. What is optimal depends on the exact situation.
- The process has primacy over the parts. Biological and social systems are open and potentially chaotic rather than the classical closed isolated near-equilibrium systems.

Humans and non human nature are each part of a single unity.

One of the most prominent approaches in ecocentrism is the view advocated by Aldo Leopold in his most influential essay “The Land Ethic” (1949). He argues that we are on the edge of the new advancements in morality, which regulate this conduct between humans and the environment, which he calls the “land ethic”. For Leopold, “the land ethic enlarges the boundaries of the community to include soils, waters, plants, and animals or collectively: the land.” This involves a radical shift in how humans perceive themselves in relation to the environment. Originally, we used to see ourselves as conquerors of the land. Now we need to see ourselves as members of a community which also includes the land. According to Leopold, the development of an ecological conscience will give rise to a land ethic. Recognition of forests, lakes, deserts, etc. as parts of a whole, helps us to understand that they deserve respect and moral consideration (Golley, 1994). Similarly, to help us develop a “proper” ecological conscience, he argues that we need a specific mental image to focus on. Leopold offers the image of the land pyramid. The land pyramid is the “class” of all food chains, where the higher levels depend on everything under it. From bottom to top, the layers of the pyramid are, soil, plants, insects, insect eating animals, omnivores and carnivores. Humans fall into the omnivore category with bears. Leopold explains that, there is a continuous and upward flow of food energy in the pyramid, and if the flow of energy is obstructed at any level it will damage the whole. But the pyramid should not be interpreted in hierarchical terms.

Leopold’s land ethic is explained in detail since it is the first and very influential example of ecological awareness. Leopold has been regarded as one of the leaders of this an ecological awareness. We should remember that, his point is very important in order to understand all deep ecology based environmental ethical theories (Özdemir, 1997).

Conceptually related to Leopold's land ethic is Singer's "animal liberation" approach which has become the underlying philosophy for the Australian and worldwide animal liberation movement. In this approach; human differs from animals in having more sophisticated intellectual and emotional equipment, but

they are the same in having pain and pleasure. Therefore, they deserve moral consideration, and actions are right they if it increase pleasure and decrease pain. He used this approach to reduce animal suffering such asin for example tests on animals for the cosmetics industry. Others followed with their own theories related with rights and/or interests of animals. Paul Taylor and Albert Schweitzer argued that moral agents should respect all organisms including animals (Ünder, 1996). Since animal liberation is not directly related to the context content of this study, details of the animal liberation movement will not be given here. But it should be kept in mind that the animal liberation approach constitutes an important branch of a holistic and eco-centric perspective.

Together with Leopold, Rachel Carson, Arne Naess might be given as most known advocates of ecocentrism. Since detailed information about their studies are given in the history of environmentalism, here it will be enough just to remind them.

It is a fact that, ecocentric approaches contributed to the extension of a moral community by loading intrinsic and inherent values to the components of nature. But it is criticized as; the one who discovers so called intrinsic or inherent values to non-human beings is again a human being. The second main critique of deep ecocentric approaches is, its principles can mostly be applicable in developed countries. In other words these theories have been insensitive to the needs of the poor societies. Poor societies are not as responsible from the pollution as developed countries. Their contribution to environmental problems is quite low compared to developed countries. The problem with the developing countries is high population and inappropriate living standards and conditions. Therefore, poverty should also been taken into account. Thirdly; since future generations do not exist yet, they should not have any right (Attfield, 1993).

2.3.3. Homocentric Ethics

Most of the discussions about ecocentrism reached to the point of humans are inseparable part of nature. The aim is to protect the integrity, beauty and

stability of biotic community. This means, nature conservation of emphasized refer to essentially human based qualities, which would be meaningless, without humans to bestow them. That is ecocentric ethics may have a homocentric justification at the end. Hence, Vincent (1993) described an intermediate position called “weak anthropocentric”. According to this approach man is regarded as part of the system and any change in the system effects man himself. This version of anthropocentrism, i.e. homocentrism accepts that; “an individual’s well-being depends on the well being of both its social group and ecological support system (Pepper, 1996). Actually, we can find here the combination of a mechanistic and at the same time holistic approach.

Homocentrism is grounded on the utilitarian approach of consequentialist theories which evaluate acts, policies, practices, etc. according to their consequences. In other words, right action is the one that has good consequences; similarly a wrong action is the one that overall has bad consequences. The basic principle of utilitarianism, which is the most influential consequentialist theory, is "actions are right to the degree that they tend to promote the greatest good for the greatest number".

Although utilitarianism is probably as old as human kind the modern theory is usually associated with the British philosopher John Stuart Mill (1806-1873) who is a follower of Jeremy Bentham (1748-1832). A representative of homocentric approach today is, Rene Dubos, based this ethic on a religious base; the individual is important and at the center, but biological constraints of his evolutionary past through the mechanism of heredity, his culture, his religion are also important. Man is a part of nature and nature includes all components external to the man in the environment and all other men. Dubos’ work is based on holistic concept of nature.

2.4. Ethical Point of Sustainable Development

Since the primary goal is social justice for all people, homocentic ethic underlies such movements as social ecologists, left greens, social ecofeminists, many Second and Third World environmentalists and finally sustainable development

movement. For better understanding of the respondents' thoughts that advocate homocentrism according to the results of this study, it will be beneficial to explain the ethical perspective of 'sustainable development'. Additionally it will help us to comprehend Barry Commoner's looking to sustainable development idea. Barry Commoner's approach has been of crucial importance to measure and evaluate the environmental attitudes/opinions of the studied sample of academicians, bureaucrats and experts in this thesis and will be discussed in detail at the end of this Chapter since he is considered as having the most extreme anthropocentric perspective in using nature rationally (Ünder, 1996).

As an ethical point of sustainable development, concern for the existence and welfare of future generations is the primary ethical thrust of sustainability; what is frequently known as "intergenerational justice". This concept is important since it reflects the main confliction on sustainable development understanding of developed countries and developing countries. Developing countries are thinking of the rights of current generations while future generations' rights are meant by sustainable development in developed countries.

To achieve justice between generations, it is important to recognize that the concept of sustainable development serves as the basis for intergenerational justice. The given ethical principles of sustainable development are interrelated and mutually supporting each other. They are (Agius, 1996),

1. *Respect and care for the community of life*: This ethical principal of solidarity reflects the duty of care for other people and other forms of life, now and in the future. We should aim to share the benefits and costs of resource use and environmental conservation among different communities and interest groups, among people who are poor and those who are affluent, and between our generation and those who will come after us.
2. *Improve the quality of human life*: It is a process that enables human beings to realize their potential, build self-confidence and lead welfare. These include a long and healthy life, education, higher standard of

living, political freedom, guaranteed human rights and freedom from violence.

3. *Conserve the Earth's vitality and diversity*: We have a moral responsibility towards the other forms of life with which we share our planet.
4. *Minimize the depletion of non-renewable resources*: Minerals, oil and coal are non-renewable. Unlike plants, fish or soil, they can not be used sustainable. However, their life can be extended, for example, by recycling, by using less of a resource to make a particular product, or by switching to renewable resources.
5. *Keep within earth's carrying capacity*: There are limits to the "carrying capacity" of the ecosystems to the impacts this carrying capacity should not be exceeded.
6. *Change personal attitudes and practices*: To adopt the ethic of living sustainable, people must reexamine their values and change their behavior. Society must promote values that support the new ethic and discourage those that are incompatible with a sustainable way of life. An ethic for living sustainable is important because what people do depends on what they believe.

The approach of homocentric ethic to science and technology is quite different than that of egoentrism and ecocentrism. Marx's goals of using science and technology to better the human condition are grounded for homocentric ethics, as accepted and developed by Bookchin and Commoner. However, this may cause sacrifice of natural resources for the human good. For example- highways, dams, etc. But Commoner advocated that, this might be avoided by using ecologically sound technologies. Commoner sees the planet as an harmonious whole, a global system of water, soil and living things bounded by the thin skin of air, but at the same time he is defending the idea that there should be an economic development which however takes into consideration these sensible mechanisms. Based on these ideas, "man has substituted technological processes (with greater profit margins) for proven ecologically

sound alternative processes and this is the real environmental problem" (Commoner, 1990).

He outlined a set of (informal) "laws of ecology" which form a foundation for his explanations. These are;

1. Everything is connected to everything else: There is one ecosphere for all living organisms and what affects one, affects all in some form or fashion.
2. Everything must go somewhere: There is nothing such as "waste" in the natural setting. What one organism produces as waste is taken up and used (recycled if you want) by another organism.
3. Nature knows best: Not withstanding mankind's fascination with technology to improve on nature, and "major" man-made change in the natural system is likely to be detrimental to that system"(Commoner, 1971).
4. There is no such thing as a "free lunch": In nature's equation both sides of the scale must be balanced- for every gain there is a cost. The question is when will the price be paid-now or later?

He supposed that; people live in two worlds; human society (technosphere- own creation) and natural world (ecosphere-created over the Earth's five billion years history by physical, chemical and biological processes). His thoughts that; as people we are responsible from our actions towards the natural world since we give harm to it and this responsibility has required a new ethical principles that can guide our influence, not only on humans to each other, but on nature as well.

To him, for this purpose we need to understand the interaction between those two worlds; natural ecosphere and man-made technosphere. He stressed that; environmental crisis originates not in the natural ecosphere but in the man-made technosphere. He explained this as based basing on Ehrlich and Harding's population increase approach; "the problem is ecological, that environmental degradation originates in an imbalance between the earth's limited resources and

the rapidly growing human population, which stresses the environment and also causes social problems such as poverty and hunger" (Commoner, 1990). Therefore he offered different population regulating processes in his articles such as promulgating contraceptive practices, by elevating living standards or by birth planning. Here what is important is, he claims that; the environmental impact of the technology factor is significantly greater than the influence of population size. Thus, he is actually contrasting with the Malthusian Law on Population. Of course he does not mean that, population increase is negligible. Especially in developing countries, it must be taken into account. The pollution generating tendency of industrial and agricultural production, the transportation and the power systems have more negative impacts on pollution levels either in developed countries like the U.S.A. and in the so called developing countries. After accepting the reality of environmental quality as an inseparable component of the issue of economic development, he proposed such as a solution that; economic development can proceed without concomitant decrease in environmental quality if it is based on an appropriate, ecologically sound production technology. The conflict between environmental quality and economic development can be eliminated by the proper choice of production technologies. Organic farming can be given as an example of an environment friendly technology for agriculture. Thus, he sees technology as the cause but also as a solution for environmental problems. This new technology however or better to say its use has to be combined with a new ecological ethic.

Along this line, when we examine the ethical approach of Commoner; it is possible to divide people into two; partisans of technosphere and partisans of ecosphere. The former, develop ethical guidelines to incorporate concern for the environment into the framework of the existing economic system but the latter, define environmental crisis and relevant moral issues in ecological terms. On the other hand if we approach moral issues as those, that should reflect the interaction between technosphere and ecosphere; we actually reach to a known approach mentioned above: "sustainable development". Although Commoner accepts that the sustainable development concept has well defined targets, he

has some doubts about its realizations. His ideas are supported by the final declaration of the Earth Summit in Johannesburg in 2002. He suggests an analysis in his article of Pollution Prevention(1998): The Source of an Ethical Foundation for Sustainable Development by saying, it is possible to define ethical precepts that foster harmoniously, both environmental quality and economic development and can therefore serve as a guide to "sustainable development".

In the light of the above explanations, development of the environmentalism and related ethical explanations given; Turkey will be examined in the coming chapter. Development of environmentalism, environmental movements and their impacts on the public awareness will be discussed.

CHAPTER III

HISTORICAL DEVELOPMENT OF ENVIRONMENTALISM IN TURKEY

This chapter aims to study environmental movements and history of them in Turkey. When the progression of environmentalism in Turkey is examined, it is seen that, both the progress and the processes are parallel to those in the world; however, it might be claimed with a certain time lack. Environmentalism developed in a manifold manner encompassing a number of different areas. It is possible to explain these developments with changes in an institutional level as well as an individual level. These changes have found their reflection in social, political, economical and technical processes; but also in changes in environmental awareness at the individual and societal levels. A significant increase in environmental problems in Turkey; have lead to growing social responses against environmental pollution, which found its manifestation also in a growing number of civil society organizations/non-governmental organizations and environmental movements.

The history of environmentalism in Turkey might be divided into three distinct periods. The period between the fifties and seventies can be characterized as a period in which there has been a growing emphasis on environmental problems originating mainly from agricultural activities and rapid urbanization processes. However, this first period cannot be easily described as a period of growing "environmental awareness" on a societal or political level. The dominant view of this period can be probably best described with a strongly anthropocentric statement: "Natural resources are unlimited and humans are the conquerors nature. Therefore, they can exploit nature to meet their needs."

The second period has started with the Stockholm Conference (1972) on the environment. Turkey participated in the conference and therewith started to settle herself in relation to a global environmental context. Especially, developing countries interpreted the Stockholm Conference with a kind of "conspiracy

theory" claiming that it had been organized to prevent their development by stressing on environmentalism. Without getting into polemics, it seems to be important to emphasize that the Stockholm Conference had been successful in emphasizing the global, regional and local dimensions of environmental problems and a growing need for an organized and collective policy formulation and activism.

In this period, more and more people have started to accept and describe nature has a delicate balance; an ecosystem in which living and non-living organisms are linked in a sensitive way and interact with each other. This is the period in which ecocentric approaches emerged. A growing awareness of the complexity of ecosystems and a questioning of the position humans hold in these systems became more frequent. Still, although we might speak of an increasing awareness, it did not necessarily reflect itself in individual behavior and actions.

New policies, new organizations dealing with the environment were installed. Multilateral agreements such as the 1972 "Convention Concerning the Protection of the World Cultural and Natural Heritage" and 1973 "Convention on International Trade in Endangered Species of Wild Fauna and Flora" (CITES), etc. were signed. However, the underlying motive can be basically described as attempts to improve the economic development.

In the third period, which is in nineties, Turkey started to follow the world in environmental protection measures and environmental implementations in economical, technical, scientific fields. Air pollution and smog caused by traffic, heating systems and industry took extreme forms and were heavily felt in Ankara during those years. These events, very typical for the large metropolitan areas, played an important role in raising environmental awareness in Turkey in general.

The idea of "sustainable development" brought to the environmental agenda in these years gained enthusiastic support not only on a global scale, but also in Turkey. The Rio Summit in 1992 has to be seen as an important landmark in relation to environmentalism. "Sustainable development" as a concept was introduced seriously into environmental policy making in Turkey and took part in five years development plans of State Planning Organization. Additionally, the

Rio Summit encouraged Turkish Prime Minister Süleymen Demirel and other members of government who actively participate the conference. They motivated related institutions to organize the "Habitat II Conference" in Turkey and it is realized in 1996. This can be seen as a serious attempt to introduce Turkey as an important partner and actor in international developments on environmental issues.

The three periods described above, make one to conclude that, the damage on nature caused by human activities started to be realized with a growing intensity starting from the late fifties and accelerating in the following decades. One of the reasons nature to be destroyed by human being is the industrialization and scales of automation in the agricultural sector, the use of pesticides (DDT) and artificial fertilizer increased and consequently environmental pollution has become more intensively felt than the pre World War II history. One of the firstly mentioned environmental problems in Turkey has been "erosion" of soil and the drying of wetlands (aiming at the eradication of malaria which was then a major health problem in Turkey). Public health policies gained stronger support than considerations of biodiversity or the role wetlands play in balancing underground water resources. Further, forest areas and productive plains were destroyed mainly through the introduction of huge highway constructions.

In addition to scientific researches about pollution measurement and prevention techniques, data collection and establishment of inventories had become of major concern for environmentalists in the world around seventies. However, Turkey, very lately started to collect this kind of inventories systematically. For example, fauna of Turkey was investigated and inventories were prepared by German scientist Kosswig. He directed Turkish biologists for bird watching, establishment of national parks, etc. between 1930s to 1970s. His students are still in charge of scientific research and development activities in Turkey and they are pioneers of biology. The flora survey of Turkey was initiated through 1980s and implemented by European biologist Davis and have been published and named as "Flora of Turkey and East Aegean Islands" in ten volumes (Ekim, 2000). Therefore in the first period (1950-1970) Turkey's natural

resources were not searched well, especially by national scientists. But, after 1980s, the interests of national botanists on flora of Turkey gained momentum and more than 400 new plant species have been described and recorded. In addition to the mentioned tenth volume of "Flora of Turkey and East Aegean Islands"; eleventh volume is prepared by Turkish botanists.

In case of Turkey, while environmental problems addressed most between the fifties and seventies were deforestation, erosion, drying up of wetlands, agriculturally based pollution such as pesticides; in the seventies urban areas started to sense environmental problems such as air pollution, gradually. The geographical formation of Ankara and inner Anatolia has contributed to the problem of air pollution caused by use of cheap, high sulfur, low quality coal in Ankara. Terrestrial climate conditions triggered the inversion and prevailed air pollution. This problem began to felt in time in other parts of Anatolia especially in cities with higher populations. Then, citizens started to discuss environmental problems.

In the seventies, environmental problems which were initially seen only in several metropolitan areas increased in variety and scope. The major causes of this increase in environmental problems were rapid increase in population and irregular urbanization which began in the fifties in Turkey. Urbanization processes gained speed with a growing industrialization and on the other hand automation of the agricultural sector has brought problems with it. For example, Eryıldız (1995) in the book titled "Ecocities" writes urbanization is a symbol of historical change of the modern world and deterioration from an ecological viewpoint. Parallel to the increase in population in the world as discussed in the Brundtland Report (1987) "Our Common Future", the manifesto for the idea of sustainable development, urban population increased three fold in the thirty five years between 1950 and 1985; the population increases were also experienced in Turkey. The population was 13.6 million in 1927 population census and it was 56.5 million in 1990; that is more than for fold increase in 60 years was observed. Unfortunately, the demographic developments could not find their parallels in the development and provision of services such as housing, infrastructure, etc.

Numerous infectious disease endemics showed up in cities built without plans or programs, no hygienic drinking water available, no drainage systems and inadequate irrigation causing problem of salinity, no sanitary solid waste disposal areas and sewage and waste treatment facilities available in most of the rural and urban municipalities. Air was polluted, soil was polluted. Cities which became even more crowded with migration from villages and started to experience the concept of noise pollution; regulations were prepared, noise pollution was measured and limits developed.

However, developed countries had made this start far before Turkey while they encountered these problems. Therefore, in the period starting with the seventies, in developed countries such as European countries and the U.S.A., the public was more aware of environmental problems and their sources. Increased scientific publications, documentaries and the media made the public in these countries aware of the fact that the environmental problems they were facing are the result of development priority programs and of false environmental policies. DDT was banned in U.S.A after the book of Rachel Carson "Silent Spring (1962). However, although DDT and other organochlorine pesticides have been monitored in the Turkish population since 1976; it was banned in Turkey by the Law on "Plant Protection and Agricultural Quarantine" in 1985. This might be interpreted as; Turkey followed almost with a 20 years time lack, the developments and applications on pesticides and persistent organic pollutants. That is, Turkey and similar developing or underdeveloped countries had begun to encounter such serious problems after seventies. In the coming years, the Rio Summit decisions and international agreements which cover environmentally sound management of dangerous chemicals and hazardous wastes having unlimited adverse effects are then followed by Turkish authorities for the prevention of pesticide pollution.

The Stockholm Conference, held in 1972, played an important role in the global environmental agenda setting as mentioned above. Over 100 countries participated. It became a turning point for environmentalist movements both in the world and in Turkey. Turkey represented in the "developing countries" group –

this was the group defending that the developed world was the sole responsible of environmental problems and therefore they should bear all cost (Arat, 2000)- with the recommendation of the SPO (State Planning Organization) which represents the development wings of Turkey in the Conference; although the Foreign Ministry preferred to take part in the "developed countries" group as a foreign policy.

The most important effect of the Conference on environmentalist movements in Turkey was the launching of a new organizational structure in the field of environment, parallel with the developments in the world. A separate chapter on the "Environment" was introduced in the Third (III.) Five Years Development Plan (1973-1977). However, the main approach of plan can be described with the following statement: Environmental protection should not interfere with industrial development. Although environmental issues took part in development plan, this should not be interpreted as; government's concern is increasing to the environmental problems.

As a reflection of Stockholm Conference Declaration and government's concern of environmental issues; the Prime Ministry Environment Organization (Başbakanlık Çevre Örgütü) was established as an above-ministries, high level coordination and collaboration institution in August 1978. The idea for the establishment of such organization was suggested by an NGO named The Environment Foundation of Turkey which was also established in February 1978. Following the establishment of this new organization, Law of the Environment was enacted in 1983. However, a basic contradiction is clearly seen between "economy" and "environment" in this law. It is made explicit that the environment will only be protected if it does not impose any adverse effects on economic development. Again, together with this law, the "polluter pays" principle has become part of environment policies in Turkey, this ran parallel with environmental legislation on the global level. This principle enforces the polluter to pay for the pollution caused and to meet all costs thereof. The principle has a dissuasive property in the systematized structures of the developed countries, whereas in Turkey, unfortunately, it is far from been discouraging. The major

causes of this unsuccessful enforcement were: fines or imprisonment were extremely low. The municipality-ministry-polluter triangle has such relationships, that activities subject to penalty may be pretended not to be seen. For example, containers with both the Ministry of Environment and related municipality did not do anything to give penalty to the polluter agency.

In addition to governmental environmental organizations; the establishment of environmental NGOs has began during those years, in 1980s. Although the environmental movements have began in 1960s and early 70s in the west; their impacts have been begin to felt in 1980s in Turkey and a few number of environmental NGOs were established. In fact, before 1980s, there were limited numbers of environmentalist associations established defending environmental values. For example, Yeşil Ormancılar- The Green Foresters (1950), Türk Tabiatını Koruma Derneği (1955) might be given as important representatives of environmentalist associations. Before the seventies, as understood from the examples above, associations established according to the "professional groups" such as foresters. Until then other nature related professional groups (geologists, geographers, ecologists, etc.) started to organize mainly aiming at pollution prevention on local scales first, and then they extended their scale to the national scale. Their activities were remained highly professional and hardly reached the public. Public participation or awareness was not the primary objective of those associations. But after Stockholm Conference parallel to developments in the world, as Turkey began being a partner in international environmental agreements and international organizations, the number of pro-environment civil associations also increased. Some more NGOs were established and they were mostly located around the largest cities; Ankara, İstanbul, İzmir, Marmara and Aegean regions (Serban, 2002).

Doğal Hayatı Koruma Derneği – The Society for the Protection of Nature and Türkiye Çevre Vakfı - The Environmental Foundation of Turkey were founded respectively, in 1975 and 1978. The contributions of these associations to the promotion of environmentalist understanding in Turkey cannot be ignored.

One of the reasons in increase in the number of environmental social movements and increase in the number of NGOs is the political and social conjuncture of the Turkey in that period. The eighties were the commencement of a new period of augmentation of the discussion of environmental problems as a field. With the ban of politics after the military coup on September the 12th 1980, "environment" constituted an innocent alternative opposition area (personal Interview with Refet Erim by myself, 2005). Therefore 'environmental thought' was the only area that left wing of Turkish intellectuals might express themselves and their critics. In fact it should be explained that; at first, the left wing was skeptical about environmental thought. They were thinking that this was a conspiracy of western countries to stop the development of Turkey and environmental issues were not unclaimed. But later as they observe the developments in the world they recognized that, the social classes who are the actors of environmental thought and movements are no different that the actors of students' movements and similar thoughts.

