

EXPERT DISCOURSE ON TURKISH CLIMATE POLICY

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MEHMET ALİ ÜZELGÜN

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Approval of the Graduate School of Social Sciences

Prof. Dr. Sencer Ayata
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Science.

Assoc. Prof. Dr. Erkan Erdil
Head of Department

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science.

Assoc. Prof. Dr. Helga Rittersberger-Tılıç
Supervisor

Examining Committee Members

| | | |
|--|--------------|-------|
| Assoc. Prof. Dr. Bengi Öner | (METU, PSY) | _____ |
| Assoc. Prof. Dr. Helga Rittersberger-Tılıç | (METU, SOC) | _____ |
| Assoc. Prof. Dr. Erkan Erdil | (METU, STPS) | _____ |

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Name, Last name: Mehmet Ali Üzelgün

Signature :

ABSTRACT

EXPERT DISCOURSE ON TURKISH CLIMATE POLICY

Üzelgün, Mehmet Ali

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This study renders the current frame of global climate change policies as a mirror of a new era, marked by surpass of the once absolute limits to growth towards humanity's management and optimization of natural processes of the planet. A total of 24 interviews were realized with Turkish governmental and non-governmental experts on climate change, after application of a two-staged environmental attitude and policy questionnaire. Critical discourse analysis of interviews was performed to elaborate the results of the attitude and policy tests. Results demonstrate an assigned core value for technology as a means to survive the foreseen ecological crisis besides the given role of technology as a means to economic development. The reign of the discourse of sustainable development in Turkish expert discourse is actualized through frames of technological progress and efficiency. Another dominant discourse is the one of national interests, which is discussed in the context of international politics of North-South conflict. The gap between the environmental attitudes of experts and their choices of policy responses and institutional practices is also discussed.

Keywords: Climate Change Policy, Discourse Analysis, NEP scale, Sustainable Development, Turkey

ÖZ

TÜRKİYE'NİN İKLİM POLİTİKASI ÜZERİNE UZMAN SÖYLEMİ

Üzelgün, Mehet Ali

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Bu çalışma günümüz iklim değişikliği politikalarını, kalkınmanın sınırlandırılması sorunsalını insanlığın doğal süreçleri yönetmesi ve optimize etmesi ile aşmaya çalışan yeni bir dönemin aynası olarak yorumluyor. Çalışma, Türkiye'de iklim değişikliği alanında uzman 24 kamu görevlisi ve sivil toplum çalışanıyla, İki aşamalı çevresel tutum ve politika ölçeklerinin uygulanmasının ardından yürütülen yüzyüze görüşmelere dayanıyor. Tutum ve politika ölçeklerinin sonuçlarını geliştirerek tartışmak amacıyla görüşme metinleri üzerinde eleştirel söylem analizi gerçekleştirilmiştir. Sonuçlar, teknolojiye, ekonomik kalkınmanın bir aracı olmanın yanında, öngörülen ekolojik krizi aşma yolunda da temel bir rol tayin etmektedir. Sürdürülebilir kalkınma söyleminin Türk uzman söylemindeki hakimiyeti teknolojik gelişme ve verimlilik temaları üzerinden kurulmaktadır. Türk uzman söylemindeki bir başka hakim tema da, Kuzey-Güney çelişkisi bağlamında tartışılmaya çalışılan ulusal çıkarlar söylemidir. Uzmanların tutumları ile politika tercihleri ve kurumsal pratikleri arasındaki farklılaşma da tartışılmıştır.

Anahtar Sözcükler: İklim Değişikliği Politikası, Söylem Analizi, NEP ölçeği, Sürdürülebilir Kalkınma, Türkiye

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LIST OF ABBREVIATIONS

| | |
|---------|--|
| CDM | Clean Development Mechanism |
| CER | Certified Emissions Reductions |
| COP | Conference of Parties |
| EIT | Economies in Transition |
| EKC | Environmental Kuznets Curve |
| EU | European Union |
| EU-ETS | European Union's Emission Trading System |
| GCC | Global Climate Change |
| GDP | Gross Domestic Product |
| GHG | Greenhouse Gases |
| IEA | International Energy Agency |
| IMF | International Monetary Fund |
| INC | Intergovernmental Negotiating Committee |
| IPCC | Intergovernmental Panel on Climate Change |
| IUCN | International Union for the Conservation of Nature and Natural Resources |
| İSKEN | İskenderun Enerji Üretim ve Ticaret A.Ş. |
| NEP | New Environmental Paradigm |
| NGO | Non-Governmental Organization |
| OECD | Organization of Economic Cooperation and Development |
| SPSS | Statistical Packages for Social Scientists |
| UNCED | United Nations Conference on Environment and Development |
| UNDP | United Nations Development Program |
| UNEP | United Nations Environment Program |
| UN FCCC | United Nations Framework Convention on Climate Change |
| WCED | World Commission on Environment and Development |
| WMO | World Meteorological Organization |
| WWF | World Wide Fund for Nature |

1. INTRODUCTION

Global climate change represents the first case of an unexpected effect of technological development and industrial society with truly global impacts. The framework of climate change nestles the realms of scientific inquiry, technological choice, and social discourse in a unique manner in the area of science, technology and society. As an approach to inquiry dedicated to integrating knowledge from a broad spectrum of disciplines, science and technology studies can be considered useful to the task of providing the interdisciplinary perspective necessary to fully explore the issue. Global climate change, with extreme complexities inherent in its scientific basis, environmental and societal consequences, and technological choices, holds dimensions transcending the disciplinary boundaries; which lies disciplinary approaches inadequate when it becomes necessary to place scientific knowledge in a social context (Hadjilambrinos 1999).

Just as is the case with every policy issue, the policy debate on global climate change engages in public perception. In an era of techno-science -ruled by power struggles of the new world order- playing the main theme, it is left to the policymakers to make sense of the disparate and often contradictory claims. Interpretation of the concepts and issues vary to an extent that, in many cases definitions of terms are rendered in a contradictory manner.

The different ways how participants in the anthropogenic climate change debate deal with the multitude of problems can be traced to their views about the credibility of scientific knowledge and practice, the methods and values to compare risks, their ideological predispositions, and their national, institutional and professional loyalties. Thus, climate change is understood as a mirror of slow motion environmental crises that will require ubiquitous changes in the way nations define security and economic progress, as well as a singular and technical issue of atmospheric modification, or even a radical environmental trick to stop unrestrained market-based economic expansion (Hempel 1993).

Owing to its high stakes and popularity, the climate change debate provides an excellent tool for exploring the transformation of the question of limits to growth into public policy. Social studies of climate change as a mirror of our highly industrialized civilization, as a major challenge and threat to it, can give us insights to respond and adopt. This study is an attempt to understand the climate change policy constructs of Turkish policymakers and professional environmentalists working on climate change. The investigation of representations of Turkish specialists should be inferred as a step in discussing Turkey's role in the new age of global environmental policies and the new world order. The specific aim of the study is to examine the climate change discourse patterns of Turkish experts on sustainable development, market based policies, equity, and technology as a means to survival.

The introductory chapter summarizes, firstly the evolution of international environmental government regime from exogenous regulatory regimes towards neo-liberal allocation of permits, and secondly the basic concepts of and discussions around global climate change policy. Turkey's special position in the climate change regime is underlined in the end of the introduction.

2. FRAMEWORK OF CLIMATE CHANGE: A NEW FRONTIER BETWEEN ENVIRONMENT AND DEVELOPMENT

2.1 Environment and Development

Towards the end of 20th century the concept of an ecological crisis has come to occupy an extending space in public agenda, scientific reports and intergovernmental efforts. The space programs of 1960's is said to cause a fundamental shift in thinking about the relationship between man and nature. The image of the planet taken from outer space has facilitated an understanding of the intricate interrelatedness of the ecological processes on earth; it also caused a shift in the cognition of the everyday experience of life in an industrialized world.

Since then, the image of the globe became an icon of comprehensive political efforts addressing global environmental problems. The United Nations Stockholm Conference on the Human Environment held in 1972, the reports *Limits to Growth* (Meadows et. al 1972) and *Blueprint for Survival* (The Ecologist 1972) drew upon the image of the world as a fragile interacting whole. It was possibly a shock for 1970s, when the report of entitled *Limits to Growth* pointed out that economic prosperity could not be assumed to continue to grow indefinitely (Hajer 1995).

Environmental movement until early 1970's represents an understanding of a contradiction between growth and nature. Lecomber (1975) in his book called "Economic Growth versus the Environment" defines environment, as contrast to growth, as broad, vague, irreducible to single numbers and difficult to define with any precision. He asserts the concept of growth as a dynamic one (a rate of change over time) whereas environment as static. In other words, growth is defined as a means to an end, but environmental quality is an end in itself. In their more comprehensive edition with the same title, Johnson and Hardesty (1971) place the discussion whether growth can be redirected (instead of abandoning) to depth. While they recite that there is much that can be done "to enable us to sustain an expanding economy for some time", they introduce concepts of zero growth, neo-Keynesian growth fetish,

socially necessary level of consumption and even the end of capitalism. They also underline redirecting growth would not necessarily mean resolving problems associated with the maintenance of an expanding economy, such as military spending, economic exploitation of less developed countries, and the poverty and racial injustice that accompanies the market in labor.

On the way to propose cornerstones of a new environmental paradigm for sociology, Catton and Dunlap (1980) stress the “ecological facts of life” to enable our understanding of a shift towards the post-exuberant age. It signifies an age in which competition and conflicts between different segments of society will be shaded by the competition between present and future generations. They too, favor a “revolution of falling expectations” claiming problems (of scarcity) could not be averted by maintenance of traditional patterns of growth.

A neo-realist approach to environmental impact proposed in this era, the IPAT model, was developed in a debate between Barry Commoner and Ehrlich-Holdren couple (York et. al. 2003). As a mathematical equation ($I = P \times A \times T$) IPAT model specifies that environmental impacts are the multiplicative product of three key driving forces: Population, Affluence (per capita) and Technology (impact per unit of affluence). By definition, all the factors that effect the environment other than population and affluence are coded into the T. Technology, then becomes “the factor that translates the myriad of human over and above population and economics into environmental impacts” (Humprey et al. 2003) in the IPAT.* (thus, social studies of environment and technology works with this “T”) As growth is simply measured by affluence, or an interaction of affluence and T of the IPAT equation, IPAT -and its descendants like STIRPAT and ImPACT- are built upon a contention between growth and environment –at least for the western world.

The postwar era of techno-economic development, which lasted until late 1960s is characterized by scientific based innovations and an exogenous understanding of environment and technology. 1960s were not only marked by raising awareness of environmental concerns but also criticism of socio-economic development and

science and technology policy doctrines (Jamison 2002). Joseph Schumpeter's approach which was dominant in the late 60s and early 70s concerning the endogenous and central place which technology and innovation occupy in economic growth is coupled with Schumacher's theory of appropriate technology by Phillimore (2002). Although Schumacher, as a student of Schumpeter differs politically and ideologically from his preceptor, he takes the side of neo-Schumpeterians when it comes to the limits of growth:

The modern industrial system is not gravely threatened by possible scarcities and high prices of most of the materials to which the MIT study [i.e. limits to growth] devotes such ponderous attention ... necessity is indeed the mother of invention, and the inventiveness of industry, marvelously supported by modern science, is unlikely to be defeated on these fronts (Phillimore 2002, 152).

It is important to note here the exception of energy, as it is viewed by Schumacher, as the one material factor that can not be recycled and which remains the precondition of all others.

When John Bellamy Foster (2002) claims that capitalism and its economists in general preferred avoiding the ecological problems instead of seriously addressing them, he essentially refers to the zeitgeist of 60s and 70s. Foster finds roots in Rachel Carson's *Lost Woods* (1963), that "...a form of intellectual resistance, a ruthless critique of the existing mode of production and the ideology used to support its environmental depredations" is necessary, if one is to write realistically about the conflict between ecology and capitalism. That time, the conflict seems stark: "either reject the gods of profit or face the natural consequences, ecological and social crisis spinning out of control". But a lot has changed since then, in ways society and its policymakers conceptualize the relationship of environment and growth.

2.1.1 Ecological Modernization

By 1970s, Northern governments started strengthening links with mainstream and scientific environmental groups like the World Wide Fund for Nature (WWF), the

International Union for the Conservation of Nature and Natural Resources (IUCN)¹ and the Sierra Club. The raising awareness and pressure for worldwide governmental action on the environment led to the Stockholm Conference in 1972. Attended by representatives of 113 nations, the UN Conference on the Human Environment is a cornerstone. The claim that environmental issues were not at all on the priority list as economics and development is true, but the outcomes of the Stockholm Conference represent a breakthrough in development and nature relationship. It represents the dawn of an era in which mainstream politics attend to environmental issues, as well as a process of professionalization of environmental concern. (Jamison 2002) First outcome of the summit was creation of the United Nations Environment Program (UNEP) to catalyze, initiate and coordinate environmental policies throughout the international institutional system. Second was the World Bank becoming the first international aid agency to declare that environmental and development goals could be complementary. (Young 2002)

In the early 1970s, science and technology too, were being reoriented to a social agenda. Organization of Economic Cooperation and Development (OECD)'s report of 1971, Science, Growth and Society proposed a set of new societal areas for scientific research and development to focus on. One of the most important new science and technology policy sectors, thus a new kind of assessment activity was the –later extended- domain of environmental protection. (Jamison 2002)

Although the polarization between environmentalists and investors, grass-roots activists and scientists continued in 1980's, the idea that economic growth was not only compatible with environmental protection, but necessary to generate sufficient funds to pay for it started gaining power. Environmental NGO's started gaining wider access to funds of donor governments. Three opinions accompany this era:

(1) Sustained economic growth is good for environmental quality; (2) Regulation is good for both the economy and the environment; (3) NGO's should adopt rhetorically radical but practically conciliatory strategies. Here is the start of the great division in

¹ Changed into World Conservation Union in 1990.

environmental movement; as more confrontational movements evolved into eco-politics and political ecology, conformist tendencies started evolving into lobbyists, consultants, and professionals (Young 2002).

1987 report of World Commission on Environment and Development (WCED 1987) entitled *Our Common Future* -also known as the Brundtland Report- can be said to function as a catalyst for such divide in environmental policy: “The time has come to break out of past patterns. Attempt to maintain social and ecological stability through old approaches to development and environmental protection will increase instability” (WCED 1987, 22). The first important outcome of the WCED report was presentation of the environmental case in such a way that it could gather strong institutions like the World Bank and the IMF, which in 1970s were still considered to be in the opposing camp. Second outcome was promotion of the notion of sustainable development. These two achievements of the report were also marked as the problems with the Brundtland approach. Radical critics of the Brundtland Report claim that the whole idea of sustainable development is a rhetorical maneuver which conceals a strategy for sustaining development rather than addressing the causes of ecological crisis (Sachs 2004, Hajer 1995).

WCED Report (1987) was more than a recognition of a new reality (that humans are changing planetary systems fundamentally), it was also a keynote on how that (from which there is no escape) would be managed. Five years later, Gro Harlem Brundtland in her foreword to Ann Taylor’s book *Choosing Our Future* (Brundtland 1992) writes:

Global interdependence is growing, and the need for a better management of this interdependence increases with it... Governments must establish the framework conditions which can accelerate the development and dissemination of environmentally benign technology. The market mechanisms must be adjusted so that prices reflect the true environmental costs of what we do and how we consume. More active use of economic instruments to benefit the environment will also require international harmonization of rules (Brundtland 1992, ii).

Ecological modernization as a policy oriented discourse is defined by Hajer (1995) as “the discourse that recognizes the structural character of the environmental problematic but none the less assumes that existing political, economic, and social institutions can internalize the care for environment. For this purpose, [it] introduces concepts that make issues of environmental degradation calculable.” (Hajer 1995, 25) Ecological modernization, utilizing elements derived from the natural sciences, is a response that frames environmental problems within monetary units. On the macro-economic level this framing conceptualizes nature as public good or resource instead of an ever external process in itself. In terms of economics, this necessity is the way to address the environmental problems, doing so this process could be viewed as positive or for the sake of environment. Philosophically, this is start of the end of the category of nature as we know it.

Gouldson and Roberts (1999) place Hajer’s definition of ecological modernization beside two others. One of them is the ways in which modern society responds to the increased awareness of, and anxiety about the ecological risks associated with industrialism. The third way ecological modernization is used is as a concept to guide doctrines of policy reform. In this respect, ecological modernization promotes the application of new forms of environmental policy as a positive influence on economic development, rather than an ultimate limit to growth. “Similarly, rather than perceiving economic development to be the source of environmental decline, ecological modernization calls for the application of economic policies that harness the forces of entrepreneurship for environmental gain... [it] calls for new forms of policy intervention that can induce changes that reduce many of the environmental impacts of economic development, for example by changing the spatial distribution, the sectoral balance, the technological composition or the resource intensity of socio-economic activity.” (Gouldson and Roberts 1999) This way, the classical zero-sum game of environment and development is formulated as a positive-sum game, or with the famous phrase, a win-win situation.

Ecological modernization reformulates the ecological crisis as an opportunity for innovation and reproduction of the capitalist

system. Environmental pollution, thus, has come to be rendered merely as economic inefficiency. Nature turns out to be perceived as a public good whose production and distribution requires clever economic incentives and management to overcome collective action problems. The aim of environmental policy making is no longer to minimize pollution but to determine “the levels of pollution which nature can endure (Hajer 1995, 27).

Thus, the techniques of environmental policymaking was subject to change starting from mid 1980s, from end-of-pipe measures and from react-and-cure formulas into, in order of appearance, the polluter pays principle, cost-benefit analysis, risk analysis, the precautionary principle, tradable pollution rights, and the levy of charges on polluting activities, as well as resource and emission taxes (Hajer 1995).

Moreover, ecological modernization assigns a new role for science in the process of environmental policy making. Science no longer is simply responsible for bringing proof of damaging effects of the human civilization, but increasingly placed in the centre of the policy process. In a series of papers Pielke (2004) and Pielke and Sarewitz (2003) define a policy gap regarding environmental problems to be fulfilled by scientists at first place. How the Intergovernmental Panel on Climate Change (IPCC) fit this demand and role will be discussed further in this chapter.

Briefly, we can conclude the basic premises of ecological modernization as; internalization of the domain of environment, economizing of ecology, academy-industry interaction, flexible regulation regimes, optimization, international cooperation, faith in advancement of science and technology, efficiency and ‘pollution prevention pays’ (Jamison 2002).

2.1.2 Disciplines of Authority

Historically, social conflicts and change are formulated around a problem that has necessarily been experienced. In the case of a mining company deserting the fields for instance, parties to the issue, specific actions and actors are easy to address. In such a case, the conflict is experienced, signs and consequences of the problem

stand within the lives of people. The more people are affected, louder they will argue, and tighter will be the responses. The construct of global warming, on the contrast, has not yet been a problem influencing any peoples' lives, at least directly. The heart of the problem lies at laboratories and computer simulations, not in streets. Any behavioral, social change, then, has to be initiated by top-down policies and educational programs, since it can not be structured from roots. The science of ecology, playing a central role in highlighting the need for integrated solutions to environmental problems (Oels 2005), represented the key toolset for formulation of such policies.

Discussing roots and interpretations of ecology, Sachs (2004) views ecology as the first anti-modernist movement that utilizes the tools of its foe. As a political movement, a scientific discipline and a holistic worldview, ecology rose on critique of disciplines of physics, chemistry and biology. As a political discourse, ecology used to target constitutions of modernity, whereas as science it served protest movement's modernization.

Pre-ecology of the 19th century, focusing on geographical distribution of the species and their comparative attributes was built on the mindset of prevalence of environment over the nurture. With the dawn of 20th century however, constructs of ecology elaborated from effect of physical and climatic circumstances on communities towards interrelations of the species and adaptation. When environmental problems and the ideas of limits to growth gained public attention, ecology was an established discipline, with its positivist methodology and analytic reasoning. In the end of 20th century ecology was used to emphasize "homeostatic and apolitical nature of human - environmental interaction" (Byrant 1998), "study of interaction between the environment and society." (Catton and Dunlap 1978)

But, together with the political discourse of environmentalist worldview, ecology not only reveals any scientific reality, but also dictates its moral consequences and even the aesthetical perfection inherent to its subject (Sachs 2004). Surely, environmental problems and crises are socially constructed; environmental problems are such only

because they are seen as such by different individuals and groups – a discursive threat to life's well-being. Therefore, the process of problem definition, and associated plans for resolution, is itself a highly political act that may not be simply grounded in scientific fact (Byrant 1998). Indeed, science today has very little to do with the scientific fact, but in the case of the science on environment, political judgments and preconceptions operate even at higher levels.

Since uncertainty, complexity and interconnectedness of the contemporary environmental problems accompany the post-positivist critique on the one hand, and integration of the academia and the world of enterprise on the other (resulting in a variety of interdisciplinary fields), new integrative fields of studies have emerged. The concept of sustainable development as a challenge cross-cutting many levels and aspects of the modern society, has easily come to demand a sustainability science. A sustainability science is expected to “improve collaboration of natural and social scientists as well as deliver research designs that better integrate all scales from local to global. It would also imply modifications of the traditional model of knowledge generation and a new way in which sustainability science, as a science, is conducted.” (Biermann 2006, 3) Roe (Oels 2005) argues on the contrary, that together with most public policy problems, climate change has been discursively situated within the discourse of globalisms. What used to be understood as local, regional, or national issues are now to be analyzed as global ones at the cost of local specificities. Remote sensing of the global ecosystem and computer models of the entire climate system are creating new visibilities and ordering new measures each year. IPCC's assessment reports are very good examples of how science is setting the ground rules for discursive interpretations to scramble. “The planet gets to look like a spaceship that humankind is able to steer on the basis of data and models provided by the natural sciences.” (Oels 2005, 198)

Increasing concentrations of greenhouse gases in the atmosphere and its environmental consequences occur slowly and are subtly veiling the process and impacts of global climate change from the senses. This means that science is the only way humans have to unveil notion, characteristics and consequences of

anthropogenic climate change. The nature of the problem, once again, necessitates that science has the key role in the global climate change (GCC) debate. (Hadjilambrinos 1999) Ecology, meteorology and climatology thus, have become extended disciplines of the climate question. While it is the experts and computer-based projections that the policy process depends on, “the networks of authority and sponsorship are a powerful shaping influence on the way in which the story gets told... Climatology is now more of an analytic than a descriptive science. Climate is no longer “the average state of the atmosphere”; it is an unstable set of events, subject now to the effect of human industry.” (Ross 1991, 7)

2.1.3 Politics of Sustainability

In his review of Rio process documents Huber (2000) extracts the threefold mission that different contributions on politics of sustainability basically agree upon:

(1) to promote further *economic development*, while (2) ensuring *ecological sustainability*, by not exceeding the earth’s carrying capacities, and (3) bringing about *social equity*, by creating a better balanced distribution of opportunities to use natural resources and sinks, and giving access to a fair share of the wealth produced (Huber 2000, 270).

