A thesis submitted to the Department of Environmental Science and Policy of Central European University in part fulfillment of the Degree of Master of Science

Title: Environmental Policy and Politics in the Kyrgyz Republic: National Capacity for Environmental Policy and Management

Nurjan Djumabaev

March 2007

Budapest

Note on copyright and the ownership of intellectual property rights:

(1) Copyright in text of this thesis rest with the Author. Copies (by any process) either in full, or of extracts, may be made only in accordance with instructions given by the Author and lodged by the Central European Library. Details may be obtained from the Librarian. This page must form part of such copies made. Further copies (by any process) of copies made in accordance with such instructions may not be made without the permission (in writing) of the Author.

(2) The ownership of any intellectual property rights which may be described is vested with Central European University subject to any prior agreement to the contrary, and may not be made available for use by third parties without the written permission of the University, which will prescribe the terms and conditions of any such agreement.

(3) For bibliographic and reference purposes this thesis should be referred to as:

Djumabaev, N. 2004. Environmental Policy and Politics in the Kyrgyz Republic: National Capacity for Environmental Policy and Management. Master of Science thesis, Department of Environmental Science and Policy, Central European University, Budapest.

Further information on the conditions under which disclosure and exploitation may take place is available from the Head of the Department of Environmental Science and Policy, Central European University.

List of abbreviations

ADB - Asian Development Bank
CAS - Country Assistance Strategy
CDE - Capacity Development in Environment
CDF - Comprehensive Development Framework
CEE - Central and Eastern Europe
CIT - Countries in Transition
CSD – Commission on Sustainable Development
DAC - Development Assistance Committee
DENRM - Department of Ecology and Natural Resource Management
EA - Environmental Assessment
EIA - Environmental Impact Assessment
EAP - Environmental Action Plan
EU - European Union
GAIA - Global Anti Incinerator Alliance
GDP - Gross Domestic Product
GTZ - German Society for Technical Cooperation
IDA - International Development Agencies
LEEP - Law and Environment Eurasia Partnership
KR - Kyrgyz Republic
MEA - Multilateral Environmental Agreements
MEE - Ministry of Ecology and Emergencies
MEP - Ministry of Environmental Protection
MMO - Monitoring Management Office
NEAP - National Environmental Action Plan
NGO - non-governmental organization
NIS - Newly Independent Sates
OECD - Organization for Economic Cooperation and Development
PER - Public Ecological Expertise
REC – Regional Environmental Centre for Eastern and Central Europe
ROEP - Regional Offices for Environmental Protection
SAL - Structural Adjustment Lending
SER - State Ecological Expertise
SES - Sanitary and Epidemiology Station
SFS - State Forestry Service
SIDA - Swedish International Development Cooperation Agency
UNDP - United Nation Development Program
UNEP - United Nation Environmental Program
UNECE - United Nations Economic Commission for Europe
USSR - the Union of Soviet Socialist Republics
WB - World Bank
WTO - World Trade Organization

Acknowledgments

I would like to offer my sincere thanks to:

Prof. Alexios Antypas, my supervisor, for his insightful comments and support throughout the project,

Oleg Pechenuk, for generously providing me with an opportunity to use his personal library during the research in Bishkek.

Vladimir Korotenko, for his invaluable comments and assistance during the research period.

To the staff of the Department of Environmental Science and Policy for their assistance and creation of the pleasant working environment throughout the academic year.

CENTRAL EUROPEAN UNIVERSITY

ABSTRACT OF THESIS submitted by:
Nurjan DJUMABAEV
for the degree of Master of Science and entitled: Environmental Policy and Politics in the Kyrgyz Republic: National Capacity for Environmental Policy and Management

Month and year of submission: March, 2007

The thesis objective was to explain the capacity challenges in the environmental policy and management of the Kyrgyz Republic through the capacity model developed by Janicke. and Weidner, researchers from the Free University of Berlin, Germany. Through the analysis of the main environmental capacity categories for the Kyrgyz Republic as it is described in the capacity model, the research intended to understand in a broader sense the capacity needs in the environmental policy and management and suggest the policy orientations on the further environmental capacity building efforts. Last but by no means least, present thesis aimed to test the utility of the capacity model as an analytical tool.

The research has drawn mainly on two sources of information – reports of international donor organizations, national legislation and related legal norms, other printed materials and extensive interviewing of DENRM associates, NGO representatives and environmental consultants.