However, the relationship between economical development and destruction of natural resources was not questioned or researched during eighties and was not a major concern of existing NGOs. This means, "protective approaches" were dominant, not the "preventive measures". However, in nineties, the prevention of environmental problems at source was become the main philosophy behind the foundation and continuation of green movement in Turkey. Therefore environmental movements in this period were not only for the protection of natural and cultural resources but also for prevention of problem at source.

Although environmental movements gained importance after the eighties, there exists examples of mass reactions to protest local environmental problems. One of the first examples of mass reaction was the silent walk of 21 villages and province people affected from the toxic fumes of Samsun Bakır İzole Tesisleri in 1975. Similarly, importance of the protests against Gökova power plant (1984) as environment movements in Turkey should be mentioned. The movement beginning for the protection of agricultural lands in a local level has been expanded to regional and national levels. This power plant discussion become a

major concern of not only press but also other organizations such as profession chambers, tourism associations, artists, political parties, etc. Although they lost the case in the court, the success of Zafer Park case and the Güven Park case were together with the Aliağa case should not be forgotten. While discussing the environmental movements in Turkey, Bergama movement (1991) might be primary importance among them which aims at prevention of gold mining with cyanide that is very toxic, still continues.

Again, these examples are important in that they reveal the idea of the law to environmental protection. According to Algan (Foreword in Talu, 2004) the Supreme Court generally evaluates environmental rights in an objective way in Turkey when deciding on environmental issues. However, from a different viewpoint, the possibilities that international laws become binding for national ones and that they are more often discussed the public discussions and debates, might also be considered to have encouraging effects in terms taking the environment more serious.

We can not deny the effects of the protests and lawsuits mentioned above on the civil society dynamics in relation to the environment. In addition to the impact of internal dynamics international green movements played an important role in the politicization of environmental issues in Turkey. For example, non-governmental organizations like Green Peace Association and Air Pollution Control Association have become more active. Greenpeace boats have been sailing in Mediterranean since 1986 for the investigation of local environmental problems and direct actions to solve those specific problems and to raise public awareness (their local office was established in 1995). Until then environmental issues were considered as problems of the central administration, non-governmental organizations started to become more and more active increasing in size and influence. They have been also aided in the formation of public opinion by the media. In this period, voluntary environmental organizations not only took care of their members, but of the public in a much broader sense, had attitudes this way and attributed more importance to public services and public benefit (Atauz, 2000). For example, The Turkish Foundation for Combating Soil Erosion for

Reforestation and Protection of Natural Habitats (TEMA) was founded in 1992 aiming at raising public consciousness of environmental issues posing dangers to Turkey's future sustainability.

One of the most effective and known international organization, Greenpeace as given above, aims at public awareness and public participation and dissemination of information. Therefore, priority is given to the organization of meetings, panels, conferences, field trips, exhibitions, theaters, cinemas, shows and preparation of alternative legislation proposals in their activities.

According to the Feasibility Study conducted by REC (The Regional Environmental Center) in 2002, the total number of active environmental NGOs in Turkey is estimated as 110 - 160. Very few of them are represented with permanent offices and staff which have good contacts with the government. These groups have international and national outreach and could rival or team up with any other major environmental organization in Europe. At the provincial and municipal levels, NGOs are represented mostly in the major cities. Working mainly at the municipal level, these organizations receive funding from local sources and from the donor community as they have limited access to information and capacity to prepare project proposals.

The small and medium sized NGOs are not actively represented in the environmental sector. The Bergama Movement as mentioned above might be given as an exception. The reason for this might be the lack of association spirit in a formal structure such as associations and foundations. This is combined with the low interest for environmental matters among general public. Although they seem they are environmentalists, Turkish people in rural and small town reluctant to set up an association or foundation, perhaps influenced by the economical restrictions.

Additionally, the regional distribution of NGOs is very uneven. Whereas in the western regions the NGO sector is fairly well developed, (İstanbul, İzmir, Ankara, Marmara region) the eastern part has no local environmental movement. Cities such as Van, Diyarbakır, Mardin, Urfa have no local environmental NGOs, and international groups are represented there by individuals rather than local

branches or groups. This might be explained by the difficulties in establishing and managing an NGO (especially for associations) according to the current non-profit legislation.

The establishment of environmental political parties might be discussable as in the context of social environmental movements. However, since they might be evaluating the organized forms of social movements, a brief explanation should be given about the "Green Party". It was established in June 1988, very soon after the establishment of western Green Parties. Basic objectives of the party might be summarized as; protection of nature, ecosystem, all living things, social relations, human rights and freedoms. The idea of 'how many people the party could motivate' is more important than 'how many votes the party could get'. There is no difference between right or left trends in green thought. In addition, they defend the strengthening of local authorities and decentralization. But since the party is not supported by the local groups and organized from top to bottom as opposed to it has to be; this movement was not supported enough by the public and closed in 1994 by Constitutional Court.

However, executive policies in Turkey were far behind the volunteer organizations and public sensitivity (Demirer, 2000). For example, the fourth Five Years Development Plan (1979-83) depicts preventive and remedial environmental policies together but when a preference is to be made between "development" and "environmental protection", development is still highly favored.

It can be said that the September 12th military rule and its continuation administrations tried to bring judicial measures similar to the West, but they were barely aware of the environment and protection of it, and legislation proved to be ineffective. As Somersan put forward (1993), in those years the state was declaring that the most important *tool* for prevention and solution for environmental problems was "education". To ensure the level of importance conveyed to the issue, TV programs on the environment were made; environment courses/classes were introduced to school curricula. At the end of the 1970s, "environmental engineering" had been established as separate departments in

universities. Curricula lack however social, economic, ethic and political dimensions of environmentalism and remain strongly technically oriented. This finds also its manifestations in the fact that, environmental engineers are organized under the roof of Chambers for Civil Engineers for almost ten years now. But in time, the missions of these two disciplines were differentiated; environmental protection activities become dominant for environmental engineers, this necessitated the establishment of the Environmental Engineers Association. It was established in 1986 and continues to struggle with environmental policies and applications. The need to be more effective in public awareness rising and participation in environmental activities forced them to organize as a chamber, which was realized in 1992. Until then, they have continued to make their contributions by organizing education seminars, conferences, and panels in different areas of Turkey. Additionally, their publications about legislation, environmental management, reports on environmental problems of Turkey constitute important sources.

However, the official discourse put the burden mainly on the individuals and has thus been conveying the message "if everyone keeps their door step clean, environment will not be polluted". Hereby no reference was made either to what the state should undertake to protect the environment and the tasks of the private sector; the state while expecting "cleaning up" from individuals, not only pollutes the environments with its state enterprises but was supporting tourism and industry through subsidies. Somersan claims that, while the public was becoming increasingly aware and educated, the state was resisting and chose to ignore (1993). It may even be reasoned that the main aim is to give the world an environmentally concerned country image rather than "real environmental protection".

However, what was endured reality throughout the world, was no different for Turkey; "we could not infer the value of what we have at hand unless we lose it". The awareness generated was not as a result of the above state education programs but was a result of us been aware of the environmental destruction leaving us breathless and our environs so changed that it is no longer recognizable.

In short, the period (between 1970-1990) can be described as a period of increasing introduction into the legislation, environmental activism remained in its grassroots, and the environment remained as a factor in a cost-and benefit calculation. Holistic and deep ecological perspectives were only hardly expressed in public. But, the number and the effectiveness of environmentalist NGOs has increased and they do play an important role in awareness rising. But their temporary structure -most of the NGOs do not have strong roots and therefore long lives. However, the number of strong rooted NGOs with their better organizational structure is increasing day by day.

Therefore in the period starting from 1970 and until the beginning of the nineties, the damaging impacts of humankind on nature were acknowledged both by the developed and the developing countries. However, was not everyone doing what they should be doing? Here, one of the aims of this thesis is to test whether this opinion still holds true to date among individuals of the target groups of this study.

When the nineties were reached, politicians still saw whatever the case was, and industrialization is the most important tool of development and welfare. However, giant countries of the capitalist world had adopted the "sustainable development" approach which aimed at protecting the environment while developing, and started to reflect this in implementations. Polluting technologies were tried to be abandoned-even been imported to developing countries-and investors were included in this effort with effective and highly enforcing legislation.

We can argue that Turkey took part and followed trends in the international environmental agenda too. Most important to be mentioned in this context are the reflections and acceptance of the Brundtland Report also received in Turkey. Thus, the "sustainability" concept and EIA for investments (the EIA Directive is published in 1993 and revised in 1997) and a growing environmental sensitivity has emerged 'Sustainable development" is however mainly interpreted in mechanistic and economic terms and is only rarely discussed from a more holistic perspective. That means, the dominant sustainability argument is based on

instrumentality and changes and implementations of laws and directives. The Ministry of Environment and Forestry holds an important position to make necessary arrangements in their policies and budget and State Planning Organization act important role in sustainability in their development plans. However other governmental organizations do not take into consideration the concept of sustainability in their activities and do not function in a coordination and collaboration with other related institutions. In Turkey politicians were proud to declare "cars will be bursting forth from potato fields" when they were reporting their industrialization efforts; the public were happy that poverty would be alleviated, job opportunities would increase and the country would develop. The *environmentalists* who may be named as intellectuals were considered as daydreaming people running after flowers and insects and having no interest in world affairs.

Although Turkey's environmental policy and relation to the EU, has led to significant changes within the last 5 Years, the case in European Union's approach to sustainability is quite different. These countries apply "sustainable development" concept in their industrialization policies, agricultural policies, development plans on urbanization, education, transportation, tourism, health, etc. are all harmonized with sustainability approach. Even Ministry of Foreign Affairs should act in an environmentally friendly way in their policies and work in a close collaboration with related organizations for environmental agreements and international cooperation.

But, the spread in information technology and a growing integration of at least certain strata of the Turkish society people started to questioned and request clean air, no-hormone, no-chemical foodstuff. However, ministers of those times responsible for the environment formulated this environmental opposition as "nice but dangerous" and were saying that Turkey was eventually becoming impossible to invest in the economy if environmental criteria gain dominance. But some administrators were adding that even though numbers were little, the present laws were satisfactory, and that the real problem should be seen in the lack of enforcement of these laws (Somersan, 1993).

Actually, when changes in "environmental policies" are examined within the frame of Development Plans, it is possible to deduce that each and every one of the Five Year Plans contend developments in environmental policies to alleviate present pollution, prevent potential pollution in parallel to developments in the world-such as the development processes of Our Common Future Report and the Rio Process. Especially from the (VI.) Five Year Development Plan (1990-1994) onwards, it is seen that, environment is integrated in sector planning, parallel with developments in the world. One important improvement asked for in this plan has been the approval of subsidies for pollution preventive investors. Other sound (positive) developments are grants or long-term convenient, easily paid-back international credits from institutes such as EU, WB, KfW (German Credit Organization-Kreditanstalt für Wiederaufbau) and Islamic Investment Bank to solve problems brought by irregular (uncontrolled) urbanization in metropolitan areas and for the project and implementation of all sorts of infrastructure.

In the VII. Five Year Development Plan period, the "National Environmental Strategies and Action Plan" (NAEP-1998) prepared by the experts from different fields was the most wide scoped environmental policies document in Turkey. However it is difficult to say that despite the 6-7 years passed since the NAEP document has been published, hardly any of the action plans has been implemented. Although each of the institutions taking part in the Special Expertise Committee had assured to execute its duties, both the fact that NAEP does not have legally binding enforcement power and also the bureaucratic structure of the administration in Turkey (such as the frequent changes of Rural Affairs General Directorate to be decentralized) makes implementation hard (Talu, 2004). Years of the eight (VIII.) Five Year Plan (2001-2005) are those of radical (fundamental, profound) social and economic changes in the world and Turkey gets her share of this changing winds. Especially the trans- boundary character of environmental problems and due to EU accession processes Turkey is facing advantages and disadvantages of the globalization process. To be aware of environmental technical progresses in the developed world might be given as an

advantage of globalization whereas Turkey has to pay for other polluters although she herself does not contribute as much as them.

Along this line, this last plan refers to reflection of international environmental policies and EU environmental policies to national policies and to draw up the necessary legal and structural reforms for their implementation. The following issues were depicted concerning status of environmental management in the report summary of the Special Expertise Committee of the Eight Five Year Development Plan:

- The environment is not well managed from an institutional point of view.
- Economic tools for environmental management are not sufficient and financial constraints are hampering execution of sector functions.
- Technically acceptable, appropriate and environment friendly planning policies are not applied.
- Management away from insufficient participation and transparency qualitatively and quantitatively, impose additional weakness in terms of democracy.
- Weakness of monitoring and auditing systems in environmental management do not allow sound application (Tahsin, 2001).

The necessity of structural changes in environmental management from all these results could be concluded. In addition, numerous government changes during the planned period in Turkey have had adverse effects in resolving environmental problems. In Turkey where, plan decisions are prone to change according to political and economic agenda, different governments have different viewpoints to environmental problems which prevent to see the long term effects of measures taken.

As discussed earlier, the Ministry of Environment was established hastily with a decree (KHK) in 1991 without even its infrastructure been completed, found its personality, makes environmental policies, setting standards, carrying out controls and implementing its functions. The Ministry has been reorganized as

Ministry of Environment and Forestry in 2003, with no net justification for it being established. Changes to the Ministry's structure within the frame of public management is under discussion even now (Talu, 2004). Problems encountered and view points are still the same.

When all these are examined, the importance of strengthening local authorities and increasing their power and responsibility in prevention of environmental problems and their solutions is evident. With a pro-central approach, remote control models of finding solutions to environmental problems have failed. Overlapping responsibility and power clashes among more than one authority and institution has shown that environmental problems in Turkey stem from a management issue (Çevre ve Sürdürülebilir Kalkınma Tematik Paneli, 2003). The present political power even though "pretending " to work towards strengthening local authorities and de-centralized management; they give an answers to open ended questions in this study in opposite presently do not support this situation internally when making environmental policies.

Along this line, one should keep in mind the factor of "environmental education" of the public and their participation in environmental problems. Supporting and increasing citizen's scientific, technological and educational works concerning the environment will increase environmental awareness and sensitivity. Individuals with awareness and sensitivity will be appreciative of their responsibilities in terms of environmental protection and in turn will display willingness for nature protection and behavior patterns to this end. While in the world, environmental education and research are given high priority and importance, in Turkey there are almost no funds allocated in the budget for this objective. While the general budget allocated for environmental issues shares of EU countries are three percent for environmental institutions, not only education but all of budget allocation for the Ministry of Environment and Forestry has been a maximum of six in thousand, in Turkey.

However, contributions of the printed and visual media should not be underestimated in the role they play in awareness raising of the public. Some of the examples which have an effective role on the public awareness are depicted

as: Child targeted child-nature, child-animal relationships type American production serial or films shown on TV channels; bringing forward "environmental protection" concept in some commercials; promotion of environment friendly products by popular artists; popular celebrities voluntarily taking part in volunteer organizations campaigns; environmental engineer characters playing instead of traditional lawyer, doctor roles in TV serials; high tech nature documentaries. In terms of printed media almost every day we see environment related news reports in newspapers. Attention is especially paid to man made environmental problems. Periodicals in the fields of nature conservation, geography, popular science, travel and exploration targeting different age groups are available at the same time with their world counterparts (there are also national ones). Moreover, most of these are published in Turkish. However, it is evident that all these are not satisfactory for an internalization of "environmental protection" or "environmentalism" .Superficiality seems to dominate individuals' attitudes and behavior in relation to the environment and nature. This leads us to question whether it is "hypocrisy". In other words, the problem of not behaving as what you think or believe. This is the crucial point of the present thesis.

In summary, despite all the developments today, even though the level of awareness and information has increased among individuals, the way of reflecting this to their attitudes and behavior is not in a way questioning and forcing decision makers to "protect the environment" and questioning what is going on. The balance between "environmental development" and "environmental protection" is highly complicated and the economic arguments seem to dominate the general discourse.

Environmental problems in Turkey attract the attention of higher income groups. Many people are in a struggle to feed themselves and are unable to meet their basic needs sufficiently, they are far from following and paying attention to what is going on in their "environment". For them it seems to much more a question of survival and subsistence. In a very similar way, governments while been busy with economic problems, unemployment, development efforts envision

investing with the aim of protecting the environment and taking measures to this end seem “luxury”. Today in the programs of political parties even though environmental issues are written down, the reality behind are not believing the responsibility sense for importance of environmental protection but, to be relieved from the pressure of volunteer organizations and to act as if doing something in the international arena. Clearly seen that parties and governments do describe strategic priorities in environmental issues in their programs but put them hardly into practice (Talu, 2004). Here the controversy necessitates discussion of “ethical values”.

CHAPTER IV

RESEARCH DESIGN AND METHODOLOGY

4.1. Introduction

As mentioned in the Introduction, although people tend to pro-environmental approaches and support ecocentric or homocentric (holistic) worldview, environmental problems and ecological crisis continue; biodiversity decreases, global warming increases, ozone layer depletes, etc. Because, solving environmental problems and protecting nature may be more dependent on what people do rather than what they think or feel.

In other words, to be an environmentalist just in thought might not be enough to protect environment or to prevent environmental problems by today's way of perception of nature and man-nature relations. Many studies conducted to measure environmental attitudes indicate that; although people express a relatively high level of concern about the environment, they reflect them only in a few environmentally oriented behaviors (Maloney and Ward, 1973; Ostman and Parker, 1987; Smyhte and Brook, 1980, Scott and Willis, 1994). People do not engage these changes in attitudes into their daily routine lives. They do not live in an environmentally friendly way, they do not change their consumption habits and they do not take care of environmental values in their relations with each other and with nature. Personal interests dominate over nature protection. There is a problem of inconsistency between environmental attitudes and behaviors.

As explained in Introduction, individuals have capacity of both to destroy or to protect the nature depending on their environmental knowledge and preferences. Their way of harmonizing responsibilities with actions are the important problem areas that should be questioned. To make clear these problems, it is certainly necessary to examine the inconsistency (if exist) between, what people's perception of being "environmentalist", their environmental approaches

and how to adopt their environmental attitudes into behaviors or actions. Therefore by this study it is aimed to measure people's environmental knowledge, attitudes and behaviors towards environment and to examine the correlations between those variables.

Along this line, for better understanding of "environmental attitudes" discussed in this study, a brief history of "environmentalism" was given and different environmental approaches based on different philosophical backgrounds and value systems, such as human based or nature based were explained in Chapter II.

In Chapter III, the impacts of environmentalism and environmental movements on Turkey and development of environmental issues in Turkey parallel to the developments in the world as given in previous chapter were discussed. These discussions will help us to evaluate Turkish people's environmental knowledge, their attitudes and ecological behaviors.

Therefore this chapter presents a summary of relevant literature and research findings regarding the determinants of "environmentalism" and construction of the questionnaire based on these findings. That is two main parts will be included in this chapter; *theoretical concepts of determinants of environmentalism* and *methodology.*

4.2. Determinants of Environmentalism

A majority of research on social aspects of environmental issues has revealed that, how the person actually perceives environment and where he/she takes place in man-nature relationship is very important in explaining the ways people respond to their environment (Cassidy, 1997). It is apparent that man-nature relationship is extremely complex and determined not only by inner-personal characteristics, such as values, motivations, it but also is mediated by outer personal factors such as cost of environmental behaviors, presence or absence of supporting policies and social norms, culture etc. In the light of this, it can be explicit that what determines one's appropriate environmental approach

and if he/she reflects this approach into behavior is a direct correlate of individuals'attitudunal responses and the personal characteristics such as age, education, income and knowledge. In the book by Heimstra and McFarling (1974) it is stated that, the person's attitudes are necessary to be conceptualized to improve understanding of how such effects influence one's preference for or the avoidance of environmental behavior. Given the antecedent evidence from the literature, it is suggested that determinants of environmental behavior are highly associated with environmental attitudes, knowledge and social and cultural factors.

In one of the major reviews, Hines et al. (1986) proposed a conceptual model of environmental behavior with five major categories of the variables: cognitive factors (knowledge of issues, action strategies and action skills; personality factors (attitudes, perception and personal responsibility); intention to act; situational factors (economic constraints, social motives, etc.) and finally demographic variables, such as age, income, education and gender.

In this model, although knowledge is accepted as a prerequisite for the behavior; individuals' desire to act is another important factor effecting environmental behavior. However, since this "desire to act "is a dynamic factor, indeed, often result in a complexity of measurement and prediction for environmentally significant behavior. Therefore, this model of Responsible Environmental Behavior is not appropriate for the purpose present study.

Kaiser et al. (1999) defined environmental attitude as a powerful predictor of ecological behavior and explained this grounded on the *theory of reasoned action* (Ajzen and Fishbein, 1985) and its developed version *theory of planned behavior* (Ajzen, 1985). As can be seen from Figure 1, graphical representation of the theory, behavior is seen as a function of one's attitude towards performing a particular act. That is, this theory proposes that attitude influences behavior. Additionally knowledge about the environment is needed to build up attitudes towards the environment as well as attitudes towards ecological behavior. Therefore, knowledge can be seen as a precondition of any attitudes and thus the relationship between knowledge and behavior is very important as well.

Additionally, the important part of this theory that fits to our hypothesis is, subjective norms, or at least individuals' values are also one of the factors that predict behavior. In our study, social and moral values and subjective norms will be examined under the same subheading of environmental ethical values.

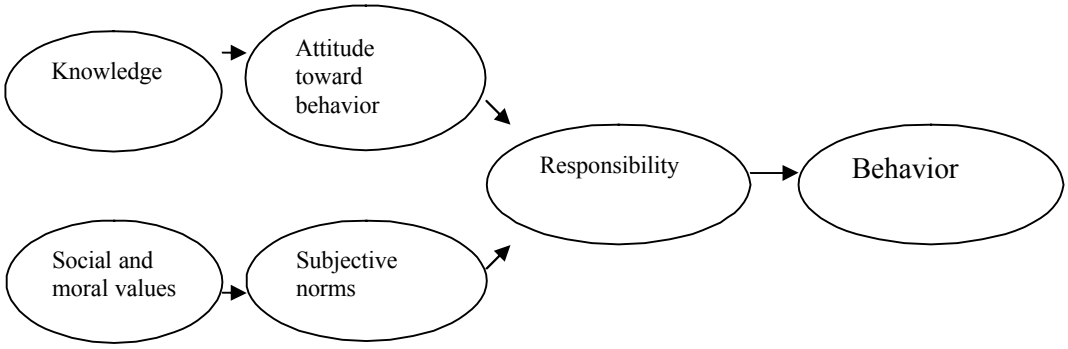


Figure 4.1. The Theory of Planned Behavior
(Source: Adopted from Ajzen, 1988, p.133)

As a summary, within this framework; "environmentalism" has to consist of at least three major components affecting ecological behavior.

- Environmental attitudes (Moral values regarding environment, i.e. environmental ethics)
- Environmental knowledge,
- Ecological behavior itself.