Huber also describes a widespread western attitude of tending to see sustainable development as an exercise in conservation of nature and environmental management, while ignoring equitable distribution. For him sustainable and equitable development is not only about interdependencies between economy and ecology, but also one concerning the ecological question with the social question on a global scale. Referring to “The Great Transformation” where Karl Polanyi (1944) described as a process of disembedding the growing industrial system from its social and habitual context, Huber envisages sustainable development as a concept aimed at re-embedding industrial activities into (their social and natural) context. Commenting on the distributional and the eco-management rules of the Rio process henceforth, Huber arrives at stressing the lack of /short of technology term for both sets.

Huber's expectations from sustainable development can not be said to met. Rees (1998) argues that developing sustainability requires first of all questioning the social ties of economic growth, a reordering of cultural values, major institutional reforms, and profound changes in existing power relationships. He necessitates the need of an appropriate philosophy empowered by modesty in consumption and mutual reciprocity, rather than an appropriate technology built on a mechanical understanding of economy. Differentiating between growth and development, Rees argues that as the threat of ecological instability increase, "people's greater fear seems to be the socio-political chaos that might accompany deliberate economic stagnation or contraction. In the absence of feasible alternatives, no country has voluntarily made the necessary institutional adjustments or abandoned the pursuit of growth as the preferred means to sustain development."

Sustainable development as a concept of ecological modernization represents two major reconciliations, firstly between economic growth and environment, secondly between concerns and interests of developed and developing nations. The famous North-South divide is inherent in the framework of sustainable development; this fact itself is enough for a basis to discuss sustainable development as a battlefield of interests rather than the solidarity of the commons. The concept is strongly anthropocentric as it starts with the premise that human needs must be met in order to address environmental problems. Sustainable development has also been criticized for being extremely general and vague -to allow the ideas to be adopted by virtually everyone to come together seeking a common ground- and lacking specific content how a sustainable life is to be attained. But the most important premise of the concept of sustainable development lies in its assumption that environmental problems (of growth) can be solved, by reformulating the limits to growth as social and technological matters rather than ultimately physical and biological (Vig 2005).

The approach of sustainable development is based, among others, on the environmental Kuznets curve (EKC) of neo-classical economics and a technocentric worldview. But neither is the environmental Kuznets curve comprehensive enough to

explain environmental degradation over the globe, nor modern techno-science seems to provide sufficient responses to the evident ecological destruction.

The environmental Kuznets curve predicts a relationship (an inverted U-shaped curve) between economic growth and environmental impact, where economic growth initially increases impacts until reaching a turning point, after which further development brings a decline in impacts. Many economists assume that once a society reaches a certain level of material affluence, it will invest in environmentally benign technologies and change the structure of production in order to reduce environmental impacts. (Magnani 2000, York et. al 2003) Named after economist Simon Kuznets, who proposed this type of relationship between economic development and income inequality, the validity of the environmental Kuznets curve can be checked in income inequality trajectories of advanced liberal democratic societies. The argument that economic growth is ultimately beneficial for the environment is controversial since it implies an idea of a uni-dimensional development path, a determined link between environmental quality and economic growth. But, if it's true that more affluent nations seem to care for environment better than developing world, world systems theory may provide more persuasive answers.

Emphasizing the structural determinants of national habitus, world systems theory asserts, the more dependant or peripheral a nation is, the more its environment will be degraded (as the case with more inequality and slower growth). Roberts and Grimes (1997) in their research on carbon intensity over economic development, utilize world systems theory to claim that national CO₂ emissions trajectories do not fit with any environmental Kuznets curve. Since affluent nations started producing more GDP per unit CO₂ emissions, they became more carbon efficient, whereas carbon efficiency of the least developed countries has dropped substantially. While affluent nations may indeed be following patterns of development theory, the poorest nations are locked into a pattern of high and increasing environmental impact per unit affluence. Environmental quality demand, an increasing value especially for the affluent nations, forces the international division of labor to shift the most disruptive activities to least affluent nations, leaving relatively clean industries in the core. So the impacts of growth for affluent nations are claimed to be still taking place, but in

different parts of the world (Humphrey et al. 2003). Stressing the fact that internalization of environmental costs has just too high costs if one is to keep the level of profit rates as they are, Wallerstein represents a realist viewpoint rather than a pessimist one. Accompanied by high levels of urbanization trend –and its consequent pressure on capital accumulation-, rigorous application of sensible environmental measures could serve as the final blow to the capitalist world economy. Since we can not expect the private enterprise to take such rigorous measures voluntarily (except for sake of public relations) three alternatives are revealed: (1) Governments could force internalization of all costs; which would directly lead to profit squeeze; (2) Environmental measures could be met by tax adjustments which again would lead to squeeze or wide resistance; (3) Failure to do anything at all, which has been the case so far; the reason Wallerstein (2003, 94) names the article “no way out”, referring to any solution to be proposed under the current historical system. As governments of nation states seem no longer capable of rigorous intervention, they can only be buying time –by shifting the problem towards the politically weak, from north to south. Historically this was being done systematically for centuries in the case of hazardous waste. The second way to the shift concerns the demand from south to a slower (but sustainable) growth. Indeed, this view seems to be very explanatory for the case for UN FCCC process. We can argue that for transfer of environmentally benign technologies to take place, transfer of environmental problems should at first be granted. Thus, the underlying discourse of “common but differentiated responsibilities” should be engaged with a critical view, which will be discussed in the later sections of this study.

2.1.4 Governance of the Atmosphere

During the last few decades, both policy practices and policy idioms have been subject to a fundamental change. Concepts such as interactive planning, network management, stakeholder dialogue, deliberative democracy, complexity, interdependence, policy discourses, and governance have started replacing older ones such as public administration, policy programs, interest groups, institutions, power, authority, sovereignty etc. Arts and van Tatenhove (2004), underlying and

recognizing the relevance of this fact, criticize the new era of policymaking with its lack of or shallow emphasis of the concept of power.

Policy responses of advanced liberal government, as Oels (2005) prefers against neo-liberal government, of climate change concerns the business sector, the non-profit sector, international organizations and governments at all levels to engage in 'partnerships' to contribute in their own ways to mitigating climate change. This, as mentioned above, can be criticized as a movement for buying time and dispersing the responsibility, for the fact that each stakeholder gets over the table to "win". European Union, the forerunner of the international climate regime, conceptualizes climate change as an economic opportunity for innovation, to optimize the energy costs by investing in new technologies, and consequently trading them in the international market.

Governance is defined by Biermann (2006, 5) as "new forms of regulation that differ from traditional hierarchical state activity and implies some form of self-regulation by societal actors, private-public cooperation in the solving of societal problems, and new forms of multi-level policy." Biermann differentiates 'earth system governance' from the concepts of 'good governance', 'corporate governance', and any sort of geo-engineering. Earth system governance, as a similar concept to 'global governance', is "marked by participation of myriad public and private non-state actors at all levels of decision-making, ranging from networks of experts, environmentalists and multinational corporations to new agencies set up by governments, such as inter-governmental bureaucracies... *set up to influence the co-evolution of human and natural systems in a way that secures the sustainable development of human society.*" (Biermann 2006, 5-7). Earth system governance as a social science perspective is also differentiated from 'earth system management' which is rendered by Biermann as a normative, infeasible and undesirable concept.

Biermann notes that global governance is also criticized by neo-conservatives as an attempt to limit the freedom of action of powerful states. There are surely other subject positions that the discourse of global governance can be criticized in such

unequal international institutionalization process. Global climate regime constitutes a good example here; the UN FCCC meetings have been wide open to domination of well equipped, crowded delegations affluent western countries². Indeed the very reason for the group of G77 to exist is the efforts to defend rights of the less powerful countries of south against the will of the industrialized countries. Current situation and institutions of climate change policy should be viewed as a proof that without power, domination and resistance concepts, the concept of governance can not make it far.

The fact that the discourse of climate governance belong to the frame of capitalist culture of management takes us to Escobar's (1999) concept of capitalist nature. Articulating the compilation of the category of nature in the course of modernity, Escobar refers to Foucault's term 'governmentality' which refers essentially to a "modern phenomenon by which increasingly vast domains of daily life are appropriated, processed, and transformed by expert knowledge and the administrative apparatuses of the state." (Escobar et al. 1999, 6) Governmentality, together with the ever new ways of seeing gained by the capitalist accumulation "has reached the natural order to the managerialism of sustainable development" (Escobar et al. 1999, 6). Escobar does not only take us back at the managerial nature of sustainable development, but also reminds us that the mentioned nature has been possible by dominance of vision in the modern society (from microscope to satellite surveillance). This section was started with the impact of the image of the world from outer space on perception of the environment. In the age that the world turned into a picture, we can conclude by recalling Heidegger's (1977) remarkable work on the roots of modernity, "The Age of World Picture" which provided basis for ecologists to criticize the alienation of man from nature. Heidegger distinguished the modern era from all other times with "that the world becomes picture is one and the same event with the event of man's becoming subject in the midst of that which is"

² At COP 10 of 2004 for instance, Turkey is represented with a delegation of 11 against 110 delegates of US <http://unfccc.int/resource/docs/cop10/inf03.pdf> , and in 1997 Kyoto Bulgaria has 4 delegates against 45 delegates of United Kingdom <http://unfccc.int/cop3/fccc/listpart/delcount.pdf> . There were 121 delegates of United States for 11 Turkish COP5 of 1999, not to mention the load of WTO, World Bank, and numerous UN agencies and international organizations.

(Heidegger 1977, 132).

2.2 Global Climate Change Policies

Tough the correlation between various gases in the atmosphere and the surface temperature of the earth was already known in 19th century, it was the World Climate Conference in 1979 to carry the climate change phenomenon as a scientific issue to a global level discussion. Followed by a series of science and policy conferences in Villach in 1985, Hamburg in 1987, and Toronto in 1988, the issue attracted attention of politics.

“The relations between changes in the atmosphere and changes in the global climate regime is extraordinarily complex, in large part because of a variety of important and poorly understood feedback processes -particularly those involving clouds and oceans... Thus, while there is something of a scientific consensus that some global warming will very likely occur in the absence of drastic cuts in global greenhouse gas emissions, considerable uncertainty attaches to the warming trajectory implied by past emissions and any particular time-path of future emissions.” (Schmalensee 1993) For years, high levels of uncertainty characterized much of the debate. While a large body of scientists urged policymakers to take prompt action to reduce greenhouse gas emissions, a small but influential group of greenhouse skeptics advised deferring action on the climate issue (Hempel 1993). Since the leading cause of increasing atmospheric greenhouse gas (GHG) concentrations is fossil fuel consumption, the politics of climate change is closely bounded with the politics of energy and the politics of development. Powerful interests competing to set the climate change policies have been acting on broad and complex analysis of almost all disciplines of science, under a vast cloud of uncertainty. (Demeritt 2001)

Of particular importance in the process is the foundation of Intergovernmental Panel on Climate Change (IPCC) in 1988. The IPCC was established jointly by the World Meteorological Organization (WMO) and the United Nations Environment Program

(UNEP) as a follow up to the 1987 report *Our Common Future*, with a main message stating that sustainable growth is a prerequisite for the fight against poverty and environmental degradation. The IPCC was charged with the task of providing scientific, technical, and socioeconomic advice to the world community. Three main tasks were defined: To assess available scientific information on climate change; to assess environmental and socioeconomic impacts of climate change; and to formulate response strategies. Thus, IPCC may be framed as an attempt of the developed nations to enunciate climate change governable.

Because of its effective combination of scientific and political functions, the IPCC has been able to secure a leading position in the GCC debate. Its most important contribution has been its ability to maintain the issue on the international policy-making agenda by continually refocusing public attention on the problem with regular announcements and reports on the results of its work (Hadjilambrinos 1999b, 522).

The level of uncertainty can be said to have diminished with numerous special reports and a total of three assessment reports in 1990, 1995 and 2001. Still after the 18 years of global scale studies of thousands of experts, little is clear about what is going to happen to earth's climate. Rather recent statement of the term 'climate variability and change' instead of 'global warming' or 'climate change' could be interpreted as further confusion about the possibilities.

In the process of formulating the intervention magnitude and the set of global policies, science has long been imagined as independent of the political processes. The vision of the scientific advisor relies on an absolute distinction between fact and value and an associated division of labor between scientists and policy makers. According to former chairman of the IPCC, Bert Bolin, their role is to present available knowledge objectively to policy makers, who are in turn responsible for making political decisions "based on a combination of factual scientific information as provided by the IPCC and [their own] value judgments" (Demeritt 2001, 308). Starting from criticizing the very idea of a value-free science, a radical way of interpreting IPCC's expert role in the climate regime is to point out its means in

management of the atmosphere. Hajer (1995) asserts that the approach of the working groups of the IPCC favor an unnecessary centralization of knowledge and “an unnecessary reduction of flexibility regarding the inclusion of new evidence” have prevented the “application of the knowledge acquired for the development and assessment of various policy scenarios.” (Hajer 1995, 278) which have marginalized more critical stances. This was partly caused by the policy oriented funding that allowed only technical solutions and discourses in fit with the existing system. Still, others like Pielke (2004), who pointed out on a policy gap between scientific data and policymaking, were calling scientists to be more proactive in translating their findings into the domain of policies.

2.2.1 The UN FCCC

In 1990, United Nations General Assembly established the Intergovernmental Negotiating Committee (INC) to negotiate the famous United Nations Framework on Climate Change (UNFCCC) with the support of UNEP and WMO. Taking the IPCC’s First Assessment Report as the scientific basis for action, INC met in two parallel groups, one focused on legal and institutional mechanisms while the other focused issues related to commitments (limiting and reducing greenhouse gas emissions, protecting and enhancing sinks and reservoirs, financial mechanisms, technology transfer, and common but differentiated responsibilities of countries). The core controversial issue in the process of preparation of the framework convention was binding commitments. The choice was made between a comprehensive framework that included specific targets and timetables and a step-by-step approach where a framework agreement with general obligations to be followed up by a more comprehensive protocol or legal instrument.

United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro (1992), known as the "Earth Summit" signs the start of policy responses and an overall non-binding framework for "intergovernmental efforts to tackle the

challenge posed by climate change"³. The main reason for delaying a comprehensive and binding commitment process was limited participation in (by countries choosing not to ratify) binding rules. Most of the parties took cautious positions against affecting their own development goals, thus in the conference that puts two terms together the tension between the environment and development, can be said to predominate towards development.

United Nations Framework Convention on Climate Change (UN FCCC) was opened for signature at the Rio Summit in 1992 and entered into force in 1994 with 154 states (plus the European Commission) signing, with an overall aim to stabilize the greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The major achievements of the Framework Convention were this ultimate objective, five sets of principles (Article 3 of the UN FCCC), establishment of a conference of parties (Article 7 of the UN FCCC), a secretariat (Article 8 of the UN FCCC), a Subsidiary Body for Scientific and Technological Advice (Article 9 of the UN FCCC), a Subsidiary body for Implementation (Article 10 of the UN FCCC), and an interim financial mechanism (Articles 11 and 21).

The Framework Convention formulates the countries in three categories according to differing commitments, so-called non-Annex I, Annex I, and Annex II. Non-Annex I countries are developing countries and least developed countries vulnerable to the adverse effects of climate change. Annex I Parties include the industrialized countries that were members of the Organisation for Economic Co-operation and Development (OECD) in 1992, plus countries with economies in transition (ex-soviet and balkan countries). Annex II countries form a subset of Annex I, with only OECD countries included. They are required to provide financial resources to enable developing countries to undertake emissions reduction activities under the Framework Convention and to help them adapt to adverse effects of climate change. In addition, they have to "take all practicable steps" to promote the development and transfer of environmentally benign technologies to EIT Parties and developing

³ http://unfccc.int/essential_background/convention/items/2627.php

countries. Funding provided by Annex II Parties is channeled mostly through the Convention's financial mechanism⁴.

Targeting the stabilization of greenhouse gas emissions at 1990 levels by the year 2000 for Annex I countries by adopting national policies and measures to limit emissions, but not putting any binding rules, UN FCCC amounted not much more than a process to work towards the stated objective (Egenhofer and Fujiwara 2003). Still the framework convention is a giant step that gathers 189 parties, more than any other international environmental agreement.

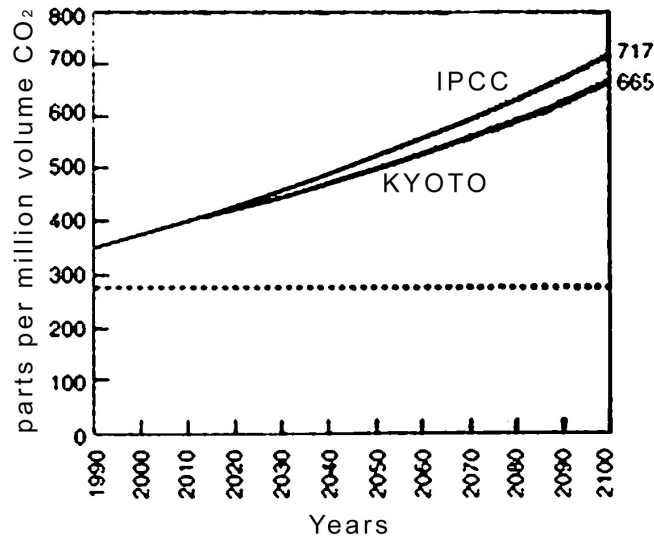
2.2.2 Kyoto Protocol

Following the United Nations Conference on Environment and Development (UNCED) 1992, annually gathering Conferences of Parties (COPs) led the way to a binding Protocol at its third session in 1997 (COP3) at Kyoto. Initially negotiated by 160 countries, the Kyoto Protocol exposed a variety of controversies and disputes for governments. Victor remarks the failure of assessing the responsibilities and allocating the permits and the costs of mitigation prior to Kyoto. He asserts that most of the agreement assembled in just two months prior to the final session in 1997, deferring any effort to settle how the commitments would be implemented and the rules that would govern the system created. Agreement in principle was, with outstanding efforts of the United States, over creating a global emissions trading system and integrating flexibility mechanisms to the pact. The text of Kyoto Protocol was possible in 1997 because a great veil of uncertainty put all the critical details in shadow. By setting emissions targets, Kyoto Protocol allocated permits (assuming \$14 per ton of carbon dioxide equivalent GHG) that worth over \$2 trillion, thus created the ultimate global market for managing future of the environment (Victor 2001).

Legitimizing Victor's points, the treaty could be substantially completed on 2001 after years of negotiations with 122 partners, and could enter into force in 2005 with the

⁴ <http://unfccc.int>

signature of Russia that finally carried the percentage of ratified country emissions over 55%.



Source: <http://www.gcric.org>

Figure 2.1 Effect of the Kyoto Protocol in the case of full compliance as compared to the IS92a projection of the IPCC, in terms of CO₂ alone. The reference line at 275 ppmv signifies the pre-industrial CO₂ concentration.

The Protocol provides specific commitments for 38 industrialized countries (the so-called Annex B of the Protocol) for the 2008–2012 commitment period by setting the emission targets relative to the emissions of the year 1990. The relative commitments range from 8% decrease to 10% increase over the 1990 levels of different countries for these countries, with an average of 5.5% below the 1990 levels, stated as the ultimate goal of the protocol. (Barett and Stavins 2003, Hens and Nath 2003) Average 5% reductions⁵ in the course of 15 years was heavily criticized, as it was relatively low as compared to the principle⁶ set by the UN FCCC in 1992 without advantages of land use changes. Figure 2.1 shows the projected effect of Kyoto Protocol in 100 years in terms of CO₂ emissions as compared to pre-

⁵ Reductions of the Kyoto protocol count land use changes (i.e. forest plantations) as actual reductions in the GHG concentrations.

⁶ In 1992, UNFCCC initially aimed in principle at stabilizing the GHG emissions at 1990 levels by year 2000 without binding rules. As the target was non-binding, no country complied to it.

industrial concentration and IPCC's IS92a scenario, if it could be applied with full compliance.

The Kyoto Protocol introduces three flexibility mechanisms to help countries achieve their commitments at lower costs: International Emissions Trading (IET), Joint Implementation (JI), and the Clean Development Mechanism (CDM). The mechanisms simply feature reducing emissions where it is cheapest to do so. The international emissions trading mechanism allows Annex B countries to trade emissions allowances with one another, whereas the joint implementation mechanism allows these same countries to cooperate on projects and transfer emission allowances on the basis of such projects. The CDM allows Annex B countries to finance projects in non-Annex B countries (developing economies) in exchange for credits towards meeting their own emission reduction commitments. CDM introduces much of the debate over economic globalization of natural resources and investments in developing countries. As the emissions in developing countries are projected to increase rapidly with accelerated energy use, industrialized countries claim the emission reductions to be realized at first where they have more impact with same amount of investment. This leads developing countries into a controversy, between the investments to be received and rejecting the system that dominates over their own natural resources.

Kyoto protocol is critical in the sense that it remarks the final step in formulating the environmentally sensitive action (in the climate case by whom or where the emission reductions would take place) not an ethical or moral issue, but as a matter of costs.

2.2.3 From Command and Control Strategies to Cap and Trade

Discussing links of globalization and global environmental problems, Addink, Arts and Mol (2003) find use in distinguishing modern politics into two phases. Early phase is characterized by Nation-state, regulatory governance, and manageable society between 1950 and 1980; and the late phase from 1980 on, with multi-level, multi-actor governance and governance relativism (or pessimism). They not only

approve the idea that globalization has caused the nation-state model losing its exclusiveness and that political authority has leaked upwards and downwards (to private enterprise, international organizations, partnerships and so on), but also remark the decline of regulatory state-centric approach of policymaking.

Traditionally, pollution control policies of the industrialized countries have relied on command and control approaches, which mostly regulated technology based standards. Permits, licenses, statutory limits on types and volumes of effluents, monitoring, and assessment have been features of such regulatory regimes. Support for market-based solutions to environmental problems has often centered on critiques of the regulatory prescriptions at the local and national scales (Glover, 1999). Utilizing market based mechanisms, including pollution taxes and tradable permits, to supplement regulatory control have firstly been experimented in the United States (Pakerr 2002). The tradable allowance system for sulfur dioxide (SO₂) control in the 1990 acid rain prevention program has often been cited as a significant step in evolution of economic mechanisms.