Since the early 1990s, the Kyrgyz Republic has witnessed improvements in such capacity categories as input structure of the environmental policy process, congenial relations between environmental NGOs, state environmental institutions (DENRM, SES) and international development organizations, environmental legislation and generally favourable conditions for environmental reporting. However, these were not enough to produce positive outcomes in environmental policies; the capacity of main actors for the purposive action was restricted by largely suppressive structural framework conditions expressed, *among others*, in declining environmental consciousness, fragmented environmental information system, poor coordination among the environment-related institutions, severe opposition from the businesses community and sluggish economic performance. The transition reforms which are still underway and typically associated with frequent institutional reorganizations and weak administrative capacity of the local institutions have served as a limiting factor for the capacity building in environment.

Key words: capacity for environmental policy and management, capacity model, input structure of the environmental policy process, Department of Environment and Natural Resource Management, capacity for the purposive action, structural framework conditions, environmental proponents.

Table of contents

List of Figures

List of Tables

List of Boxes

1. Introduction

The United Nation Conference on Environment and Development (UNCED) in June 1992 has firmly put the issue of capacity building in environment (CBE) on the political agenda of both developed and developing countries. The parties of the conference acknowledged the centrality of, and committed themselves to, the need to strengthen the capacity of developing countries and environmentally vulnerable nations as the part of their efforts to achieve sustainable development (UNEP 1992). Although the capacity issues brought up during the conference reflected rather broad capacity development concerns, the conference has produced momentum that inspired sustained environmental actions both within developed, and, more importantly, developing countries (OECD 2000a).

Acknowledging capacity constraints in the developing world, the industrialized nations committed themselves to assist the developing countries in their strife to enhance national capacities for environmental action. The range of initiatives and mechanisms has been devised to enable the least developed countries to achieve the sustainable development. The Global Environmental Facility (GEF), the Development Assistance Committee (DAC), the Danish Environment and Disaster Relief Facility (EDRF), Regional Environmental Centres for Eastern and Central Europe (REC), Regional Environmental Centre in Central Asia (CAREC) constitute but some examples of the capacity building mechanisms for environment (OECD 2000a).

The capacity for environment is an issue equally relevant for industrialized nations as well as counties with backward economy. More often then not, developing countries lack methodological, organizational, epistemic and technological expertise to adequately respond to the environmental problems and, therefore, they are believed to be the first candidates for building capacity for environment (Sagar 2000). In fact, the capacity needs have been well documented in the developing nations (REC 1994a) and necessary expertise is likely to come from the developed countries, which have extensive experience in addressing environmental problems and have been successful in responding to some environmental problems so far. However, the successes of the developed nations in achieving environmental improvements should be balanced against the objective limitations that underlie much of the success or failure of environmental policies and measures. For example, existing capacities for environmental action may become inadequate as the structure and extent of environmental problem changes over time. To

meet a rising challenge, often corresponding adjustments to the existing capacities should be made. This points to the idea that capacity building for environmental action is equally relevant for industrialized nations, who tend to limit themselves to so-called technical solutions where no major interventions to the market and 'societal routine' were undertaken (Janicke and Wiedner 1997).

The concept of the capacity for environmental policy and management has always been complex not only because the concept and practice of capacity for environment is amenable to multiple interpretations, but also because the environment represents the public policy issue that cuts across many other sectors and disciplines. For example, it proves difficult to identify and engage actors whose environmentally inimical activities are dispersed across many geographical and legal jurisdictions. It takes long timeframes before effects on environmental systems could be squarely attributed to specific causes and, more often then not, the correlation is rather arduous to establish. The uncertainty poses another challenge. The impacts on environment are external to and remote from to the source of problem, whereas its costs are felt and borne throughout the society (OECD 2000a). In this paper, the capacity for environmental policy and management is described as the ability of individuals, groups, originations and institutions in a given context to address environmental problems as a part of the their efforts to achieve sustainable development. The notion of *capacity development for environment* is depicted as the process by which the capacity in environment and appropriate institutional structure are enhanced (OECD 1995).

Despite the complexities that populate the capacity concept, its analytical utility has been proved most useful in a number of areas. Most notably, the concept of capacity lays stress on the importance of 'the objective limitations for the successful intervention' and suggests to avoid the excessive emphasis on the application of a single policy instrument to account for the environmental policy outcome. Along with policy instrument, the structural conditions where this instrument is being employed should be closely studied to explain the policy outcome (Janicke 1997).