4.2.1. Environmental Attitudes

As a definition, environmental attitudes are recognized as an indicator and component of environmentalism and are generally accepted as responses from respondents on environmental issues with varying subjects, that is, perceptions or values about given environmental issues.

Most of the social scientists have concentrated research on the development of broad attitudinal theories in relation to behavioral responses. Many studies that attempted to measure attitudes indicate that, although people express a relatively high level of concern about the environment, they reflect them only in few environmentally oriented behaviors (Maloney and Ward, 1973; Oskman and Parker, 1987; Smyhte and Brook, 1980, Scott and Willis, 1994). The mentioned studies show that the correlation between attitudes and behaviors is statistically not strong, although significant. However, attitudes are still deemed as essential predispositions that are assumed to have some kind of implications with knowing and predicting individual behavior. That is, both attitudes and actions need to be considered in assessing the environmental concern of the individuals (Scott and Willis, 1994). It is suggested that, attitudes are a viable and unique human construct which necessarily involves with an understanding of the totality of human experience, so that they are valuable of studying regardless of their relationship to overt behavior (Weigel, 1983). In another instance, Ajzen and Fishbein(1973) pointed out that attitude-behavior consistency would be enhanced when both the attitudes measured and the behaviors observed have a highly specific focus in terms of their measurements. Therefore, one of the aims of the present study is to measure respondents' attitudes towards nature. Their attitudes were measures in terms of their environmental values classified as; egocentism, ecocentrism and homocentrism. On this ground, questionnaire was designed to measure these three components separately as given in detail in the coming part of this chapter.

The majority of reported studies, measuring environmental attitudes to predict patterns of environmental behavior, have provided some useful implications. The results of Hines et al. (1986) indicated that, there exist a positive correlation attitude towards environment and behavior. Similarly, a study by Axelroad and Lehman (1993) used general attitudes as one of the measured variables to environmentally significant behavior. Results revealed that the respondents' belief regarding the environment about the need of environmental protection was significantly associated with the behavior. Conversely, research by

Sia (1984) and Jurin (1995) found a non significant correlation between environmental attitudes and reported behaviors.

Clearly, the issues involved in determining the relationship between attitudes and behavior are more complex than had generally been acknowledged. Although the assumptions of attitude-behavior consistency are incongruent, at least some certain level of confidence in the proposition that attitudes and behavior are related has gained from the long research history. Because, it is clear that, there is a reciprocal relationship between those two variables. Not just attitudes have casual effect over behaviors, but even when behaviors lead to attitudes, the resultant attitudes will influence the pattern of subsequent behaviors (Weigel,1983).

4.2.1. a. Environmental Ethical Values

As proposed by Theory of Planned Behavior, individuals' subjective norms and normative beliefs about environment, that is their environmental ethical approaches, have important impacts on their behaviors. There are number of different ways to understand the extension of moral values about nature (Nash, 1989). For example individuals' approach might be individualistic or holistic? Another distinction is whether the people's values are rights based or responsibility based? That is, does nature have the rights to be protected or humans have a responsibility to protect nature? However, perhaps the most important distinction is whether the morality is towards anthropocentrism or ecocentrism. Because this determines what is the focus of environmental ethic; humans or nature. When we discuss about this type of distinction, we often assume that, these attitudes lay down on a scale from low (egocentric) to high (ecocentric) values including weak or soft anthropocentric values in between.

Along this line, as mentioned and explained in Chapter II, to measure individuals' ethical values related with their attitudes towards nature, Merchant's classification of environmentalism will be taken as basis since it fits best to the aims of this study. Three main approaches take place in her classification;

“egocentrism”, “ecocentrism” and “homocentrism” and all of them are necessary to measure for the purpose of this study. She places “homocentrism” between two extremes of “egocentrism” and “ecocentrism” that has both mechanistic and holistic view and becoming trendier nowadays.

There are many theoretical and empirical approaches to investigate environmental attitudes and moral values in the literature. Most of the environmental attitude studies have been conducted for nearly 30-35 years, since conceptualization of environmental attitudes as a specific research concept gained closer attention by social researchers as the impacts of environmental problems felt heavily by individuals. Since then, a variety of scales have been developed to measure an individual’s concern about environmental problems, knowledge and attitudes towards nature. Although the NEP is cited most often in the literature, it will be beneficial to give brief information about other measures that looked at more general environmental attitudes as well as specific environmental issues. Weigel and Weigel (1978) produced the Environmental Concern Scale. This scale is similar to the NEP in that it examines more attitudes toward more general environmental/ecological issues. The 16-item scale was used in four separate studies conducted by the researchers with the goal of predicting environmental behavior. In the early 1970s, Maloney and Ward (1973) developed the Ecology Scale which measured attitudes as well as knowledge, emotions, and behavior. Their scale comprised four subscales: the Verbal Commitment Subscale, the Actual Commitment Subscale, the Affect Subscale, and the Knowledge Subscale. Each of these subscales came to a total of 130 items that were tested on environmental group members, college students, and residents of Los Angeles. Results from this study indicate that most people scored higher in terms of verbal commitment and affect and lower in actual commitment and knowledge. Another example of scales in which a world view that stems from a long-term national commitment to growth, progress, and resource use and a belief that science and technology can or will be able to fix whatever parts of nature become damaged or broken is called as “dominant social paradigm” (Dunlap and van Liere, 1984). Similarly an attitude that assumes infinite resources, limitless progress, and an

unquestionable faith in the problem-solving abilities of science could be measured via Human Exception Paradigm (HEP).

Dunlap and van Liere's modified "New Environmental Paradigm" (NEP) scale was selected among other known scales in the present study, since it emphasized environmental protection, limited industrial growth and population control among other issues that fits the approaches in this study. Detailed information will be given in "Materials and Methods" section.

4.2.2. Environmental Knowledge

As explained above, **knowledge** can be seen as a precondition of any attitudes according to the theory of planned behavior. Therefore the relationship between knowledge and behavior is very important as well as the relationship between attitude and behavior for the purpose of this study.

In several studies, no relationship between factual environmental knowledge and ecological behavior (Maloney and Ward, 1973; Maloney et al. 1975; Amelang et al. 1977; Schahn and Holzer 1990a, 1990b; Krause, 1993) or moderate relationship at best (Arbuthnot, 1977; Dispoto, 1977; Smythe and Brook 1980; Stutman and Green, 1982; Hines et al, 1986/87; Oskamp et al. 1991; Geok and Ivy, 1998) were found. However, Arcury (1990), found a consistent and positive relationship. He reported that, the strong relationship between education and both knowledge about the environment and attitude towards the environment would emphasize knowledge leading over attitude. Thus, a relatively high level of public knowledge about environmental issues would affect the public awareness of the problem and direct its behavior toward a more environmentally friendly attitude. Finally, Furman (1998) found in his study concerning a developing country case; Turkey (İstanbul), environmental knowledge is consistently and strongly related to the NEP; the respondents who knew more about the environment and nature tended to give stronger endorsements to the statements of the NEP. In one of the latest studies (Meinhold, Malkus; 2005), results indicated

that environmental knowledge was a significant moderator for the relationship between environmental attitudes and environmental behaviors. This was especially true for males.

In our study, the aim is to examine, if respondents really have a certain level of environmental knowledge that manifest the environmental consciousness and if they know the mechanisms of nature or not. Since our respondents are environmental professionals, we expect them to have higher level of environmental backgrounds.

4.2.3. Environmentally Significant Behavior

As a definition, environmentally significant behavior refers to a category of conscious and/or unconscious actions, derived from a subjective choice based on the cultural, social (attitudes) and psychological situations (behavior) in which an individual perceives as appropriate, which is performed by one's own sake to help prevention and/or resolution of the environmental issues/problem (Hsu, 2003).

Environmentally significant behavior can reasonably be defined by its impact: the extent to which it changes the availability of materials or energy from the environment or alter the structure and dynamics of ecosystem or biosphere itself (Stern, 1997). Some behavior *directly* causes environmental changes such as disposing of household wastes. And other behavior is environmentally significant *indirectl*y, shaping the context in which choices are made that directly cause environmental change (Rosa and Dietz, 1998; Vayda, 1988). Development of environmental policies might be given as an example to this kind of indirect behavior. These indirectly affecting behaviors might be more effective on environmental protection, by influencing public policies. Because, public policies have a power of changing behaviors of many people and organizations at once. That is, behaviors having indirect impacts on environment are more effective for the protection of environment. Although both definitions of environmentally significant behavior are important for research for different purposes; since

decision makers and academicians are our target group, I will focus on indirectly effecting behaviors.

Previous discussions show that, although people express a relatively high level of concern about the environment, they engage in few of them environmentally oriented behaviors. However, solving environmental problems may be more dependent on what people do rather than what they think or feel. Therefore this is a serious problem. To solve this problem, many approaches toward changing individuals' environmentally significant behavior have been tried. Gardner and Stern (1996) emphasized the importance of different casual variables on changing behaviors towards nature. These casual variables are; religious and moral approaches, education, rewards and penalties and finally community management, involving the establishment of shared rules and expectations. They found that, each of these variables can change behavior in varying ratios. But, the most effective way of behavioral change is combination of all those variables. In other words, the behavior is determined by multiple variables, sometimes in interaction. However, moral and educational approaches have generally disappointing results. Stern (2000) continued his researches on the theory of environmentally significant behavior and established a framework with typologies of environmentally significant behavior and of their causes. It depends on a broad range of casual factors. Similar to his work with Gardner (1996), the casual factors are; *attitudinal variables* (behavior-specific norms and beliefs) as measured in this study grounded on theory of planned behavior, *personal capabilities* (social status, financial resources and behavior-specific knowledge and skills) as measured environmental knowledge part of the questionnaire, *contextual factors* (laws and regulations, available technology, social norms and expectations, advertising, etc.) which are not included in this study and finally *habit and routine* which will be discussed case-specific based, like recycling habits or lights off habits in this study.

He concluded that; attitudinal causes have the greatest impact on environmentally significant behaviors that are not strongly constrained by context or personal capabilities. Moreover it is relevant to ask how different segments of

the population differ in regard to environmental attitudes and behavior. Therefore individual factors such as age, gender, education, etc. were examined. The detailed information about formation of this part of questionnaire will be given in the coming sections.

4.2.4 Socio- demographic Characteristics

Concern about the environment has been frequently associated with the demographic variables such as age, education, gender, income, etc. One of the ways social scientists can promote environmentalism is to understand the relationship between demographic variables and environmental attitudes and behaviors. In other words, it is necessary to ask how different parts of the population differ in regard to environmental attitudes and behavior (Scott and Willis, 1994). In general, ages, level of education, income and political ideology have been found related with the environmental attitudes and actions.

Numerous studies have examined the relationship between demographic variables and environmental attitudes and behaviors. Findings of those studies might be summarized as; although young age and higher education were generally agreed on in describing the characteristics of environmentally sound people- in most of the researches, highly educated respondents are found to have more pro-environmentalist values than the lower educated respondents- conclusions based on other demographic parameters were fairly conflicting. It is difficult to have a general conclusion.

Some researchers (Arcury, 1990; Stern et al,1993; Tarrant and Cordel, 1997; Zelezny et al, 2000) discussed the relationship between environmental attitudes, behavior and gender. These studies concluded that, the relationship between these variables is weak and inconsistent. In some studies there may be a tendency for men to express greater support for NEP (Scott and Willis, 1994), whereas in some studies opposite results may be found showing women as more environmentalist (Stern, 1993; Tarrant, 1997; Loges and Kidder, 2000).

However, the contradictory findings about these predictors might be

explained as, since the environmental attitudes studies are generally state or community level studies, and these studies have been drawn from a variety of samples such as students, members of NGOs, community elites, farmers, foresters, etc. The same predictors indicate different effects on environmentalism for different samples.

The relationship between environmental attitudes and income is also debatable and confounded by education (Arcury, 1987; Arcury, 1990). It is noted that for years, environmentalism was most likely a middle or upper class phenomenon. People having a problem of hunger and poverty could not be thinking of environment. Therefore, highly educated middle class respondents were more concerned about the environment than lower and higher income groups. *Income* was one of the social variables asked to the respondents in this study, however, since most of them did not give an answer to this question and respondents were chosen approximately from the same income level during sampling, it was not evaluated.

Therefore, reviewed literature indicated that gender, age, income, education are the most commonly used demographic independent variables to predict environmental attitudes and behavior. Therefore, those four variables, in addition to professional experience were examined to explore the extent to which differences in the levels of environmental concern were associated with various *social characteristics* of the respondents.

4.3. METHODOLOGY

In this section, issues related with the design of the study; measurement techniques of environmental attitudes, environmental knowledge and behavior and their applications on selected target groups will be discussed in the following order.

First, the development of the research instrument (questionnaire) for the effective measurement of above variables, namely; environmental attitudes (ethical values), environmental knowledge, environmentally significant behaviors

and socio-demographic parameters will be explained. Then, the selection criteria for the target groups will be discussed. The reasons behind why environmental professionals are chosen for sampling group will be explained. According to the nature of the questions being investigated in this study, quantitative approaches were utilized in the overall procedure of data collection and analyses. Along this line, procedure for the data collection will be given in the third part of this chapter. Finally, data are analyzed statistically was explained in detail.

4.3.1. Construction of the Questionnaire

The questionnaire comprised of the following four sections, which were constructed to gather information about the attitudinal tendencies of respondents towards environment and how to engage these attitudes into behaviors in the course of their daily lives.

I. Environmental Attitudes (Ethical Values)

I.a. Egocentric approach

I.b. Ecocentric approach

I.c. Homocentric approach

I. c. 1) Holistic view

I. c. 2) Mechanistic view

II. Environmental knowledge

III. Environmentally significant behavior

IV. Socio-demographic characteristics

There are many theoretical and empirical approaches to investigate environmental attitudes and behaviors in the literature. Most of the environmental attitude studies have been conducted for nearly 30-35 years, since conceptualization of environmental attitudes as a specific research concept gained closer attention by social researchers as the impacts of environmental problems felt heavily by individuals. Since then, a variety of scales have been developed to measure an individual's concern about environmental problems, knowledge and

attitudes towards nature. Different scales were developed by Maloney and Ward (1973), Lounsbury Tornatzky (1977), Weigel and Weigel (1978), Dunlap and Van Liere (1978), Buttel and Johnson (1987), Arcury (1990), Freudenburgh (1991), Tarrant and Cordel (1997) as explained in page 62 of this study.

However, the distinction between anthropocentrism and ecocentrism was first studied by Dunlap and Van Liere (1978). Following Dunlap and van Liere, in 1990s, two other studies have also measured these two main constructs for environmental attitudes applying different scales. In one of them, Dreger and Chandler (1993) developed an anthropocentrism scale, believing that humans are superior to animals Thompson and Barton (1994) developed both eco-centric and anthropocentric scales in which people agreed more strongly on eco-centric items. Finally, Ellis and Thompson (1997) developed a scale to measure "ecological consciousness".

Upon the above scales, NEP scale has become more widely used measure of environmental or ecological worldview challenging the older view of anthropocentric approach. Several studies (La Trobe and Acott, 2000) done to elaborate such measuring instruments has shown that; it is possible by applying NEP scale to include references to the intrinsic value of nature, as well as the moral duties people have to the rest of nature and to other human beings, with a considerable reliability that perfectly matches the requirement of the present study. Therefore, in the present study, Dunlap and van Liere's modified "New Environmental Paradigm" (NEP) scale was selected among other known scales since it emphasized environmental protection, limited industrial growth and population control among other issues that fits the approaches in this study. The basic assumption of the NEP is that humans are equal members of the natural world rather than being distinct from nature and exempt from natural laws. All of those specifications of NEP scale are satisfactorily enough to be used for the purposes of this study.

In its first version, a 12 items NEP scale was developed and Likert formatted to test opposing views of how mankind regards the natural environment. Utilizing samples from the general public, Dunlap and Van Liere

examined the reliability, validity and dimensionality of the scale. Their findings suggest that the scale is reliable (measured by Cronbach alpha), valid and uni-dimensional.

Realizing the potential utility of such a scale, Albrecht et al. (1982) made a similar study in Iowa and their findings also suggest that, the scale is reliable and valid but not uni-dimensional. Dimensionality of the NEP scale will be discussed in the coming sections after giving the examples of the former researches.

It has been mostly used with samples of the general public, but it has also been used with samples of specific target groups such as farmers, students, park visitors (Albrecht et al., 1982) and members of interest groups (e.g. Edgell and Nowell 1989; Pierce et al., 1992). It has been used to examine environmental orientations of ethnic minorities in U.S.A. (e.g. Caron, 1989; Noe and Snow, 1990) as well as citizens of different nations such as Canada (Edgell and Nowell 1989), Sweden (Widegren, 1998), Baltic States (Gooch, 1995), Japan (Pierce et al. 1987) and Turkey (Furman, 1998). It has recently been used for the comparison of environmental concerns of different countries (Harknes, 1996). Finally, Bodur and Sarıgöllü (2005) investigated the relationship between Turkish consumers' attitudes and their behaviours towards environment.

Although dozens of studies having employed the NEP items and approved its validity and reliability using data from different samples; there has been a lot of methodological discussion and criticism of the original NEP. The most widely discussed aspect of the original NEP scale is its dimensionality. As I mentioned before, according to the findings of Dunlap and Van Liere (1978) the original 12 items NEP scale forms a consistent and uni-dimensional scale. But, in Iowa study, Albrecht, et al.(1982) found three distinct factors as dimensions; "Balance of Nature", "Limits to Growth" and "Man over Nature." Some studies (Edgell and Nowell, 1989; Lefcourt, 1996; Noe and Snow, 1990) found that all items can be loaded on a single factor as Dunlap et al. (2000) claimed and several studies have found only two dimensions in one or more of their samples (Gooch, 1995; Scott and Willis, 1994; Bechtel et al. 1999). Although many studies have found three dimensions as Albrecht et al. still others have found four dimensions (Furman,

1998; La Trobe and Acott 2000; Roberts and Bacon, 1997) and even five dimensions (Geller and Lasley, 1985).

The decision to separate NEP items into two or more dimensions should depend upon the results of the individual study. Depending on that, the factors or dimensions established by Albrecht et al. namely; "balance of nature", "limits to growth" and "man over nature" are also found in the present study in addition to one other factor "human beings threaten the nature". Therefore, it is possible to say that; four dimensions have been found in our study.

The question of dimensionality is important in the interpretation of NEP scale scores. If the NEP scale is really uni-dimensional, then low scale scores can be interpreted as a rejection of the NEP. On the other hand, if the scale is multidimensional, then it is possible to interpret low scale scores as either a total or a partial rejection of a single dimension.

Another debate related with the NEP scale is about the modified usage of it. Although, according to Cordano et al. (2003) the original NEP continues to provide researchers with a useful tool that works in some cases better even than "the revised" versions, Edgell and Nowell (1989) argued; this scale might be used partially. This means, each dimension of the original NEP scale could explain more variance than the entire scale depending on the specifications of the study. La Trobe and Acott (2000) reaffirmed this use of abbreviated NEP-based measures and stated that such use is appropriate if adequate reliability is obtained. Abbreviated scales may provide researchers with a better understanding of the most relevant attitudes for a given behavior or sample.

Therefore it is possible to say that, the entire pool of NEP items, made available from both the original and the revised versions, can provide a good tool for researchers to fit NEP-based measures into studies that integrate multiple theories and measures. All of these criticisms motivated Dunlap, van Liere and their associates to revise the NEP scale. In 1992, Dunlap et al. first introduced a revised NEP scale that modified some existing items and added some new factors. Dunlap et al. believed that the original NEP needed to be updated both in language and content. To capture changes in environmental views that

have emerged in the U.S.A. and in other countries, they added items to measure new subjects such as eco-crisis, anti-exemptionalism (exemptionalism is the belief that humans are exempt from the laws of nature). They also modified four items from the original to be included in the revised version. Another four items from the original NEP were not included in any form in the revised version. The original NEP scale (1978) and the revised version are given in Appendix.

Depending on the above explanations, revised NEP scale is taken as a basis and adapted to the purposes of this under Turkish conditions. To do this, I broaden the content of the scale and one item has been added. This item is added to differentiate environmental attitudes, knowledge and behaviors in "developed" and "developing countries".

However, since the reliability of this newly constructed item is found very low (0.39), we could not have a chance to distinguish environmental attitudes, knowledge and behaviors in "developed" and "developing countries" in this study. But there exist a few studies that managed this differentiation. For example, although, in an article entitled “What a Difference The Culture Makes” NEP scale is criticized for being devised for use only in developed countries and is inadequate for determining attitudes to the environment in developing countries**;** Furman (1998) by using NEP scale measured the environmental attitudes in Istanbul, Turkey and he found out that the citizens of developing nations as in the case of Istanbul, were highly concerned about environmental issues. Istanbul residents showed more than moderate support for the ideas represented by the NEP. Tuna (2003), investigated “public environmental attitudes in Turkey” as a developing country by using NEP scale. Moreover, Dunlap, Gallup and Gallup (1993) supported his findings. Based on the empirical findings reported, it is presumed that the modified NEP scale is a reliable instrument and appears to be appropriately adopted in the present study.

In the following a detailed description of the questionnaire with respect to each of the variables being measured in this study is presented in order:

Environmental Attitudes: Attitudes, as explained in detail in the previous section, are one of the important determinants of environmental behavior. This is

to say, when an individual's beliefs and feelings are congruent with the issues in nature, the person would be more likely to produce the corresponding patterns of behavior (Ajzen and Fishbein, 1980; Axelroad and Lehman, 1993). As Ajzen and Fishbein (1980) noted, the level of consistency and prediction between attitudes and behavior can be increased when the attitude being measured is more directly related to the action in question. Therefore, it is important to identify individuals' attitudes pertaining to their beliefs and values owned about nature that indicates the personal approach (interest/threat) of the individual, consequently the relevant behaviors or at least tendencies would be possibly drawn out. To this purpose, the NEP scale was modified to reflect the special concern of environmental problems and conditions in the Turkey.

This section of questionnaire, encompasses three underlying construct of environmental attitudes (egocentrism, ecocentrism, homocentrism) designed to study the extent of values to which each respondent group perceive in terms of the specific conditions in Turkey.

In order to measure environmental professionals' **attitudes** towards egocentrism; nineteen questions were asked under the subheading of "limits to growth". To measure if the respondents' approaches are towards ecocentrism, sixteen questions were asked under the subheading of "nature has a delicate balance". To measure if the respondents' approaches are towards homocentrism in mechanistic view, twenty two questions were asked under the subheading of "man over nature" and seventeen questions were asked under the subheading of "human beings threaten the nature" to measure holistic view. The number questions and subheadings directing respondents are summarized in Table 2.

Table 4.1. Summary of Questionnaire

Scale (Dimension)	Statement	Number of items
1.Environmental Attitudes **(Ethical Values)**		
		19
• Egocentric approach	limits to growth	16
• Ecocentric approach	nature has a delicate balance	22
• Homocentric approach	man over nature(mechanistic view)	17
	human beings threaten the nature (holistic)	
2.Environmental Knowledge	Environmental Consciousness	8
3.Environmentally Significant Behavior	Environmental Behavior	12
4.Soci-demographic variables	Age, gender, education, professional experience	

Environmental Knowledge: In this section of the questionnaire**,** eight statements were given to respondents based on the study of Furman (1998). However, to distinguish the respondents who are integrated their environmental awareness into their knowledge; the six of the eight questions (statements) were worded in opposite direction and somehow in a tricky manner.