The first Bush administration proposed the allowance trading program in 1990 intending to cut nationwide emissions of SO₂ by %50 below 1980 levels by the year 2000 as one of the phases of Clean Air Act amendments in combating acid rain. Targeted emissions reductions have been achieved and exceeded as reported by U.S. Environmental Protection Agency in 1997. Total abatement costs scored significantly less than they would take in the absence of trading provisions. (Stavins 1998) The amendments required a reduction in the emissions from fossil fuel burning power plants which were targeted as the largest contributors to acid rain, and participation by other industries remained optional. To achieve the relatively modest goal for pollution reduction, utilities were granted transferable allowances to emit sulfur dioxide in proportion to their current emissions. Thus, for the first time, the ability of companies to buy and sell the right to pollute was enshrined in U.S. law.

The trading of acid rain emissions was interpreted as a scale model for a more ambitious plan to trade emissions of greenhouse gases (Aulisi et.al. 2000, Petsonk et.al. 1998, Stavins 1998). International emissions trading gained further support thanks to a report co-authored by Kidder and Sandor in 1992, who apprised the *Wall Street Journal*, "Air and water are simply no longer the 'free goods' that economists once assumed. They must be redefined as property rights so that they can be efficiently allocated." (Tokar 1996, 5). This understanding and plan was also proposed as a way to rationalize investments in alternatives to GHG producing activities.

Unsuccessful results of the initial efforts to limit greenhouse gas emissions through voluntary national initiatives under the Framework Convention could be interpreted as a manifestation of the end of command and control era. This end also signifies the absence of a cooperative global understanding through nation state system. However, market mechanisms also require operation of a system through appropriate institutions, which dominates commercial activities over limitations and international governance over the national (Glover 1999). The process of institutionalization for emissions markets practiced not only politics of domination but also socio-political and moral conflicts, as will be discussed below.

Lohmann (2006) in his critical work on emissions trading identifies three fixes of the global climate regime: The knowledge fix – as a constant theme of climate politics over the last 20 years that attempt to engineer public reaction to global warming so that it will present fewer political threats to, and more opportunities for, corporations and their political clients. This includes the denial strategies of some corporations and their extensions as well. The technological fix – as a simpler, cheaper alternative to international consensus on large-scale reductions in fossil fuel based energy production.

This sequestered approach interprets present and future political threats of climate change implies merely technical. These fixes include, among others, seeding oceans with iron particles, dimming the sky, genetic modification of certain organisms, and

geological sequestration of GHGs. The third fix is the market fix – by assigning the corporations to be the stars of the show making their job as cheap and profitable as possible. The rationale was prepared at Rio conference in 1992; the signatures were put at Kyoto in 1997. The arguments did not cease however, up to the COP 6 -bis⁷ in 2001, the debate was rather rich of ethical and moral arguments pro or against trading carbon credits. Among the claims were:

- that carbon markets would attenuate interest for structural change in developed countries
- that of a good opportunity for developing countries to go towards sustainable development using international funds
- carbon colonialism, a new form of domination of the developed countries over the developing countries,
- that industrialized countries avoid accomplishments on the Kyoto Protocol
- that industrialized countries refrain from working responsibly on technological innovation and energy efficiency
- that of a temporary and partial solution as way to permit a transition period until technological changes lower the costs of improvements in energy efficiency
- that of a vital mechanism for addressing the damaging effects of global warming.

Second gathering of the COP 6 held in Bonn is generally viewed as a turning point in the debate over carbon trading. The conference marked the end of the basic debate on the commoditization of climate change and the beginning of the technical construction of carbon trading market as a new commodity. One might conclude that Bonn conference institutionalized a new form of social realism, combining the rhetoric of NGOs with the commercial approach of business on a level of governance, for the sake of a new kind of pragmatic consensus (Miranda et al. 2002).

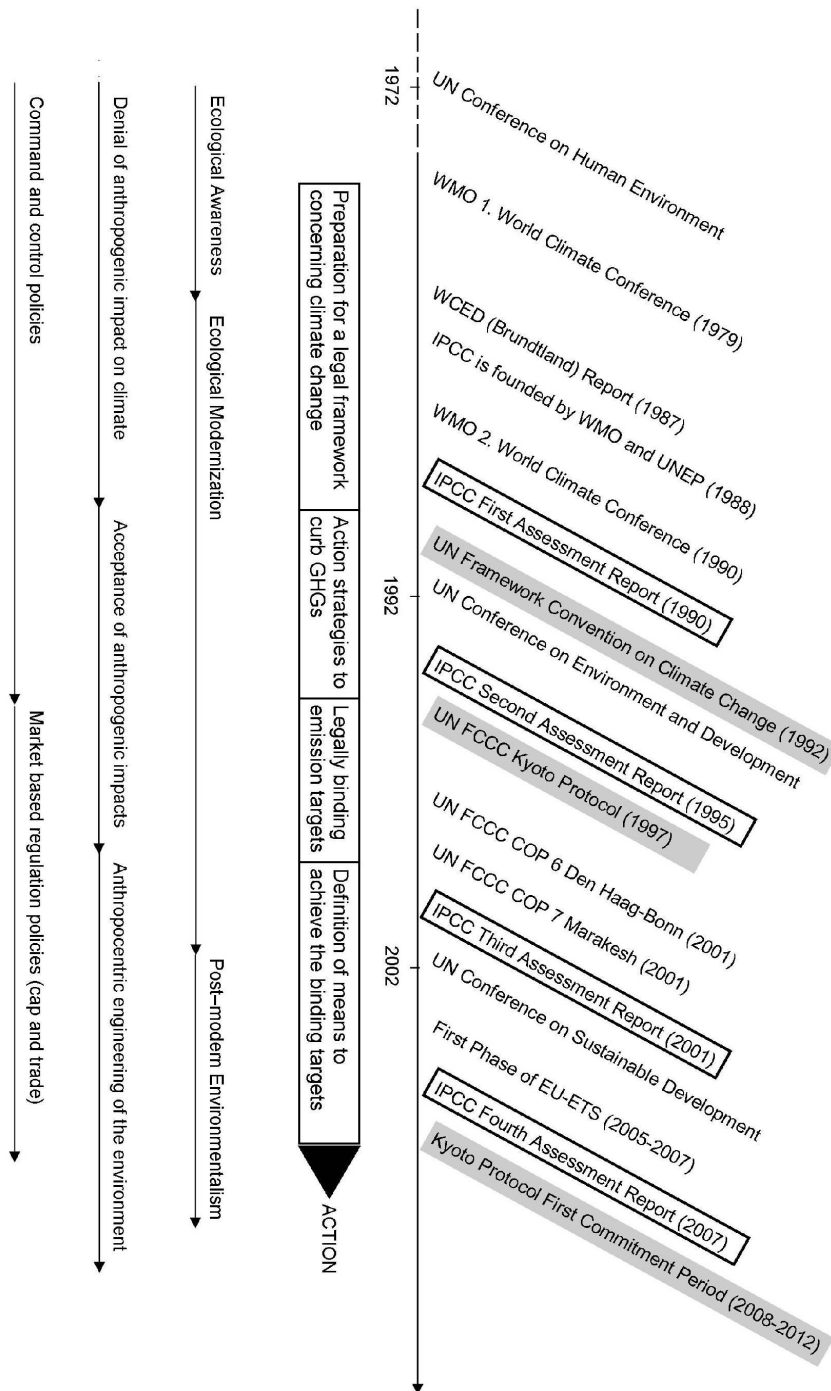
⁷ Conference of Parties 6 in Den Haag, Netherlands has been the only meeting of the FCCC parties that was extended to a second gathering. Critical decisions concerning the rules of mechanisms could not be finalized and postponed 6 months to be held in the home of the UNFCCC, Bonn.

The standard radical critic of the pollution trading is focused on the declaration of nature into resources, converting it into monetary units to be exchanged as goods. As a further step, the new climate regime renders not only resources but natural processes (i.e. carbon cycle, nitrogen cycle) subject to global management. Defining the processes of nature in scientific and economic laws leads the way for policy regimes that intend to regulate the state of nature for needs of modern industrial society. Thus, nature, after becoming environment, becomes an object for scientific and economic design. This approach breeds in the ideology of liberal democracy, as declared by Brundtland report in 1987 to “manage environmental resources to ensure sustainable human progress and human survival” and transcends it. Inherent in this approach is the belief that science, technology, and economics lift society from the constraint of nature, providing it with powers and rights over nature’s design. Glover (1999) identifies four values or philosophies embedded within the climate regime: Technocentrism, Economic Rationalism, Administrative Rationalism and Ecological Modernization. Environmentalism thus becomes a form of managerialism in the era of liberal democracy. Technical and organizational progress has long been concentrated on increasing the productivity of nature, now comes to reorganize its processes. (Bryne and Yun 1999)

A brief chronology of the climate regime within the frame of global environmental concern is presented in figure 2.2.

2.2.4 Turkey in the Climate Change Regime

Between 1991 and 1995, Turkey was represented in the 12 Intergovernmental Negotiating Committee meetings with an average size of 2 delegates. National Climate Change Coordination Group formed under the General Directorate of State Meteorology Services prepared two reports in 1992: “Protection of Atmosphere and Climate Change” and “Energy and Technology”, the “National Climate Program” was



Source: Mehmet Ali Üzelgün

Figure 2.2 A brief chronology of the climate change regime in the context of global environmental concern, adapted from Türkeş (2001).

prepared in 1993. Reports underline that countries should contribute in the climate change process according to their level of industrialization and their development goals. Comparing Turkey's energy consumption to the industrialized countries, reports argue that the level of national energy consumption is scant (Türkeş and Kılıç 2004).

At the fifth meeting of INC towards Rio Summit in New York, decision INC/FCCC, 1992 included Turkey in both Annexes, with transition economies in Annex I, and as OECD countries were directly included in Annex II. (Türkeş 2001) This meant Turkey would have to mitigate GHG emissions down to 1990 levels by 2000, which caused the withdrawal from signature. At the first Conference of Parties in 1995, Turkey submitted the document FCCC/CP/1995/MISC.5 requesting to be excluded from Annex I. At Conference of Parties (COP) 3 in Kyoto, Azerbaijan and Pakistan submitted document FCCC/SBI1997/15 requesting Turkey to be excluded from both annexes, while Turkey submitted Country Report persisting on the same subject matter:

Turkey has a long standing demand of deletion of its name from the Annexes, to be able to become a party to the UN FCCC. Turkey is not seeking any exemption from the exercise, on the contrary is willing to be in the system, and is ready to accede to the convention, following the necessary amendments in the Annexes.

Turkey's position vis-à-vis the UN FCCC process is that commitments should be based on equity and fairness by dully taking into account the "differentiated responsibilities" and "individual circumstances" of the Parties concerned. The UN FCCC commits the industrialized country Parties (not the developing nations) to take lead in stabilizing greenhouse gas emissions. The stipulation is incorporated into the Convention because of the right to sustain socio-economic development and the acknowledgment of the specific needs and special circumstances of developing countries. Furthermore, Turkey is acknowledged as a developing country in the Montreal

(Ozone) Protocol, relying on the fact that the World Bank, OECD and UNDP have classified Turkey as a developing country.⁸

In Conference of Parties (COP) 4 in 1998, in which Turkey submitted a voluntary National Report on Climate Change to support its claims, the Decision 15/CP4⁹ postponed the consideration of amendment of annexes with regard to Turkey's position.

Within the scope of VIIIth Five Year Development Plan, State Planning Organization established a Special Expert Commission on Climate Change and produced a comprehensive document in 2000. Placing in the Five Year Development Plan for the first time, it can be said that climate change has become a top level governmental issue in Turkey at the dawn of the new century.

At 2000's Conference of Parties (COP) 6 Turkey developed its proposal to be deleted only from Annex II. This can be interpreted as a reasonable bargain as in 2001, COP7's Decision 26/CP7 documents the amendment of the list in Annex II to the Convention by deleting the name of Turkey; and inviting parties to recognize the special circumstances of Turkey¹⁰, which place Turkey, after becoming a Party, in a situation different from that of other Parties included in Annex I to the Convention.

Following the issue of the Law Number 4990 in the Official Journal dated October 21st, 2003; UN FCCC entered into force on Turkey on May 24th 2004. Thus, after a negotiation process of 12 years Turkey acceded to the UNFCCC as 189th party. In the meantime, as Turkey continued demanding equity due to the principle of "common but differentiated responsibilities", thus defining its development goals a priority over climate sensitive action, global efforts to tackle climate change was moving on into new phases.

⁸ <http://unfccc.int/cop3/misc03.htm>

⁹ <http://unfccc.int/cop4/102-1.pdf>

¹⁰ <http://unfccc.int/resource/docs/cop7/13a04.pdf>

Turkey, with the decision 26/CP.7 at Marrakech at 2001, has been given a unique status. Under which circumstances Turkey would take part in Kyoto Protocol and be subject to Protocol's mechanisms is yet unclear. As an Annex I party to the UN FCCC, Turkey would not be able to host CDM projects; but there are a number of CDM project proposals developed with the support of European Commission under the SYNERGY programme, which passed pre-feasibility analysis. Kumbaroğlu et al. (2004) conclude that the Turkish CDM proposals would be attractive even with the too low 5\$/ton CO₂-eq price¹¹ of the informal CDM markets, and could be even more attractive in case the country is hosting JI projects.

Whether Turkey would be part to Kyoto Protocol with emission reduction targets or not would also mean Turkey to be able to host JI projects or CDM projects (investing in CDM projects or hosting them). Taking into account the arguments raised in the negotiations so far, it is understandable that Turkish authorities claim no reduction targets but CDM investments and technology transfer. Similar to Turkey's situation, Annex I country Belarusian's 2006 step ratifying Kyoto and voluntarily targeting 95% of 1990 emissions at Annex B does not seem to be a model for Turkey. Turkey seems willing to preserve its position as non-Annex B party.

Whatever steps to be taken, Turkey seems to have no possibility to get involved in commitment period 2008-2012, thus no certified projects under the JI or CDM could be realized within the first commitment period. EU accession process would serve as an impulse for Turkey to ratify the Kyoto Protocol, and Union's Emission Trading System (EU-ETS) could work as a tool to get Turkey prepare for flexibility mechanisms. As Turkey yet communicates its First National Communication and prepares its National Plan on Climate Change, the issue of Annexes of Kyoto Protocol will remain hot until the uncertainty regarding Turkey's status is cleared out. Experts and policymakers do not share common view, there are differing interpretations on how the special position of Turkey in Annex I will be translated

¹¹ Hagem and Holtmark (2001) indicate that the projected base price of 15\$/ton of CO₂ equivalent GHG price fell drastically to 5\$/ ton with the escape of United States, taking Kyoto's impact from small to insignificant.

into Kyoto's lists.

The eighth five year development plan (Long-term strategy and Eighth five year development plan 2001) prior to the accession of Turkey to the UNFCCC, elaborated six options or propositions towards the UN FCCC and the Kyoto Protocol:

- 1) Turkey remains outside the FCCC and the Kyoto process -indeed was not an option, rather an ascertainment signifying the difficulties dictated by the country's extended position;
- 2) Turkey is a party to the convention in Annex I, not a party to the Protocol -current situation by 2006;
- 3) Turkey is a party to the convention in both annexes, not a party to the Protocol – most difficult option according to the development plan, invalid as of May 2004;
- 4) Turkey is a party to the convention as developing country, not a party to the Protocol – invalid as of May 2004;
- 5) Turkey is a party to the convention by staying outside the annexes, with voluntary emission targets – invalid as of May 2004;
- 6) Turkey is a party to the convention as developing country, party to the Protocol – Turkey's best scenario, invalid as of May 2004

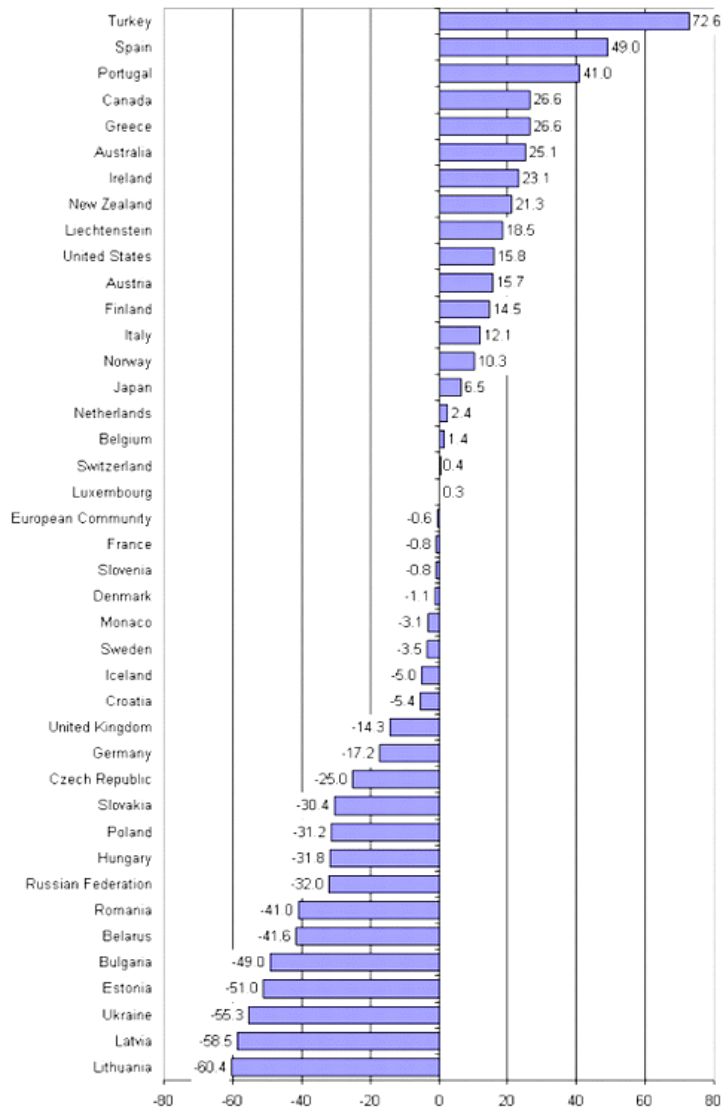
The second option identified for Turkey in the five year plan of 2000 did not foresee accession of Kyoto Protocol after positioning only in Annex I of the FCCC. This can be explained in many ways, first of all Kyoto Protocol's future was unclear at the time of the preparation of the plan; secondly, within the scope of five years, accession of the UNFCCC might have been a challenge by itself. And yet, because accession of the framework convention in Annex I does not imply a necessary commitment in Annex A or Annex B of the Protocol, further elaboration on Kyoto alternatives might be thought as too speculative. Still, possibilities of joining in emissions trading and joint implementation projects are mentioned under this proposal without any reference to Kyoto commitments. This reflects typical trait of Turkey in the climate regime so far: Benefit as much, commit as little as possible.

In February 2005, after reminding a comprehensive assessment is necessary to be more precise; current Minister of Environment and Forestry Mr. Pepe mentioned an estimated date of Turkey's acceding the Kyoto protocol: 2015¹². Since the Protocol concerns measures to be taken between 2008 and 2012, this statement should be parsed as either Turkey's wish to achieve developed country standards in energy bill by 2015, or that Turkey does not fancy any compliance procedures until then. This statement also must be interpreted as a lack of understanding in discussions around international climate regime and the very basis of the UN FCCC, a lack of understanding which has lead Turkey into difficult positions as the figure 2.3 presents.

The country has submitted its national GHG inventory report (UN FCCC 2006) and the efforts to complete the initial national communication are finalized in 2006. As technical processes in Turkey concerning the FCCC are in progress, country's need for carrying a more active politics towards the international climate regime unveil. In the negotiation process between 1992 and 1997, and afterwards too, because it was not a party to the FCCC, Turkey did not have any chance to intervene the Kyoto process. In the process of Conferences of Parties Turkish delegation had an observer role. Now as the post-2012 negotiations for further mitigation measures and means of adaptation to the climatic changes continue, Turkey is still in a similar position. Swanking with the geopolitical status resulting in being a pathway for multi-billion dollars worth of fossil fuel transport projects, Turkey does not deserve to be such introvert in the international climate regime.

The need for discussions and developing elaborative arguments in participating in the international process is evident for Turkey. This study should be considered as an attempt to support the efforts to satisfy that need.

¹² <http://www.iklim.cevreorman.gov.tr/haberler/18022005.htm>



Source: <http://unfccc.int>

Figure 2.3 Changes in GHG emissions between 1990 and 2004 of the Annex-I parties of the UN FCCC, numbers are in percentages

The second chapter summarized the origins and initial steps of environmental policymaking which emerged as a response to environmental problems encountered

by the industrial countries. Framework of international climate change policies is discussed in more detail as it reflects the current focus of global environmental policymaking. As the borders of natural resource consumption are encountered by industrial countries, policy framework and language are determined in these countries. In the process of economic globalization, environmental problems and policymaking are being transferred to peripheral nations; yet, research, policies and understanding of environmental problems in developing countries lack resources and demand more attention.

In Turkey as an OECD member, as a country in EU accession process, and as an economy in development; environmental concerns are far from the top national priorities list. Despite the fact that environmental concerns are placed in the five-year development plans since 1973 (the third five-year development plan), and there is considerable advance in legislation since then, very little action is taken towards environmentally friendly lifestyle (Keleş and Hamamcı 1993). In the context of climate change which is inherent to energy, transport, industry, agriculture and forestry sectors among others, even the no regret policies have not yet been taken into action. As a country which prioritizes security and development goals, Turkey seems deferring concerns regarding climate change mitigation and adaptation. The reasons of this attitude could be searched in the understanding of the threat posed by climate change and in framing of the environmental concerns in general.

2.3 The Aim of the Study

This study is an attempt to understand the climate change regime and environmental policy constructs of Turkish policymakers and professionals working on climate change. The investigation of representations of Turkish specialists should be inferred as a step in discussing Turkey's role in the new age of global environmental policies and the new world order. The specific aim of the study is to examine the discourse patterns of subjects on the problematic relationship between environment and development, new age governance policies, question of equity and technology as a means to survival. An environmental attitude scale will be used to assess the

predictability of policy responses by attitudes. The theses of the study can be proposed as follows:

1. Due to a strong faith in science and technology, an urgent technology shift, more specifically efficiency technologies will be offered as the ultimate solution to climate change crisis.
2. The difference of scores and discourses between the government officials and environmental NGO professionals will not be significant.
3. Subjects in general will score more pro-environmental on the first section –general environmental attitude test, as compared to more specific and policy oriented questions of the second section.
4. There exists a divide between the theoretical statements about environment and views of policy practices.

To question these theses a qualitative study on the basis of a quantitative questionnaire will be performed. Quantitative results will be discussed together with the qualitative data driven from the interviews. Initially the statistical results of the structured text will be presented, which then will be elaborated in the complexity of the questions in concern, where complexity regards the power structure of the world economic system, flux of science as authority, global concerns, national affects, corporate interests, progress as an ideology and a socially constructed understanding of environment.

3. METHODOLOGICAL ALTERNATION: WHERE ONE ENDS THE OTHER BEGINS

3.1 Subjects

Subjects of the study were 19 government officials and 17 non-governmental professionals working on climate change related issues who agreed to participate in the interview at their workplace. Table 3.1 presents data related to the demographic variables of the subjects.