The comparison between different countries as well as their disparate ability to respond to the environmental challenges constitutes another important value of the concept. The third advantage of the concept lies in the parallel that can be drawn between the capacity concept with that of development. The development of the political system is often viewed as the process of capacity building (Rye 1966) whereby the new problem solving capabilities are effectively incorporated into the existing system. In this respect, the capacity building concept is germane equally to developing and industrialized nations,

given the rising or newfound environmental problems call for the improved capacities to adequately respond to them (Janicke 1997, **3**).

The present thesis seeks to explain the capacity challenges of the Kyrgyz Republic for environmental policy and management by drawing on the environmental capacity model developed by Janicke and Weidner, from the Free University of Berlin, for cross national comparisons. The analysis of main characteristics of environmental policy and its evolution in the Kyrgyz Republic intends to test the utility of the environmental capacity framework and suggests directions for the development of national environmental policy.

The application of the capacity model to the context of the Kyrgyz Republic has been instructive for the analysis of the essential preconditions for the successful environmental policy and management. It pointed to the growing capacity of environmental proponents like environmental NGOs and some media outlets, as they began organizing around environmental issues more synergistically, building more effective partnerships for environmental action. The rise in the proponents' capacity has been observed both in organizational and individual terms, and could be attributed to, thanks to the support of multiple IDA, the abundant availability of international expertise in the country. In fact, the extensive programs spearheaded by IDA to foster the growth of civil society organizations have been well documented (*Aktsii eklogicheskih organizatsiy Kirgizstana* 1999).

The newfound capacities, such as comprehensive environmental legislation, use of economic instruments, more open input structure of the policy process, have not been exploited to the full. This could be ascribed to the low take-up of the emerging opportunities by the members of the environmental proponents on the one hand, and generally oppressive structural framework conditions, on the other. The general hostility of the business community towards the environmental authorities, fuelled by their revenue-seeking behaviour, has considerably curbed the capacity of the latter for the purposive action. The capacity of the environmental proponents for the purposive action has been restricted by the structural framework conditions.

With the view of achieving the thesis objectives, the papers drew upon the several research methods: notably, on the review of existing literature in the field and environmental legislation of the Kyrgyz Republic; the interviewing of the environmental authorities, consultants and NGOs; participation in the round tables concerning the air

permit termination and meetings of the national capacity self-assessment for global environment management in the Kyrgyz Republic.

The chapter two describes in depth the research techniques and approaches employed throughout the research to achieve the thesis objectives.

The chapter three briefly reviews the literature on the capacity development in its historical progression and, then, discuss how the concept of the environmental capacity building is different from the capacity development concept. This chapter describes the assets merits of the environmental capacity model and points to its drawbacks as an analytical tool.

The chapter four focuses on the general capacity constraints for the environmental policy in CEE and NIS region. It discusses the environmental capacity issues in general as well as the issues specific to the implementation of NEAP in the region.

The chapter five depicts the capacity within some prominent members of the international donor community – UNDP, UNEP and WB, for the effective capacity building in environment in developing countries.

The chapter six presents the findings of the capacity model application to the Kyrgyz Republic. It examines the major categories of the model and points to the main challenges in the environmental policy and management.

Finally, the last chapter concludes with the summary of the research findings and suggests recommendations on how to address the existing capacity challenges in the environmental policy and management of the Kyrgyz Republic.

2. Methodology

2.1 Overview of the research design

To achieve the thesis objectives, the study design includes the number of research tools. Primarily, the study draws upon qualitative research methods, which according to Punch (1998), is a type of research technique concerned with understanding social phenomena typically through in-depth, free-form interviews (semi-structured and unstructured), various forms of observations, and case studies.

The study uses a synthesis of inductive and deductive approaches in the course of working through the data. As stated by Kelle (1995), the inductive approach aims to reveal regularities in social phenomena through the development of concepts with their subsequent raise to a higher level of abstraction. But while recognizing the centrality of induction, deduction has equally salient role to play, as concept generation is to be accompanied by concept verification. In other words, data obtained should be analyzed and condensed into context-appropriate theory, which will be compared with relatively well-rounded theories developed in western societies thereafter. However, the focus of the thesis is not only to see if the *capacity model* is applicable in such a setting as Kyrgyzstan in the context of political and economic reforms being carried out, but also to generate a context-related theory generally guided by the capacity model. Typically, to generate such a theory, grounded theory is to be used.