The Likert-type is chosen to scale each statement; since subsequent researches have generally confirmed that the Likert-type attitude scales are quite reliable and valid instruments for the measurement of attitude and it permits the greatest statistical power in analysis. Likert-type attitude scales are often treated as yielding interval data, and allow the use of parametric statistical tests that are considered more powerful than non-parametric tests in determining statistical significance (http:/www.mu.edu/sbp/meth.html).

In the "environmental attitude" and "environmental knowledge" measurement sections respondents were asked whether they strongly agreed, agreed, were neutral, disagreed or strongly disagreed and numbered from 1-5 accordingly. In this manner the responses to the various items are quantified and summed across statements to give a total score for the individual on the scale. Of

course, it is necessary that the assigned numbers are consistent with the meaning of the response. That is, if positive statements scored from 1-5; negative statements should be scored from 5-1. In this way a person with a strongly support of that item would receive a score of 15 for three statements.

Environmentally Significant Behavior: How an individual would be expected to behave in any given situation is often different from what this individual actually does. As mentioned in the Introduction, measurements depending on the self-reports (i.e. how respondents perceive themselves) a sets of questions or items with one of a limited number of prescribed choices are given the respondents that they could supply their own answers freely. Due to the nature of the self-reporting (rating) it has been recognized that self reports may be biased by tendencies to report socially desirable behaviors rather than individuals' personal preferences (Ajzen, 1988).

However, the compatibility between what people say about what they (support) and what people actually do should be a major concern of measurement. Measurements depending on the self-perception of respondents, in some degree, reflect what actually occur, but they can be biased as dealing with highly sensitive issues. Thus if measurement of self perception reports can be structured well, the statistical analysis in correlation between self-reports and actual behavior may still be good. Although self perceptions are commonly considered to be biased, they often have the advantage of providing a summary generality that can reveal the information of individual potential of behavioral performance in some particular circumstances (Hsu, 2003). Therefore, measurements have been done depending on the self-perception of each individual in this study.

Environmentally significant behaviors were assessed using 12 questions constructed specifically for the purpose of this thesis according to conditions in Turkey. Respondents were asked whether each statement was "yes", "sometimes" or "no" in terms of their routine activities as a measure of behaving environmentally or not. Statements were scored as follows: yes=2, sometimes=1 and no=0. Except for statement 1, an affirmative answer (yes) reflected a pro-environmental position and "sometimes" reflected that the individual sometimes

performed that behavior and sometimes not and with "no" signifying that the individual does not perform the behavior.

Socio-demographic Characteristics: As it is stated above, one of the ways social scientists can promote environmentalism is to understand the relationship between demographic variables and environmental attitudes and behaviors. In other words, it is necessary to ask how different parts of the population differ in regard to environmental attitudes and behavior (Scott and Willis, 1994).

Since the notions of environmental attitudes, knowledge and environmentally significant behavior and their associated factors are subjective and individual dependent, the demographic variables are considered to be influential in explaining the relationships between above mentioned three variables.

To measure the relationship between socio-demographic variables and environmental attitudes, knowledge and behavior; age of respondents, their education, gender, income and professional experiences were asked in the questionnaire. *Gender* was coded as, with 1=female and 2=male. *Age* was scored as; ages 19-31= 1; ages 32-39= 2; ages 40-49= 3; 50 and over= 4. *Education* was scored as follows: 4=undergraduate; 5=graduated. Since all respondents graduated from university, the only distinction is made between having bachelors degree or graduate degree. *Professional groups* were scored as: environmental academicians=1; decision makers=2 others = 3. *Professional experience* was divided into four and coded as: 0-5 year experience=1; 6-15 years experience=2; 16-25 years experience=3 and 25 years and over =4. The first groups represent those with little professional experience or those who started recently in their jobs 2. The second group is constituted of those who do have a professional experience; 3. The third group is composed of those with a very long professional experience of about 25 years. 4. The fourth group was those with an experience longer than 25 years being close to their retirement. And lastly, *income* was asked to the respondents. But since most of them did not give an answer to this question and respondents were chosen approximately from the same income level it was omitted as explained above.

Those statements in the questionnaire are given in Appendix.

4.3.2. Reliability of the Questionnaire

The reliability for a survey instrument is an important component in research design for most social sciences. An instrument's reliability refers to the degree to which a technique consistently measures whatever it is supposed to measure (Gay, 1996). It is generally acknowledged the reliability procedures are concerned with minimization of random error by increasing the precision and consistency of the measuring instrument. One of the common methods used to measure the reliability to ascertain their internal consistency is Cronbach's Alpha. The purpose for estimate of Cronbach's Alpha is to produce a test of homogeneity, which indicates single items on a multiple-item instrument are measuring the underlying construct the instrument (or portions of the instrument) purposes to measure (Miller, 2002).

In this study, Cronbach Alpha values were calculated for each scale to ascertain their internal consistency. They yielded alphas above 0.6 thresholds for acceptable reliability and given in Table 1. Then as suggested by Dunlap et al. (1992; 2000) the reliability was assessed for the entire scale (a total of 82 items) and it produced a Cronbach alpha of 0.8.

Table 4.2 Reliability Analysis for the Constructed Questionnaire

SCALE	**No. of Items**	**Cronbach Alpha**
1. Environmental Attitudes		
• 1a) Egocentric approach "limits to growth"	19	0.64
• 1b) Ecocentric approach "nature has a delicate balance"	16	0.60
• 1c) Homocentric approach "man over nature"(mechanistic)	22	0.67
"human beings threaten the nature" (holistic)	17	0.81
2. Environmental Knowledge	8	0.62
3. Environmental Behavior	12	0.69

4.4. Selection of Target Groups

We expressed that, in order to measure whether attitudes towards nature are actually changing, it is necessary to be able to validly and reliably measure individuals' value systems (La Trobe and Acott, 2000). Furthermore, for better environmental management, understanding of people's attitudes and values concerning environment and development together is very important in decision making. Often decision makers have too little information of public opinion available to them to make successful management decisions and regulations. Moreover, they do have too little information about their own opinions or value systems. To know the environmental approaches of decision makers has the at most importance since it has a great impact on large masses of public.

Through human history, environmental impact has been the byproduct of human desires such as physical comfort, enjoyment, power etc. (Stern, 2000). People use the technology in a way that to meet their expectations, desires among their basic needs. But, recently environmental protection becomes an important consideration in decision making being different than the past. This development has loaded environmentally significant behavior a second meaning; it can now be defined from the actor's standpoint. Therefore the selection of target group for this study was very important. Decision makers were purposively selected because their indirect impacts on individuals are more effective than the direct impacts of each individual on environmental protection.

Additionally, as a second target group, environmental academicians who are employed in universities and work with environmental issues (biology, environmental engineering, water products engineering, agricultural engineering etc.), were chosen as a representative of known environmentalists and thirdly, randomly selected people who have graduated from university and share a similar income level with the other groups and have no direct relation with environmental issues were chosen as a representative of general public for the purposes of this study. Another reason for choosing these particular groups of respondents is; academicians and decision makers are expected to exhibit their environmental

attitudes in their behaviors since they are the most conscious people on environmental issues in Turkey and in the world. To handle environmental problems created by human activities and to avoid creating new ones, we need national and international standards, produced in the light of ethical value knowledge by ethically-concerned professional *scientists and academicians.* To make these standards applicable, we need ethically concerned *decision makers*. However, being ethical is not enough; environmental or ecological knowledge and consciousness are necessary. We need academicians and decision makers who can connect this knowledge with ethical values to solve environmental problems in given situations and have a capacity to evaluate each case for itself. Additionally, the *academicians* are very important since, they as a group are highly influential in shaping the environmental attitudes of future generations. The third group was involved in the study to make reliable comparisons between environmental specialists and (laymen) ordinary people who are well educated.

4.5. Sampling Procedure

Depending on the above explanations, for the purposes of this study a mixed method was used. A sample of approximately 200 people (56 environmental academicians, 73 bureaucrats and 69 randomly chosen individuals) was surveyed using a questionnaire prepared according to the above principles, to find out their attitudes and behaviors towards environment. A sub-sample of academicians and decision makers who are in higher positions were interviewed in-depth (total of 6 persons) to investigate intensely their environmental attitudes and behaviors.

Sampling is another important issue in environmental attitude and behavior research. Most environmental attitude studies have been based on a geographical region, community or special environmental group samples. Most of the research is based on random sampling with a limited population of representative groups as in the case of this study.

The study involved three target groups of respondents selected from environmental academicians, decision makers (higher level bureaucrats) who are

in charge of environmental issues in governmental institutions and randomly selected individuals who are graduated from university and approximately having similar income levels with the other two groups as explained above.

To determine the sample population, firstly a list of departments dealing with environmental issues (departments of environmental engineering, biology, geography, faculties of water products, centers for environmental research and application, centers for urban and environmental sciences, geography, etc.) was established and about 90 departments were finally taken as the sample population. Similarly, environment-related governmental institutions and their different departments were investigated via the Internet and approximately 80 different organizations and related departments were found.

4.6. Data Collection

Depending on the above explanations 90 individuals for each target group and a total of 270 questionnaires were distributed to the respondents via e-mail and direct contact. A total of 198 questionnaires were returned, with a response rate of 73.33%. (See Table 2). Only three questionnaires were not fully completed and were thus not incorporated into the analysis stage of the study.

Additionally, four decision makers; Vice-undersecretary and General Director of Environmental Management, Vice General Director of Environmental Impact Assessment and Planning of the Ministry of Environment and Forestry, and Vice Chairman of Authority for the Protection of Special Areas; further, three academicians, one from Hacettepe University Biology Department, (Prof. Dr. Ali Demirsoy) one from Gazi University (Biology Education) Department (Prof. Dr. Figen Erkoç) and one from Middle East Technical University City and Regional planning Department (Çağatay Keskinok) were interviewed.

Table 4.3 Status of the Questionnaire Distribution Among Target Groups and Returns

Target Groups	**# Sent**	**# of Return**	
		n	**%**
Academicians	90	56	62.22
Bureaucrats	90	73	81.11
Others	90	69	76.67
Total	**270**	**198**	**73.33**

4.7. Data Analysis

In this study, Statistical Package for Social Science (SPSS 11.5 for Windows) was used as a statistical program to summarize and analyze the data throughout the entire procedure. Both descriptive and inferential statistics were utilized for the analyses. The following discussion describes which analyses has been done and purposes of the analyses.

Frequencies were used to show the distributional characteristics of the each scale as a variable. Moreover, descriptive statistics provides measures of central tendency and variability such as mean, maximum, minimum and standard deviation.

For "hypothesis testing", t-test was used to differentiate gender and education -as a socio-demographic characteristics- pertaining to environmental attitudes, knowledge and behavior. Additionally, One-Way, Analysis of Variance (ANOVA) was used to determine if there exist significant differences between mean scores of each variable tested. In this case, other socio-demographic characteristics such as professions, age and experience were tested as variables. For correct interpretation of the ANOVA, the data at a given probability level and F ratio was computed.

Correlation was used to determine the strength of the relationships between the subjects' response scores on any pair of the variables measured. The coefficient of linear correlation allows us to compare the relative strengths of dependency for different sets of data. A commonly used description for the levels of correlation are shown in Table 3.

Table 4.4. Description for the levels of Correlation

r	**Descriptive**
1.0	Perfect
.70-.99	Very high
.50-.69	Substantial
.30-.49	Moderate
.10-.29	Low
.01-.09	Negligible

Multiple Regression analysis was used to identify any statistically significant predictors of environmentally significant behavior among variables (knowledge, each types of attitudes, age, gender, experience, etc.). However, as a result of applying this technique, the determinants of environmental behavior could not be produced. Therefore it is not used in the "interpretation of data".

CHAPTER V

RESEARCH FINDINGS AND THEIR INTERPRETATIONS

5.1. Introduction

The present study was intended to explore whether or not respondents engage their environmental attitudes (ethical values) and knowledge into the behaviors in relation to their socio-demographic characteristics. This question is tested for selected target groups of respondents. Along this line, three major concepts were measured in the context of this study: "environmental attitudes", "environmental knowledge" and "environmentally significant behaviors". Moreover socio-demographic variables are measured in order to investigate their effects on studied variables.

Therefore, the purpose of the present study can be stated in terms of the following main hypotheses;

In relation to environmental knowledge it is assumed that;

- Respondents having higher level of environmental knowledge are expected to support pro-environmental approaches as defined by ecocentrism in this study.

Further it is assumed that the above mentioned assumption reflects itself in the respondents' behaviors and can be formulated as:

- Respondents who are close to ecocentric approaches -or at least -holistic view of homocentrism – are expected to behave in an environmentally significant manner.

We also assume that among the professional groups;

- The group termed" environmental academicians" are expected to hold the most ecocentric views, which find its reflection in their daily routine behaviors.

Besides the respondents' professional characteristics socio-demographic variables will also be tested for. It is assumed that socio-demographic factors such as gender, age, and education will also be significantly different.

- Men are expected to be less eco-centric.
- Well-educated persons are expected to have a higher level of environmental knowledge and consequently act more ecocentric.
- Younger persons are expected to have a higher level of environmental knowledge and consequently act more ecocentric.

Along this line, the purpose of this chapter is to present the description and interpretation of the data which was collected from environmental academicians, decision makers (bureaucrats) and control group of total 198 respondents.

During the analyses it is important to test the reliability of each scale as discussed in detail in the previous chapter. For a scale to be reliable, the alpha should be at least 0.6. Therefore, for the scales having an alpha coefficient of less than 0.6, the analyses of the Corrected Item-Total Correlation were used to confirm grouping on a large number of sub-variables by defining a set of common underlying dimensions (Miller, 2002). This procedure was applied to support association between the score of a single item and the score of the entire scale. Its operation is mainly to indicate whether or not the items are measuring common characteristics. Therefore, the impact of each item included in the scale was calculated and any item with a coefficient less than 0.3 were dropped. After the particular items were discarded, the alphas of the scales were recalculated and finally this processes resulted in three distinct reliable scales (dimension), one of them with three subscales;

1. Environmental Attitudes (Ethical Values) Scale.[1]

1. a) Egocentric approach **(1)**

1. b) Ecocentric approach **(2)**

1. c) Homocentric approach

[1] For the detailed discussion of the scales and sub-scales see the previous chapter.

1. c. 1) Holistic view **(3)**

1. c. 2) Mechanistic view **(4)**

2. Environmental knowledge **(5)**

3. Environmentally significant behavior[2]

To be on the safe side, a principal component analysis was applied to the 82 items asked to measure environmental attitude and knowledge. Using a varimax rotation and a 1.0 eigenvalue threshold, the principal component analysis produced five factors as indicated above in parentheses. Cronbach alpha values were calculated for each scale to ascertain their internal consistency. They yielded alphas above 0.6 threshold for acceptable reliability for this study and given in Table 4.2 (Chapter IV). Then as suggested by Dunlap et al. (1992; 2000) the reliability was assessed for the entire scale (a total of 82 items) and produced a Cronbach alpha of 0.8.

The major outcomes along with the data analyses were discussed here in order to test the hypotheses given above. First, socio-demographic characteristics of respondents were defined and the relationship between environmental attitudes, knowledge and environmental significant behavior were analyzed and interpreted. Then, descriptive analyses were completed for each scale/subscale for three groups of respondents. Finally, the data were correlated for all target groups to see if there is any significant relationship among all subscales of attitude, knowledge and appropriate environmental behavior.

5.2. Interpretation of Socio-demographic Characteristics of Respondents

Numerous studies have examined the associations between socio-demographic characteristics and environmental attitude, knowledge and environmentally significant behavior. These studies reveal that some factors are more consistently related to environmental behavior over time than the other. Findings of those studies might be summarized as; although young age and higher education were generally agreed on in describing the characteristics of

[2] Since existing scales were combined and adopted to Turkish conditions to mesaure environmentally significant behavior ,factor analysis was not applied to this scale

environmentally sound people- in most of the research, highly educated respondents are found to have more pro-environmentalist values than the lower educated respondents- conclusions based on other demographic parameters were fairly conflicting. It is difficult to have a general conclusion. [3]

As summarized in Table 5.1., the gender of the respondents was 95 males (48%) and 103 females (52%). The distribution of respondents' ages for the stated interval is more or less the same and distributed around 25%. Since majority of the respondents (95%) have graduated from university, therefore, education of respondents is given in two categories; undergraduate with a ratio of 49% and graduate 51%. This table also indicates the distribution of professional experiences of respondents as explained in Chapter IV. Most (79% in total) of them have working experience more than 6 years (see Table 5.1. for more detail).

[3] See Chapter IV for details.

Table 5.1 Socio-demographic Characteristics of Respondents

Gender	**N**	**%**
Female	103	52
Male	95	48
Total:	198	100
Education	**N**	**%**
Undergraduate 90	49	
Graduate	93	51
Total:	183	100
Age	**N**	**%**
19 - 21	50	25
32 -39	54	27
40 -49	50	25
50 or over	44	23
Total:	198	100
Professional Experience	**N**	**%**
0 -5 years	41	21
6 – 15 years	60	30
16 -25 years	55	28
25 or over	42	21
Total:	198	100

One-way analysis of variance (ANOVA) and t-test was used to determine whether there is a significant difference in the sample means on for three distinct subscales of environmental attitudes, knowledge and behavior affected by the socio-demographic factors (e.g. age, gender, education and professional experience). The t-test assesses whether the means of two groups are *statistically* different from each other. This analysis is appropriate whenever you want to compare the means of two groups, and especially appropriate as the analysis for the posttest-only two-group randomized experimental design. That is, it should be used for the analyses of gender (male-female) and education (graduate-undergraduate) in this study. The ANOVA technique was conducted to test the null hypothesis (all means are equal) against the alternative hypothesis at least one mean value is different with alpha level of .01. If the decision made by the test statistic was to reject the null hypothesis; which also indicates the factor being tested does have a significant effect on the response variable, then a multiple comparison procedure, that is Bonferroni multiple comparison test, would be used to identify which pair(s) of the mean scores are significantly different in the factor.

The results of the t–test and ANOVA test on the overall scale of environmental attitudes, knowledge and environmentally significant behavior factored by the four mentioned socio-demographic characteristics are discussed and presented in the tables below.

5.2.1 Elaboration of Education and Gender Differences

For the purpose of this study, particular research question was proposed to understand how environmental attitudes, knowledge and behavior are related to gender and educational status of respondents. It is assumed that men are expected to be less eco-centric and well-educated persons are expected to have a higher level of environmental knowledge and consequently act more ecocentric.

As explained in detail in Chapter IV, some researchers (Arcury, 1990; Stern et al.,1993; Tarrant and Cordel, 1997; Zelezny et al, 2000) concluded that, the relationship between these variables is weak and inconsistent. For example, in some studies there may be a tendency for men to express greater support for ecocentric approaches (Scott and Willis, 1994), whereas in some studies opposite results may be found showing women as more environmentalist (Stern, 1993; Tarrant, 1997; Loges and Kidder, 2000). However, when the Table 5.2. is examined, the means for gender did not differ significantly from each other for all scales/subscales which means there was no statistically significant difference at the respondents' attitudes, knowledge and behavior according to gender.

Similarly, based on the findings of this study, education is not supported as a significant mediator of the environmental behavior. There is no statistically significant relationship between education and environmental behavior. However, as it is our hypothesized; well-educated persons are expected to have a higher level of environmental knowledge; a negative relationship ($t = -3.170$; $p<0.01$) is found between education and environmental knowledge. This might be explained by the contradictory (tricky) nature of the items measuring environmental knowledge. As explained in Chapter IV, the lower mean for "environmental knowledge" scale means the higher score of environmental knowledge and consciousness. Therefore, when the means of graduate and undergraduate levels of education are compared; respondents with a masters or doctoral degree are more conscious about nature as expected.

Moreover, education based results indicate positive relationship ($t =2.119$; $p<0.01$) between education and ecocentric approaches in accordance with the most of the research findings[4] and our hypothesis. However, there exist statistically significant difference ($t = 2.524$; $p<0.05$) between education and mechanistic view of homocentrism. Although, when the means are compared, respondents with undergraduate level of education seem more close to homocentrism; there is a confliction between this finding and education-ecocentrism association given above. This might be explained as; well educated people generally have high

[4] See page 62 for details.

living standards which they are not willing to give up for a purpose of environmental conservation. Therefore they prefer to support homocentric approaches.

Table 5.2. T- test Analyses of the Relationships of Education and Gender to the Environmental Attitudes, Knowledge and Behavior

SCALES	Education				Gender			
		N	Mean	t		N	Mean	t
1. Environmental Attitudes (Ethical Values)								
1a)Egocentric limits to growth	Undergraduate	90	3.7007	1.19800	Female	103	3.7235	1.83
	Graduate	93	3.6355		Male	95	3.6257	
1b)Ecocentric nature's balance	Undergraduate	90	2.9447	2.524**	Female	103	2.9447	1,87000
	Graduate	93	2.8012		Male	95	2.8365	
1c)Homocentric mechanistic	Undergraduate	90	2.9580	2.119*	Female	103	2.8867	-.98
	Graduate	93	2.8511		Male	95	2.9376	
1c)Homocentric holistic	Undergraduate	89	3.9912	-.58900	Female	102	3.9814	-1.11800
	Graduate	93	4.0292		Male	95	4.0509	
2.Environmental Knowledge	Undergraduate	90	2.5312	-3.170**	Female	103	2.4853	1.34
	Graduate	93	2.3001		Male	95	2.3862	
3. Behavior	Undergraduate	90	1.3033	-1.34	Female	103	1.3046	-1.12600
	Graduate	93	1.3680		Male	95	1.3573	

Level of significance: * $p<0.05$ ** $p<0.01$ *** $p<0.001$

5.2.2 Elaboration of Age Differences

Respondents' attitudes, knowledge and behavior according to their age groups in this study were summarized in Table 5.3. It was assumed that, younger persons have a higher level of environmental knowledge and consequently act more ecocentric. However, the results indicated that, the relationship between age and scales/subscales in this study did not support any specific hypothesis relating age to any of the scales (attitudes, knowledge and behavior) of the present study. In particular, it might be said that, the most commonly accepted hypothesis that environmental concern is stronger among younger individuals of the society

(Arcury, 1990; Austin and Woolever, 1994; Jones and Dunlap, 1992; Scott and Willits, 1994; Van Liere and Dunlap, 1980; Furman, 1998) was not validated in Turkey especially for target groups of respondents.