Table 3.1 Demographic variables of the respondents of the study

| | | Mean | Std. Dev. |
|--|-------------------|-------------|------------------|
| Age of subjects | | 37.11 | 9.42 |
| Tenure in the field (years) | | 9.97 | 7.61 |
| Tenure at the workplace (years) | | 7.64 | 8.27 |
| | | N | % |
| Gender | Male | 22 | 61 |
| | Female | 14 | 39 |
| Level of education | High Education | 0 | 0 |
| | University Degree | 13 | 36 |
| | Post-Graduate | 23 | 64 |
| Job position | Manager | 13 | 36 |
| | Technical | 17 | 47 |
| | Policymaker | 6 | 17 |
| Area of education | Engineer | 19 | 53 |
| | Non-Engineer | 17 | 47 |

Government affiliated subjects were from related divisions of Ministry of Environment, Ministry of Energy and Natural Resources, Ministry of Foreign Affairs, Ministry of Agriculture and Rural Affairs and State Planning Organization.

Professionals not affiliated with government were subject to a differentiated

sampling. As discussed in the introductory chapter, NGO movement concerning environment has been through a division in the process of ecological modernization. Subjects of the study were selected in accord to their level of cooperation with the government. NGOs acting on the political ecology domain, approaching critically to the climate regime, thus remaining outside the policy making processes were deliberately skipped. So called stakeholders of the climate regime are mainstream NGO's which favor professionalism against voluntary contribution. Subjects from the non-governmental stakeholders thus could be called non-governmental professionals. Climate change related professionals were from Turkish Technology Development Foundation, United Nations Environment Program, United Nations Development Program, Regional Environmental Center Turkey, Chamber of Environmental Engineers, Nature Association, Greenpeace, and Environment Platform of Turkey. None of the governmental contacts refused to join the study, while three of the non-governmental contacts turned down the requests for reasons of lack of time.

3.2 Questionnaire and Interviews

The study took place in the second half of 2006, as Turkey was preparing its first national communication to UN FCCC. A mixture of quantitative and qualitative research has been applied. Where the boundaries of quantitative, structured test were engaged, an interview has meant to be started.

The questionnaire, as presented in Appendix A, is composed of 3 parts and one final part of open ended questions. The first part included questions about the socio-demographic data about the subjects, age, gender, field of education, profession, institutional background, sector, tenure in the field, tenure in the institution, and job position.

Second part of the questionnaire included questions from the revised New Environmental Paradigm (NEP) scale as well as additional items. Third part of the questionnaire also consisted of 29 five-point Likert type questions focusing on policy

choices related to climate change and Turkey.

Final part which included 6 open ended questions were realized as interview with voice recording. Any question the subjects hesitate or reported unease answering in the second and third part Likert type scales were also opened to discussion in the interview section.

All interviews were realized in the workplace of subjects with prior appointment. Copies of the questionnaire were present for the researcher and the interviewee. The questionnaire was filled first by both the researcher reading the items and subject filling in, or the subject reading and responding and researcher filling in. Pauses, hesitations and comments on individual items were marked and postponed to the final part, in order to be captured and assure that the misconceptions are ironed out. Thus, in majority of the interviews the questions to open up a conversation exceed the 6 open-ended questions. Mean interview duration has been 17 minutes with maximum interview duration of 70 minutes, and minimum duration of 8 minutes.

Because the number of the interviewees was too low for a reliable analysis of the results of the attitude scale, additional questionnaires were posted to professionals in remote locations via internet, reaching the total number of subjects of the quantitative analysis to 36.

3.2.1 Attitude Scale

The structured parts of the questionnaire consisting of 5-point Likert type questions were handled in two sections. Here, the initial section constituted of an attitude scale will be discussed. The latter part of the structured questionnaire is viewed as belonging to the deliberative part of the study.

Published in 1978, Dunlap and Van Liere's New Environmental Paradigm (NEP) scale has become a widely used measure of environmental worldview.

Conceptualization of the initial paradigm focused on beliefs about humanity's ability to upset the balance of nature, the existence of limits to growth for civilization, and humanity's right to rule over the rest of the world. The original Washington State study resulted with a set of 12 Likert items measuring these three dimensions offered an alpha coefficient of .81. This deal of internal consistency led to numerous applications of the scale, which brought the dimensionality discussion of the NEP. Different studies employing the NEP scale in 1980s revealed 2 factors, 3 factors (being balance of nature, limits to growth, and human domination over nature), and 4 factors, as well as all items loading on a single factor like Dunlap and Van Liere suggested. Thus, a revised NEP scale was released in 1992 with 15 items in 5 factors: Balance of Nature, Ecological Crisis, Human Exemptionalism, Limits to Growth and Human Domination (Dunlap et al. 2000).

The epoch in which the New Environmental Paradigm proposed is characterized by a growing understanding of the limits to growth. Proposing a new paradigm for Post-Exuberant Sociology as they call it, Catton and Dunlap (1980, 340) refer to “..an age of exuberant growth [that] imbued sociology with a worldview or paradigm which impedes recognition of the societal significance of current ecological realities.” While criticizing the Dominant Western Worldview and Human Exemptionalist Paradigm (Catton and Dunlap 1978) for disregarding the causal influences of the biophysical environment on societal life, they state four background assumptions:

- 1) Humans are fundamentally different from all other creatures which they dominate, thanks to their cultural heritage in addition to genetic inheritance;
- 2) Social and cultural factors (including technology) are the major determinants of human affairs, thus humans are masters of their destiny;
- 3) Crucial context for human affairs are social and cultural environments in a vast world of opportunities;
- 4) Since culture is cumulative, social and technological progress need never cease, making all problems soluble. Outlining these four assumptions means actually encountering the reflections and consequences of modernity in the nature-society relationship, thus anthropocentrism, technocentrism, administrative rationalism and

ecological modernization discussed in the introductory chapter.

The New Environmental Paradigm was developed in discord with the Dominant Social Paradigm which poses dimensions of support for Laissez Faire government, support for status quo, support for private property rights, faith in science and technology, support for individual rights, support for economic growth, faith in material abundance, and faith in future prosperity. (Dunlap and Van Liere 1984) In search of a modified environmental scale, La Trobe and Acott's research (2000) carried on NEP and DSP identifies values similar to those described by the NEP and not by DSP, then reach the conclusion that attitudes towards environment has been subject to change due to publicity campaigns discuss the reasons to that attitudes have actually changed. They also remind social desirability for certain statements might cause spoken attitudes to be pro-environmental and do not truly reflect underlying values.

NEP scale has lately been utilized by researchers studying risk perception bound with global warming (Ohe and Ikeda 2005, Stedman 2004). Stedman, for instance, locates factors that suggest high risk perception besides the lack of predictability of climate change related effects, in a group of Canadian key policy actors. He also refers to the world views associated with the organizations which the subjects belong as to provide consistency with their definition of environmental problems and risk.

Furman (1998), Tuna (2003) and Yücel (2005) are among the studies that applied the NEP scale in Turkish. Tuna (2003), seeking for three dimensions regarding environmental attitudes, environmental worldview, environmental concern and environmental commitment, finds that education and occupation to have significant impact on environmental commitment. Higher the education and prestigious the occupation is higher the environmental commitment scores, which reinforces the expectancy that subject of the present study will score towards pro-environmental attitudes. Yücel, adding one more item to the revised NEP scale to broaden the content of the scale differentiating attitudes of industrialized and developing countries, could not distinguish developed and developing country attitudes due to

the low reliability of her new item. She asserts that NEP scale is not culture specific and disagree that it only could measure the significant behavior in industrialized countries. After 30 years from the initial NEP scale, support to such an idea can be drawn from the fact that people of the developing nations too, are now subject to environmental conflict -and policy responses too- in their daily lives.

Inspired by Yücel's (2005) variety of questions, the NEP scale was broadened in the present study as well, adding items related to favor of technology, consumerism, climate change policy responses, and Turkey's role as a developing country. Perron and his colleagues' items in their climate change perception study (2001) targeting leaders of green groups in Quebec and Costa Rica were also partly adopted for this purpose. In their research which located three types of green orientations, namely ecologism, mainstream environmentalism and market environmentalism, researchers were inspiring with items of "worry about impacts of climate change" "constraining intervention by political authorities", "technological solution" and acceptance of an economic sacrifice or backlash". Thus, an environmental attitude scale in Turkish, mainly inspired by the NEP scale was produced. The structured test part consisted of a total of 63 questions in two divisions; first part was composed of more general questions related to environmentally significant behavior, whereas second part focused more specific issues towards policies of climate change and Turkey's situation. The coding was done according to (1)-strongly disagree, (2)-disagree, (3)-neither agree nor disagree, (4)-agree, and (5)-strongly agree.

The structured second and third parts of the questionnaire consisting of 5-point Likert type questions were regarded as a means to open up a debate of international climate change policies, favor of technology, concerns of developed and developing countries, and Turkey's national climate change policies. If a subject was to hesitate, or comment on or refuse to respond to any particular item as it is, a mark was put, in order to reconsider the statement in the interview. In some cases though, the discussion on items already took of at the questionnaire part, thus seldomly the recording device was activated earlier at the structured section.

3.2.2 Discourse Analysis

Like NEP, many of the psychological and social attitude scales and surveys rely on statements expressing opinions to which respondents register their level of agreement or disagreement. Traditional approaches to measuring socio-political attitudes rely on the idea that subjects would be unable to express an opinion unless they are provided with a specific context. It is somewhat true that providing frames not only ease extraction of attitudes towards specific contexts but also helps deepening the research -but then in directions offered by the researcher. Then, responses to an attitude scale should not be expected to indicate a pathway to some internal attitude, but instead specific linguistic formulations framed by specific contexts of the scale (Marshall and Raabe 1993). A discussion on ideas and understandings of the issues of concern might flourish the variations inherent to the complexity of the issues explored. Attempting to restrict participants' responses in terms of allowing only one response per item, ignores such variations to reach at a higher validity. Thus, losing the complexities, the traditional approaches cover only (their own pre-defined) basis of the issues of concern.

For attitudinal research, consistency as an indicator of descriptive validity is a key element. But irregularities, breaking points and even conflicts in the linguistic resources used by participants are also key elements of how the phenomena are conceptualized. Not only regularities can be studied on a discussion, but also consistency at the level of discourse can then be worked on as a product of the context to which the discourse is put. (Marshall and Raabe 1993)

Discourse in common sense, is seen as synonymous with discussion, or is best understood as a 'mode of talking'. Discourse, in social sciences, is that mode of talking studied "analytically we try to make sense of the regularities and variations in what is being said (or written) and try to understand the social backgrounds and the social affects of specific modes of talking. First by analyzing in which context a statement is made or to whom statements are directed. Discourse is then seen as internally related to the social practices in which it is produced. One may also point

to the content of what is said. A discourse is then seen as an ensemble of ideas, concepts and categorizations. (Hajer 1995, Hajer and Versteeg 2005). Michel Foucault, in his grounding works on discourses of power, analyses discourse as a strategic situation that is formative of actors enabling and constraining them by shaping their field of opportunities. Comprehensive systems of power relations are constituted by the behavior of actors without any necessary subject to have them invented. For Foucault, discourses reality can be said to be constructed by (interwoven of) discourses. "A discourse constitutes specific ways of being engaged with the world and of being related to it. A discourse establishes what is 'true' based on socially accepted modes of knowledge production." (Feindt and Oels 2005, 164).

Discourse analytic tradition has an anti-essentialist ontology; it asserts the existence of multiple, socially constructed realities instead of one single, stable or absolute reality. These multiple realities are reflected very explicitly in environmental discourses as solutions proposed to the particular problem, or even as the definition of the problem itself. For some analysts of climate change politics earth is entering the hydrogen age, whereas others foresee more ethnic conflict due to shortage of resources. Considering reality as a socially constructed phenomenon, discourse analytic approach takes has a critical attitude towards 'truth'. "Because reality is seen as socially constructed, the analysis of meaning becomes central for interpretative environmental policy research, it is not an environmental phenomenon in itself that is important, but how the society makes sense of this phenomenon." (Hajer and Versteeg 2005).

Although they differ in their epistemological and methodological basis, a wide range of practices classify themselves as discourse analysis. Feindt and Oels (2005, 163) outline seven strengths of the common ground these various forms discursive approaches differ: (1) a particular awareness of the role of language in constituting policies, politics and political; (2) a skeptical attitude toward claims of a single rationality and objective truth; (3) an inclination to regard knowledge as contingent and principally contestable; (4) an interest in bias effects of dominant types of language and knowledge; (5) a shared understanding that language and knowledge

need to be understood as an aspect of power and as exerting power effects; (6) an interest in practices as constitutive of power relations and knowledge systems; and, (7) a strong emancipatory motive and an interest in democratizing knowledge production and policy making. In sum, discourse analysis focuses on what conventional policy analysts take for granted: the linguistic identity and knowledge fundamentals of policy making.

Discourse analytic research, with its emphasis of the role of language in the construction of social reality, has lately become one of the dominant research approaches in social science, especially in communication, sociology and social psychology. Interview talk is reflexive, theoretical, contextual, and by nature interpretive; in the discourse analytic approach, the researcher abandons the assumption that there is only one truly accurate version of participants' action and belief. As a tradition that rejects the possibility of a value-free science, discourse analysis argues that science is inherently part of social structure, and is produced in the necessary social context. Instead of denying or ignoring such a relation between scholarship and society, discourse analysis propose such relations to be studied, and that scholarly practices should be based on such insights (van Dijk 1998). The aim of discourse analysis is not merely identifying interpretative repertoires, but to point out and analyze the power and influence of particular narratives, their inter-relations and their potential societal and institutional functions and effects. The analysis is often started by assessing the distribution of answers. Some sections of participants' discourse is selected, thinking that they provide relevant answers to questions, whereas other parts of the discussion are ignored or treated as irrelevant. This procedure is assumed to result in logical and coherent categorizations of the views of the researched group, which can then be generalized to classes of social action (Talja 1999).

One reason why discourse analysis has been utilized extensively in the study of environmental politics and policy can be that it comprehends the complex interactions that make up the environmental policy process and that it allows one to see how a diversity of actors eagerly try to influence the definition of the problem and

it solutions. For people involved in finding solutions to environmental problems, acquiring at first a deep understanding of what the problem 'really' is, is characteristically high in environmental policy making. Knowledge as power plays an important role here. Foucault-influenced discourse analysis studies institutionalized talk or practices regardless of the roles and positions of the participants; talk is studied as an example of more general interpretative practices. Still, discourse analysis is not one in which actors do not play an important role. Quite the contrary, they are actively 'positioning' themselves and others drawing on discursive categories. Thus discourse is, once again, a shared way of apprehending the world, enabling those who subscribe to it to put bits of information together in coherent accounts (Dryzek 2005).

Another contribution of discourse analysis to the study of environmental politics, or rather a tool that is offered by this strand is Foucault's concept of governmentality. Governmentality is used by Foucault to identify and qualify the emergence of the modern deployment of power along three axes: (1) institutional centralization around governmental agencies -ultimately fulfilled by UN FCCC by all means of governance in the climate change debate; (2) the emergence of new instrumental knowledge – ultimately fulfilled by IPCC; (3) the diffusion of power –through partnerships, regional and international 'synergies' created (Oels 2005).

Foucault uses the notion of 'government' in its widest sense, as 'governing modes of thought'. The term government today possesses solely a political meaning, but Foucault asserts that the term, until 18th century, was discussed not only in political, but also in philosophical, religious, medical and pedagogic texts. In addition to the management by the state, "government" also signified relations to self-control, guidance for the family and for children, management of the household, directing the soul, etc. (Lemke 2002). This implies that government is not limited to the state but can be exercised at all levels of society. The concept of governmentality renders eco-speech no longer innocent, but as another attempt to discipline society. The concept of governmentality is particularly applicable to analyze ecological discourse, because it has come to deal with issues of security and management, techniques of

controlling the population and resources and new forms of instrumental knowledge. As he engages with the types of governmentality in history, Foucault draws sovereign power, disciplinary power, and bio-power (as a governmentality that seeks to foster and use the forces and capabilities of the living individuals that make up a population) as the three stages of governmentality employed in general. Liberal and neo-liberal governmentality then have been added to the list in his later lectures (Oels 2005). While society in bio-power was still rendered as a domain of needs, neo-liberal kind of governing regards the population as a pool of resources to be optimized. Advanced liberal government, as Oels prefer against neo-liberal government, introduces the market as organizing principle for all types of social organization including the state. Lemke offers governmentality as a politics of truth of neo-liberal rationality, producing new forms of knowledge, inventing new notions and concepts that contribute to the government of new domains of regulation and intervention; and refers to the discourse on sustainable development:

One important aspect of the “new world order” is the reconceptualization of external nature in terms of an “ecosystem”. Nature, which once meant an independent space clearly demarcated from the social with an independent power to act and regulated by autonomous laws, is increasingly becoming the “environment” of the capitalist system. The ecosystem conception is also a reinvention of the boundaries between nature and society. In view of today’s global perils, the main issue now is less the restrictive notion of the “limits of growth” as it is a dynamic growth of limits. In an age of “sustainable development”, previously untapped areas are being opened in the interests of capitalization and chances for commercial exploitation. Nature and life itself are being drawn into the economic discourse of efficient resource management (Lemke 2002, 8).

The discourse on limits, as perceived not absolute but dynamic in the eco-modernist era, seems fertile for reflecting the mindset on technology as a link between humanity and environment. A governmentality analysis asks which visibilities the ‘global climate regime’ is creating, which technologies are utilized, which fields of knowledge created and which identities forged, rather than assuming that what it does or is supposed to do is known. In that way, the question of “what is being

secured by this regime if it is not the climate?" (Stripple, 2002; quoted by Oels 2005, 202) can be asked.

Discourse analysis of Foucault acknowledges no extra discursive foundations to determine what is true, right or good, "sought not to provide a judgment about 'what should be done'" (Hajer and Versteeg 2005, 181). This, at first sight, seems to provide limited contribution to policy recommendations from Foucault-influenced analysis. But the ability to trace the discursive power struggles underlying environmental domain, and in particular issues around climate change (energy security, interests of the oil economy, etc.) phenomenon makes it favorable (Hajer and Versteeg 2005). Critical discourse analysis on the contrary, as described by van Dijk (1998), tries to explain the discourse structures in terms of properties of social interaction and especially social structure, rather than merely describing them. Critical discourse analysis focuses primarily on social problems with a multidisciplinary orientation, trying to reveal the ways discourse structures "enact, confirm, legitimate, reproduce or challenge relations of power and dominance in society" (van Dijk 1998, 2).

Graham (2005) asserts two main differences between the critical discourse analysis and post-structural theoretical approaches. First is engagement with the category of truth and claims of objectivity. Critical discourse analysis, paying close attention to the linguistic features of the discourse, may be considered as more appropriate for policy analysis. Second is the framework for a systematic analysis that critical discourse analysis provide, allowing researchers to go beyond speculation and demonstrate policy fabricated. Critical discourse analysis, essentially focus on the fundamental theme structures of a text, on the basis of a reduction of the information present in each text to central semantic aspects.

Verbal interaction, discussion and discourse belong to the micro-level of the social order whereas power, dominance and inequality are typically terms that belong to a macro-level of analysis. Critical discourse analysis theoretically bridges the well-known gap between micro and macro approaches. Fairclough, in his elaborations on

critical discourse analysis (1995) also links the macro domain of state, government and policy to the micro domain of discursive practice utilizing the concept of “technologization of discourse”. The technologization of discourse is a contemporary form of top-down intervention to change discursive practices by “(1) research into the discursive practices of social institutions and organizations (2) redesign of those practices in accordance with particular strategies and objectives usually those of managers or bureaucrats, and (3) training of institutional personnel in these redesigned practices.” (Fairclough 1995, 91). As a technology of government in Foucaultian sense, it refers to engineering of subjects to fit in with the demands of the economic expansion. Mentioning such hegemonic intercourse, Fairclough envisages a hierarchy of three levels of social phenomena: social formation, social institution and social action. Social actions are determined by social institutions as such institutions are bound with the social formation. In the battleground of ideological-discursive formations¹³, the dominant ideological-discursive formation has the capacity to naturalize ideologies and declare itself as common sense. Now that the concept of sustainable development has come to represent common sense in environmental discourses (admitting all social institutions praise the term according to their own practices), critical discourse analysis can provide insights to ‘denaturalize’ the framework in which the concept evolved.

People in their actual discursual practice may react in various ways to pressures for change emanating from the technologization of discourse; they may comply, they may tactically appear to comply, they may refused to be budged, are they may arrive at all sorts of accommodations and compromises between existing practices and new techniques (Fairclough 1995, 106).

Referring to liberalism as a mode of government,...‘deployment’ of ‘political rationalities and programmes of government’ [is] ‘action at a distance’, involving the ‘enrolment’ of those they seek to govern through ‘networks of power’ incorporating divers agents

¹³ Fairclough views ideological-discursive formations as speech communities with their own discourse norms. Social institutions are also differentiated with their own repertoire of speech events and are apparatus of verbal interaction. Then one might come to think that ideological-discursive formations are manufactured by social institutions, contrarily Fairclough, asserts that social institutions exist in the sphere of ideological-discursive formations.

and 'the complex assemblage of diverse forces' –laws, buildings, professions, routines, norms'. Discourse is, I would suggest, one such 'force' which becomes operative within specific assemblages with other forces (Fairclough, 1995, 103).

Besides the use of Global Environmental Facility, World Bank and United States' influence in the IPCC, FCCC and Kyoto processes with various funding schemes, basic concepts of the international climate regime, such as sink, reservoir, cap and trade and win-win approach may be rendered as components of the dominating ideological-discursive formation. As terms addressing particular ways of interpreting the world, frames are not innocent and self-styled; and its one of the focus of policy discourse analysis to reveal their reign.

A primary tool for analysis is the concept of frames, as structures present in discourse, selecting out some parts of reality at the expense of others (Fischer 2003). A frame for van Dijk (1998) is, "an underlying idea that directs the construction of texts". Thus, frames can supposedly be identified and used by receivers for the decoding of texts. Carvalho (2000) distinguishes three ways of looking at frames:

(1) Frames as patterns of organizing our cognition of reality. Frames or schemas are utilized to provide a recognizable meaning that makes sense of a complex reality.

(2) Frames as organizing principles that holds together and gives coherence and meaning to a diverse array of symbols. Van Dijk's usage of frames is most coherent with this definition. To frame is to excerpt aspects of a discourse and make them more salient, to promote a particular problem definition, causal interpretation, moral evaluation, or a policy recommendation.

(3) Frames as shared forms of understanding the world. They are culture specific and cognitive representations that our attitudes and actions occur within.