Grounded theory is, as Punch (1998) puts it, means that 'the objective of collecting and analyzing data is to generate theory', which has to be developed inductively and to be 'grounded' on the data.

2.2 Data collection

The project accommodates both primary and secondary methods of data collection. While the former includes semi-structured interviews, the latter uses archival and public documents available in scientific and state institutions, NGOs, Internet sources and field notes. Secondary data will be mainly used for the literature review and triangulating.

2.3 Primary research

At this stage of the research a number of interviews are to be conducted. The choice of interviewees is to be made on the basis of their expertise in the field, position held and experience. The first interviewee shall be chosen from representatives of the Ministry of Ecology in the Kyrgyz Republic given their immediate and intensive interaction with the government as to environmental policy issues in the country. Then in order to follow up the interviewing process, 'snowball sampling' will be utilized. By snowball sampling Sudman and Kalton (1986) mean the use of the previous interviewee to trace further interview-subjects assuming that the members of your sampling know one another. In addition, the data-collection technique and the way this data is analyzed may influence sampling process. This leads to an idea of theoretical sampling. In keeping with grounded theory, theoretical sampling stands for the idea that 'theoretical developments' derived from an analysis of the previous set of data (in this case interview) should navigate consequent data-collection. This process goes on pending theoretical saturation; in other words, when further gathered data fails to produce further expansion of the theory, but only corroborates the previous conclusions (Punch, 1998).

As far as the form of interview concerned, semi-structured interviews are to be conducted. The reasoning behind the semi-structured interview is engaging a subject in an emergent, in-depth conversation, typically using a general interview protocol thus letting the subject to develop the conversation to cover a wider range of issues. On top of this, the technique is helpful in offsetting the researcher's meager background in the field. With developing new propositions in the course of data gathering, the interview protocol has been subject to constant changes. Importantly, given a possible ideological division across an interview sample, the questions of the protocol were geared accordingly, in order to augment validity of the study.

2.4 Secondary research

As it has been mentioned in section 3.0 the thesis is built on inductive and deductive approaches to data analysis. The latter, in terms of secondary research, (secondary research) encompasses the question of the applicability of the capacity model to Kyrgyzstan put together by Janicke, on the one hand, and drawing a general direction for the research while working to generate the country-related theory, on the other. As an initial step, regarding the model's applicability, a number of developed and developing

countries (case studies) where the model had been used to analyze environmental policy capacity were looked into.

2.5 Data analysis

In the context of qualitative data analysis, interviews will be analyzed in line with the grounded theory - identification of what is central in the data collected (working from description toward conceptualization). This is about forming concepts and categories consequent on data reduction and subsequently establishing linkages between those concepts (Punch, 1998).

The grounded theory analysis has three conceptually discrete, but not necessarily sequential stages of operation. These are open coding, axial coding and selective coding where coding stands for the process of labeling pieces of data. Open coding being an initial step in the data analysis, involves finding 'conceptual categories in the grounded theory analysis, at a first level of abstraction.' This approach, to put simply concerns with producing abstract concepts to be used as 'the building blocks of the theory'. Next, axial coding encompasses the establishment of linkages between the initial categories forming a group of propositions. And lastly, selective coding is about identifying the 'core category' – concentrating other concepts and categories around the one essential, overarching concept (Punch, 1998).

2.6 Validity of data

The validity issue in almost any type of research is recognized to be of fundamental importance, and therefore commands alert attention. Insofar as there is no single coherent set of methods in place in social science to analyze transcripts, conversations and texts, the question of validity always has to be addressed (Silverman, 1998). With this in mind, I employ triangulating principles to data-collection methods to enhance the validity of the study. Triangulation, in general terms, means adopting dissimilar 'vantage points' in approaching the research objectives and/or research questions thereby increasing the reliability of the study. The importance of triangulating, using independent methods to arrive at the same conclusion, lies in the process of offsetting inherent methodological weaknesses and biases by means of other, supplementary methods (Singleton, and Straits, 1999).

2.7 Limitations of the study

Over the course of study, several objective restrictions were present and are worth mentioning. First limitations were geographical and temporal and lied in the fact that the study was predominantly focused on Bishkek, and failed to include views representing the situation in other regions, particularly the southern part of the country where the main office of the Ministry of Ecology and Emergencies is headquartered. Due to time limitations, not all relevant interview subjects were reached, which means that theoretical saturation can only be approached, and more research is necessary to further develop and test the propositions of the current study.