Table 5.3. Summary of ANOVA on Environmental Attitudes, Knowledge and Behavior for Age

SCALES		**N**	**Mean**	**Standard Deviation**	**F**
1.Environmental Attitudes (Ethical Values)	**Age**				
1a)Egocentric "limits to growth"	19 -31	50	3.6514	.33666	.625
	32 -39	54	3.7185	.37221	
	40 -49	50	3.6308	.40047	
	50 +	44	3.7057	.40520	
1b)Ecocentric nature's balance	19 -31	50	2.9910	.41680	2.435
	32 -39	54	2.7814	.41321	
	40 -49	50	2.8870	.29520	
	50 +	44	2.9245	.48176	
1c)Homocentric mechanistic	19 -31	50	2.8818	.33807	2.466
	32 -39	54	2.8244	.35834	
	40 -49	50	2.9442	.33085	
	50 +	44	3.0132	.41715	
1c)Homocentric holistic	19 -31	49	4.0130	.42176	.674
	32 -39	54	4.0819	.44883	
	40 -49	50	3.9663	.44045	
	50 +	44	3.9901	.43965	
2.Environmental Knowledge	19 -31	50	2.5343	.47425	2.090
	32 -39	54	2.2950	.58857	
	40 -49	50	2.4819	.46423	
	50 +	44	2.4529	.52548	
3. Behavior	19 -31	50	1.2925	.28309	1.761
	32 -39	54	1.2697	.36221	
	40 -49	50	1.3705	.33222	
	50 +	44	1.4003	.32309	

Level of significance: * $p<0.05$ ** $p<0.01$ *** $p<0.001$

5.2.3. Elaboration of Professional Experience

Table 5.4 Summary of ANOVA on Environmental Attitudes, Knowledge and Behavior for Professional Experience

SCALES		**N**	**Mean**	**Standard Deviation**	**F**	**Multiple Comparisons**[5]
1.Environmental Attitudes (Ethical Values)	**Professional Experience**					
1a)Egocentric "limits to growth"	0 – 5 (A)	41	3.7084	.31222	1.280	
	6 – 15 (B)	60	3.6967	.33580		
	16 - 25 (C)	55	3.5935	.45449		
	25 + (D)	42	3.7254	.37714		
1b)Ecocentric nature's balance	0 – 5 (A)	41	2.9692	.41918	.797	
	6 – 15 (B)	60	2.8486	.43890		
	16 - 25 (C)	55	2.8694	.28246		
	25 + (D)	42	2.9120	.49142		
1c)Homocentric mechanistic	0 – 5 (A)	41	2.9299	.30965	3.316*	
	6 – 15 (B)	60	2.8130	.38026		D*
	16 - 25 (C)	55	2.9066	.30878		
	25 + (D)	42	3.0388	.42544		B*
1c)Homocentric holistic	0 – 5 (A)	41	4.0468	.39758	.902	
	6 – 15 (B)	60	4.0669	.44244		
	16 - 25 (C)	55	3.9395	.44463		
	25 + (D)	42	4.0092	.45567		
2.Environmental Knowledge	0 – 5 (A)	41	2.5510	.48866	1.129	
	6 – 15 (B)	60	2.3592	.57748		
	16 - 25 (C)	55	2.4517	.45665		
	25 + (D)	42	2.4209	.54288		
3. Behavior	0 – 5 (A)	41	1.2669	.29348	2.427	
	6 – 15 (B)	60	1.2722	.32891		
	16 - 25 (C)	55	1.3766	.32330		
	25 + (D)	42	1.4128	.35266		

Level of significance: * $p<0.05$ ** $p<0.01$ *** $p<0.001$

[5] There is a statistically significant difference between variances. Therefore Bonferroni multiple comparison test is applied.

In addition to common socio-demographic variables such as age, gender and education; professional experiences of respondents was thought as an important variable pertaining to nature of this study. It is expected that, respondents who had experiences with 6-15 years and 16-25 years (groups A and B in Table 5.4.) are more close to ecocentric or holistic approaches and engage their values into their actions. Because they are supposed to both experienced in their works and have ability to follow scientific and technological developments in the world on environmental issues.

Table 5.4. displays the ANOVA test results of the professional experiences of respondents in relation to attitudinal scale, knowledge and behavior. The *mechanistic view of homocentric approach scale* was found to significantly associate (F=3.316) with the professional experience. This means, the more the respondents have higher professional experience, the more they are close to anthropocentric worldview. This might be explained as; the older people with higher professional experience in Turkey might not be involved in the new developments and not follow the new approaches on environmental issues in the world. They perform as they used to with their old working habits without applying new trends. Therefore, they might be think of human welfare is the only determinant of nature use and assign themselves as anthropocentric.

The results indicated that environmentally significant behavior was defined independently of demographic parameters. Only, 'education' was positively related to the ecocentric approach as attitude, whereas surprisingly negatively associated with environmental knowledge. Although 'age' of the respondents was not significantly correlated with any of the items concerning attitude, knowledge and behavior; 'professional experience' was positively correlated with mechanistic view of homocentric approach. As a summary, socio-demographic parameters especially, age and gender are not the particular concern for environmental attitude, knowledge and most importantly for environmental actions within the group of respondents in this study. It might be concluded that, other variables than socio-demographic parameters, such as situational factors (cultural, economic, political, technological aspects), personality variables

(environmental adaptation, urbanism, pastoralism, stimulus seeking, etc.) and internal and external barriers (see page 106) might be more influential on environmental attitude, knowledge and reflection of those in to actions. Further studies could be proposed to research the influences of mentioned variables in addition to socio-demographic variables.

5.3. Elaboration of Differences Between Professional Groups in Relation to Environmental Attitudes (Ethical Values); Environmental Knowledge and Environmentally Significant Behavior

In general, this study was designed to examine patterns of and relationships between individuals' environmental attitudes, their knowledge on environmental issues and human behaviors towards environment in a developing country – Turkey. Moreover, by means of setting target groups as environmental academicians and higher level of environmental bureaucrats it is aimed to investigate the influences of environmental proficiency and worldview on their environmentally significant behaviors. It was hoped that, a result indicating the impact of environmental approaches and knowledge on behavior and environmental professionals' differences among others could be noticed.

To the above purposes, respondents' behavioral tendencies derived from their attitudinal responses and environmental knowledge regarding their professional groups were statistically analyzed and given in Table 5.5. The results of this analysis will be basis for the coming analyses of this study.

Table 5.5.Summary of ANOVA on Environmental Attitudes, Knowledge and Behavior by Professional Groups

SCALES		**N**	**Mean**	**Standard Deviation**	**F**	**Multiple Comparisons[6]**
1.Environmental Attitudes (Ethical Values)	**Professional Groups**					
1a)Egocentric "limits to growth"	Academicians (A)	56	3.6205	.31666	1.902	
	Bureaucrats (B)	73	3.6546	.39708		
	Others (C)	69	3.7453	.39628		
1b)Ecocentric nature's balance	Academicians (A)	56	2.7323	.29890	7.299***	B* C**
	Bureaucrats (B)	73	2.9123	.41430		A*
	Others (C)	69	3.0024	.44454		A**
1c)Homocentric mechanistic	Academicians (A)	56	2.7783	.30823	5.746**	B* C**
	Bureaucrats (B)	73	2.9401	.35826		A*
	Others (C)	69	2.9882	.38899		A**
1c)Homocentric holistic	Academicians (A)	56	4.0301	.37366	0.379	
	Bureaucrats (B)	72	4.0383	.50088		
	Others (C)	69	3.9782	.41627		
2.Environmental Knowledge	Academicians (A)	56	2.2344	.49508	9.147***	C***
	Bureaucrats (B)	73	2.4228	.45435		
	Others (C)	69	2.6185	.54983		A***
3. Behavior	Academicians (A)	56	1.4113	.24962	2.608	
	Bureaucrats (B)	73	1.3138	.35836		
	Others (C)	69	1.2809	.34542		

Level of significance: * $p<0.05$ ** $p<0.01$ *** $p<0.001$

[6] There is a statistically significant difference between variances. Therefore Bonferroni multiple comparison test is applied.

As can be seen from Table 5.5. strongly significant differences were found in the mean scores of 'ecocentric approach' and 'environmental knowledge' with respect to professional groups. Apparently, the results explain that, three of the respondents' group differs from each other for 'ecocentrism' (F=7.299) and 'mechanistic view of homocentric approach' (F=5.746). Similarly, as expected, academicians and control group (others) show a strong difference in their mean scores for the scale of 'environmental knowledge' (F=9.147). However, it is surprising that, as opposed to our assumptions, there is no significant difference between the means of all professional groups for environmentally significant behavior. It was expected that - as it is found in the case of environmental knowledge-there exists higher difference especially between academicians and control group in behaving environmentally.

The data herein supports the theoretical assumption that, distinct professional groups have different environmental approaches and different levels of environmental knowledge.

As a summary, the influential effects of socio-demographic parameters on studied variables, namely, environmental attitude, knowledge and behavior were investigated in this seciton. Additionally, the basic distinction between professional groups in their approaches, knowledge and behavior was achieved. In the coming parts of the study, descriptive statistics as means, standard deviations, minimum and maximum values for each of the scales (environmental attitude, knowledge and behavior) were used to obtain distributional characteristics of each variable for detailed information. The results of these analyses for each scale and for all respondents (in general) are given in Table 5.6.

5.4 Descriptive Analyses of Respondents' Environmental Attitudes (Ethical Values); Environmental Knowledge and Environmentally Significant Behavior

Firstly, the environmental attitudes and knowledge scales/sub-scales which are based on a Likert scale with 5 dimensions will be discussed. The third scale (environmentally significant behavior) will be discussed in a separate section because it is based on a Likert scale with 3 dimensions.

Table 5.6.Descriptive Analysis for Each Scale

SCALE	**Mean**	**Standard Deviation**	**Minimum**	**Maximum**
1. Environmental Attitudes (Ethical Values)				
• 1a) Egocentric approach "limits to growth"	3.68	0.38	2.42	4.67
• 1b) Ecocentric approach "nature has a delicate balance"	2.89	0.41	1.81	4.44
• 1c) Homocentric approach "man over nature"(mechanistic)	2.91	0.36	1.86	4.45
"human beings threaten the nature" (holistic)	4.01	0.44	2.94	5.00
2. Environmental Knowledge	2.44	0.52	1.25	3.88

The analysis for "environmental attitudes" and "environmental knowledge" was based on the assumption that the following categories are appropriate to describe the level of agreement:

1.00 - 1.79 → 1.0 (strongly disagree)

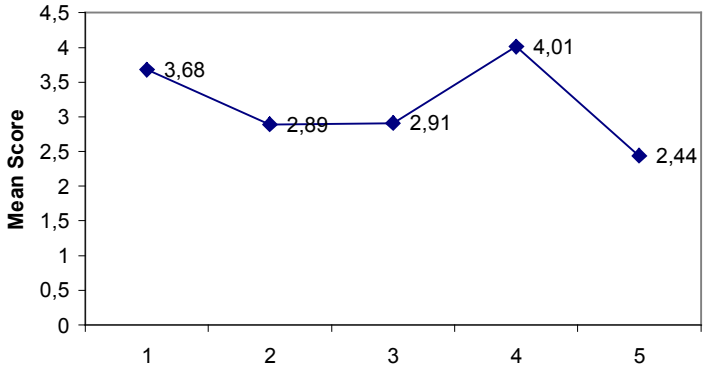
1.80 - 2.59 → 2.0 (disagree)

2.60 – 3.39 → 3.0 (neutral)

3.40 - 4.19 → 4.0 (agree)

4.20 - 5.00 → 5.0 (strongly agree)

The analyses of the first two scales/sub- scales show a statistically normal distribution, with means and standard deviations as given in Table 5.6. and Figure 5.1.



1 Egocentric approach
2 Ecocentric approach
3 Homocentric (mechanistic) approach
4 Homocentric (holistic) approach
5 Environmental knowledge

Figure 5.1. Level of Agreement to Attitude and Knowledge

Of further interest for analyses are the response frequencies of the studied professional groups among which are is expected to show differences in their attitudes and knowledge about nature.

Table 5.7. Response Frequencies of Target Groups in Percentages for Attitudes and Knowledge

SCALE	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
1.Environmental Attitudes (Ethical Values)					
Egocentric Approach	-	0.5	21.2	70.7	8.1
"Limits to Growth"					
• Academicians	-	-	33.9	64.3	1.8
• Bureaucrats	-	1.4	16.4	76.6	5.5
• Others	-	-	17.4	73.9	8.7
Ecocentric Approach	0.5	20.2	67.7	11.6	0.5
"Nature has a delicate balance"					
• Academicians	-	28.6	69.6	1.8	-
• Bureaucrats	1.4	17.8	67.1	13.7	-
• Others	-	15.9	66.7	17.4	-
Homocentric Approach	-	-	7.6	57.9	34.5
"Human beings threaten the nature"					
• Academicians	-	-	8.9	55.4	35.7
• Bureaucrats	-	-	9.7	52.8	37.5
• Others	-	-	7.2	62.4	30.4
"Man over nature"	-	20.2	68.7	11.1	-
• Academicians	-	23.2	75	1.8	-
• Bureaucrats	-	15.2	76.7	8.1	-
• Others	-	11.6	72.5	14.5	1.4
2. Environmental Knowledge	10.1	51.4	35.5	3	-
• Academicians	14.3	64.3	19.6	1.8	-
• Bureaucrats	11	50.6	39.4	-	-
• Others	5.8	42.0	46.4	5.8	-

The results indicated in Table 5.6. and 5.7. will be assessed together since they are interrelated tables and summarized in Figure 5.2.

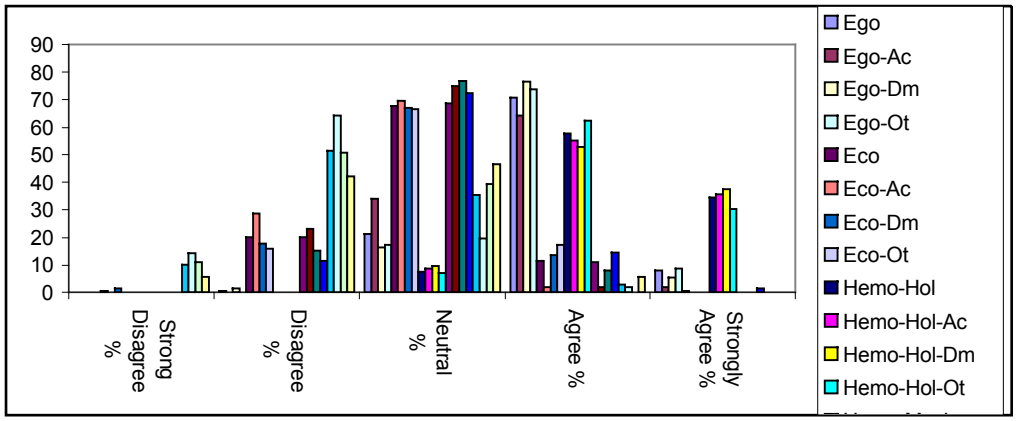


Figure 5.2 Response Frequencies of Target Groups in Percentages for Attitudes and Knowledge

5.4.1 Environmental Attitudes (Ethical Values)

In analyses of *frequency of responses* to each alternative subscales constructed to measure environmental attitudes; it was expected that, most of the respondents agree with the ecocentric (at least support holistic view of homocentrism) worldview since they are environmental experts and supposed to have backgrounds on environmental issues and the respondents group of environmental academicians are expected to be the most ecocentric groups among other groups.

The highest average rating was identified for the ***homocentric approaches' holistic view*** measured under the subheading of "human beings threaten the nature" dimension with a mean of 4.01 (see Table 5.6. and Figure 5.1.). This indicates an overwhelming majority of respondents seemed to clearly

express the view that human beings have negative impacts on nature (92.4% in total).

This can be considered as a proof for our general assumption that all professionals integrated into the analysis share a common understanding that nature is threatened by human beings. This is also referred to in our literature review. Starting from the 70s onwards environmental problems and environmental issues have become one of the most important problem areas discussed in the world and supporting results of this study; those problems have been attributed to anthropocentric worldview- the idea that humans are the measure of all value, and the earth and its natural resources are valuable since they satisfy human needs (Devall and Sessions, 1985; McHarg, 1970; Nash, 1989).

"Strongly disagree" and "disagree" categories are not mentioned at all by all three of the respondents' groups. That is, people are aware of anthropogenic sources of environmental pollution, having the primary importance among other sources of pollution. This awareness made people regard themselves as a part of nature as a whole and they accepted that any change in nature effects man himself.

In other words, most of the respondents in this study accept that, an individual's well-being depends on the well being of both its social group and ecological support system, as discussed in the theoretical framework (nature – human– human-human – human- environment). Individuals using the category "agree" based on the ecological perspective defended by Barry Commoner. His ecological laws and sustainable development concepts have been explained in the Theoretical Framework Chapter in detail, however, what is important in this context here, is the stress he put on the threat humans constitute against nature.

As can be seen from Table 5.7. and Figure 5.2., there is no discernible difference between professional groups for homocentrism (holistic view). Almost all agree that, human actions have adverse impacts on nature.

This could be also interpreted in such a manner that since people who are thinking in this way might also intend to develop a responsibility to protect nature. This can be related to the "stewardship" ethic which implies the existence of an ethic of personal responsibility, an ethic of behavior based on reverence for the

Earth and a sense of obligation to future generations which was discussed together with the concept of *sustainability*. Simply defined sustainability is thought to direct the course of human events towards maintaining environmental protection, ecological integrity, economic objectives and social justice in a manner of harmony over the long term[7] (Caldwell, 1998).

Although the respondents agreed largely on a holistic view of homocentric approach; a large majority of respondents seemed to be unsure (68.7%) about the ***mechanistic dimension of homocentrism***. This can be seen as an indicator for the fact that most people are actually undecided about their position and attitude in relation to a "strong anthropocentric view".

But as we stated in the assumptions, as expected the ones least intensively supporting the attitude to be strongly anthropocentric are the academicians. Decision makers are the most neutral group (76.7%). This is an expected result because decision makers have to manage to establish certain environmental policies. They are the ones who have to develop and implement policies. These policies should be concrete, objective and neutral. Therefore to be directly in charge of formal concrete policies might lead decision makers to answer those statements as neutral.

As policy makers, they are close to political circles, especially those in power. This again might result in certain pressures and finds its reflection in the implementation of environmental policies, project subjects, five-year development plans, etc. It should be kept in mind that there is problem of nepotism in Turkey, which might affect bureaucrats to reflect their actual values. Therefore while answering the items; they should be also interpreted in this light. Moreover, another reason for being neutral might be the lack of a deep environmental knowledge. Decision makers often think that environmental protection should be considered as an obstacle to economical development. This is a very powerful argument in the Turkish context, a country experiencing serious economic crises in recent years generally give the first priority to economical development. Since academicians are not directly engaged in policy formulation, they are most

[7] See Chapter II for details.

sensitive group and they could make more theoretical, philosophical and ideological discussions.

Other sub-scale constructed in the framework of this study to measure respondents' attitudes towards nature was ***egocentrism***. This approach is measured under the subheading of "limits to growth" and agreed with most of the respondents with a mean of 3.68 (see Table 5.6.). That means, 78.8% (see Table 5.7.) of all respondents put their answers in category "agree" and "strongly agree" for the items asked to measure if they are close to egocentric approaches. "Strongly disagree" is not mentioned at all as a category. That is, all people do actually share some form of agreement with the *"egocentric*" dimension. Here by egocentrism, people may manipulate their natural environment in their own interest is meant. In other words, respondents agreed upon that concept support, human welfare is the only determinant of nature use. The reason for those respondents to be agreed on "limits to growth" approach is just because the survival of human being depends on the natural environment. Therefore nature should be protected and use of natural resources should be limited. That result indicates that, individuals' own interests comes first. This might be a normal result for Turkey as a developing country. Because as explained in Chapter III, while people being faced with the problem of hunger and have difficulty to meet their basic needs; environmental protection might be considered as a luxury. Similarly, governments or states formulate their policies concerning development, fighting unemployment etc. by giving fewer incentives to environmental regulations. Moreover, instrumental reason and profit thinking become the dominating criteria for the formulation of environmental policies. This is can also be seen in the individuals' egocentric orientations, attitudes and behaviors in relation to the environment.

Although there is no significant difference between professional groups, decision makers and others have higher scores than academicians within the total score of "agree" and "strongly agree" categories, composing more than 82%. As Drengson (1980) pointed out, environmental decision making is based on political and economic grounds with regard for environmentally sound principles or

sustainability. Academicians agreed however with a lesser score (66.1%) than the other two groups. Their educational level allows them to approach from a wider angle and as explained in the discussions on homocentrism they are least intensively supporting attitudes in favor of a strong anthropocentrism.

As a summary, most of the respondents agreed that we need to maintain a steady state economy and that there were limits to population growth and industrial expansion for the human welfare. Only, 16.4% and 17.4% of the decision makers and others are undecided respectively.

As in the case of mechanistic dimension of homocentrism; respondents' attitudes towards ***ecocentrism,*** measured under the subheading of "nature has a delicate balance" indicated that people are usually unsure (67.7%) about the ecological balances of nature. They do not approach and understand nature as a whole in which each part is interconnected, and any change in one part of this system will automatically result in a change or even collapse of the whole. The results show that 28.6% of the academicians, 17.8% of decision makers and 15.9% of the others do not accept an ecocentric view which has been explained in detail in the Theoretical Framework Chapter. That means, the remaining part of the respondents, with the exception of the undecided ones, are more close to the anthropocentric view. This result can be explained similarly to the above discussions. Decision makers have to develop environmental policies for humans and societies. Therefore they have to think about humans' well being and how to implement their policies, also in pragmatic and that means also technological terms. Similarly, for the agreement category, only 1.8% of the academicians, 13.7% of decision makers and 17.4% of the others agreed that nature has a balance. That means, neither individuals nor living organisms are important alone, only the totality of nature has a moral value. Nature should be protected since it has an intrinsic value. Among the agreed respondents, academicians have the lowest value. This might be explained as; academicians are mostly defending nature protection but economical development should be in balance with nature and not simply be substituted by a single protection of nature without considering human welfare. Academicians' approaches might be close to Barry Commoner's

approach; after accepting the reality of environmental quality it is an inseparable component of the issue of economic development and it can proceed without concomitant decrease in environmental quality if it is based on an appropriate, ecologically sound production technology. The conflict between environmental quality and economic development can be eliminated by the proper choice of production technologies.

5.4.2 Environmental Knowledge

As given in the beginning of this chapter, one of the aims of this study is to test that; if respondents have a certain level of environmental knowledge since they have environmental training backgrounds and work on environmental issues. Especially academicians are expected to be the group with the highest score of environmental knowledge.

As can be seen from Table 5.6., the mean for ***"Environmental Knowledge"*** was very low (2.44) as compared to the other scales used to measure environmental attitude. However, by looking at the items in this scale, it is clear that they are all worded in opposite direction and somehow in a "tricky" manner. Therefore, understanding those items and answers, requires a certain level of environmental knowledge, which manifested the environmental consciousness. That is, disagreement on these statements means, respondents are environmentally conscious and has certain level of knowledge.

As expected, it is found to be moderately disagreed (61.5%) and undecided (35.5%) for respondents overall. That is, all of the respondents are moderately conscious. Academicians have the highest consciousness with 78.6%. Since they are in charge of producing more theoretical and ideological discussions, it is expected to have such a result. Decision makers are the second conscious group with a 61.6 % again as expected.