Fischer (2003) examples "limits to growth" as a dominant frame of 1960s and 70s which left little room for business to maneuver. The proposed new concept of "sustainable development" as an alternative frame opened up new possibilities.

... the central question for the interpretive policy scientist is: how is

the policy issue being conceptualized or 'framed' by the parties to the debate? How is the issue selected, organized, and interpreted to make sense of a complex reality? The framing of an issue supplies guideposts for analyzing and knowing, arguing and acting (Fischer 2003, 143).

Hajer (2003, 104) prefers 'terms of policy discourse' to ascribe "the ways in which the biases are structured in textual utterances". In his analysis of policy discourses on nature development in the Netherlands, he also distinguishes three layers: story lines and myths (ex. creating a network of nature), policy vocabularies (ex. ecological corridor, nature development area), and epistemic figures (ex. pollution, limits in 1970s, infrastructure, investment in nature in 1990s). Policy vocabularies are easier to understand as they are consciously developed by policymakers, such as "tradable permits" of the global climate change regime. Story lines and myths are for sustaining the societal for particular policy programs, for instance "stabilizing the temperature change at 2°C". Epistemic figures refer to a regularity in the thinking of a particular period, "public-private partnerships", stakeholder dialogue" can be considered as such.

A second tool for critical discourse analysis goes beyond the individual terms and frames. Structural nature of critical discourse analysis consists of identification of the 'thematic' and 'schematic' elements in the way the text is organized. Beyond the text, van Dijk is interested in examining the cognitive processes involved in semantic production. Central to van Dijk's framework of analysis is the notion of macrostructure:

A text's macrostructure is its thematic organization: the topics that compose it and the hierarchical relationship between them in the text. The prefix 'macro' refers to the overall level of description of a text, as opposed to the 'micro' level of individual words and sentences... The reduction of the text to macrostructures is done with what van Dijk calls 'macro-rules'. Examples of 'macro-rules' are the deletion of redundant information or the synthesis of various propositions in a sole, more generic, one. This way, van Dijk reconstructs texts in the form of thematic skeletons (Carvalho 2000, 6).

Thematic skeletons linking between the macro and micro takes us back to social institutions, as Fairclough mentions them mediating between the macro domain of policy and micro domain of discursive action. Then, macrostructure of a discourse references the social institutions and processes of domination that the discourse is shaped within. Hajer (1995, 263) stresses that the analysis of discourse ought not to be “confined to the analysis of what is being said”. He elaborates the institutional dimension of discourses, as they are structured or embedded in society at the same time as they structure society. Discourse analysis is once again defined as a way of “looking at institutions that is meant to shed new light on the functioning of those institutions”, how power is structured in social institutions, and how political change is in such arrangements comes about. The main theoretical thesis of his work is that “one can observe how the institutional practices in the environmental domain work according to identifiable policy discourses” which provide signposts for action within those institutional practices (Hajer 1995, 264).

Linking practices with the discourses represents the most speculative dimension of discourse analysis. The tensions between the text and the context and between the analysis as an academic tool and an ideology critique (Burman and Parker 1993) refer to how far a researcher could go beyond the particular text they analyze to arrive at an interpretation. The researcher is ought to say more than what lies in the text. The deliberative nature of the discourse analysis provides the researcher certain insights on the institutional practices, but in order to arrive at reliable conclusions the researcher should at least be aware of the context in which broad set of actions, compliances and compromises take place.

What makes the present discourse research more reliable than mere speculation is that the subjects are provided with a framework of structured questions, from which they ‘choose’ to discuss, either by directly refusing to answer in the provided frame, or by hesitating and marking the category of neutral. This method caused a great deal of variance in the length and depth of the interviews. Thus, some subjects have discussed issues that are not covered elsewhere in the other interviews. In order to reach at conclusions that are shared by a significant number of discourses, some

discussions had to be excluded.

To minimize the subjective positioning in initial analysis, support from a control analyst was taken into consideration. Control analyst was a university graduate completely unfamiliar to climate change and environmental policymaking. The control analyst too, individually went through the transcriptions and located the repeating concepts and expressions in answers question wise. Results of the initial analysis to locate frames, were then compared by the researcher and a great deal of proposed frames were omitted, resulting in evident themes of the discourse analysis which are in most cases shared by almost half of the respondents.

In the coming section of results and discussion, firstly the statistical results of the structure tests will be presented; then, discussions around the main themes of discourse analysis will be carried out.

4. RESULTS and DISCUSSION: REIGN OF THE DEVELOPMENT PARADIGM

4.1 Quantitative Results

A copy of the questionnaire which was composed of two sections is presented in the Appendix A. Before the main analyses, factor analyses were conducted for both sections. First scale, which was composed of broadened NEP scale items, included abstract items questing environmental attitudes. Second part, merely a scale, was composed of individual questions on various policy choices in order to provide some basis for the latter interview section and did not intend to reveal factors. Still, factor analysis gives us some insights how the answers gather together statistically. To assess interrelations of significance among the variables and factors, a correlation matrix was constructed. To search for the hypotheses of the study, T-tests and regression analysis were used. For all statistical analysis, the computer program Statistical Packages for Social Scientists (SPSS 10.0) was used. Next section describes the factor structures of the scales.

4.1.1 Factor Analysis

4.1.1.1 Factor analysis of the Attitude Scale

The factor analysis conducted to detect the factor structure of the newly constructed scale of abstract items initially revealed 12 factors with eigenvalues over 1, explaining totally 80.73 % of variance. After trying to limit the factors to 7, 5 and 4 respectively, a four-factor solution was applied in order to be able to achieve an even distribution of items. Table 2 shows the items and factor loadings of the items under the four factors. The first factor explained 15.34 %, second factor explained 11.31 %, third factor explained 9.26 %, and fourth factor explained 8,57 % of the variance, with all factors totally explaining 44.48 % of the variance.

The first factor contained 13 items with alpha reliability of .8266. The second factor contained 8 items with alpha reliability of .6729. Third factor containing 5 items exhibited alpha reliability of .6856, and fourth factor's alpha reliability with 6 items

was .6022. The items with negative factor loadings in the initial component matrix (items 1, 10, 14, 23, 24, 30, 31) were reversed after checking the semantic meanings adding to the related factors. The suffix –REV to the item numbers indicate that the items were reversed; table 4.1 presents the factor loadings of items in the four distinguished factors and Appendix B gives a more detailed overview. Two items (items 3 and 26) were excluded due to the fact that their deletion raised alpha reliability of the 4th factor from .3557 to .6022. The full scale reliability of all items except items 3 and 26 was found to be .7051.

Among the four factors only the strongest first factor was coherent with NEP's original factor categories and it was named as 'ecological crisis'. With its high alpha reliability of .83, this factor can be said to measure reliably Turkish subjects' perception of an ecological crisis that is near at hand. The second factor was named as 'balance of nature must be respected' as it contained items of 'balance of nature' from the revised NEP scale as well as reversed human domination and risk items. The third factor bringing together semantically contradictory items was named 'Limits are anthropogenic' due to the fact that the strongest contributing two items of limits to growth have negative factor loadings. This factor implies both a faith in nature to overcome the destructive effects and that humans must be part of that overcoming. The fourth factor was named 'techno-engineering'. This factor implies a clear faith in technology that can alter the limits of nature with an engineering and management point of view. This factor as well implies a responsibility of humans to control effects of technological progress, but then by managing the nature.

The factor structure of the newly constructed scale which was inspired by the revised NEP scale (Dunlap et. al. 2000) was not coherent with the original scale. This might be caused partly by the translation problems. Another reason could be the specialty of the sample group on environmental issues, or high levels of social desirability that

Table 4.1 Component Matrix for the 4 Factors of the Attitude Test

Component Matrix^a

| | Component | | | | |
|--------|-----------|-------|-------|-------|--|
| | 1 | 2 | 3 | 4 | |
| a22 | .682 | .406 | | | |
| A10REV | .672 | -.510 | | | |
| a32 | .652 | | | .432 | |
| A30REV | .640 | | | | |
| a33 | .634 | | .356 | | |
| A24REV | .627 | | | | |
| a12 | .513 | | | | |
| a16 | .510 | | | | |
| a5 | .462 | | | | |
| a11 | .457 | | | -.428 | |
| a2 | .446 | | | | |
| A14REV | .431 | | | | |
| a18 | | .686 | | | |
| a15 | | .668 | | | |
| a13 | .374 | .585 | | | |
| A31REV | .500 | -.508 | -.396 | | |
| a7 | .334 | .482 | -.443 | | |
| A23REV | | .466 | | | |
| a25 | | .445 | | | |
| a28 | | .413 | | | |
| a17 | -.320 | .409 | | | |
| a20 | | | .684 | | |
| A1REV | | | .661 | | |
| a29 | | .328 | .599 | | |
| a21 | | | .518 | | |
| a19 | .398 | .412 | .517 | | |
| a27 | | | | .786 | |
| a6 | | | | .569 | |
| a34 | | | -.347 | .531 | |
| a8 | | | .396 | .492 | |
| a9 | | | | .424 | |
| a3 | | | | -.378 | |
| a4 | | | | .361 | |
| a26 | | | | -.344 | |

Factor 1: Ecological cirsis, 13 items

Factor 2: Balance of Nature must be respected, 8 items

Factor 3: Limits are anthropogenic, 5 items

Factor 4: techno-engineering, 6 items (after deletion of items A3 and A26)

Extraction Method: Principal Component Analysis.

a. 4 components extracted.

could be in operation, since all subjects of the study are paid to contribute in measures protecting the environment. But the main reasons for the expected factors not to emanate are possibly bound to the way the scale is constructed, or broadened, or the way new items were written. Scientifically, in construction of a new scale many steps of checks should be applied with factor analysis and reliability measures. Then, this part of the study should be rendered as an initial stage in developing an environmental attitude test in Turkish language. But, as the reliability and semantic coherence of the first factor of perception of an ecological crisis near at hand has performed good, we can at least make use of that factor.

4.1.1.2 Factor Analysis of the Policy Scale

The items of the policy test was not meant to gather around factors, rather they were considered as individual questions to provide basis for discussion in the interview part. Despite the fact that scale B of the questionnaire was composed of questions searching for individual answers, with the expectancy that some items could group to form a factor, a factor analysis was also applied to the more specific questions concerning climate change and Turkey's polices. Factor analysis initially resulted in 9 factors with eigenvalues over 1, explaining totally 75.93 % of variance. But checking with the semantic structure of the items, only the first factor which explained 23.08 % of the variance was decided to construct a factor, which was clearly about the 'north-south conflict'¹⁴. Three items loading to this factor with negative values (items 7, 24 and 29) were reversed. The suffix –REV to the item numbers indicate that the items were reversed. Reliability of this factor was calculated as .885 (Table 4.2).

¹⁴ The North-South conflict or the 'great divide' of climate change is defined as "a significant divide between stakeholders from industrialized countries (the 'North') and those from the developing world (the 'South') in the perception of what constitutes the most pressing climate change equity problem: for the North, the issue of allocating emission mitigation targets; for the South, the discrepancy between responsibility for, and distribution of, climate impact burdens - an issue which the South also sees as having largely been marginalized (if not practically ignored) in the multilateral climate change negotiations." (Muller, 2002)

Table 4.2 Factor 1 of the Policy Scale: North-South conflict

| Alpha : .885 % variance : 23.08 | | Factor 1 | Factor 2 | Factor 3 |
|------------------------------------|--|--------------|----------|----------|
| | Items | | | |
| 23 | Developed nations should accept the necessity of Turkey as a developing country to use fossil fuels freely. | .745 | | |
| 19 | Turkey is not in a position to take commitments under the Kyoto Protocol | .731 | | |
| 25 | Turkey has rightful reasons in not taking part in Kyoto Protocol | .718 | | |
| 7R | Even if they are expensive, renewable resources must be preferred in energy production | -.697 | | |
| 20 | Developing countries like Turkey should prioritize development and poverty problems against environmental problems | .685 | | .396 |
| 29R | More restrictive laws must be issued towards industry and business world | -.679 | | |
| 10 | Nuclear energy becomes an option to support when we consider the effect of fossil fuels on climate | .668 | | |
| 24R | Coal plants with old technologies must be banned all over the globe | -.643 | | |
| 17 | Turkey should do whatever it can to take part in Kyoto | .637 | | |
| 5 | Economic development should be prioritized at the risk of some amount of environmental destruction | .603 | | |
| 22 | In Turkey, energy policies are formulated by ignoring the environmental problems | -.576 | | |
| 4R | Environmental protection must be prioritized at the risk of slowing down economic growth | -.569 | .474 | |
| 15 | Policies of a developing country should be different from a developed country's policies | -.403 | .348 | |

4.1.2 Correlations among the variables derived from factor analysis and demographic variables

Since the factor analysis seems to provide 4 reliable factors guessing environmental attitudes for scale A and one factor (which then was called north-south) for scale B, the variables named 'eco-crisis', 'balance', 'limits', and 'techneng' were computed besides the north-south variable. These five variables were put into a correlation matrix with demographic variables, which the descriptive statistics and the results are presented in table 4.3.

Table 4.3 Correlations among factors of the scales and demographic variables

| Descriptive Statistics | | | |
|------------------------|--------|----------------|----|
| | Mean | Std. Deviation | N |
| AGE | 37.11 | 9.42 | 36 |
| GENDER | 1.39 | .49 | 36 |
| EDUCATIO | 2.64 | .49 | 36 |
| TENUREG | 9.97 | 7.61 | 36 |
| TENURES | 7.64 | 8.27 | 36 |
| NORTHSOU | 2.7799 | .7038 | 36 |
| ECOCRISI | 3.7158 | .5476 | 36 |
| BALANCE | 3.6875 | .5562 | 36 |
| LIMITS | 2.6167 | .7381 | 36 |
| TECHNENG | 3.1250 | .6241 | 36 |

GENDER: 1=male, 2=female
 EDUCATIO: 2=graduate, 3=post-graduate
 TENUREG: Tenure in the field (years)
 TENURES: Tenure in the institution (years)
 NORTHSOU: North-South conflict variable
 ECOCRISI: Eco-crisis variable
 BALANCE: Balance of nature must be respected variable
 LIMITS: Limits to growth are anthropocentric variable
 TECHNENG: Techno-engineering variable

| Correlations ^a | | | | | | | | | | | |
|---------------------------|---------------------|---------|--------|----------|---------|---------|----------|----------|---------|--------|----------|
| | | AGE | GENDER | EDUCATIO | TENUREG | TENURES | NORTHSOU | ECOCRISI | BALANCE | LIMITS | TECHNENG |
| AGE | Pearson Correlation | 1.000 | .040 | -.433** | .814** | .586** | .075 | -.245 | -.041 | .039 | -.186 |
| | Sig. (2-tailed) | . | .819 | .008 | .000 | .000 | .664 | .149 | .813 | .821 | .277 |
| GENDER | Pearson Correlation | .040 | 1.000 | .007 | .011 | .238 | .259 | -.010 | .013 | -.112 | .023 |
| | Sig. (2-tailed) | .819 | . | .970 | .951 | .162 | .127 | .952 | .940 | .515 | .893 |
| EDUCATIO | Pearson Correlation | -.433** | .007 | 1.000 | -.342* | -.537** | -.181 | .008 | -.178 | -.046 | -.129 |
| | Sig. (2-tailed) | .008 | .970 | . | .041 | .001 | .292 | .963 | .299 | .788 | .453 |
| TENUREG | Pearson Correlation | .814** | .011 | -.342* | 1.000 | .538** | .249 | -.330* | .057 | .055 | -.183 |
| | Sig. (2-tailed) | .000 | .951 | .041 | . | .001 | .143 | .049 | .741 | .750 | .286 |
| TENURES | Pearson Correlation | .586** | .238 | -.537** | .538** | 1.000 | .414* | -.328 | .355* | -.035 | -.042 |
| | Sig. (2-tailed) | .000 | .162 | .001 | .001 | . | .012 | .051 | .033 | .841 | .809 |
| NORTHSOU | Pearson Correlation | .075 | .259 | -.181 | .249 | .414* | 1.000 | -.466** | .373* | -.247 | .053 |
| | Sig. (2-tailed) | .664 | .127 | .292 | .143 | .012 | . | .004 | .025 | .146 | .760 |
| ECOCRISI | Pearson Correlation | -.245 | -.010 | .008 | -.330* | -.328 | -.466** | 1.000 | .023 | .083 | -.128 |
| | Sig. (2-tailed) | .149 | .952 | .963 | .049 | .051 | .004 | . | .894 | .631 | .458 |
| BALANCE | Pearson Correlation | -.041 | .013 | -.178 | .057 | .355* | .373* | .023 | 1.000 | .123 | .135 |
| | Sig. (2-tailed) | .813 | .940 | .299 | .741 | .033 | .025 | .894 | . | .476 | .434 |
| LIMITS | Pearson Correlation | .039 | -.112 | -.046 | .055 | -.035 | -.247 | .083 | .123 | 1.000 | -.021 |
| | Sig. (2-tailed) | .821 | .515 | .788 | .750 | .841 | .146 | .631 | .476 | . | .902 |
| TECHNENG | Pearson Correlation | -.186 | .023 | -.129 | -.183 | -.042 | .053 | -.128 | .135 | -.021 | 1.000 |
| | Sig. (2-tailed) | .277 | .893 | .453 | .286 | .809 | .760 | .458 | .434 | .902 | . |

** . Correlation is significant at the 0.01 level (2-tailed).
 * . Correlation is significant at the 0.05 level (2-tailed).
 a. Listwise N=36

Some of the strong correlations between variables are expectable and natural. To just mention and skip them, age and tenure in the field, age and tenure in the institution are correlated strongly. The strong negative correlations between tenure in the field and education, tenure in the institution and education, and age and education are also expectable, since the younger generation in Turkey has more tendency, need and means for post-graduate education, while subjects with higher tenure and older age hold only university degree.

The significant correlation of importance is between the tenure in the institution and north-south variable. The more years spent in an institution is correlated with the statements towards the North-South conflict, which argues for Turkey's rights to less responsible action as compared to industrialized countries.

Another important correlation is negative and between variable eco-crisis (statements expecting an ecological crisis with the current progress) and variable called North-South conflict. The higher expectancy of an ecological crisis (thus an attitude that renders the current situation more severe) the statements of North-South conflict are less strong. In order to further elaborate on this relation a regression analysis was employed, which is presented in the next section of results.

One interesting correlation is negative between tenure in the field and variable of eco-crisis. The more years of concern with the field seems to bring a decrease in severity of perception of an ecological crisis near at hand.

The correlation between variables 'balance of nature must be respected' and 'north-south' can be explained by a tendency to accuse the industrialized nations for that they have not been and still not respecting the balance of nature. This is also validated by the coalition of correlations between tenure in the institution and 'balance of nature must be respected', and the former correlation of tenure in the institution and North-South variable.

A correlation between the variables "limits to growth are anthropogenic" and "techno-

engineering” would be likely, but the results indicate no significant correlation. This might be caused by the weakness of the two variables as they are derived from the factor analysis with relatively low alpha reliability, and by explaining some %9 of the total variance.

4.1.3 Independent Samples T-Test to assess differences of responses of Governmental and Non-Governmental Participants

At this point we come to test the second hypothesis of the study statistically. The hypothesis was that the difference in policy responses (in this test, scores of North-South conflict variable) between the government officials and environmental NGO professionals would not be significant. To test the relation between the North-South conflict and sectors which the respondents belong (governmental versus non-governmental) an independent samples t-test was performed. For that purpose, North-South factor was entered as the test variable whereas the grouping variable was chosen as governmental and non-governmental sectors.

Results indicate that there is a significant difference between the governmental and non-governmental respondents, ($F(34) = .201, p < .001$). Table 4.4 demonstrates the relationship between the variables.

Table 4.4 T-Test Analysis of Independent and Dependent Variables of Data Collection Methods

| Variable | | N | Mean | T |
|----------------------|------------------|----|------|-----------|
| North-South conflict | Governmental | 19 | 3.15 | 4.041 *** |
| | Non-governmental | 17 | 2.36 | |

*** $p < .001$

In the introductory chapter, evolution of the environmental movement and the divide along the discourse of sustainable development was provided. Subjects of the study were chosen deliberately from those who belong to non-governmental NGO’s which

the idea of sustainable development rules. In the case of defenders of political ecology who criticize the framework of sustainable development, the difference in responses is expected to be even higher. The fact that governmental professionals score significantly more towards the North-South conflict as compared to non-governmental professionals of sustainable development could be explained in at least two terms. Firstly, non-governmental organizations, except for one case, have strong international connections, if they are not international organizations themselves. Surely the mindset of a professional working at UNDP will differ in terms of North-South conflict from a civil servant working in the state planning organization. Secondly, we must recall the strong correlation between perception of ecological crisis and North-South variable, and connect it to this fact: Governmental experts have no doubt about the future of their work; it is climate today for them as it was ozone depletion fifteen years ago. But in the case of non-governmental bodies, especially smaller ones, the reach at the funds, thus the future of their existence is bound with the severity of the environmental problems. Thus perception of ecological crisis works as an agent facilitating their discourse to 'do something', which contradicts with the North-South question and its consequent inaction in developing countries.

The finding that there is a significant difference between the two groups' scores of North-South conflict can not be generalized to other areas such as attitudes towards market-based mechanisms, Kyoto protocol, technology transfer and the like.

4.1.4 Paired Samples T-test to seek a Difference between Responses to Attitude and Policy tests

Expectancy was that the respondents in general would score higher (more pro-environmental) on general environmental attitude test, as compared to more specific and policy oriented questions of the second section. To assess if there exists a significant average difference between the abstract and the policy oriented tests, a paired samples t-test was employed. For that purpose, scores of both tests were separately recoded into new variables named Ascores and Bscores. The results

reveal a moderate correlation (.531) of these two variables with a significant difference, $p < .001$. Paired samples t-test shows a significant difference between Ascores and Bscores, $p < .05$ (Table 4.5). To be further elaborated in the discourse analysis section, this finding marks a critical difference of responses in the case of abstract questions versus practical policy questions. Respondents in general score more pro-environmental if the questions are abstract as “Humans are severely abusing the environment” (item A22). But when in more specific, policy oriented questions, such as “Turkey is not in a position to take commitments under the Kyoto Protocol” (item B19) they do not stand pro-environmental as such.

Table 4.5 Results of the Paired Samples T-test

| | Mean | N | T |
|--------|------|----|--------|
| Ascore | 3.76 | 36 | 2.708* |
| Bscore | 3.61 | 36 | |

* $p < .05$

In the initial quantitative part of the research, after the factors that group the answers of participants are located, first quest was on predictability of policy choices by factors constructing the attitudes. Two of the four factors, perception of an ecological crisis and respect to the balance of nature seem to have effects on policy choices. Then, a difference between responses of governmental and non-governmental affiliated subjects, in terms of the strength of North-South variable was researched, and located. Finally, a significant difference between responses to attitude and policy tests was found. In the analysis of the interviews, I will try to build upon these findings. To perform this, firstly the most evident discourses and frames will be presented, which are considered to underlie the policy choices; then I will focus especially on the difference between attitudes towards abstract environmental concerns and policies of the real-world politics.