Second, central restriction inherent in the study was the scarcity of analytical literature in the field and data pertaining to the period of the Soviet rule. This gulf in the analytical literature respecting the environmental policy/politics in the Kyrgyz Republic is meant to be bridged by means of the present research through establishing in a way basic and systematized knowledge in the environmental policy/politics realm. In this light, one can expect the study be broad in scope, stressing the descriptive accuracy over thorough analysis of the specific processes and cases.

Finally, the unwillingness of some authorities and environmental project coordinators to cooperate presented other limitation for the research. The lack of time and excessive workload were the major excuses used to elude the interviews being asked for. Frequently, the bureaucratic procedures were the major barrier to reach high-ranking officials.

3. Capacity Building in Environment Defined

The following chapter intends to provide the nuanced overview of the capacity building concept and its application in the field of environmental protection and, thereby, offer the context for better understanding of the environmental capacity building experience in the Kyrgyz Republic after the break-up of the USSR.

3.1 The evolution of the capacity building concept

The notion of capacity building has been known to the development literature since the 1950s as an essential component of the international development assistance (Sagar 2000; Grindle 1997; OECD 1995). Since the triumphant success of the Marshal Plan – a U.S. program launched to aid the economic recovery of the war-torn European countries after the World War II, there emerged a belief within international assistance agencies that the transfer of the know how and capital would instantaneously result in economic growth in recipient countries. And this simplistic perspective have persisted in development policies of technical cooperation agencies in many countries of the South East Asia, Latin America and countries of the former Soviet Union (Capacity for Development 2002).

For several decades the donors' development policies took little heed of, or remained largely blind to, the critical role of local social capital, institutions and knowledge in economic and social development of the recipient countries. The international development assistance in most parts of the developing world were driven by politics, rather then being result-oriented, thus, further compounding the problem with development of developing countries. In this period, most developing countries, except for few nations, saw meager benefit from the development assistance of the industrialized world (Capacity for Development 2002).

It is only recently that the capacity concept received renewed urgency, in part because of the increased recognition of essential role domestic capacity has to play to address development issues in developing countries. The revamped interest in capacity issues has been largely attributable to, on one hand, the huge costs and lack of effectiveness of technical cooperation programs in African states and, on the other hand, to general disillusionment with the economic reforms programs in most developing countries (Berg 1993).

The criticism of ineffectiveness in technical cooperation programs within many developing countries had led the international donor community to re-examine their approaches and issues concerning technical cooperation. Consequently, the number of major studies has been commissioned by, *inter alia*, the United Nations Development Program (UNDP), the World Bank (WB) and the Organization for Economic Cooperation and Development (OECD), the findings of which laid the groundwork for the recognition of critical role of the domestic capacity for sustainable development (Berg 1993; World Bank 1989).

The efforts made to rectify the unsound biases in the international development assistance spurred the debates on the issues orbiting around technical cooperation in various international fora. In particular, in 1994 the OECD and Development Assistance Committee (DAC), WB and UNDP organized the Conference for Technical Cooperation, where the Parties stressed the importance of development that is locally owned – the development where domestic stakeholders are actively involved and contribute to the process of economic and social development (Capacity for Development 2002).

Subsequently, in 1996, OECD/DAC approved *the Shaping 21st Century*, the seminal document conceived to give strategic orientations to the international development cooperation in the 21st century. It put forward the development objectives for the century to come – the objectives largely in line with those articulated by the UN Conferences, and suggested a vision for the future – the vision to be achieved through enhancing domestic capacity, ensuring consistent policies and enhancing coordination (OECD 1996b).

Perhaps, the most substantial work in the area of capacity development was done by the OECD/DAC. Over the last decades, DAC has put together and adopted the number of guidelines designed to raise, *inter alia*, the effectiveness of capacity building measures within the programs spearheaded by the DAC members as well as other donor agencies. These guidelines comprise the experiences and inputs of DAC members as well as individual experts and intend to direct the development activities in a more sustainable and efficient fashion (OECD 2000a). Some policy guidance thus approved include: Integrating Rio Conventions into the Development Cooperation (OECD 2002), Strategies for Sustainable Development: Practical Guidance for Development Cooperation (OECD 2001a), Guidelines for Poverty Reduction (OECD 2001b), Donor Assistance to Capacity Development in Environment (1995a), Guidelines for Environment and Aid (OECD 1995b).