Supporting results found, all reviewed literature indicated that education is a key variable for environmental attitudes and behaviors. Most of the research (Arcury, 1990; Inglehart, 1995; Furman 1998) on environmental attitudes

concluded that; education has strong, highly significant positive correlations with each of the knowledge items and the general knowledge scale. An understanding of ecological discussions requires a high level of environmental knowledge and this environmental knowledge is correlated to high level of education. Furman conducted his study in İstanbul and found environmental knowledge is consistently and strongly related to the NEP; the respondents who knew more about the environment and nature tended to give stronger endorsements to the statements of the NEP. Another study done by Tuna (2003) investigating public environmental attitude of Turkish population aged over 18 years years of age, he obtained similar results. The environmental commitment as more specific form of environmental attitudes related to education and thus knowledge. This could be explained as; Turkish people who are highly educated especially on environmental subjects have a certain level of environmental knowledge.

However, findings of above three studies depend on respondents' estimates of their knowledge. Therefore it can be advised that, better measures of environmental knowledge in which there are right and wrong answers should be developed to measure actual knowledge of respondents.

5.4.3 Environmentally Significant Behavior

In addition to the response frequencies of the studied professional groups for environmental attitudes and knowledge on nature, response frequencies for the environmentally significant behaviors were calculated as given in Table 5.8. and summarized in Figure 5.3.

Table 5.8. Descriptive Analysis and Response Frequencies of Target Groups in Percentages for Environmentally Significant Behavior

Environmental Behavior	**Mean**	**Standard Deviation**	**Min**	**Max**	**Yes (%)**	**Sometimes (%)**	**No (%)**
Overall	1.33	0.33	0.55	1.91	55.6	41.4	3.0
Academicians	1.41	0.25	0.82	1.91	71.4	28.6	-
Decision makers	1.31	0.36	0.55	1.91	54.8	39.7	5.5
Others	1.28	0.35	0.55	1.91	43.5	53.6	29

The analysis for "environmentally significant behaviors" was based on the assumption that the following categories are appropriate to describe the level of agreement:

0.00 - 0.64 → No (0)

0.65 - 1.29 → Sometimes (1)

1.30 - 2.00 → Yes (2)

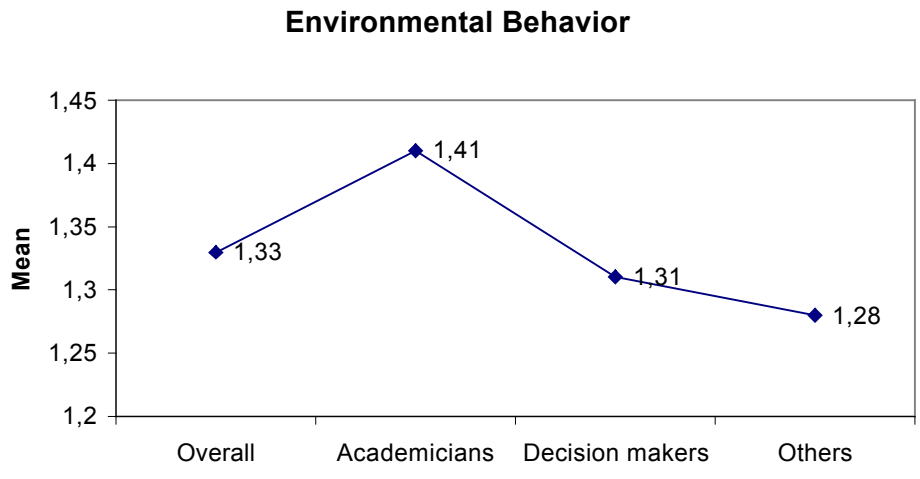


Figure 5.3. Level of Agreement to Environmental Behavior

One of the purposes of this study was to differentiate the environmental behaviors of studied professional groups and environmental academicians are expected to show highest tendency for environmentally sound behaviours among the other groups. When Table 4.3. is examined, the reliability of the scale formed to measure environmental behaviors is quite good with Cronbach alpha of 0.69. The proportion of respondents who are regularly engaged in each behavior is moderate with mean of 1.33 (55.6 %).

Academicians are the most environmentally behaving group with the highest percentage (71.4%) while 'others' have the lowest ratio (43.5%) as expected. The reason might be explained in terms of Rolston's (1991) approach; basic knowledge of biology and ecology leads people to behave in an environmentally sound way. Golley (1994) agreed upon that too; "there is an ecological science a crude form of self correction that provides a foundation of common experience from which we can reason towards ethical rules for environmental behavior." Recognition of forests, lakes, deserts, etc. helps us to understand that they reserve respect and moral consideration. That is, ecological science is a foundation for a global and local environmental ethics. In such a case, the concept of environmental ethics that leads individuals to behave environmentally significant way become a concrete concept based on scientific data and facts instead of being "abstract" concept. Therefore it is normal for academicians to be the most environmentally behaving group with the highest percentage.

A total of 12 items were included in the questionnaire to measure respondents' engagement to the given environmentally sound behaviors. For the purpose of this study items of environmental behavior have been chosen as corresponding to the most applicable behaviors in Turkish conditions. In Table 5.4., the frequency of respondents to each behavioral item is provided.

Table 5.9. Environmental Behavior Reported by All Respondents

Behavior	**% Response**		
	Yes	**Sometimes**	**No**
1. Everyday, I use my private car.	27.6	24.5	47.9
2. I collect recyclable materials seperately in my home.	24.2	38.4	37.4
3. I try to lessen the amount of waste produced in my home.	55.6	27.6	44.4
4. I close the tap while brushing my teeth.	82.3	12.6	5.1
5. I turn off unnecessary lights.	93.4	4.5	2.0
6. I prefer public transport faclities in my daily life.	51.5	34.8	13.6
7. I am member of Environmental NGO(s) and support them financially.	12.7	23.4	64.0
8. I take care of environmental policies of the parties in consideration while voting.	41.8	37.6	20.6
9. I do not neglect the periodical maintenance of my car.	77.3	8.1	14.5
10. I prefer to consume organic foods although they are expensive.	29.9	58.2	11.9
11. I prefer to consume environment-friendly products although they are expensive.	43.4	49.5	7.1
12. I use unleaded oil for my car.	71.9	7.2	21.0

For the interpretation of findings of this analysis, these self-reported behaviors given above have been grouped into three categories based on the environmental survey conducted by Stern et al. (1999):

- Consumer behaviors (1,4,5,6,9,10,11)
- Environmental citizenship (7,8)
- Policy support (2,3,12)

For the items supporting "consumer behaviors" the majority of respondents indicate that they had engaged in the environmentally protective behavior. 93.4% agreed with the statement "I turn off unnecessary lights"; 82.3% reported that "they close the tap while brushing teeth"; and 77.3% reported that "they do not neglect the periodical maintenance of their cars". However these high scores might be interpreted in terms of economical benefits rather than behaving environmentally. In other words, environmentally beneficial actions may also

follow from non environmental concerns, such as a desire to save money, confirm a sense of personal competence, or preserve time for social relationship. To understand any specific environmentally concern behavior requires further empirical analysis. Many environmentally significant behaviors are matters of personal habit or household routine (e.g. the setting of thermostat) and are rarely considered at all. Others are constrained by income or infrastructure (e.g. using public transport). It is likely that people might not engage in a particular behavior due to lack of such opportunities, even though they may have maintained a positive attitude and/or strong desire to act. This is how constraints would degrade the effect of pro-environmental attitudes from being potentially expressed in behavior. For example Gardner and Stern (1996) proposed a casual model of a resource-conservation behavior, noting that the pro-environmental attitudes are likely to induce preferred environmental behavior when the barriers to actions are low. Similarly, Hsu (2003) measured respondents' perceptions about those barriers in two groups as *external barriers* (refers to those limits, obstacles and constraints existing outside an individual such as economic forces, social/political institutions, or inconvenience, perceived to interfere one's attitudes towards environmental behavior) and *internal barriers* (refers to those limits, obstacles and constraints existing within an individual such as absence of information, knowledge, or commitment). He found out that, people felt that they perceived a moderate level of the external conditions for interruption of their environmental behavior and lower level of internal barriers for interruption.

Slightly smaller percentages (24.2%) of respondents participate in recycling activities as given in Table 5.4. might be explained by the effects of external and internal barriers. That is, individuals are not aware of the importance of recycling. More importantly, recycling is not understood well by decision makers. Therefore there is a lack of obligatory rules to promote recycling and collection services of recyclables. However, the perception of barriers by respondents did not measured in the context of this study. It might be proposed for further studies of environmental behavior.

The lowest percentage (12.7%) is obtained in the statement" I am member

of Environmental NGO(s) and support them financially". This means people are not engaged in environmental activities voluntarily and they do not make any contributions to NGOs. This might be explained with the economical constraints as in the recycling case. While people have difficulty in tackling problem of hunger in Turkey; supporting the NGOs financially is a luxury for them. However, respondents in this study have the certain level of income. Therefore, they might not have enough time for such activities or they may consider such activities as useless.

Additionally, in Turkey civil society and NGO-activities are actually not very well established. Starting from beginning of the 1990s there is a growing number of NGO activities, mainly in the frame of the E.U. accession process. But, it may be said that among those NGO activities, especially environmental NGOs do play an important role in the promotion of environmental activities.

5.5 Descriptive Analyses of Responses for Environmental Attitudes (Ethical Values) and Environmental Knowledge

In the previous section, the response frequencies of each target group were discussed to show how respondents differ in their attitudes and knowledge on nature. These analyses were made for each scale/subscale independently. However, not all respondents necessarily answer by referring only to one scale. Some of their answers can also be settled on other scale/subscales. Thus, a respondent who answers questions measuring ecocentrism with "strongly agree" or "agree" categories might while answering other questions also give his/her answers by referring to "strongly agree" or "agree" categories but this time belonging to the egocentrism-scale.

The results of each scale independently indicate that, 76.8% (see Table 5.10.) of the respondents agreed on both egocentric and ecocentric approaches and put their answers to "strongly agree" and "agree" categories for the items defending both extremes. That is; quite a large amount of respondents are undecided. Therefore in the evaluation of descriptive data about how respondents

differ in their attitudes and knowledge on nature; in order to be on the safe side, we dealt not with the individual itself but with the sum of their responses. Thus, the sum of responses reaches 390 (see Table 5.11.) for all questions. This allows us to interpret the data from an overall perspective, telling us the tendencies and degrees of disagreement and agreement about each scale/subscale used. It will indirectly prove the reliability and thus findings of the pre. Total frequency of individual responses using "strongly agree" and "agree" categories.

Table 5.10. Total Frequency of Individual Responses for Attitude

Scale/subscale	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
1.a. Egocentric Approach "Limits to Growth"	9	4.5	4.5	4.5
1.b. Ecocentric Approach "Nature has a delicate balance"	1	0.5	0.5	5.0
1.c.Homocentric Approach **1.c.1.**"Human beings threaten the nature"	34	17.2	17.2	22.2
1.c. Homocentric Approach **1.c.2**."Man over nature"	1	0.5	0.5	22.7
2.Environmental Knowledge	1	0.5	0.5	23.2
TOTAL	198	100	100	100
REMAINING	198-46=152	76.8	76.8	76.8

Therefore to differentiate the respondents' answers and to find a way to show more clearly to which scale they refer most, further analyses based on the frequencies of individual responses were conducted as given in Table 5.11.

Table 5.11. Multiple Responses of Target Groups in Percentages for Attitudes and Knowledge

Scale	Counted Responses	Total of Counted Responses	Percentages of Responses (%)
1.Environmental Attitudes (Ethical Values)			
1.a. Egocentric Approach **"Limits to Growth"**	**156**	**390**	**40.0**
• Academicians	42	99	42.4
• Decision makers	58	141	41.1
• Others	56	150	37.3
1.b. Ecocentric Approach "Nature has a delicate balance"	**24**	**390**	**6.2**
• Academicians	2	99	2.0
• Decision makers	10	141	7.1
• Others	12	150	8.0
1.c.Homocentric Approach **1.c.1.**"Human beings threaten the nature"	**182**	**390**	**46.7**
• Academicians	52	99	52.5
• Decision makers	65	141	46.1
• Others	65	150	43.3
1.c.2**."Man over nature"**	**22**	**390**	5.6
• Academicians	1	99	1.0
• Decision makers	8	141	5.7
• Others	13	150	8.7
2.Environmental Knowledge	**6**	**390**	**1.5**
Academicians	2	99	2.0
• Decision makers	-	141	-
• Others	4	150	2.7

In addition the analyses of the responses, the results were summarized and graphically presented in a "scale" indicating the respondents' attitudes towards nature; accepting "egocentrism" as one extreme and putting "ecocentrism" to the other end of the scale. From the figure below, we can read the percentage distribution of responses (not on the individual respondents' level but as an overall distribution) for total and for each group of respondents.

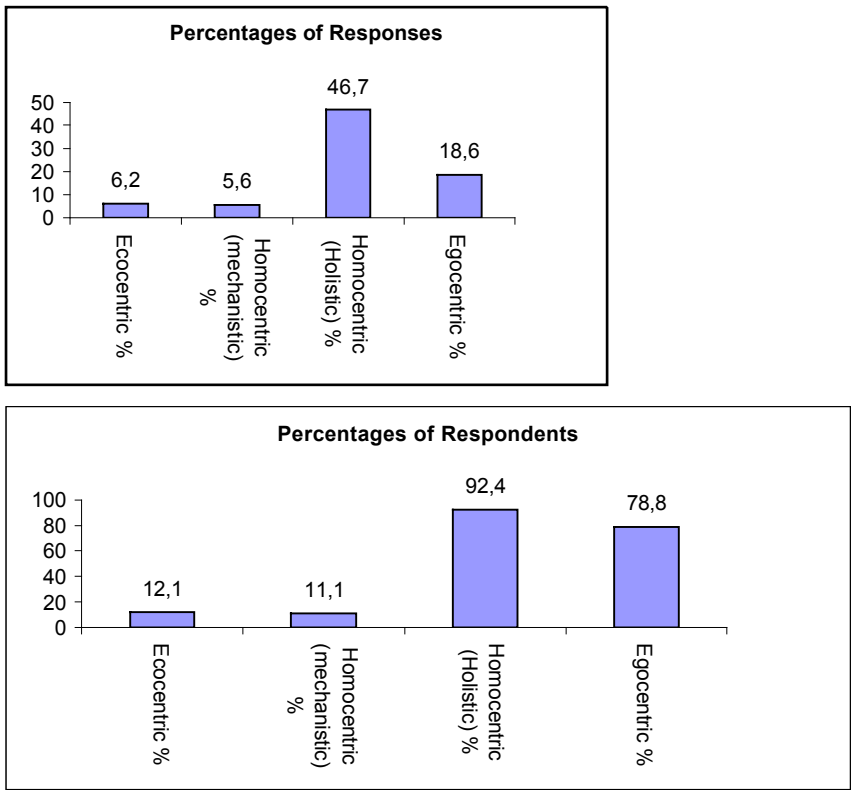


Figure 5.4. Comparison of "Responses Frequencies" with "Percentages of Respondents"

It is found that the results of "responses' frequencies" for attitudes were fairly consistent with the results of "respondents' frequencies" as can be seen from Figure 5.4. The overall evaluation of all responses shows again a concentration on anthropocentric perspectives, that is, the weak anthropocentric perspective (homocentric-holistic) reaches highest score among other scales of attitudes both in "responses' frequencies" and "respondents' frequencies".

As a summary, overwhelming majority of the individuals are close to homocentric-holistic view in both cases. However, as can be seen from Figures 5.1. to 5.4., extremes indicate differences for each case. Environmental knowledge indicates quite low agreement (1.5%) as expected. That means, respondents have environmental consciousness since the questions in this scale worded in a tricky manner.

5.6. Correlational Analysis for Environmental Attitudinal Scales/Subscales, Environmental Knowledge and Environmentally Significant Behavior

Descriptive analyses about the frequencies of respondents' attitudes towards nature -based on Merchant's classification-; their environmental knowledge and environmental friendly behaviors were completed and given in the previous section. In addition, overall distributions of responses to above categories of environmental attitudes were examined for each group of respondents in order to be on the safe side while giving respondents' attitudes in percentages.

As stated before, the notion of this study is that, a person's environmentally significant behaviors are function of two major determinants, one environmental attitude in question and the other environmental knowledge. Therefore, it will be beneficial to predict, whether or not having an appropriate patterns of environmental attitudes (ecocentric, or at least homocentric-holistic) will or will not lead to the expected outcomes, that is behaving environmentally in our case. On the other hand, it is required to examine the relationships between environmental knowledge and behaviors clarify if respondents having a higher

level of environmental knowledge close to ecocentric approach and thus behave in an environmentally significant manner. First, these relationships were examined for all respondents in total as given in Table 5.12. Then, in Table 5.13., relations were given for target groups to distinguish them.

Table 5.12. Correlation Matrix of the Scales Between Environmental Attitudes; Environmental Knowledge and Environmentally Significant Behavior

Environmental Attitudes		**Environmental Knowledge**	**Environmentally Significant Behavior**
1a)Egocentric Approach (limits to growth)	Pearson Correlation	-.031	-.059
	Sig. (2-tailed)	.662	.409
	N	198	198
1b)Ecocentric Approach (Nature has a delicate balance)	Pearson Correlation	.576(**)	-.239(**)
	Sig. (2-tailed)	.000	.001
	N	198	198
1c)Homocentric Approach (Mechanistic view; man over nature)	Pearson Correlation	.601(**)	-.113
	Sig. (2-tailed)	.000	.113
	N	198	198
1c)Homocentric Approach (Holistic view; human beings threaten the nature)	Pearson Correlation	-.397(**)	.085
	Sig. (2-tailed)	.000	.236
	N	197	197
2.Environmental Knowledge	Pearson Correlation	1	-.231(**)
	Sig. (2-tailed)	.	.001
	N	198	198
3.Environmentally Significant Behavior	Pearson Correlation	-.231(**)	1
	Sig. (2-tailed)	.001	.
	N	198	198

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table 5.12. shows the matrix of correlations between three variables. The entry in each cell is the correlation coefficient; and the level of significance (α) is marked with a star (*) symbol with the decision made by the test statistic.

As shown in Table 5.12. the most impressive result is; there is a statistically significant positive correlation between ecocentric approach and environmental knowledge ($r = .576$; $p<0.01$). As it was expected, individuals having a higher level of environmental knowledge are closer to ecocentrism. It is evident that, to know the mechanisms of ecosystems, its uniqueness, and the delicate balances between the parts of the ecosystem results in to understand its intrinsic value. Therefore the wholesomeness nature is well comprehended by individuals. However, when we look at the environmental behaviors of those ecocentric respondents; there exist a statistically significant negative correlation ($r = -.239$, $p<0.01$) between their attitude and behavior. That means, as opposed to what is expected, the respondents who know more about environmental issues could not reflect his/her knowledge into actions.

This might be explained as, individuals having a certain level of environmental knowledge are aware of exploitation of nature by human. And they know that "natural resources should be protected" as information in their mind. Especially our target groups in this study, academicians and bureaucrats as well as the general public are aware of the human behavior contribution to environmental degradation and are sensitive to environmental pollution problems; they try to prevent untreated wastewater discharges, do their best for the extinction of species, etc. However, when nature protection or being ecocentric conflicts with their own interest, the situation is reversed. They do not behave sensitive to the environment and do not act in an ecologically significant manner. Because these people have certain levels of living standards. They used to get the conformity of modern, civilized life; big houses, luxury automobiles, hi-tech equipments, etc that make easier their daily routines. And as they learn more about the value of nature and what should be done to protect it; they comprehend that they have to give up most of their existing consuming habits, use of hi-tech equipments, etc. However, since it becomes difficult for them, they prefer to continue living with

their consuming life styles beyond their basic needs, instead of reflecting their ecocentric approaches and knowledge into their actions.

Thus, it might be expected that such individuals mostly prefer to defend homocentric approaches (holistic) of Barry Commoner[8] and mechanistic view instead of give up their habits. Therefore the percentage of respondents and responses supporting holistic view of homocentrism are quite high as compared to other approaches as can be seen from descriptive analyses.

However, it should be kept in mind that, the majority of attitudinal studies have shown that environmental concern or attitudinal variables fail to correspond to behavior as in our case (Hines et al 1986; Scott and Willis, 1994; Schultz et al 1995). Previous research have identified numerous variables -being different than explanations above- that might moderate the attitude-behavior relationship. As mentioned in "Findings of Environmentally Significant Behavior" the constraints are assumed to influence the performing of an act. They may comprise several factors such as limitations of time, income and price, legal and political institutions, available technology, state of infrastructure, available food and clothing, available social interaction, and information network and shared set of social rules and norms. Therefore in order to obtain more concrete results for attitude-behavior relationship; further research is required to examine the impacts of mentioned constraints.

However, although we were expecting, statistically significant positive correlation between environmental knowledge and holistic view of homocentrism according to the above explanation; there is a statistically significant negative correlation between those variables ($r = -.397$; $p<0.01$) as opposed to our expectation.

Another important striking result indicated in Table 5.12. is, there exist a statistically significant negative correlation ($r = -.231$; $p<0.01$) between respondents' environmental knowledge and their behavior. Similarly, the results show negative correlation among ecocentric approaches and behaviors towards environment which might be explained in terms of *environmenta*l *ethics.* As it

[8] See Chapter 2 for the detailed information about Barry Comnmoner's approach.

was discussed in detail in Chapter I, people's attitudes seem to indicate that people are becoming aware of the importance of nature and environment and thus their responsibilities. However, environmental problems still exist; ozone layer is still depleted, biodiversity is decreasing, terrestrial lands getting smaller since lowlands are begin to be covered by water. That means there is a problem of "hypocrisy". If there is a conflict between personal interests and nature protection; unfortunately interests (profit) have the priority. Therefore this dilemma certainly requires discussing the need for a tool to change the code of behavior and set of values which are internalized and adopted to actions by the individuals even in the world of capitalism. These values are being different than the laws; informal and unwritten value based conduct of the individuals towards environment. In other words, it might be concluded that respondents do not have "internalized ethical values" necessary to make individuals behave in an actually environmental way by feeling themselves as the part of it and feeling the nature inside themselves.

The results show that the highest correlation found among environmental knowledge and mechanistic view of homocentrism ($r = .601$; $p<0.01$). However, the assumption was that the more conscious the individuals hold for the state of environmental issues, the more appropriately they are likely to support ecocentric views.