4.2 Qualitative Analysis

Discourse analysis of a total of 24 expert interviews, which took place in the respondents' workplaces, was realized¹⁵ in the study. Transcription of all voice recordings realized individually at first, and then underlining of proposed frames and critical responses took place, which was carried out independently by two reviewers, one being the researcher. Consequently, researcher compared his own underlined frames with the proposed frames of the control reviewer. In necessary cases the recordings we reconsidered by both. Because of the wide span and variety of discussions, omitting the occasionally mentioned utterances, only the core frames were chosen to be reported and discussed.

The general structure of interviews signifies some critical distinctions. Firstly, responses very broadly differentiates the world into two, as developed an developing countries; it has not been possible in many instances to reach at generalizations, or the generalizations concern either affluent, industrialized, responsible, developed countries; or developing, less-developed third-world countries. Secondly, policy responses of Turkey are differentiated as those Turkey could do within itself, and those Turkey should do in the context of international climate regime, or UN FCCC process, or the process of Kyoto Protocol. In most cases, the policy responses are limited to the context of international process; voluntary actions, or responsible behavior is seldomly mentioned.

What is considered as generic or neutral frames are just going to mentioned here and skipped. These involve "we must analyze the current situation", "we must study the consequences and effects", "we must produce scenarios", "people must be more responsible" "media must be more responsible" and in connection "we must raise awareness", "education is the way"; also "policies must be formulated" "Turkey must take a more pro-active role in international climate regime". Surely, utterance of

¹⁵ A total of 27 interviews were realized in the study, of which 3 were not recorded by the device.

these basic and generic statements signifies the lack of such basic steps in Turkey. If we consider the fact that Turkey is yet preparing his initial national communication, national policies yet are not settled (on the basis of scientific data). But due to previous reports and initial studies some inclinations are evident which provides basis for conflicts, coalitions and revisions of discourses.

The eminent frames of the critical discourse analysis (van Dijk, 1998) which will not be elaborated below are: 'responsible behavior', 'change in attitudes', 'when it is not necessary', and 'turning back to the village', in the discourse of consumption or over consumption. These frames do exist in the discourse, but not as often as the ones stated below and not as constructing the structure of the discourse.

Before elaborating the findings of the quantitative analysis, some grounding discussions will be performed in the qualitative analysis section. These grounding discourses signify the framework in which the subjects of the study perceive and respond the challenge of global warming.

4.2.1 Discourse Analysis of Sustainable Development

As discussed in the introduction chapter, the concept of development has come to be one of the key concepts in the last decade, if not the foremost, of the debates addressing environmental problems. Since this study is not a sustainability research, sustainable development was not considered as one of the axis, thus, the concept was not mentioned anywhere in the questionnaire. The outstanding finding of this research is that Turkish climate change experts' discourses are clearly established on the concept of sustainable development. Even before the start of the interview part, while answering the policy item of the specific test, a significant number of respondents started mentioning the concept. It was especially items: "Environmental protection must be prioritized at the risk of slowing down economic growth" (Item B4); "Economic development should be prioritized at the risk of some amount of environmental destruction" (Item B5); "Developing countries like Turkey should prioritize development and poverty problems before environmental problems" (Item

B20) which the respondents denied or failed to respond easily. In many cases postponing of the discussion to the interview part was successful, while some respondents discussed their ideas on sustainable development throughout the policy questions. Below are five quotations focusing on sustainable development, of which the first two belong to older/higher tenure specialists, whereas the latter three belong to younger/low tenure professionals. These quotations would reveal the change in the relationship of development and environment and in perception of limits to growth in time. Letter R stands for researcher, and letter I stands for the interviewee.

Transcript 1 (Interviewee 12, 31 years in governmental sector)

R: In question 20 and formerly in questions 4 and 5, which prioritized economic development against environment and nature protection against economic development, you said these approaches are not right, both should be handled together...

I: Together yes,

R: ...Maybe you would like to further note on the framework you've mentioned there.

I: I understand. Now, at least, really, when we talk about sustainable development, it has three components. I mean, one of them for instance is environment, then, the other is energy, then these have to be in balance. You have to build a balance. When there is no balance between these, either you have environmental problems, or if you only focus on environment then you might not properly develop. So, these are very important, sustainable development has a certain purpose, what is this? Without consuming the resources, by using them efficiently, but in the meantime you will keep your economic development, not destructing the environment, and naturally, you inherit a habitable world to future generations. All these must be fit in a balance.

Transcript 2 (Interviewee 13, 25 years in governmental sector)

I: (Reading the question) "Developing countries like Turkey should prioritize poverty and development goals against addressing environmental problems" this shouldn't be understood as totally neglecting environmental problems. Here, environmental problems,.. There is an English term 'reasonably achievable' [developing countries] should consider environmental problems in a reasonably achievable way. Now Turkey as a developing country is trying to deal with development problems, but, for

instance this certain paper factory has its treatment facilities. I mean we ask them to treat their wastes properly. When this certain power station releases smoke, when its filters are out of order [through legal forces] we can have it closed civil society or governments action. This means in Turkey as a developing county also addresses environmental problems. But while trying to consider a balance between them, I think we should favor addressing development and poverty problems. But, as it is the case, this doesn't mean the other side is not cared at all; we don't have a luxury to say all rivers and seas can be contaminated, we are developing, here we need an optimization. To me, I'm trying to say optimization of Turkey is different from optimization of Germany ... after all optimization is necessary for all, but our criteria are looser as compared to theirs. But this shouldn't be understood as let's underestimate environment, not care about it, actually even in Turkey it is not the case, even today, in the future it wouldn't be understood like that at all.

Consequently, to me, a statement like: between environmental problems and poverty/development problems [developing countries] must achieve ...[thinking] an optimization around development, sustainable development is better. Actually, for everyone sustainable development is the magic terminology...

R: I'm trying to open up a priority discussion here.

I: Yes, I know, noticed it in previous questions.

R: Because, this magic, it is like, when you say sustainable development, the discussion is over... yes, I think it's not grounded properly. What I try to do is questioning, without saying sustainable development. Because you have to prioritize, the country has coal, are you going to burn it or not? If you burn...

I: Of course you'll burn it, of course.

R: If you burn it, then you leave the environmental problems to a side...

I: No. It doesn't mean that.

R: Very roughly, I'm just giving an example here. But on the other hand, if you trace cases, you have such critical choices.

I: That's a compulsion. If you don't burn the coal you can not turn on the lights. ... You can not overcome Turkey's energy demands without burning coal, whatever happens to the environment. In fact, have a look at World Energy Outlook, EU projections, World

Energy Council reports, world's energy demand continues rising until 2030, CO2 emissions rise even at higher trends! ... I mean, it doesn't matter. It seems destruction of the environment seems to continue to rise for another 30 years...

R: Such are the projections yes.

I: It is in this context I mean to respond "I agree". We have no other remedy...

There are two critical frames these two high tenure civil servants' discourses share. First shared frame is 'optimization/efficiency', which elicits an engineering or management discourse. Recalling Hajer (1995), Jamison(2001) and Oels (2005), optimization or efficiency discourse is inherent to ecological modernization. Pepper (1996), comparing conventional values with green values, places 'efficiency' in both sets. Stressing the competitive nature of "capitalist productive relations" (p. 89), Pepper acknowledges that industry needs efficiency to compete. Efficiency, then, seems truly eliciting a win-win situation between environment and capitalism. This explains, we can argue, how discourses of all Turkish experts are rich in efficiency demands and policies. Another reason for such dominance of efficiency frame is that Turkey has very low energy efficiency in all sectors, energy, production and consumption; and a lot to be done in the domain of efficiency in Turkey.

Second shared frame is 'balance', which in this case has to be secured between development and environment, which belongs essentially to the world of eco-modernism. It is easily comprehensible how the frame of 'balance' situates in the discourse of sustainable development. These people, throughout their occupational career have been subject to the various reflections of the Brundtland era, which is evident in the former transcript, which almost gives the definition of sustainable development as coined by the Brundtland report. Later discourse, somewhat more pessimist, asserts that such balance is not possible at all, and environmental destruction is 'compulsory. Critical for this deliberation is that, for a balance to occur or secured between two things, the two must be contradictory in nature.

Transcript 3 (Interviewee 16, 7 years in governmental sector)

R: You mentioned sustainable development as a concept getting beyond the focus of the question “Developing countries like Turkey should prioritize poverty and development goals against addressing environmental problems”. I am deliberately trying to detach these two, I think you either mine the coal or leave it there, either the coal accumulates more CO₂ to the atmosphere or not, either you make cheap energy out of it or don't. I think here we have to make a choice. Sustainable development as a motto does not tell us much about it, what do we understand from it, will we be mining that coal or not?

I: That coal will be mined. My understanding is like this: That coal will be mined, but that coal, will be burned in a way which is more sensitive to the environment. I don't know, if you have to wash the coal first, to be more sensitive, yes you will wash it. The furnace to burn the coal will be at the highest possible efficiency, I mean, as much as you can, you have to maximize the efficiency in every economic activity that you conduct with using the natural resources. The route to this, sensitive to environment, I mean, this can be called technology transfer, this can be called adding efficiency to the systems that are currently in use. But this is the principle to behave, (thinking) after all we are developing countries, with limited economic and natural resources we can meet the demands..

Transcript 4 (Interviewee 25, first year in government)

R: You responded “neutral” to questions 4 and 5 in the second section. Here, there is a zero-sum...

I: De-coupling, de-coupling, means separating the two from each other.

R: There is something beneath your answer there, you did not mark as such because you have no idea, I'd like to get you point, that's why I get back here...

I: Surely. As an example, England, one of the leading countries in climate change, actually one of the foremost; and after all, its economic growth has increased in the past years, while on the other side its emissions decreased. Called decoupling, [England is] in a position that separated economic growth from its harmful effects on the climate change.

R: How did England achieve this? What were the methods? You know, different theories explain the subject in different terms, in the example of World Systems Theory; [England] has transferred its dirty industries, or problematic sectors, to the third world, periphery states. Increasing carbon efficiency by these means, by transferring the problems to the third world countries. Many theoreticians explain the

concept of decoupling in this way. I do understand your example and the matter of decoupling, but I want to be more specific on Turkey and more concrete... You are in Turkey, with a certain budget, this must be distributed both to development goals, and to environment. Your limited budget you will either spend it for mining, or for instance research in developing wind energy... I see a conflict here. You either mine that coal or not...

I: I think this is not right. Because for instance, if we take the example of refrigerator, refrigerators consume less energy gradually, as years pass, and it works more efficiently, better refrigerators are produced, which use much less energy. Like this, there are thousands of new devices and technologies; I mean with the progress in technology, and with new standards for cleanness and emissions develop, these two can decouple. England is just an example, there are other countries, I say this because I have seen a graph of it... industry, of course mostly developed countries, surely this is harder for Turkey. But in developed countries, decoupling, which means separation of economic growth from environmental destruction, is a fact gradually taking place. And of course, technology, energy efficiency and capacity of industry to save energy are providing this.

With these two interviews, a slightly different view of sustainable development is at hand, compared to the second transcript. Frame of 'efficiency' is again located, but a more grounding frame, which can be called 'technological progress' now is clearly evident. Technological progress is the way, not only to be more sensitive to environment, but also to reach higher levels of efficiency which will ensure that sensitivity. The principle to behave is maximizing the efficiency with the use of new technologies; the principle gives us another definition of sustainable development. It seems younger generation of experts on climate change stress the input of technology instead of a balance to be maintained between development and environment. The term of technology will be discussed later, but here implying core importance is that; frame of balance is replaced by a trust in new technologies which will ensure 'environmental sensitivity' of the economic development, which is 'inevitable'.

Transcript 5 (Interviewee 22, 4th year in non-governmental)

I: ...I think while addressing the problems of poverty and development, it is not a right methodology actually to undermine the

environmental problems. Both, as parallel, provide a chain that feed each other. It is that sense which I do not agree; one can combat environmental problems together with combating the others.

R: Both together, you mean together or...

I: Parallel. Yes, indeed. Moreover, the same things, in the end I think they are a chain feeding each other.

The balance (or contradiction) of environment and development leaves the scene to a perfect fit of two concepts, as we listen to younger experts on climate change. This is the last stop so far in the evolution of discourse of sustainable development, from a balance between two concepts to a dependency of one on the other. In Turkey at the dawn of the 21st century, if we are to solve the environmental problems, we should focus on development goals; which will in turn provide us new technologies and efficiency; which seems the ultimate way to protect the environment. This structure of thought might seem too simplistic, and surely it can be elaborated; but the core theme is that development now works not by destroying, but for nature, and contradiction(s) seem to cease as long as humans be 'sensitive'. Is it too early yet to propose the term ecological post-modernization?

Since we have been following the traces of modernity in the context of environmental discourse so far, and economism has been addressed, a short note on economic responses should be mentioned. Interviewees imply rather an eclectic understanding of responses in the domain of economy. Both market based responses and incentives, emission taxes and command policies are favored. Rather than elaborating on economics of responses to climate change, experts seem to favor the idea "whatever necessary should be done". Only a few subjects criticize the ideology of emissions trading, but not at its roots; rather, they place the myth of emissions trading under the North-South conflict: a power game played by industrialized countries to distribute their responsibilities.

4.2.2 The Frame of Technological Progress

Fischer (1995) asserts that technology and progress are sources of a major

contention in green discourse. He finds out that “technocratic assumptions, they argue, have led to a materialist conception of the good life that is not only wasteful but ultimately alienating in human terms”. (p. 187) Stressing over consumption and dangerous games with technology, green discourse is traditionally critical against the idea of progress. In the case of Turkish policymakers, however, it is the opposite, with very few exceptions. Interestingly, the most critical stance towards the technological progress, at its roots, was voiced by an interviewee from the Ministry of Energy and Natural Resources, not by any non-governmental expert. A vast majority of the subjects do not intend to discuss technological progress critically, their view rather, belongs to a practical category: “we must urgently start the technological shift”, which connotes consent to technological progress.

Beyond transcripts 3 and 4, a vast majority of interviewees place technology as the key term for efficiency. A strong faith in science and technology is one of the core foundations of discourse on sustainable development; indeed technology seems to be the ultimate way to achieve sustainability. We can locate two pathways which technology provides such results, firstly technology as a means to an end, where the end is efficiency; second is technology itself as a solution to problems by substitution of environmentally benign ways.

On the discussion of efficiency through technology, or for the sake of reductions in materials and energy used per unit of output, Foster (2002) gives us some insights:

The magic bullet of technology... is by far the favorite [solution] seemingly to hold out the possibility of environmental improvement with the least effect on the smooth working of the capitalist machine. The 1997 Kyoto protocol on global warming, designed to limit the greenhouse gas emissions of nations, has only reinforced this attitude, encouraging many environmental advocates in the United States (including Al Gore in his presidential campaign) to advocate technological improvement in energy efficiency as the main escape from the environmental mess (p. 92).

It seems the discourse of opposition circles concerning environment in the United States dominates the environmental discourse in the third world. This seems

consistent with the dominance of United States in the international climate regime prior to Bush administration. But what is the likelihood of improved efficiency to prevent dangerous interference with the climate system? To answer this question Foster mentions the term 'Jevons Paradox' referencing one of the pioneers of the neoclassical economy, William S. Jevons. Jevons Paradox suggests that increased efficiency in using a natural resource, such as coal, results not in a reduction of demand, but an increased demand for that particular resource; because of the economic imperatives of efficiency making the resource more advantageous. The proofs are in our lives: fossil fuel based plants are still planned despite their emissions effect the environment; because they are still the cheapest way to produce electricity. Then the question should be reformulated as, what is the likelihood of increased efficiency to cancel the rising demand to consume fossil based energy? It seems the world is currently performing an experiment for answering this question with the Kyoto Protocol.

The second way the frame of technology works for the environment is substitution, or new and environmentally clean technologies taking the course. In Turkey, and in discourses of Turkish specialists, welcoming of new technologies is exceptionally evident in energy sector because of three basic reasons: (1) Turkey is an extensive importer of the fossil based economy, similar to UK, and even worse, its coal reserves are of low quality. (2) In Turkey, energy is the main sector to cause the greenhouse gas emissions (3) Current state of energy intensity, meaning cost of converting energy into GDP, is very high in Turkey, for instance as compared to EU standards (DPT 2000). Because environmental policy making is now formulated within the set of priorities of development, these three reasons enforce the 'substitution in energy sector' discourse. Two quotations from answers to the first question "What are the measures that Turkey should apply in the coming years to combat climate change?" will summarize the typical answers of literally all policy actors:

Transcript 6 (Interviewee 1, 16 years in governmental sector)

I: [After Turkey manages to define its current situation in terms of

emissions and priority sectors]...with taking care of economic possibilities and development priorities, measures should be defined. Of course the first will be the energy sector, secondly maybe in transport sector possibly... (Thinking) and mostly coal, we have to make use of our local resources. But how are we going to use? Within the bounds of practicability, using the least carbon emitting, or using the technologies which capture carbon, in energy sector mainly.

Transcript 7 (Interviewee 9, 3 years in NGO)

I: Energy consumption, (thinking) efficiency in use of energy. Increase of use of renewable resources... To achieve that, development of technologies, support to research and implementation projects...

The first expectation in the problem formulation was that subjects would address a strong faith in science and technology. This could not be checked at the quantitative part of the study because a clear technology factor did not reveal, but in the discourse of efficiency, substitution of new technologies (within the broader frame of technological progress) is uttered as the ultimate way to achieve efficiency. It seems technology is framed as indispensable in practice of efficiency measures that have to be taken.

Second question of the interview concerned the technological choices regarding the mentioned necessary shift from current technologies to new or future technologies. The answers rank the energy technology alternatives for Turkey, placing wind energy at the top of the list, solar energy second, then respectively, carbon capture and storage technologies¹⁶, biomass, hydrogen and geothermal energies. Nuclear energy is favored by only two of the respondents as a choice responding to the challenge of climate change. The general tendency is, surely, providing use of a diversity of these choices, many times excluding nuclear power only. Some of the subjects mention high costs of new renewable energy technologies, whereas a clear majority stresses the fact that in the longer term, early transition to clean and

¹⁶ The idea of carbon capture and storage basically involves the storage of CO₂ either in geological formations or at the floor of the oceans. International Energy Agency (IEA)'s site is one of the many initiatives supporting this idea: <http://www.co2captureandstorage.info/>

currently expensive sounding technologies will be cost-effective.

The last question of this section is how that substitution to new clean technologies to take place. Analysis reveals three discourses on transition to new technologies: First is rather a wish that Turkey should start as early as possible investing in research and development of alternative energy technologies, with the idea that importing those technologies cheaply is not realistic. Second and third discourses involve 'technology transfer' as a frame; which either is seen as a responsibility of developed countries to 'provide' environmentally benign technologies to developing nations, or, more realistically, developing countries to demand technology transfer as a means to combat climate change in the third world.

Transcript 8 (Interviewee 1, 16 years in governmental sector, while responding the question what she would like to change in the current policies tackling climate change if she was given the chance)

I: ...EU or developed countries' using of others as a dump, I mean, I would like to stop them look like doing something only by providing their old technologies to developing or less-developed countries. Those who need to develop should not be buying the old technologies, but as equals to the developed ones, with the same rights, they should develop by newest technologies to be provided by developing countries.

This quotation not only reveals an expectancy, or rather a dream of developing countries; but also points at the myth of technology transfer regarding climate trading. Article 4.5 of the UN FCCC states that developed countries "shall take all practicable steps to promote, facilitate, and finance, as appropriate, the transfer of, or access to, environmentally sound technologies, and know-how to other parties, particularly developing country parties, to enable them to implement the provisions of the convention." By doing this, in turn, thanks to the Kyoto Protocol; developed countries will be counted to have decreased their national greenhouse gas emissions. But, how and under which conditions this could occur? If the certified emissions reductions (CERs) of converting a coal burning plant into a natural gas plant is enough (or profitable) for reaching allocated emissions (because of the mentioned efficiency optimization have already caused natural gas technology to be

reliably profitable), why would a company in Germany for instance, invest in solar or wind energy in a developing country? Indeed, the case of İskenderun Enerji Üretim ve Ticaret A.Ş. (İSKEN) coal power plant, opened in 2006 near Sugözü, Adana, reveals the actuality beneath the myth of environmentally sound technology transfer. Built by a German firm STEAG¹⁷, whose experience with fossil energy dates back 60 years, through a consortium of Siemens, Babcoçg Borsig Power, Gama and Tekfen, and currently owned by STEAG and OYAK, a carbon dioxide giant like İSKEN can not be constructed in anywhere in EU since the UN FCCC, 1992.

To sum up, frame of technology is inherent to the discourse of sustainable development in two ways, through efficiency to be provided by technological progress, and through new energy technologies. Turkish subjects, well aware of the technology transfer debates of the climate regime, conceptualize technology transfer as a practical means to control emissions in developing countries, and as well suspecting the materialization of the transfer expect their country to invest in research and development of new energy technologies. As professionals in the process of governance of the environmental domain, they do not intend to imply any hesitations about technological progress. This ascertainment might seem to conflict with the second factor of the attitude test, “respect to the balance of nature” but it does not necessarily. The environmental domain as a playground of essentially conflicting discourses will be discussed in the following sections.

4.2.3 Discourse of North-South Conflict

Like many experts of the developing countries, Turkish professionals voice demands of equity and mark the injustice inherent in the climate regime. Interestingly, the utterance of the abstract positive-sum game between development and environment does not appear at all in policy discourses of greenhouse gas mitigation. For Turkish experts, tackling climate change is definitely a burden, a burden that the responsible industrialized countries try to share with developing countries. The definitive frame about responsibility is that the western countries are responsible; it is after this

¹⁷ <http://www.steag.de/steagde/eiskenderun.aspx>

ascertainment the discourses start to vary. It is very understandable for developing countries to defend their rights to address poverty, and assign main responsibility of tackling climate change to industrialized nations. Majority of the interviewed Turkish experts connote a moderate view of north-south conflict, which can be summarized as “Industrialized nations are responsible of the historical emissions causing climate change, but we as developing nations do not have the luxury to do nothing about it.” In two the edges of the standard belly-shaped curve, one interviewee mentioned that she did not perceive Turkey as a developing country at all, and that urban lifestyles should be targeted in Turkey; the opposite edge, again represented by one interviewee, voiced no responsibility and rights of Turkey to industrialize.

Transcript 9 (Interviewee 14, 28 years in governmental sector)

I: (After criticizing the technology transfer myth...) Accordingly, I, (thinking) when we look from the point of view of Turkey, first of all I do not believe in Kyoto Protocol, that's for sure, when we look from the point of view of Turkey, firstly these developed countries, the countries which have contaminated the environment [with stress] very very much, should take their measures, present us a picture, then we, who contaminate less can start making efforts, this is the way I think about it.

R: Are you also against the UN FCCC?

I: I mean, I am not against the UN FCCC, I believe in the protection of climate, yes, climate should be stabilized, protected. But the system brought by the Kyoto Protocol is a system based completely on exploitation system...

This transcription represents the typical southern discourse of the North-South conflict straightforwardly. The North-South conflict discourse is based on a framework getting beyond the current international policies, entering into the domain of global power politics. It will be necessary to mention here some views of equity, the straightforward equity principle is that all world citizens have equal rights to GHG emissions and allocations to countries could be done on the basis of population, in an ideal case. The famous Brazilian proposal voiced in negotiations of the Kyoto Protocol, states that a truly just measure of climate responsibility should rely on the historical emissions of countries. The proposal was not included in the draft

negotiating text, with the claim that technical aspects required further negotiation¹⁸. Interviewee 4 shares the frame of exploitation and formulates the continuation of the North-South discourse somewhat more coherently:

Transcript 10 (Interviewee 4, 25 years in governmental sector)

I: (Continuing a discussion on responsibility of the developed nations, equity in emission rights, and possibility of application of the ideal equity of emission rights in practical politics) ...When you view it at the international conjuncture, you should not look at it from the point of climate or environment. For instance, there is the United Nations that all countries are placed; United Nations as an organization is bound with governing of the world from across the board, healthily, is bound with solving the problems. But when you look, United Nations behave like a gun in the arms of the powerful. If you don't have power, even if you propose something that is healthy for all world citizens, you can not pass those decisions. As you said, this idea (referring to the equity principle) can be rendered as utopian, but it is because the power is in developed countries, it is at their hands. They are trying to direct as they want it to be. This means, a good organization, a good synergy, [Thinking] I think coming together of less-developed or developing countries, in some way, being persistent on this subject can solve the problem. In that framework, as I've said, the present approach is not just approach. But we shouldn't perceive it as bad, emissions ought to be decreased by any means, for that, suitable policies, whichever is applied, must be done, I support, but as I've said they are not on a just basis.

The majority of the discourses in the present study maintain a stance of the North-South conflict which is not such aggressive as the former nor such power oriented as the latter approach. They don't appreciate the increase in Turkey's emissions, but rather they specify, as the transcript 2 exposed before, a compulsory, inevitable situation:

Transcript 11 (Interviewee 1, 14 years in government, in response to the question "How do you evaluate Turkey's national GHG emissions inventory?")

I: Frankly, this is not a field that I am well informed, but, I did look at the results, also second time after the amendment, also this news, the news about Turkey has the most aggressive increase, I've read

¹⁸ Studies of the Brazilian Proposal have been continued by an informal working group called MATCH (Modelling and Assessment of Contributions to Climate Change) <http://www.match-info.net>

them horrified, but... when you analyze; really an increase over 100% is a subject matter. [Thinking] What can I say, but this has no other way to go. I mean Turkey's greenhouse gases has to increase, and because its energy has not reached a saturated level, these will go on like this; but as I said, [thinking] [Turkey] should take all practicable steps to mitigate, that's a different subject but, this [referring aggressive increase] will continue as it is.

This quotation seems to present the dominant discourse of Turkish policymakers and in fact Turkey in the negotiations. Comprehension of the threats and necessities, "whatever necessary must be done"; confirmation of policies "Turkey should be part of the efforts"; and confession of the real world politics "Turkey's emissions has to increase". This structure of thought denotes an helplessness, it is as if the emissions are not in control of the public. This will be elaborated in the next section, here lastly the foundations of the discourse of Turkish experts called North-South will be critically discussed.

Is Turkey a southern country? Beyond personal and ideological views, is there any relevant basis that we can answer this question? Greenhouse gas emissions-wise Turkey looks like belonging in the southern camp, but on the other hand as a member of OECD Turkey was directly considered in the Northern camp in the course of climate negotiations –which constituted the main problem of Turkey to take part in UN FCCC initially as discussed in the introduction. The question is how can we place Turkey within southern countries if it does not place itself among them, for instance in the G77? The Group of 77, with 130 member states now, is the largest intergovernmental organization of developing states in the United Nations. Historical significance of G77 lies in its means for the countries of the South to articulate and promote their collective economic interests and enhance their joint negotiating capacity on all major international economic issues within the United Nations system¹⁹. In the context of climate negotiations, G77 plus China is a common term, signifying defense of joint interests of a grand variety, and also friction within the group due to huge differences of wealth and emissions (Höhne et.al., 2003). Turkey, as the experts of the study emphasize, is alone in the middle of conflicting interests

and power games. Turkey, actually, has chosen to not stand within the southern block, when it comes to imperial interests wishing to stand with 'big brothers', and when it comes to responsibilities wishing to be accepted as a developing country. Thus, such a view could render the discourse of North-South divide of Turkey as exploitation of discourse, mainly motivated by national interests. Unfortunately, Turkey's stand point in the international climate regime is that of a particular 'national interest' kind, which ended in inaction so far; rather than a North-South kind, which ends in joint action. This does not mean that discourses of Turkish experts imply nationalist attitudes, it would be too speculative, and indeed many of the interviewees state clear expressions of a universal or global understanding. As it is the spirit of time in Turkey for the domain of 'national interests', and in the light of the explanations on Turkey's lonely position in the international climate negotiations, I will propose to call the North-South discourse in Turkey "discourse of national interests". This discourse seems to be the opposite of what Howden and Lindseth (2004) located in their research on Norwegian policy discourses. In Norway, the national (action) discourse leads to action to pioneer the global climate regime instead of merely taking part in it; here in Turkey the national (interest) discourse leads to inaction, with the rationale of no or negligible responsibility.

Transcript 12 (Interviewee 15, 8 years in governmental sector)

I: ... If on the one side countries like Mexico and China are producing more harm than us at the global scale, I think, Turkey should not be fooled by the argument "we are a part of the convention, we are different than them". What measures should it [Turkey] take? After a good determination of the situation, it must make projections towards future. Here I am talking about measures of mitigation. Within this scope where and how much to mitigate, what is the share of the country, beyond its share, really should apply all practicable measures. But while doing this, it must plan how to meet the opportunity costs that the measures will cause... It must plan a roadmap for itself. This roadmap on the one hand starts from taking part in Kyoto somehow, it might contain annexes... [Thinking] to all analysis of burdens are such for Turkey, and benefits are such for Turkey in all scenarios...

¹⁹ <http://www.g77.org>

The frames of roadmap and “first of all determining the situation” now can be concluded equal to a rigorous cost-benefit analysis. The discourse of Turkish experts implies a cautious stance towards actions of mitigation, first the burdens and benefits to the country will be revealed, then “all practicable steps” can be taken. The frame of ‘practicable steps’ will be elaborated in the latter section.

The discourse of national interests is not only the key element in criticizing, disapproving or refusing the Kyoto Protocol but also approving or ratifying it. Negative attitudes and discourse towards Kyoto Protocol is surprisingly strong and widely shared among the Turkish policymakers, indeed only a minority seem to favor Kyoto protocol at its roots, admitting that it is far from perfect. Criticisms of Kyoto regime gather around the national interests of the country, but also in that Kyoto is only a neo-liberal response to climate change, and we need more than Kyoto to tackle it. End of the realistic structure of utterances is that we have nothing else than Kyoto at hand so far, thus we should comply with it.

4.2.4 Abstract Idealism versus Practical Realism

It was fourth hypothesis of the study, existence of a difference of responds to theoretical statements and discourses of policy practices, which was already tested in section 4.1.4, by conducting a paired Samples T-test to seek a Difference between Responses to Attitude and Policy tests. What stuck me most in the process of discourse analysis has been the use of “but” between the ideal case and actuality. No matter the discourse is pessimistic, hopeful, anxious, rationalist, or pragmatist there is always a “but” case differentiating the two worlds of attitudes and policies. Thus, to sum up and put together the so far discussed major ‘ideal versus real cases’, table 4.6 was created.

Table 4.6 Summarizing the Discourse Structure of “But-Thus”

| ACTUALLY | BUT | THUS |
|--|--|---|
| World is going towards an ecological crisis | <p>>It is not us who brought the world at this point,</p> <p>>Coal is our only reliable national resource,</p> <p>>Renewable energy technologies are expensive,</p> <p>>It's not possible changing the world order in one day,</p> <p>>Consequences of climate change will effect us too,</p> <p>>The international climate regime is an arena of national interests,</p> <p>>We have no other choice,</p> <p>>Turkey is a developing country</p> <p>>We can not give up economic development</p> | We can continue rising GHG emissions. |
| Coal is the worst fossil fuel in terms of emissions | | We should continue to burn our low energy coal. |
| All countries must come together to combat climate change | | We must reinforce our development by maximizing efficiency |
| Whatever necessary measures be, they must be realized | | The burden of decreasing emissions belong to those who created them |
| The burden of decreasing emissions belong to those who are responsible for emissions | | We can not stand by, doing nothing |
| With sustainable development it is possible to formulate projects that all parties win | | We must defend our rights to develop in the international process |
| Future generations deserve to live in a clean environment | | Environmental destruction seems inevitable |

The list of the “but-thus” cases can be lengthened with minor discourses such as, “FCCC asserts technology transfer as one of the ways tackling climate change in developing countries, but the international climate regime is an arena of national

interests, thus we have to develop our own technologies” or “Transport is one of the major sectors in Turkey to realize emissions reductions, but our people does not drive as much as people of the affluent nations yet, thus an increase in the number of cars is inevitable”.

The finding called “but-thus” is also coherent with and further explains the paired samples T-test results in section 3.1.5. There, a significant difference ($p < .05$) was detected between responses to the abstract questions on environmental attitudes and responses to the policy questions. Why is there such a big divide in reasoning processes, why the developments in Turkey seem as ‘inevitable’ more than anything? The answer should be searched in the democracy and participation questions of policymaking. Despite the image and to some extent the discourses and the language of policymaking has changed in Turkey, as Arts and van Tatenhove (2004) noted by outlining changing policy idioms, the very process of policy production and application can not be said to have entered the era of ‘governance’. The top down, hierarchical nature of politics in Turkey effect the domain of policymaking by making a very narrow use of the technical experts, and placing them out of the national policy formulation. Democracy and participation problems of policymaking in Turkey goes well beyond the scope of this study, but just two quotes will be enough to point at the problems:

Transcript 13 (Interviewee 6, 13 years in governmental sector)

I: ...Turkey’s first task to accomplish is determining its roadmap. In the roadmap, deciding the political and technological measures it can take, but, I think, this must be a little far from politics. Politicians, if they, I don’t want to say respect but (hesitation), if they respect the technical personnel’s ideas, in technological..., in technology transfer, I believe... (deep breath) that different result can be achieved.

Transcript 14 (Interviewee 23, 5 years in non-governmental sector)

R: Our last question is actually a question of magic wand that attempts to leave the frame of realism that we have been talking within. Have you ever thought of such a thing like “If I were, I would do this to resolve the problem”...

I: Yes, actually I have such a thing. I think this both for Turkey and for the world. Although the scale is different, as a method it would be correct, realistic to do. We can resolve this issue if we can make it an agenda item for Turkey in National Security Council, for the world at United Nations Security Council. (Thinking) Or at least, we can show we are more decisive for a resolution, for more rigorous steps to be taken. When nuclear weaponry or weapons of mass destruction was in the agenda of United Nations Security Council, it implied a different meaning. Climate change too, is a law of United Nations, or a violation of an agreement of United Nations, that still could not be brought to the agenda of United Nations. As valid for Turkey, declaring this as a security threat, this is a national priority, really a matter of life and death, if we can make them say this, this will clear the path to take those steps, implement the changes, awarenesses mentioned.

If not anywhere in the world now, at least in Turkey there is a clear hierarchy of national priorities, which the top is ever occupied with national security issues, and environmental problems place somewhere at the bottom. Environmental sector is actually perceived as a means to achieve something else, for example achieving transfer of new technologies, for hosting new investments, etc. Kyoto Protocol is a matter of international relations more than anything else that Turkey truly encounters first time in the EU accession process. Types of governance, policy idioms, and participatory processes might change, and surely they currently do, which would result in a more democratic environmental policy process; but it seems the hierarchy of national priorities is not subject to change within a few years. This divides the discourse of so-called policymakers, who actually propose sound practical policies at least from the point of view of international climate regime, from the discourse of government of Turkish Republic, which still stands as something belonging to a totally unfamiliar domain to what has been discussed in this paper.

Finally, the discourse of 'all practicable steps should be taken' will be briefly elaborated in this context, as it was evident in a variety of discourses either favoring Kyoto or rejecting it, either asserting urgent measures or insignificance of Turkey's mitigation. "All practicable steps should be taken" is an abstract and general statement, which belongs to the text and spirit of UN FCCC. This brings us to a

conclusion that Turkish discourse of climate change is still uttering phrases of 1992 in year 2006.

Transcript 15 (Interviewee 11, 14 years in the field of study)

I: (Responding the question “What measures should Turkey take in the coming years to combat climate change) First of all, Turkey must increase the number of studies concerning climate change like other developed or developing countries do. Climate change, at this stage, seems like approved by other countries, and Turkey seems like doing it as a requirement by developed countries. But beyond this it must aim at increasing the number of research, on how Turkey will be affected from climate change, on all fields of study, ideas must be developed on the basis of scientific results. And besides this, again, a roadmap must be formulated on greenhouse gas emissions and adaptation.

It is evident in this transcript, among others, that Turkey is still in the process of assessing the costs and benefits, formulation of the ‘roadmap’ to address climate change. Pretty much behind the international process, Turkey has to catch up with the international practice. This seems to start by means of adaptation strategies, and eventually at some point in the EU accession process mitigation measures would be taken into practice.

Transcript 16 (Interviewee 27, 22 years in the field of study)

I: ...Turkey behaves as apart from the rest of the world. But Turkey is a member of United Nations, a member who should take active role there. Actually, for instance, Kyoto process, actually, while Kyoto Protocol was assembled Turkey was not at the table because it was not party to the UN FCCC. In the process of FCCC, Turkey could not define its position, a developing country or in the process of development, could not formulate its interests, did not properly take part in the negotiation processes, as a result of this an agreement was reached that it didn't want. But all the time, the attitude of “First you do it, accordingly I will either join or not” is a wrong attitude. You have to take your part around the table, while the discussion takes place; you have to talk as much as others do, so that you can line up your interests in time (with stress), while the things are getting settled. Now, still [Turkey is] in a weird position. On the one side it claims “I will become a member of the EU”, “I am a member of OECD, I am a developed country indeed”, it has an

argument like this, saying “my economy is in a good state”; but on the other side says “nope, I don’t take any responsibility”. Now, I think, under normal conditions, this is not something that can be accepted.

Turkey is in a truly controversial situation in the context of development as a means to be more sensitive to environment. As an abstract policy argument, these two concepts are outlined to be operating together in the mindset of Turkish experts, but when we analyze the practice (of development hand in hand with environmental care) it seems there is still time for Turkey to start caring for climate, as the minister of Environment and Forestry mentioned in 2005. The discourse structures of Turkish participants at first look seem to widely comply with that of the international discourse, but in the institutional practices and macro-structure of the national interests discourse one can locate the contradictions and conflicts inherent to the discourse of Turkey towards climate change.

The study reveals the reign of sustainable development discourse in the climate change debate as a mediator between attitudes towards environmental risk and actions of mainstream politics. As a policy motto which refers to efficiency and technological progress in the context of Turkish expert discourse, sustainable development has come to define the scope of human intervention on natural resources and processes. Concept of climate change oscillates between an ecological-scientific concern which is abstract and attitudinal, and power relations of international relations which are pragmatic and institutional. The quantitative results of the study -that there is a perceived ecological crisis, that there is a significant difference in attitudes and policy choices, and that the tenure is correlated with both North-South perception of the climate regime and perception of severity of ecological crisis- are used to elaborate the findings of the qualitative analysis: The institutionalization of climate regime in Turkey is continuing through the concepts of efficiency, technology term and behavioral change on the one side, and reactively through the national interests discourse on the other. Both debates on global policy responses and environmental consequences seem to rely on a cognitive divide: A divide between the ideal attitudes of equity and environmental sensitivity and the praxis of globalization and economic growth.

5. CONCLUSION

To summarize, there are two main findings of this study. Firstly, the discourse of sustainable development is dominant in the macro-structure of Turkish expert discourse on climate change policies. Acknowledging the scientific basis and severity of the threat, Turkish experts argue that “all practicable steps” should be taken to address climate change problem. The frame of “practicable steps” is a core and controversial issue exactly where the many meanings of sustainable development operate on. Defining economic development not against but around the discussion of how to tackle climate change, Turkish discourse employs sustainable development to outline the ‘rational basis’ or “practicable steps” of climate change mitigation. This fact can be rendered usual, as the very definition, language and framework of climate change is produced in the international process (which invented sustainable development in the course of 30 years as a catchphrase to address environmental problems as a threat to development) is the key element in formulation of Turkish understanding of climate change. Turkey was not actively present in the process, but Turkish experts seem to have followed the guidelines of reasoning around environment and development. We can trace the orientation of the global discourse of environmental protection at the titles of the three critical UN conferences: In 1972 it was called “Conference on Human Environment”, in 1992 the follow up was called “Conference on Environment and Development”, and in 2002 the title came to be “Conference on Sustainable Development”.

With the discourse of sustainable development, ‘practicable steps’ are formulated within the boundaries of market policies, geo-engineering and international trade. The fact that the Kyoto Protocol represents the only global response strategy so far, brings it as an ultimately controversial issue. Even those who perceive GHG mitigation and international trade as a threat to national interests are placed in a position favoring the Protocol, only because it has come to represent responsible action towards climate change. States that have not ratified the Protocol, especially United States as the largest source of emissions, are targeted for their irresponsibility. The framework of discussions is bundled up in merely technical

aspects of the Kyoto Protocol which renders 'natural resources' and natural processes calculable and tradable. The political, social and moral dimensions of emissions trading, carbon dumps and carbon sequestration should be elaborated further, if the task is to question the human pressure on the earth's natural systems.

The following question could reveal the contradictory nature of climate change policies: what would happen if United States would all of a sudden came to accept ratifying the Kyoto Protocol and start investing all over the world for the sake of sustainable development? If this would 'save the climate system' is an important question mark, but what matters for politics of climate change is if all those who yearns for United States' participation and application of Kyoto regime would hail the merely technical amelioration of efficiency of their power plants counting for U.S.' carbon mitigation? Or a local company suffering efficiency measures to shut down its facilities to sell the certified emissions reductions (CERs) in the international market? The fact that the Kyoto approach accumulates more value in the trade chambers and stock markets should not be overlooked. Market based policies to respond global environmental problems are subject to a test in the context of climate change mitigation at the risk of earth's atmosphere, and the first results are to be drawn by 2012, the closing of (the first phase of) Kyoto Protocol.

A second finding of the study is the gap between abstract discourses on environment and discourses of the policy world. This might be partly caused by the 'no alternative situation' as defined above. No matter how ethical or rigorous one's mindset towards environmental problems is, there seems not so much to be done except the framework proposed by the Kyoto Protocol. A second reason involves the domain of national interests. Turkish experts vocalize a severe threat on earth's climate and that something must be done to minimize it; but as they don't accept national responsibility as compared to industrial countries', they don't favor strict measures which might end up with consequences limiting economic development of the nation. Although with sustainable development such contradictions seems to have resolved at a certain discursive level, at another level priorities of national economic development is still defended like a reflex. I have called this 'national interests

discourse' because as opposed to north-south discourse it is not formulated in the context of FCCC language as a struggle between countries of different backgrounds and expectations.

As Turkish experts of climate change frame it, international climate change regime is as well a battlefield of powerful interests and discourses; besides the fact that it represents a synergy to be constructed by cooperative action for the sake of survival of the human civilization. Among the frames outlined by van Dijk's (1998) critical discourse analysis are efficiency, optimization, technology transfer, responsible behavior, roadmap, burdens, cost-benefit analysis, and national interests. As noted above, Turkish experts seem to follow a good trail of what goes on with the current climate negotiations. But when it comes to action they either are cautious, or profess that there is not so much to be done about the environment being harmed. The majority still, favor cautiously first of all a rigorous analysis of the burdens and benefits that would result finally the 'practicable steps' to be taken. The frame of practicability signifies that the interviews have taken place in the domain of realism and rationalism. The last question of the interview was an attempt to transcend that rationalist perspective, which unfortunately received no answers satisfying that need. Because the framework of climate change is related to a wide variety of other policies at its core, policymakers always have to consider the necessities of other domains, which exert a priority of influences of security, national interests, addressing poverty, and development in all scales. This fact possibly keeps them within the boundaries of realism. As the magnitude of the challenge reveals, need for more innovative and adverse policies crystallize.

Since Turkey's acceding the UN FCCC has happened very late as compared to other countries, the institutional mechanisms are yet in the process of formation. Based on various reports produced in the process of Turkey's efforts to be excluded from the list of responsible countries, which basically argue that emissions of Turkey are far from those of the industrialized countries, some priority sectors and measures are already available. The 9th development plan prepared by the State Planning Organization addresses the National Operation Plan in preparation to contain

policies and measures for mitigation of the greenhouse gases.

The number of studies concerning the effects of climate change and adaptation policies, and those assessing the means of mitigation in Turkey are very few in numbers. The framework of climate change in Turkey, as subjects of the study also mention, largely depend on those of the industrialized nations. As the concepts of sustainable development, emissions trading, technological progress and transfer of technologies are placed at the heart of the climate change debate in the 1980s and 1990s, Turkish policymakers do not articulate anything else than such measures. On the one hand, this might be interpreted as an imperative or natural phenomenon, on the other though, it reflects one best example of governmentality. Against the concept of governance, which was rendered as a myth at least in the developing world of the time; governmentality was defined as the ways which vast domains of daily life are appropriated, organized, and managed by expert knowledge and the administrative apparatuses of the state. In this context, domains of daily life are exemplified as energy markets, insulation for efficiency, new and efficient consumer technologies, hybrid vehicles and the like. But where is the state as the subject of the former sentence?

Transcending all categories of the national, climate change regime with a truly global understanding of government, renders the state merely a tool for application of the policies. It is not the states, nor the power blocks like G77, EU, nor even United States who dictates policies. It is not the spirit of time for dictating policies anyway. In the modern network society, natural sciences provide the authority that is necessary to govern the daily life in all its dimensions. Thus, if we are to seek how the global policies are formulated, we have to trace the power and sponsorship relations that determine the scope of techno-science. Power and domination are inherent to the framework which the global environmental policies are formulated. This is no different in the case of international climate change politics and policies. The concepts belonging to the new-age of environmental policymaking like governance, stakeholder dialogue and interdependencies should be interpreted cautiously with analyses of power and control.