Table 5.13 Correlation Matrix of the Scales Between Environmental Attitudes; Environmental Knowledge and Environmentally Significant Behavior

		Environmental Knowledge			Environmentally Significant Behavior		
		Academicians	Decision makers	Others	Academicians	Decision makers	Others
1a)Egocentric Approach (limits to growth)	Pearson Correlation	-.094	-.149	.001	-.220	-.048	.050
	Sig. (2-tailed)	.491	.209	.994	.104	.685	.681
	N	56	73	69	56	73	69
1b)Ecocentric Approach (Nature has a delicate balance)	Pearson Correlation	.469(**)	.539(**)	.596(**)	-.224	-.214	-.192
	Sig. (2-tailed)	.000	.000	.000	.097	.069	.113
	N	56	73	69	56	73	69
1c.1)Homocentric Approach (Mechanistic view; man over nature)	Pearson Correlation	.486(**)	.642(**)	.581(**)	-.239	.092	-.177
	Sig. (2-tailed)	.000	.000	.000	.076	.437	.145
	N	56	73	69	56	73	69
1c.2)Homocentric Approach (Holistic view; human beings threaten the nature)	Pearson Correlation	-.253	-.500	-.412(**)	-.054	.059	-.177
	Sig. (2-tailed)	.060	.000	.000	.691	.620	.146
	N	56	72	69	56	72	69
2.Environmental Knowledge	Pearson Correlation	1	1	1	-.240	-.079	-.289(**)
	Sig. (2-tailed)	.	.	.	.075	.508	.016
	N	56	69	69	56	69	69
3.Environmentally Significant Behavior	Pearson Correlation	-.240	-.079	-.289(**)	1	1	1
	Sig. (2-tailed)	.075	.508	.016	.	.	.
	N	56	69	69	56	69	69

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

As shown in Tables 5.13., the matrix of correlations illustrates a moderate association between ecocentric approach and environmental knowledge ($r = .469$; $p<0.01$) for academicians; substantial correlation ($r = .539$; $p<0.01$) for bureaucrats and substantial correlation ($r = .596$; $p<0.01$) for others. The data herein supports the assumption that the more the individuals know about environmental issues the higher the consciousness about nature are judged as producing ecocentric approaches or it could also be explained in the inverse. However, considering the target groups; it could be concluded that, there is no significant differences among the groups.

Additionally the results indicate that, there is a statistically significant positive correlation, for all three groups of respondents, between mechanistic view of homocentric approach and environmental knowledge as opposed to assumptions given in the context of this study.[9] The matrix also illustrates a negative association between holistic view of homocentrism and environmental knowledge for "others". This group is chosen as a control group and it is not expected them to have higher level of environmental knowledge. Therefore this negative relationship might be explained in terms of their lack of knowledge on environmental issues, thus their conflicting responses to the questionnaire.

Finally, Table 5.13. displays the statistically significant correlation between environmental knowledge and environmental behavior for the control group. The details of environmental attitude and behavior relationship were discussed several times for different aspects since it is the major concern of this study. Therefore, it might not be surprising that the most unconscious group's behaviors show inconsistency with their environmental knowledge. However, the accuracy of control groups' answers to environmental knowledge questions should be discussed. Because as explained in Chapter IV and V measurements depending on the self-perception of respondents and findings depend on respondents' estimates of their knowledge. Therefore it can be advised that, better measures of environmental knowledge in which there are right and wrong answers should be developed to measure actual knowledge of respondents.

[9] See the explanation for Table 5.7.

CHAPTER VI

CONCLUSION

Although awareness of the people about threats to the earth has increased over the last decades, environmental degradation still continues. There has been increasing interest in behavioral components of environmental problems in recent years since human action is the critical element in environmental degradation (Tanner, 1999; Ponting, 2000; Hardin; 1991). Decision makers, environmental professionals, as well as the general public have therefore paid more attention to the behavioral sciences, expecting to understand the roots of human behavior contributing to the environmental degradation and the ways of how to intervene to change this behavior. It might be assumed that changing people's attitudes and beliefs by educating and providing them with information and knowledge is sufficient to change their actual behavior. As opposed this assumption, the majority of attitudinal studies have shown that environmental concern or attitudinal variables and knowledge fails to correspond to behavior.

Along this line, present study is designed to measure environmental attitudes, knowledge and environmentally significant behaviors of environmental professionals, decision makers and randomly selected control group. Statistical analyses were done to found relationship between those three variables and their interaction with socio-demographic parameters.

When the results of socio-demographic parameters in relation to environmentally significant behaviors examined it was found that, gender and age was not show statistically significant difference at the respondents' attitudes, knowledge and behavior. Education is not also supported as a significant mediator of the environmental behavior. That is, there is no statistically significant relationship between education and environmental behavior but there exist a positive relationship between education and ecocentric approach and mechanistic view of homocentric beliefs. And it is found that respondents having a masters or

doctoral degree are more conscious about the mechanisms of nature. Therefore we may conclude that, the education system should be supported in relation to environmental issues and people should be motivated and encouraged to have M. Sc. and Ph. D. degrees.

In addition to the socio-demographic parameters, the basic distinction between target groups of this study in their environmental attitudes, knowledge and behavior was achieved. The data herein supports the theoretical assumption that, distinct professional groups have different environmental approaches and different levels of environmental knowledge.

In the analyses of each subscale constructed to measure environmental attitudes [1] , the highest average rating was identified for the holistic view of homocentric approach; which expresses the idea of 'human beings threaten the nature'. Overwhelming majority of respondents with 92.4%, share a common understanding that nature is threatened by human beings. Among target groups, decision makers are the most neutral group (76.7%) and environmental professionals (academic staff) are the most sensitive group about environmental attitudes since they are not directly affected by politics and politicians. This result is a pleasing one. Because if people are aware that, they are the main sources of environmental problems; it will be easier to convince them for behaving more environmentally.

As mentioned in the beginning of this chapter, one of the aims of the study is to test the respondents' level of environmental knowledge. Interpretation of the results indicated that, all of the respondents are moderately conscious about environmental problems and their sources. However, again academic environmental professionals have the higher consciousness. But, it should be kept in mind that, findings of this study depends on the respondents' self perception and estimates of their knowledge. Therefore, it might be advised that, better measures of environmental knowledge in which there are right and wrong answers should be developed to measure actual knowledge of respondents.

[1] See Chapter IV for details of environmental attitudes measurement.

The most important striking result is; although, respondents have at least moderate level of environmental knowledge; there exist a statistically significant negative correlation between respondents' environmental knowledge and their behavior. This result indicates that, current national education system, especially the part concerning the environmental education should be scrutinized. Because environmental education is the means by which we bridge the gap between environmental knowledge and behavior. True environmental education inspires an environmental ethic through educational awareness and teaches how to implement that ethic through changes in lifestyle and behavior. Environmental education programs must serve across the all grade levels, starting from the pre-schools to graduate training, should go beyond environmental sensitivity and include action items to model citizenship behavior (Hungerford and Volk, 1990) and it must move along a continuum from awareness to ability to decision making levels. Therefore the aim of national education system should create a society of citizens who are better able to responsibly manage resources, accepting that they are the part of the ecosystem not the owner and mediate their impact upon the natural world.

To manage this goal; the 'depth and breadth' of environmental education not only for students but also for general public should be increased by including action skills and behavioral change information. Skill-based public training programs should be organized in collaboration with local authorities, NGOs and governmental bodies. In order to sustain development of environmental behaviors; programs, curriculum and materials need to cover the depth and breadth of environmental issues for the training of general public and students.

For example in preschools and primary schools, if we teach our children the intricacies and simplicities of nature, dynamics of the natural events and natural things thorough play, dance, music, arts, poetry, may be math, by helping to involve the whole "being" of children in the education process, then perhaps we could manage to develop environmentally sound ethical qualities in children (Ergün, 1996).

Environmental education should emphasize building lifelong skills that enable learners to explain environmental issues by supporting their thinking and creative skills and should utilize different methods of application such as oral, written, group work, debates, etc. in high schools. The system should be designed in a way that information must be adaptable and easy to reach and use. School based programs, curricula and materials must be convenient for local and national academic standards and applicable.

Similar to the relationship between environmental knowledge and behavior, the results also show negative correlation among ecocentric approaches and behaviors towards environment which might be explained in terms of *environmental ethics.* As it was discussed in detail in Chapter I, people's attitudes seem to indicate that people are becoming aware of the importance of nature and environment and thus their responsibilities. However, environmental degradation still exists; leading us to conclude based on the results of this study, that there may be a problem of "hypocrisy". If there is a confliction between personal interests and nature protection; unfortunately profit have the priority. Because the people's "perception of nature" has an instrumentalist approach. That means people in Turkey see the "nature" as an instrument to supply their needs and therefore could not comprehend its intrinsic value. With such an understanding it is impossible to internalize the value of nature regardless of its instrumental value. This way of thinking and lack of internalizing nature's intrinsic value make individuals not to behave in an actually environmental way by feeling themselves as the part of it and feeling the nature inside themselves.

In order to achieve this, environmental ethic is needed to guide human beings in making sound judgments and decisions and taking appropriate actions. This may have deep implications for environmental professionals whose decisions and actions in lectures and research laboratories may not lend themselves to prevailing environmental issues. The same holds true for high level decision makers. However, it may not be developed and internalized by individuals by itself. A forceful tool to achieve the development of environmental ethics is

"environmental education" as discussed above. Thus there is a reinforced need for environmental education which should lead to the development of environmental ethics for all parts of societies beginning from the family and each level of education from primary schools to universities. This is the one of the ways to become conscious of the situation in which we live. Another way is; mass media should prepare programs for empowering the general public to understand, make sound decisions and take appropriate actions concerning environmental values in the context of projects, products and in every arena of the daily routine lives.

It can also be recommended that, non-governmental organizations should be more directly involved in the search for practical and equitable approaches for the establishment of ecologically sound development and nature friendly value system either by organizing seminars, panels, symposiums, training courses or in collaborating with governmental organizations, universities and other related national and international institutes.

One of the most important purposes of this study was to differentiate the environmental behaviors of studied professional groups. Environmental professionals are the most environmentally behaving group with the highest percentage (71.4%) while control group have the lowest ratio (43.5%) as expected. For decision makers to catch the level of academicians it might be also suggested that; to have EU harmonized and applicable environmental policies, decision makers should know at least the basic facts about ecology and the environment as well as the threats concerning our habitat in general. This might be achieved via short courses, symposia and workshops. Such knowledge should throw light on the misconceptions that may have been the root cause of their apparent lack of concern for the environmental cause and aim to achieve a paradigm shift among them that would mean basic value and behavioral changes. The paradigm shift should enable them to have new perceptions based on biological and holistic worldview rather than inorganic and mechanistic perspectives.

As a recommendation for the next research; the potential reasons of why there is a discontinuity between expressed attitudes and actual behaviors should

be examined in order to find the source of the problem of hypocrisy. If the reasons behind that paradox arises when the expressed attitudes and beliefs are compared with behaviors known; to find solution will be easier.

Finally, it should be noted that, it has been demonstrated that specific factors intervene between attitudes and behavior (Ajzen and Fishbein, 1980; Ajzen, 1988). Based on this argument, the measurement of attitudinal factors might not be sufficient to permit an accurate understanding of environmental behavior. Because, there exist several constraints that prevent accurate behaviors. For example, subjective factors such as sense of responsibility, perceived behavioral barriers and objective factors that inhibit the performance of pro-environmental action such as lack of automobile, place of residence, income, etc might have impacts on the results of this study. Since such factors could not be measured exactly, this might be discussed as the weak point of the study.

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APPENDIX A

THE ORIGINAL NEP: AS LISTED IN DUNLAP and VAN LIERE (1978)

1. We are approaching the limit of number of the number of people the earth can support.
2. The balance of nature is very delicate and easily upset.
3. Humans have the right to modify the natural environment to suit their needs.
4. Mankind was created to rule over the rest of nature.
5. When humans interfere with nature it often produces disastrous consequences.
6. Plants and animals exist primarily to be used by humans.
7. To maintain healthy economy we will have to develop a "steady state" economy where industrial growth is controlled.
8. Humans must live in harmony with nature in order to survive.
9. The earth is like a spaceship with only limited room and resources.
10. Humans need not adapt to the natural environment because they can remake it to suit their needs.
11. There are limits to growth beyond which our industrialized society can not expand.
12. Mankind is severely abusing the environment.

APPENDIX B

THE REVISED NEP: ITEMS AND FACTORS AS LISTED in DUNLAP, VAN LIERE, MERTIG and JONES (2000)

Balance of Nature

1. When humans interfere with nature it often produces disastrous consequences.
2. The balance of nature is very delicate and easily upset.
3. *The balance of nature is strong enough to cope with the impacts of modern industrial nations.*

Eco-crisis

1. Mankind is severely abusing the environment.
2. *The so called "ecological crisis" facing humankind has been greatly exaggerated.*
3. *If things continue on their present course, we will soon experience a major ecological catastrophe.*

Antiexemptionalism

1. *Human ingenuity will ensure that we do not make the earth unlivable.*
2. *Despite our abilities, humans are still subject to the laws of nature.*
3. *Humans will eventually learn enough about how nature works to be able to control it.*

Limits to Growth

1. The earth is like a spaceship with only limited room and resources.
2. We are approaching the limit of number of the number of people the earth can support.
3. *The earth has plenty of natural resources if we just learn how to develop them.*

Human Domination

1. Plants and animals exist primarily to be used by humans.
2. Humans have the right to modify the natural environment to suit their needs.
3. Mankind was created to rule over the rest of nature.

Note: Italicized items are the new items created for the revised NEP.

APPENDIX C

ORIGINAL FORM OF ITEMS USED IN THE QUESTIONNAIRE

1. "Limits to Growth"

b1. Environmental problems result from the overuse of natural resources rather than population density.

b2. Protection of natural resources is impossible unless the problem of poverty is solved.

b4. The quality and quantity of the present production patterns have positive impacts on the use of natural resources.

b8. Unless present consumption patterns are changed; the earth will be unable to carry so much of population.

b9. It is impossible for people to dominate over nature even if they benefit from the latest technological developments.

b10. Increase in the number of vehicles accelerates changes in climate.

b12. Increase in population is more than the carrying capacity of the earth.

b14. The erosion problem caused by forest fires and overgrazing has reached a very dangerous point.

b16. Available agricultural lands and efficiency in agriculture will gradually decrease if necessary preventive measures such as reforestration and extra budget allocations will not be taken.

b20. To cut off transportation expenditures, "class I" type of agricultural lands might be used for industrialization with necessary precautions like treatment plants, electrofilters, etc. unless it is situated on a fault.

b21. Even availability of environment-friendly technologies and their widespread use; are not proper solutions for the elimination of environmental problems.

b28. Agricultural lands will be covered by water as a result of global warming which will in turn cause hunger problems.

b29. Natural resources are depleted rapidly.

b31. Rain forest, rich in biodiversity, are being threatened and their reestablishment will take millions of years.

b62. The usage of natural resources should be limited for the sake of future generations.

b84. Man by using his intelligence and creating new possibilities may be able to survive even if the earth reaches the worst point in environmental pollution.

b87. Agricultural lands will disappear in the very near future and man will be faced with hunger problem.

b88. The main problem is to protect the macro economical balance of the world rather than ecological balance.

b91. Ozone layer depletion will cause an increase in the number of cancer incidents.

These questions were answered by 172 of the respondents, and the scale alpha was found as 0.64 after items were reorganized.

2. "Man over Nature"

b3. Fossil fuel based energy resources are exhausted rapidly. Additionally this type of energy source causes heavy air pollution. Therefore nuclear energy should be thought as an alternative energy source and it should be encouraged.

b5. To meet energy demand, construction of large scale of dams are necessary even if they destroy natural areas.

b15. Fresh water resources and available agricultural lands are quite sufficient to meet the demands of the rising population.

b19. There might be risks even in the most developed technologies.

b18.It is possible to prevent the problem of malnutrition in the world by changing of the existing nutrition habits.

b23. If principles of sustainable development could be applied seriously, a decrease in environmental problems will be observed in the long term.

b24. You have to pay for each achievement gained for nature. For example, insecticides and pesticides used to increase efficiency in agricultural production pose serious risks to environment and ecosystems.

b32. Renewable energy resources should be preferred even if they have high costs.

b34. The quality and the quantity of agricultural products are decreasing because of loss of productive lands through erosion.

b45. It is unnecessary to limit the use of natural resources for generations not present yet. b51. Wetlands might be dewatered under certain essential conditions for sectors such as transportation, tourism and agriculture and to provide local people income living in the area of concern.

b56. In order to make people agree with their proposals, radical environmentalists exaggerate the idea that human beings deteriorate nature deterioration.

b64. There is still balance of nature although hundreds of species have disappeared since the beginning of life on earth.

b.65. Even if non-renewable energy resources will be exhausted in the near future, energy demandt could be met by the available renewable energy resources and technological developments.

b.66. Human being has right to dominate over nature by using technology for his interest.

b.68.Man is distinct from other creatures by his intelligence. Therefore even nature is destroyed by human beings in the short term, he is able to change this situation to a positive direction in the long term. So, environmental catastrophes should not be expected.

b69. According to "Gaia Hypothesis" whatever we do, nature will find the best solutions for the problems by itself.

b74. Human being is the lord of the nature.

b78. Human being will learn all details of nature because of his mind and intelligence and keep things under control the way he wants.

b80. Control mechanisms to prevent harmful effects of radioactive substances are known.

Therefore intensive use of such materials (radioactive) will not create problems. Additionally one should not forget numerous benefits offered in the scientific field.

b82. Environmental problems that are actually not very important and are easy to solve in the short term, are exaggerated by the media and reflected to the public in that way.

b83. Man will possess the knowledge to take environmental problems under control even before they are formed, once he unravels the secrets of harmony between ecosystem parts.

These questions were answered by 179 of the respondents and the scale alpha after items were reorganized was found as 0.67.

3.“Nature has a delicate balance”

b22. Each entity of nature has an “intrinsic value”, therefore should be protected and has a right to live.

b26. Transportation network might be constructed within the border of specially protected areas for economical reasons and to shorten the distances.

b36. Mankind is distinct from other creatures in nature since he is more developed evolutionarily by their social relationships and intelligence.

b37. When number of people dying from hunger in the world is thought; the expenditures for the protection of birds, seals, whales etc. sounds unnecessary.

b38. Whatever and how much the technological interference to nature by human beings is, nature has a capacity to rehabilitate and refresh itself.

b39. Any one of the threatened species in nature should be protected.

b40.Contemporary societies might overcome all the environmental catastrophes by the technological possibilities possessed.

b42. The rain forests extinct might be replaced by new ecosystems (different than the old one but a new ecosystem) therefore concerns about rain forest deterioration is unnecessary.

b46. Lakes, rivers and seas (receiving bodies) have an assimilative capacity to treat certain pollution loads by themselves. Unless that point has been exceeded in discharges, there will be no problem of water pollution.

b48. Perfect human race will be obtained by the use of developments in genetics.

b52.It is impossible to estimate and make predictions about consequences of environmental problems 20 years later even by using the most developed computer software.

b57. Despite all measures taken and all technological developments; many people are still dying from in natural disasters.

b61. Contemporary modern people have an ability to survive alone to create all the possibilities for living) in a small island.

b73. Many ecosystems in nature are of so strong composition that no problems are encountered even if one ring is broken due to the harmony between the rest of the rings.

b76. Although some organisms such as dinosaurs and mammoths if nature really had a balance there would be no continuation of ecological systems.

b79.The earth is created in such a perfect way and work in great harmony that it is not affected from anthropogenic interferences.

These questions were answered by 184 of the respondents, and the scale alpha was found as 0.60 after items were reorganized.

4. "Human beings threaten the nature"

b44. Solid wastes dumped to unsanitary landfill sites will cause soil pollution. Additionally by percolation to ground water, water will be polluted in time which will in turn lead to the imbalance of ecosystems in that region.

b47. Assimilative or carrying capacity of nature is not adequate for self cleaning of anthropogenic pollution sources. For example, in spite of several preventive measures taken in developed industrialized countries, global warming can not be prevented.

b49. Although species diversity is very wide on earth, extinction of even one species due to human activities will ruin the balance of nature

b50. Challenging nature by relying on technological developments generally resulted in environmental disasters. For example, landing places constructed by neglecting laws of nature will be diminished in the first winter after construction.

b53. Since ecological balance is destroyed by human activities, nature is very

close to the end.

b54. The threat on the living organisms are increasing nowadays.

b58.Climate change is one of the most important environmental problems that effect all countries of the world. Almost all scenarios produced concerning this issue claimed that man will be faced the problem of hunger in the near future.

b60. There is an upper limit of world population that could rely on and be fed with natural resources

b63. Nowadays, limited natural resources like land, water and oil might be a reason for destructive wars between countries.

b67. The main aim of the ecological thought is to eliminate man-nature dichotomy and make people one of the parts of nature.

b70. Biotic and abiotic entities in nature are connected to each other with very sensitive relations.

b72. The impact of any interference to nature by man to anywhere on earth might be felt or observed even in places long distance away.

b75. Let us assume that snakes have been intoxicated and left nature. Under these circumstances birds feeding on snakes will either die or leave that particular ecosystem, number of rats under the previous threat of snakes, will increase and this increase will lead to overgrazing of pastures leading to the demolishing of ecosystem.

b77. Although we are in the age of information technologies nature is not understood well enough by man.

b81. Mankind can never dominate over the mysteries of nature. He might meet with unexpected phenomenon (events) at the times that he thought he solved the mysteries of nature totally.

b85. Although cloning has been achieved, its long term consequences are not well known yet.

b86. If man could not limit their interferences to nature, he might destroy the future of both: Nature and himself.

These questions were answered by 183 of the respondents, and the scale alpha was found as 0.81 after items were reorganized.

5. “Environmental Knowledge and Consciousness”

b13. The optimum solution to increase diversity and richness of fish species in a natural lake is to introduce different fish species.

b25. Trol type of fishing is inevitable to be able to supply sufficient amounts of fish.

b30. Renewable energy resources are always exist. Therefore there is no need to worry about the rapid depletion of non-renewable resources.

b35. Human beings will not be faced with the problem of hunger, thanks to biotechnology.

b43. Mankind is not prone to resources in his close vicinity but can bring resources from other places and continue to live. Hence can survive even in the harshest environmental conditions.

b59. According to the studies and projections in 1970s, most of the world’s natural resources will be used up and almost finished in the year 2100 with the present consumption patterns. However, although consumption patterns have not changed, there still exist adequate resources for that population.

b71. Although rapid population increase continues; thanks to developments in technology, depletion of basic resources such as water, food will not be of concern.

b89. Environmental catastrophes claimed by most of the scientists have not been realized yet.

APPENDIX D

ANKET FORMU

Aşağıda verilmiş olan sorularla, çevre konusundaki düşünceleriniz, yaklaşımınız ve çevreyi korumaya yönelik davranışlarınızın ölçülmesi hedeflenmektedir. Ölçek sonuçları, bu konudaki tutumları belirlemek için kullanılacaktır.

Bu ölçekte 126 adet ifade bulunmaktadır. Cevaplama süresi yaklaşık 30 dakikadır.

Herbir ifadeyi okuduktan sonra, buna ne derece katıldığınızı ya da katılmadığınızı size verilen ifadelerin altında ayrılan yere uygun bir şekilde işaretleyiniz.

Bir ifadeyi okuduktan sonra aklınıza ilk geleni işaretleyiniz. İşaretsiz ifade bırakmayınız.

A1. Cinsiyetiniz : ( ) K ( ) E

A2. Yaşınız:

A3. Eğitim Durumu: ( )İlköğretim ( )Ortaöğretim ( )Lise ( )Üniversite ( )Lisansüstü

A4. Eğitimini aldığınız mesleğiniz nedir? (Çevre Mühendisi, biyolog, inşaat mühendisi gibi)

A5.Halihazırda yapmakta olduğunuz işiniz nedir?(Örneğin; Üniversitede öğretim üyesi, DPT'de uzman gibi)

A6. İş Tecrübesi: İşe başlama yılı Kaç yıl süre ile çalıştığı

1.

2.

A7.Aylık geliriniz ne kadardır?