For the effective responses to the threat of climate change to take off in Turkey, governance structure of the global order is being settled. This study in a way is an observation of the mental landscape that is in transition, which is inevitable and in some ways, necessary. But as the capability of the current global responses is evidently not sufficient to tackle climate change, the very common grounds of the global policies must be targeted. Application of the measures of the current climate regime will be realized in the next decade, which will possibly result in a more rigorous frame of policy responses. If Turkey will not be taking part in the policy processes, more adverse consequences on the 'national interests' can be expected. Thus, no regret policies would become favorable and applicable in Turkey for the near future: Increasing efficiency and minimizing carbon intensity can take place easily since they combine interests of all parties in the climate equation.

But since the problem, within the scope of this study, is not formulated as a merely technical one to curb emissions, but rather a question of how humanity would deal with such consequences of techno-scientific progress; a focus on modern reasoning and management of nature is necessary. Humanity's subject position in management of the planet is simply given in the spectrum of Turkish discourse, so is the mindset of international treaties. This anthropocentric stance could be reasoned by a perceived responsibility of humans on what they have done so far, or by an irresponsibility to reorganize everything to fit humanity's 'needs', it doesn't matter so much. The world as a picture keeps fading away in the projected images of the near future; and our generation has the chance to watch it as projected. The question is if we have the chance to do anything else than watching. The optimist stance necessitates a radical shift in social, political and ethical constructs of the modern civilization.

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APPENDIX A

The Questionnaire ANKET FORMU

Aşağıdaki anket soruları iklim değişikliği alanında uğraş veren kişilerin çevre ve teknoloji alanlarındaki yaklaşım ve tutumlarını ölçmek için hazırlanmıştır. Soruların doğru cevapları yoktur ve sonuçlar anonim olarak sadece Orta Doğu Teknik Üniversitesi Bilim ve Teknoloji Politikaları Çalışmaları Yüksek Lisans Programı'na sunulacak akademik bir çalışma için kullanılacaktır. Ortalama cevaplama süresi 10 dakika kadardır. Lütfen bir ifadeyi okuduktan sonra aklınıza ilk gelen şıkı seçmeye ve işaretsiz ifade bırakmamaya çalışınız.

Teşekkürler,
Mehmet Ali Üzelgün

Doğum Yılıınız :

Cinsiyetiniz : K () E ()

Eğitim/Diploma aldığınız alan(lar) :

Mesleğiniz :

Çalıştığınız kurum(lar) bugün :

Çalışmalarınız hangi sektöre dahildir?

() Kamu () Özel () Akademi () Sivil Toplum

Çalıştığınız alanda kaçınıcı yılıınız?

Çalıştığınız kurumda kaçınıcı yılıınız?

Şu anki göreviniz hangi kategoridedir?

() Yönetici () Teknik () Politika Üreticisi () Diğer :

Aşağıda çevre, insan ve teknolojiye dair genel ifadeler bulacaksınız.

Lütfen ifadelere katılıp katılmadığınızı işaretleyiniz.

1. Dünyanın besleyebileceği insan nüfusunun limitine ulaşıyoruz.
2. Çevresel sorunlar basit teknik müdahalelerle aşılamayacak bir hal aldılar.
3. İnsanlar doğaya müdahale ettiklerinde sıklıkla felaketlere yol açarlar.
4. İnsan sahip olduğu teknolojik olanaklarla her türlü felaketin üstesinden gelebilir.
5. Eğer herşey böyle gitmeye devam ederse yakında büyük bir ekolojik yıkım yaşayacağız.
6. Biz onları nasıl geliştireceğimizi öğrensek dünya doğal kaynaklarla doludur.
7. Bitki ve hayvanların da insanlar kadar var olma hakları vardır.
8. Doğanın dengesi, modern sanayi ülkelerinin etkileriyle başa çıkacak kadar güçlüdür.
9. Özel becerilerimize rağmen, insanlar yine de doğa kurallarına tabidir.
10. İnsanlığı beklediği söylenen "ekolojik kriz" fazlasıyla abartılıyor.
11. Dünya, sınırlı yer ve kaynaklarıyla bir uzay gemisine benzetilebilir.
12. Çevre sorunlarının önlenmesi konusunda, çevre dostu alternatif teknolojilerin varlığı ve gün geçtikçe yaygın olarak kullanımı dahi çözüm değildir.
13. Doğanın dengesi çok narindir ve kolayca bozulabilir.

Kesinlikle katılmıyorum
Katılmıyorum
Fikrim yok
Katılıyorum
Kesinlikle katılıyorum

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14. Eninde sonunda insanlar, doğanın nasıl çalıştığını öğrenip, onu kontrol edebileceklerdir.
15. İnsan zekası ve sosyal ilişkileri nedeniyle doğadaki tüm varlıklardan daha gelişmiş olduğundan; yeryüzünde ayrıcalıklı bir öneme sahiptir.
16. İnsanlar en son teknolojik gelişmelerden faydalansalar bile doğaya hükmetmeleri mümkün değildir.
17. İnsanlığın kendi çıkarları için doğayı kullanması, kendi varlığını tehdit eder bir konuma gelmediği sürece sorun yaratmaz.
18. En gelişmiş teknolojilerde bile risk söz konusudur.
19. Toplumlar kalkınma ısrarından vazgeçmedikçe çevre sorunları çözülemez.
20. İnsan nüfusu hızla artmaya devam etse bile, gelişen teknoloji sayesinde; su, besin gibi temel kaynakların tükenmesi söz konusu değildir.
21. İnsan teknolojik olarak doğaya ne kadar müdahale ederse etsin, doğa mutlaka kendini yeniler.
22. İnsanlar çevreyi feci şekilde sömürüyorlar.
23. İnsan düşünme gücü ve zekası sayesinde doğanın tüm inceliklerini öğrenecek ve onu istediği gibi kontrol altına alacaktır.
24. Radikal çevreciler, kendi önerilerine toplumda yankı bulmak için insanın doğa üzerindeki tahribatı konusunu abartmaktadırlar.
25. İnsanın daha rahat koşullarda yaşaması anlamında kalkınma sonlanmayacak bir süreçtir.
26. İnsan becerisi, dünyayı yaşanmaz bir yer haline getirmeyeceğimizin garantisidir.
27. Teknoloji ve bilgi çağında olmamıza rağmen, insanoğlu doğayı yeterince tanımamaktadır.
28. Doğanın kendini yenileme gücü artık insan kaynaklı kirliliği önlemeye yetmemektedir.
29. Her yeni teknoloji getirdiği olumlu yeniliklerle birlikte olumsuz yanlar da taşır.
30. Aslında çok önemli olmayan ve kısa vadede çözümü mümkün olan çevre sorunları medya tarafından abartılmakta ve kamuoyuna bu şekilde sunulmaktadır.
31. İnsanoğlu aklı ve zekası sayesinde, çevre kirliliği açısından en kötü noktaya ulaştığında mutlaka yeni olanaklar yaratarak yaşamını devam ettirecektir.
32. İnsanlık doğaya müdahalesini kısıtlamazsa yeryüzü ve kendi geleceğini yok edebilir.
33. Sanayi toplumunun ilerleyişinin yaklaşmakta olduğumuz bir sınırı vardır.
34. İnsanlığın hayatını kolaylaştıran bir teknolojiden çevre zarar görüyor diye vazgeçmesi gerçekçi değildir.

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Aşağıda iklim değişikliği önlemleri ve politika seçenekleri hakkında ifadeler bulacaksınız. Lütfen katılıp katılmadığınızı işaretleyiniz.

1. Yeni teknolojileri derhal uygulamaya sokmamız bile iklim sorununu çözmeyecektir.
2. İklim değişikliği, abartıldığı kadar yıkıcı sonuçları olan bir sorun değildir.
3. İklim değişikliğinin artmasını önlemek, ona uyum sağlamak önceliklidir.
4. Ekonomik büyümeyi yavaşlatma pahasına da olsa doğa korumaya öncelik verilmelidir.
5. Çevre bir miktar zarar görecektir de olsa ekonomik kalkınmaya öncelik verilmelidir.
6. Sanayi ve iş dünyasının çevreyle uyumlu üretim çabası, satın aldığımız ürün ve hizmetlerin daha pahalı olmasına yol açacaksa, bu bedeli ödemeliyiz.
7. Maliyetleri yüksek de olsa enerji üretiminde yenilenebilir kaynaklar tercih edilmelidir.
8. İnsanlık iklim değişikliği sorununu ancak daha az tüketerek çözebilir.
9. İklim sorununu çözenin tek gerçekçi yolu yeni çevre duyarlı teknolojilerdir.
10. Fosil yakıtların sınırlılığı ve iklim sistemi üzerindeki etkisi düşünüldüğünde, nükleer enerji ele alınması ve teşvik edilmesi gereken bir seçenek olmaktadır.
11. İklim değişikliği nedeniyle yakın gelecekte insanlık açlık tehlikesiyle karşılaşacaktır.
12. Kyoto Protokolü'nün iklim değişikliğinin çözümüne katkısı yetersizdir.

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| Kesinlikle katılmıyorum | Katılmıyorum | Fikrim yok | Katılıyorum | Kesinlikle katılıyorum |
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13. Kyoto Protokolü bir çevre sözleşmesinden çok bir ticaret anlaşması niteliğindedir.
14. Kyoto Protokolü tüm politik imkanlarla desteklenmelidir.
15. Gelişmekte olan bir ülkenin uygulayacağı çevre politikaları, gelişmiş bir ülkenin politikalarından farklı olmalıdır.
16. Çevre gibi temel yaşamsal konularda tüm ülke ve uluslara eşit görev düşmektedir.
17. Türkiye Kyoto Protokolüne taraf olmak için elinden geleni yapmalıdır.
18. Türkiye Kyoto Protokolüne taraf olmak için yeterli çabayı göstermemiştir.
19. Türkiye Kyoto Protokolü çerçevesinde yükümlülük alacak durumda değildir.
20. Türkiye gibi gelişmekte olan ülkeler çevre sorunlarından önce yoksulluk ve kalkınma sorunlarını çözmelidirler.
21. Kyoto Protokolü ekonomik küreselleşmenin yeni aşamalarından biridir.
22. Türkiye'de enerji politikaları, çevre sorunları göz ardı edilerek oluşturulmaktadır.
23. Türkiye gibi kalkınmakta olan ülkelerin bir süre daha fosil yakıtlardan yararlanması kalkınmış uluslarca kabul edilmesi gereken bir gerekliliktir.
24. Enerji üretmek için eski teknolojilerle kömür yakmak dünya çapında yasaklanmalıdır.
25. Türkiye'nin verili şekliyle Kyoto'yu imzalamamakta haklı gerekçeleri vardır.
26. Türkiye gibi gelişmekte olan ülkelere, çevreye daha fazla zarar vermemek için, gelişmiş ülkelerin yardımıyla teknolojik sıçrama yapmaları beklenir.
27. Dünya ülkeleri iklim değişikliğini önlemek konusunda sorumluluktan kaçmaktalar.
28. Sorunların çözümü olabilecek yeni teknolojilerin geliştirilmesi için bilimsel araştırmalara daha çok destek verilmesi gerekir.
29. İklim değişikliği ile mücadele için sanayi ve iş dünyasına yönelik daha sınırlayıcı kanunlar çıkarılması gerekir.

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Açık Uçlu Sorular: Lütfen kişisel fikirlerinizle olabildiğince geniş kapsamda cevaplayınız

İklim değişikliği ile mücadelede Türkiye'nin önümüzdeki yıllarda alması gereken tedbirler nelerdir ?

İklim değişikliği ile mücadelede Türkiye'nin hangi teknolojilere yatırım yapması doğrudur ?

İklim değişikliği sorunundan çıkış yolu toplumda ne tür değişiklikler gerektirir?

İklim değişikliği dolayısıyla gündelik yaşamınızda değiştirdiğiniz alışkanlıklar var mıdır? Neler?

Türkiye'nin ilk ulusal sera gazı envanter sonuçlarını nasıl değerlendiriyorsunuz?

Elinizde olsa, iklim değişikliğinde bugünkü uygulamalardan farklı olarak ne tür politikalar ürettirdiniz?

QUESTIONNAIRE

Questions below are prepared to measure approaches and attitudes of climate change specialists on domains of environment and technology. There are no right answers to the questions. The results will be used only in an academic paper to be submitted to the Science and Technology Policy Studies of the Middle East Technical University. Avarage duration to answer the scale is about 10 minutes.

Please try to mark the first choice as it appears and not to leave blanks.

Thanks,
 Mehmet Ali Üzelgün

Year of Birth: Gender : F () M ()

Field(s) of Education :

Profession :

Institution(s) of occupation :

Which sector does your work operate within?
 Public Private Academic Non-governmental

How long have you been working in your field?

How long have you been working in your institution?

Which of the following categories describe your job position best?
 Manager Technical Policymaker Other:

Below you will find general statements concerning environment, humanity and technology. Please mark your level of agreement.

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|-------------------|----------|----------------------------|-------|----------------|
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
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1. We are approaching the limit of the number of people that the earth can support.
2. Environmental problems are no more in a state that simple technical interventions can overcome.
3. Human intervention to nature often results in catastrophes.
4. Humans can overcome all disasters with the technological means they have.
5. If things continue on their present course, we will soon experience a major ecological catastrophe.
6. The earth has plenty of natural resources if we just learn how to develop them.
7. Plants and animals too, have the right to exist like humans.
8. The balance of nature is strong enough to cope with the impacts of modern industrial states.
9. Despite our special abilities, humans are still subject to the laws of nature.
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated.
11. The earth is like a spaceship with only limited room and resources.
12. Even availability of environment-friendly technologies and their widespread use are not proper solutions for the elimination of environmental problems.
13. Nature has a delicate balance and might easily upset.

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| 14. Humanity will learn all details of nature and keep things under control the way he wants. | | | | | |
| 15. Man has a distinctive value among other creatures for his intelligence and social relations. | | | | | |
| 16. It is impossible for people to dominate over nature even if they benefit from the latest technological developments. | | | | | |
| 17. The utilization of nature by man for his own interests does not matter unless his existence is threatened. | | | | | |
| 18. There are risks even in the most developed technologies. | | | | | |
| 19. Environmental problems cannot be solved unless societies abandon the urgency of development. | | | | | |
| 20. Despite the rapid population increase, depletion of basic resources such as water, food will be out of concern, thanks to the technological progress. | | | | | |
| 21. The nature can refresh itself despite the magnitude of human intervention. | | | | | |
| 22. Mankind is severely abusing the environment. | | | | | |
| 23. Thanks to his mind and intelligence, humanity will discover all details of nature and keep it under control the way he wants. | | | | | |
| 24. In order to make people agree with their proposals, radical environmentalists exaggerate the idea that human beings destroy nature. | | | | | |
| 25. Development as the quest for more comfortable conditions is a never ending process. | | | | | |
| 26. Human ingenuity will ensure that we do not make the world unlivable. | | | | | |
| 27. Although it is the age of information and technology, nature is not understood well enough by mankind. | | | | | |
| 28. Self-refreshment capacity of nature is no more capable of overcoming the pollution of man. | | | | | |
| 29. Every new technology has disadvantages besides the advantages it brings. | | | | | |
| 30. 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. | | | | | |
| 31. Man through his intelligence, creating new possibilities, will survive even if the earth reaches the worst point in environmental pollution. | | | | | |
| 32. Mankind might destroy his future and the environment, if he does not limit his intervention to nature. | | | | | |
| 33. There is a limit to the growth of the industrial society that we currently encounter. | | | | | |
| 34. It is not realistic to discard a certain technology because it harms the environment. | | | | | |

Below you will find statements concerning climate change policy measures and choices. Please mark your level of agreement.

| | | | | | |
|---|-------------------|----------|----------------------------|-------|----------------|
| | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
| 1. Even the immediate application of new technologies will not solve the climate problem. | | | | | |
| 2. Climate change is not such a destructive problem as it is exaggerated. | | | | | |
| 3. Mitigation of greenhouse gases is a priority over adaptation to consequences. | | | | | |
| 4. Environmental protection must be prioritized at the risk of slowing down economic growth | | | | | |
| 5. Economic development should be prioritized at the risk of some amount of environmental destruction | | | | | |
| 6. If environment friendly production of industry is to cause a rise in price of services and goods we consume, we should face the costs. | | | | | |
| 7. Even if they are expensive, renewable resources must be preferred in energy production. | | | | | |
| 8. Humanity can solve the climate problem only by consuming less. | | | | | |
| 9. The only realistic way to solve the climate question lies in new environmental technologies. | | | | | |
| 10. Nuclear energy becomes an option to support when we consider the effect of fossil fuels on climate | | | | | |
| 11. Humanity will face hunger in the near future due to consequences of climate change | | | | | |
| 12. Kyoto Protocol's effect in solving climate change problem is insufficient. | | | | | |

- 13. Kyoto Protocol is more like a trade agreement than an environmental treaty.

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- 14. Kyoto Protocol must be supported with all political means.

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- 15. Policies of a developing country should be different from a developed country's policies

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- 16. In issues of basic rights, like environment, all countries and nations share the responsibility.

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- 17. Turkey should do whatever it can to take part in Kyoto.

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- 18. Turkey has not put forth enough effort to take part in Kyoto Protocol.

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- 19. Turkey is not in a position to take commitments under the Kyoto Protocol

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- 20. Developing countries like Turkey should prioritize development and poverty problems before environmental problems

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- 21. Kyoto Protocol is a new phase of economic globalization.

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- 22. In Turkey, energy policies are prepared by ignoring the environmental problems.

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- 23. Developed nations should accept the necessity of Turkey as a developing country to use fossil fuels freely.

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- 24. Coal plants with old technologies must be banned all over the globe.

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- 25. Turkey has rightful reasons in not taking part in Kyoto Protocol.

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- 26. It is expected from developing countries like Turkey to jump over technologies with help of developed countries, to not to harm the environment even more.

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- 27. Countries of the world are escaping responsibility to prevent climate change.

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- 28. Scientific research should be supported more in order to develop new technologies that would help tackling climate change.

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- 29. More restrictive laws must be issued towards industry and business world concerning climate change

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Open-ended questions: Please answer widely with your personal views.

What are the measures that Turkey should take in the coming years to tackle climate change?

In the struggle to slow climate change which technologies would be better fit for Turkey to invest in?

What kind of societal changes are necessary to overcome the burden of climate change?

Have you experienced any change in your habits concerning daily life due to climate change?

How do you evaluate the first national greenhouse gas inventory of Turkey?

If you would have the chance, what kind of policies would you propose differing from the present applications?

APPENDIX B

Factor Structure of the Attitude Test

| Factor 1 : Ecological crisis, 13 items | | | | | |
|---|---|-------------|----------|----------|----------|
| Alpha : .8266 | | Loadings | | | |
| % variance : 15.34 | | | | | |
| | Items | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
| A22 | Mankind is severely abusing the environment. | .682 | .406 | | |
| A10 REV | The so-called "ecological crisis" facing humankind has been greatly exaggerated. | .672 | -.510 | | |
| A32 | Mankind might destroy his future and the environment, if he does not limit his intervention to nature. | .652 | | | .432 |
| A30 REV | 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. | .640 | | | |
| A33 | There is a limit to the growth of the industrial society that we currently encounter. | .634 | | .356 | |
| A24 REV | In order to make people agree with their proposals, radical environmentalists exaggerate the idea that human beings destroy nature. | .627 | | | |
| A12 | Even availability of environment-friendly technologies and their widespread use are not proper solutions for the elimination of environmental problems. | .513 | | | |
| A16 | It is impossible for people to dominate over nature even if they benefit from the latest technological developments. | .510 | | | |
| A5 | If things continue on their present course, we will soon experience a major ecological catastrophe. | .462 | | | |
| A11 | The earth is like a spaceship with only limited room and resources. | .457 | | | -.428 |

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| A2 | Environmental problems are no more in a state that simple technical interventions can overcome. | .446 | | | |
| A14 REV | Humanity will learn all details of nature and keep things under control the way he wants. | .431 | | | |
| A31 REV | Man through his intelligence, creating new possibilities, will survive even if the earth reaches the worst point in environmental pollution. | .500 | -.508 | -.396 | |
| Factor 2 : Balance of Nature must be respected, 8 items | | | | | |
| Alpha : .6729 % variance: 11.31 | | Loadings | | | |
| | Items | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
| A18 | There are risks even in the most developed technologies. | | .686 | | |
| A15 | Man has a distinctive value among other creatures for his intelligence and social relations. | | .668 | | |
| A13 | Nature has a delicate balance and might easily upset. | .374 | .585 | | |
| A7 | Plants and animals too, have the right to exist like humans. | .334 | .482 | -.443 | |
| A23 REV | Thanks to his mind and intelligence, humanity will discover all details of nature and keep it under control the way he wants. | | .466 | | |
| A25 | Development as the quest for more comfortable conditions is a never ending process. | | .445 | | |
| A28 | Self-refreshment capacity of nature is no more capable of overcoming the pollution of man. | | .413 | | |
| A17 | The utilization of nature by man for his own interests does not matter unless his existence is threatened. | -.320 | .409 | | |
| Factor 3 : Limits are anthropogenic, 5 items. | | | | | |
| Alpha : .6856 % variance: 9.26 | | Loadings | | | |
| | Items | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
| A20 | Despite the rapid population increase, depletion of basic resources such as water, food will be out of concern, thanks to the | | | .684 | |

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| | technological progress. | | | | |
| A1 REV | We are approaching the limit of the number of people that the earth can support. | | | .661 | |
| A29 | Every new technology has disadvantages besides the advantages it brings. | | .328 | .599 | |
| A21 | The nature can refresh itself despite the magnitude of human intervention. | | | .518 | |
| A19 | Environmental problems cannot be solved unless societies abandon the urgency of development. | .398 | .412 | .517 | |
| Factor 4 : Techno-engineering, 6 items (After deletion of items A3 and A26) | | | | | |
| Alpha : .6022 % variance : 8.57 | | Loadings | | | |
| | Items | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
| A27 | Although it is the age of information and technology, nature is not understood well enough by mankind. | | | | .786 |
| A6 | The earth has plenty of natural resources if we just learn how to develop them. | | | | .569 |
| A34 | It is not realistic to discard a certain technology because it harms the environment. | | | -.347 | .531 |
| A8 | The balance of nature is strong enough to cope with the impacts of modern industrial states. | | | .396 | .492 |
| A9 | Despite our special abilities, humans are still subject to the laws of nature. | | | | .424 |
| A4 | Humans can overcome all disasters with the technological means they have. | | | | .361 |