B. Lütfen aşağıdaki ifadelerde katılıp katılmadığınızı işaretleyiniz.

		Kesinlikle Katılıyorum	**Katılıyorum**	**Fikrim Yok**	**Katılmıyorum**	**Kesinlikle Katılmıyorum**
B1	Çevre problemleri, nüfus yoğunluğundan çok fazla etkilenmeksizin sadece doğal kaynakların bilinçsizce tüketimine bağlı olarak artar.					
B2	Yeryüzündeki yoksulluk problemi çözülmeden, doğal kaynakların korunması mümkün değildir.					
B3	Günümüzün fosil temelli enerji kaynakları hızla tükenmektedir. Ayrıca bu tür enerji kaynakları yoğun					

	bir hava kirliliği problemine neden olmaktadır. Bu nedenlerle; nükleer enerji konusu ciddiyetle ele alınmalı ve nükleer enerji santralleri teşvik edilmelidir.					
B4	Dünyadaki mevcut üretim modelinin nitelik ve niceliği, doğal kaynak kullanımını olumlu yönde etkilemektedir					
B5	Toplumun enerji ihtiyacı olduğunda; doğal alanları bozacak bile olsa, "büyük barajlar"ın yapılması gereklidir.					
B6	Koruma alanları(doğal alanlar); sadece eğitim amacına yönelik olarak insan kullanımına açılmalıdır. Ekonomik gerekçeler, doğal zenginlik açısından çok değerli olan bu alanlarda göz ardı edilmelidir.					
B7	Doğa, insana refahı için sunulmuş bir nimet değildir.					
B8	Mevcut tüketim alışkanlıkları değiştirilmediği takdirde; dünya bu nüfusu taşıyamaz hale gelecektir.					
B9	İnsanlar en son teknolojik gelişmelerden faydalansalar bile doğaya hükmetmeleri mümkün değildir.					
B10	Motorlu araç sayısındaki artış, dünyanın iklim dengesinin bozulmasını hızlandırmaktadır.					
B11	Doğru inşaat teknikleri ile birinci derece deprem kuşağında bulunan alanlar yapılaşmaya açılabilir.					
B12	Nüfus dünyanın taşıma kapasitesinin üstünde bir hızla artmaktadır.					
B13	Doğal bir göldeki balık çeşitliliğini ve zenginliğini arttırmak için farklı balık türlerini o ortama getirmek iyi bir çözümdür.					
B14	Orman yangınları ve aşırı otlatma nedeniyle karşı karşıya gelinen erozyon problemi artık çok tehlikeli boyutlara ulaşmıştır.					
B15	Mevcut nüfus artış eğilimine göre; yeryüzündeki temiz su kaynakları ve mevcut tarım alanları yeterlidir.					
B16	Erozyonu önleyici tedbirler alınmadıkça ve ağaçlandırma çalışmaları için gerekli bütçe ayrılmadıkça hem tarımsal alanlar azalacak hem de tarımda verimlilik düşecektir.					
B17	İnsanın kendi çıkarları için doğayı kullanması, kendi can güvenliğini tehdit eder bir konuma gelmediği müddetçe, sorun yaratmaz.					
B18	İnsanların beslenme alışkanlıklarını değiştirmesi ile dünyadaki besin kıtlığı probleminin önlenmesi mümkündür.					
B19	En gelişmiş teknolojilerde bile risk sözkonusudur.					
B20	Fay hattı üzerinde bulunmadığı sürece I. Sınıf tarım alanları, nakliye giderlerini azaltmak amacı ile ve arıtma tesisi, elektofiltreler, vb. çevre kirliliğini önleyici tedbirler alıdığı takdirde sanayileşmeye açılabilir.					

B21	Çevre sorunlarının önlenmesi konusunda, çevre dostu alternatif teknolojilerin varlığı ve gün geçtikçe yaygın olarak kullanımı dahi çözüm değildir.					
B22	Doğadaki her bir varlık, kendinde ve kendi başına değerli ise yani herhangi bir yarar ya da işlevden bağımsız olarak özsel değere sahipse korunmalıdır.yaşama hakkına sahiptir.					
B23	Sürdürülebilir Kalkınma politikaları gerçekten uygulandığında, uzun vadede de olsa çevre problemlerinin azaldığı gözlenecektir.					
B24	Doğaya karşı elde edilen her başarının bir bedeli vardır. Örneğin üretimi arttırmak için kullanılan insektisitler (böcek öldürücüler), pestisitler , vb çevreye zarar verir ve ekosistemi bozarlar.					
B25	İnsanlığı daha iyi besleyebilmek amacıyla yeterli sayıda balık avlayabilmek için trol avcılığı kaçınılmazdır.					
B26	Ulaşım ağları özellikle ekonomik nedenler ve mesafenin kısaltılması gibi gerekçelerle çevre koruma alanlarından geçirilebilir					
B27	İnsan yararına bile olsa, hayvanlar üzerinde deneyler yapılması kesinlikle uygun değildir.					
B28	Global ısınma sonucunda tarım alanları sular altında kalacaktır. Bu da insanları açlık tehlikesi ile karşı karşıya bırakacaktır.					
B29	Dünyadaki doğal kaynaklar hızla tükenmektedir.					
B30	Yenilenebilir enerji kaynakları her zaman mevcuttur.Dolayısıyla yenilenemeyen enerji kaynaklarının hızla tükenmesi konusunda endişe duymak yersizdir.					
B31	Yok olma tehditi altındaki, bitki ve hayvan çeşitliliği yönünden oldukça zengin yağmur ormanlarının yeniden oluşması milyonlarca yıl alacaktır.					
B32	Yüksek maliyetli bile olsa, enerji üretiminde artık yenilenebilir kaynaklar tercih edilmelidir.					
B33	Dini vecibeleri yerine getirmek için hayvanlar kurban edilebilir.					
B34	Erozyon ile her yıl tonlarca verimli tarım toprağı kaybedilmekte; buna bağlı olarak tarım ürünlerinin nitelik ve niceliğinde düşme (azalma) gözlenmektedir.					
B35	Biyoteknoloji sayesinde insanoğlu açlık tehlikesi ile karşı karşıya kalmayacaktır.					
B36	İnsan zekası ve sosyal ilişkileri nedeniyle doğadaki tüm varlıklardan daha gelişmiş olduğundan; yeryüzünde ayrıcalıklı bir öneme sahiptir.					
B37	Dünyadaki açlıktan ölen insanlar düşünüldüğünde; kuşların, fokların, balinaların vb. kurtarılması için yapılan harcamalar gereksizdir.					
B38	İnsan teknolojik olarak doğaya ne kadar müdahale ederse etsin, doğa mutlaka kendini yeniler.					
B39	Nesli tehlike altında bulunan bir canlı türü her koşulda korunmalıdır.					

B40	Modern insan sahip olduğu teknolojik olanaklarla her türlü felaketin üstesinden gelebilir.					
B41	İslamiyet de, insan ve diğer varlıkları tanrı yarattığından eşit değere sahiptirler.					
B42	Yok olan yağmur ormanlarının yerine eskisinin aynısı olmasa da yeni (farklı) ekosistemler oluşacaktır. Bu nedenle kaygılanmak gereksizdir.					
B43	İnsanlar hayvanlar gibi sadece kendi yaşam alanlarındaki kaynaklara mahkum değildirler, başka yerlerden kaynak getirerek yaşamlarını sürdürebilirler. Böylece en olumsuz çevre koşullarında bile yaşamlarını sürdürebilirler.					
B44	Düzensiz depolama alanlarına atılan çöpler; zaman içinde toprak kirliliğine neden olacağı gibi yeraltı sularına sızarak su kirliliği problemi de yaratacaktır. Bu da o alandaki doğal dengeyi olumsuz yönde etkileyecektir.					
B45	Henüz dünyada varolmayan bir nesil için, bugünden kendimizi kısıtlayarak doğal kaynakları korumaya çalışmak gereksizdir.					
B46	Akarsular, göller, denizler (alıcı ortamlar) belli bir kirlilik yüküne kadar temizleme kapasitesine sahiptirler. Bu ortamlara taşıyabileceklerinden daha fazla kirlilik deşarj edilmediği sürece problem yaşanmayacaktır.					
B47	Doğanın kendini yenileme kapasitesi, antropojenik kaynaklı kirliliği önlemeye yetmemektedir. Örneğin, sanayi toplumları, çok çeşitli önlemler almalarına rağmen global ısınmanın önüne geçilmemiştir					
B48	Genetik gelişmelerle mükemmel insan ırkı yaratılacaktır.					
B49	Yeryüzünde tür çeşitliliği çok fazla olmasına rağmen, bir türün bile insan faaliyetleri sonucunda yok olması, doğal dengeyi bozacaktır.					
B50	İnsanların teknolojiye güvenerek doğaya meydan okuması hep felaketle sonuçlanmıştır. Deniz kıyısına doğa yasaları göz ardı edilerek yapılan iskeleler, kıyı tahkimatları ilk kışta yıkılır.					
B51	Sulakalanlar; ulaşım, balıkçılık, turizm, tarım gibi sektörlerde, o alanda yaşayan halka geçim kaynağı olması için, gerekli durumlarda kurutulabilir.					
B52	Bugün en gelişmiş bilgisayar programlarını kullanarak dahi , 20 yıl sonra dünyanın çevre kirliliği açısından ne durumda olacağını hesaplamak ve tahmin etmek mümkün değildir.					
B53	İnsanoğlu ekolojik dengeleri bozduğundan, doğa artık bitiş noktasına gelmiştir.					
B54	Yeryüzündeki canlı türleri son dönemde büyük tehdit altına girmiştir					
B55	Yeryüzündeki doğal kaynakların kısıtlı olması; bu kaynakların gelişmiş, gelişmekte olan ve az gelişmiş ülkeler arasındaki dengesiz dağılımından daha önemli bir problemdir.					
B56	Radikal çevreciler, kendi önerilerine toplumda sahip çıkılmasını sağlamak için insanın doğa üzerindeki					

	tahribatı konusunu abartmaktadırlar.					
B57	Deprem, sel gibi doğal afetlerde alınan tüm önlemler ve teknolojik gelişmelere rağmen hala çok fazla can kaybı söz konusu olabilmektedir.					
B58	Tüm dünya ülkeleri olarak etkilendiğimiz iklim değişikliği en önemli çevre problemlerinden birisidir. Bu konudaki ileriye yönelik senaryoların tümü bu gidişle, insanlığın yakın zamanda aç kalacağını söylemektedir.					
B59	1970 lerde yapılan çalışma ve projeksiyonlara göre; mevcut davranış kalıpları ile, 2100 yılında dünyadaki kaynakların büyük bir kısmının tükeneceğinden bahsediliyordu. Oysa bugün gelinen noktada, davranış kalıpları değişmediği halde, hala tüm nüfusa yetecek kaynağın mevcut olduğu açıktır.					
B60	Yeryüzündeki doğal kaynakların besleyebileceği dünya nüfusunun bir üst sınırı vardır.					
B61	Günümüz insanı tek başına bir adaya düştüğünde bile bir müddet sonra yaşamını sürdürebilmek için kendine her türlü imkanı yaratacaktır.					
B62	Gelecek nesilleri düşünerek, doğal kaynakların kullanımı kısıtlanmalıdır.					
B63	Günümüzde; toprak, su, petrol gibi kısıtlı doğal kaynakları ele geçirebilmek için, yıkıcı sonuçlar doğuracak savaşların çıkması muhtemeldir.					
B64	Yeryüzünde yaşam varolduğundan bu yana, yüzlerce tür zaman içinde yok olduğu halde doğal denge bozulmadan devam edebilmektedir.					
B65	Yenilenemeyen enerji kaynakları yakın bir gelecekte tükense bile, yenilenebilir enerji kaynakları ve gelişen teknoloji, insanoğlunun enerji ihtiyacını karşılamaya yetecektir.					
B66	İnsanın çıkarları doğrultusunda teknolojiyi kullanarak, doğaya istediği gibi hükmetme hakkı vardır.					
B67	Ekolojik görüşün başta gelen çabalarından biri, insan-doğa karşıtlığını ortadan kaldırmak, insani olan özelliklere doğada bir yer açmak ve insanı bir makina olarak değil, insan olarak doğanın bir parçası yapmaktır.					
B68	İnsan zekası ile diğer yaratıklardan farklılık gösterir. Bu nedenle de kısa vade de doğayı tahrip etse bile uzun vadede bu yanlış davranışını değiştirebilir. Bu nedenle, büyük bir çevre faciası beklenmemelidir.					
B69	"Gaia Hipotezi"ne gore, biz ne yaparsak yapalım, doğa en iyi ve uygun çözümü kendisi bulacaktır.					
B70	Yeryüzündeki canlı ve cansız varlıklar çok hassas dengelerle birbirine bağlıdır.					
B71	İnsan nüfusu hızla artmaya devam etse bile, gelişen teknoloji sayesinde; su, besin gibi temel kaynakların tükenmesi söz konusu değildir.					
B72	Yeryüzünün herhangi bir yerine yapılan bir müdahalenin etkisi, çok uzaklarda da hissedilebilr veya gözlenebilir					
B73	Doğadaki birçok ekosistem o kadar güçlü bir yapıdadır ki; sistemin bir halkası kopsa bile, diğer					

	halkalar arasındaki güçlü uyum sayesinde hiçbir sorun yaşanmaz.					
B74	İnsan doğanın efendisidir.					
B75	Yılanların zehirlenerek ekosistemden çıktığını düşünelim. Böyle bir durumda yılan yiyerek beslenen kuşlar ya ölcek ya da o ekosistemi terkedecek, yılanlardan kurtulan farelerin sayısı artacak ve bu artış otların aşırı derecede tüketilmesine yol açacak , böylelikle sistem eski varlığımı sürdüremeyecektir.					
B76	Doğanın gerçekten çok hassas bir dengesi olsaydı, zaman içinde bazı türler yok olduğu halde (dinazorlar, mamutlar, kılıç dişli kaplanlar, vb)ekolojik sistemlerin devamlılığı olmazdı.					
B77	Teknoloji ve bilgi çağında olmamıza rağmen, insanoğlu doğayı halen yeterince tanımamaktadır.					
B78	İnsan düşünme gücü ve zekası sayesinde, doğanın tüm inceliklerini öğrenecek ve onu istediği gibi kontrol altına alacaktır.					
B79	Yeryüzü o kadar kusursuz yaratılmıştır ve öyle bir uyum ile çalışır ki; insanların müdahalesinden etkilenmesi imkansızdır.					
B80	Radyoaktif maddelerin, zararlı etkilerini ortadan kaldıracak kontrol mekanizmaları bilinmektedir. Bu nedenle, radyoaktif maddelerin yoğun kullanım alanına sahip olması bir problem yaratmamaktadır. Ayrıca, bilimsel alanda sağladığı sayısız faydalar unutulmamalıdır.					
B81	İnsanoğlu tam doğanın ve çevrenin sırrını çözdüğünü düşündüğü bür zamanda, yeni ve beklenmedik bir sonuçla karşılaşabilir. Hiçbir zaman doğanın sırlarına tam hakim olamaz.					
B82	Aslında çok da önemli olmayan ve kısa vadede çözümü mümkün çevre sorunları medya tarafından abartılmakta ve kamuoyuna da bu şekilde yansıtılmaktadır					
B83	İnsanoğlu, ekosistemin parçaları arasındaki uyumun gizemini çözdüğünde; çevre sorunlarını da daha oluşmadan kontrol altına alabilecek bilgiye sahip olacaktır.					
B84	İnsanoğlu aklı ve zekası sayesinde, çevre kirliliği açısından en kötü noktaya ulaşıldığında mutlaka yeni olanaklar yaratarak, yaşamını devam ettirecektir.					
B85	Klonlama başarılmış olsa da gelecekteki sonuçları hakkında henüz bilgi sahibi değiliz.					
B86	İnsanoğlu doğaya müdahalesini kısıtlamazsa, yeryüzünün ve kendinin geleceğini yok edebilir.					
B87	İklim değişikliği nedeniyle yakın bir gelecekte kıyılardaki tarım alanları sular altında kalarak yokolacak ve insanlığın açlık tehlikesi ile karşı karşıya gelecektir.					
B88	Asıl sorun, ekolojik dengelerin korunmasından çok, dünyadaki makro ekonomik dengelerin sağlanmasıdır.					
B89	Şimdiye kadar birçok bilim adamı tarafından					

	öngrülen çevre felaketi senaryolarının hiç biri henüz gerçekleşmemiştir.					
B90	Gelişmekte olan bir ülkenin uygulayacağı çevre politikaları, gelişmiş bir ülkenin çevre politikalarından farklı olmalıdır					
B91	Ozon tabakasının incelmesi kanser vakalarında artışa neden olacaktır.					
B92	"Kirleten öder" prensibi global çevre politikaları kapsamında mutlaka yer almalıdır.					
B93	Çevre sorunları, uluslararası bir sınır tanımadığından; bu konu ile ilgili olarak imzalanan (uluslararası) sözleşmelerde, "gelişmiş ülkeler" ya da " gelişmekte olan ülkeler " gibi kavramlar önemini yitirmektedir. Her ülkeye eşit görev düşmektedir.					
B94	Gelişmiş ülkeler daha az nüfusa sahip olmasına rağmen; çevre kirliliğine katkıları daha fazladır.					
9B5	Gelişmiş ülkeler; doğal kaynakların hızla tüketilmesinde gelişmekte olan ülkelere kıyasla daha önemli bir paya sahiptir. Ancak sahip oldukları teknolojilerle bu sorunu çözdükleri için, dünyadaki toplam kirliliğe katkıları, gelişmekte olan ülkelere göre daha azdır.					
B96	İnsanlar en son teknolojik gelişmelerden faydalansalar bile, doğaya hükmetmeleri mümkün değildir.					

C. Açık Uçlu Sorular

C1.Sizce Türkiye'nin en önemli çevre problemi nedir?

C2. Çevre problemlerine sizin de katkınız olduğunu düşünüyor musunuz? Nasıl?

C3.Türkiye'deki çevre problemleri için yeterince önlem alındığını düşünüyor musunuz?Sizin bu konudaki önerileriniz nelerdir?

C4. Birey olarak, çevrenin korunmasına katkıda bulunuyor musunuz?Nasıl?

C5.Sizce Türkiye'nin karşı karşıya olduğu çevre problemlerinin çözümünde sivil toplum örgütleri etkilimidir? Kısaca açıklayınız.

C6.Türkiye'deki mevcut çevre mevzuatının yeterli olduğunu düşünüyor musunuz?

C7.Sizce 'Çevre Mevzuatı"nın uygulanmasında karşılaşılan problemler nelerdir?

C8.Türk toplumunda çevre bilincinin artması konusunda en etkili aracın ne olduğunu düşünüyorsunuz?

C9.İslamın çevreye bakış açısı hakkında ne düşünüyorsunuz?

C10."Derin Ekoloji" felsefesi hakkında ne düşünüyorsunuz?

D.Aşağıdaki cümleleri ( ) Evet ( ) Bazen ( ) Hayır şeklinde değerlendiriniz.

1.İşyerine giderken her gün kendi özel aracımı kullanıyorum.
( ) Evet ( ) Bazen ( ) Hayır
2.Sanayide ve evlerimizde kullanılan kimyasallar Çevre tarafından rutin olarak test edilerek, onaylandıktan sonra kullanıma sunulmaktadır.
( ) Evet ( ) Bazen ( ) Hayır
3.Evimde geri kazanılabilen malzemeleri ayrı topluyorum.
( ) Evet ( ) Bazen ( ) Hayır
4.Evde çıkan çöp miktarını mümkün olduğunca azaltmaya çalışıyorum.
( ) Evet ( ) Bazen ( ) Hayır
5.Diş fırçalarken suyun lüzumsuz akmaması için musluğu kapatırım.
( ) Evet ( ) Bazen ( ) Hayır
6.Gereksiz yere yanan elektrikleri söndürürüm.
( ) Evet ( ) Bazen ( ) Hayır
7.Ulaşımda toplu taşım araçlarını tercih ederim.
( ) Evet ( ) Bazen ( ) Hayır
8.Çevre ile ilgili gönüllü kuruluşlara üyeyim ve maddi olarak destekliyorum.
,( ) Evet ( ) Bazen ( ) Hayır
9.Bir partiye oy verirken izleyeceği çevre politikalarını da dikkate alırım.
( ) Evet ( ) Bazen ( ) Hayır
10.Otomobilimin rutin bakımını (yağ değişimi, motor bakımı vb.) ihmal etmem.
( ) Evet ( ) Bazen ( ) Hayır
11.Biraz pahalı da olsa organik yiyecekleri tercih ederim.
( ) Evet ( ) Bazen ( ) Hayır
12.Çevreyi korumak adına pahalı ama çevre dostu ürünleri tüketmeyi tercih ederim.
( ) Evet ( ) Bazen ( ) Hayır
13.Otomobilimde kurşunsuz benzin kullanıyorum.
( ) Evet ( ) Bazen ( ) Hayır
14.Türkiye de doğal hayat ve koruma alanlarının yeterince korunduğunu düşünüyorum.
( ) Evet ( ) Bazen ( ) Hayır
15.Türkiye de nesli tehlike altında olan türlerin yeterince korunduğunu düşünüyorum.
( ) Evet ( ) Bazen ( ) Hayır
16.Türkiye de sulak alanların yeterince korunduğunu düşünüyorum.
( ) Evet ( ) Bazen ( ) Hayır

17.Türkiye de su kirliliğini önlemek amacı ile her türlü önlem alınmaktadır.
( ) Evet ( ) Bazen ( ) Hayır
18.Türkiye de hava kirliliğini önlemek amacı ile her türlü önlem alınmaktadır.
( ) Evet ( ) Bazen ( ) Hayır
19.Türkiye de tarihi ve kültürel alanlar korunmaktadır.
( ) Evet ( ) Bazen ( ) Hayır
20.Çevre eğitiminde en etkili araç;
a. akrabalar ve arkadaşlardır.
a. Medyedır.
b. Hükümet kuruluşlarıdır.
c. İnternettir.
d. Gönüllü kuruluşlardır.

CURRICULUM VITAE

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MS	METU Environmental Engineering	1992
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High School	Ankara Atatürk High School	1983

WORK EXPERIENCE

Year	**Place**	**Enrollment**
1998-Present	Gazi University	Lecturer
1991-1998	Authority for the Protection of Special Areas	Expert
1988-1991	Etibank	Engineer

FOREIGN LANGUAGES

Advanced English

PRESENTATIONS

1. Karakoç, G., Baykal, D., Solid Waste Management in Specially Protected Areas of Turkey, Beneficial Reuse of Water and Biosolids, 1997, Marbella, SPAIN.

PUBLICATIONS

1. Karakoç, G., Erkoç, F., "Türkiye'de ve Dünya'da Çevre Korumacılık ve Koruma Statüleri, Bilim ve Teknoloji, Cilt 1, Sayı 2, 32-39, 2001.

2. Karakoç, G., Erkoç, F., Katırcıoğlu, H., "Water Quality and Impacts of Pollution Sources for Mogan Lake, Environment International, Vol 29, 21-27, 2003.

3. Karakoç, G., Yıldırım, F., "Çevre Mühendisliği'nde Ara Eleman İhtiyacı, Çevre Ve Mühendis, 26, 113-119, Mart, 2004.

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