As the knowledge in domestic capacities and its role for national development amassed, the major international donor institutions began considering inclusion of capacity

building components into technical assistance programs (UNDP 1997a). For example, The UN General Assembly in its Resolution 44/211 (1998) underscored the importance for the UN agencies to integrate capacity building as the crucial component in its development programs in developing countries, putting high premium on the improvement and coordination of operational activities.

Being the major funding mechanism of the UN system, UNDP factored the capacity building into its development activities under the Fifth Program Cycle and embarked on extensive survey into the issues associated with capacity building (Hildebrand and Grindle 1994). Along with UNDP, other major international donors followed suit. By the 1990s, the World Bank increased the amount of investments in technical assistance (almost 50 per cent of technical assistance lending), making the institutional development central to its technical assistance strategy. Development Assistance Committee (DAC) - a committee under the OECD, developed a set of guidelines for technical cooperation programs. The guidelines intended to sensitize the donor community to the importance of the design and implementation of the development programs as well as to the strengthening domestic capacities to the sustained growth of the recipient countries (OECD 1991).

The renewed interest in capacity building and resulting extensive research into capacity issues surrounding technical assistance produced more nuanced knowledge of various dimensions of capacity issues as well as relation between technical assistance and capacity building (Sagar 2000). Importantly, these developments resulted in the change in approaches international development institutions use to build national capacities for development. The former reliance on the measures meant to achieve program targets had been substituted for more comprehensive strategies, aiming to yield more lasting effects on the ground and generate internal capacities strong enough to carry on with the programs once the external assistance is discontinued. The early capacity building programs widely implemented across developing countries proved to be not only ineffective, but also detrimental in the longer-term perspective. The debates around capacity issues in various fora had led to the recognition that the capacity building should be focused not only on the outcome of the development programs, but also on the process itself (OECD 1997a; see also Huizenga 1997)

Although the capacity development concept is germane to virtually all areas of development assistance, the mode of application of the concept varies depending on the

area of its application. The environmental protection offers a curious area to explore how capacity building concept is applied and how the application of the concept differs from other fields. The focus of the following section is on the specific characteristics of the capacity building in the field of environmental protection.

3.2 The environmental capacity building: what makes it different?

The concept of capacity development in environment has been typically viewed as the way to assist the developing world as the part of their efforts to handle domestic and international environmental problems (Sagar 2000). The industrialized nations have committed substantial resources, within the Official Development Assistance (ODA) and other modes of technical cooperation, to build and strengthen the capabilities in developing countries to adequately respond to emerging as well as existing environmental problems (JICA 2001).Countless new technical assistance programs and initiatives emerged over the last several decades that focus on capacity building in environment. Few outstanding examples of such initiatives include:

- the Global Environmental Facility (GEF), the financial mechanism founded in 1991 by WB, UNDP and UNEP to fund projects in developing countries that benefit global environment.
- the Regional Environmental Centre (REC) for Central and Eastern Europe, the organization created in 1991 by the initiative of the United States, European Commission and Hungary to build environmental, non-governmental capacity in the countries of Central and Eastern Europe.
- The Danish Environmental and Disaster Relief Facility (EDRF), the organization created in 1993 and administered by the Danida (the South Group under the Ministry of Foreign Affairs) and Danish Cooperation on Environment and Development.

Nonetheless, the increasing transference of technical assistance to developing countries has not translated instantaneously into improved performance of countries' environmental protection systems. The (in)effectiveness of environmental capacity building initiatives has been a subject of internal and external criticism. Much of criticism concerning high costs of aid administration and failure of the technical cooperation

programs to deliver intended results led the international donor community to revisit and re-examine their approaches to technical cooperation (Berg 1993). For example, over the course of 1980s, the most of the donor's assistance focused on the 'source function' of environment, which had provided the subsistence for the most communities in the rural neighborhoods within most developing countries (Dasgupta and Maler 1994). In early 1990s, the donor's strategy in capacity building for environment had changed to increase the support to the 'sink functions' of environment (OECD 2000a).

The deeper knowledge of the capacity building needs in environment catalyzed changes in the approaches donors used to increase the effectiveness of the capacity building efforts in developing countries. The major progress was made by the bilateral and multilateral aid institutions to mainstream environmental concerns in all development activities, including programs, projects and strategies (WB 1994; for more detailed account of the mainstreaming of environmental concerns within WB see section 4.3.2).

In addition to the changes in the substance of capacity building programs, the mode of delivery had altered correspondingly. 'The organizational entry point' of the donor agencies has shifted from state-centered development policies to the non-governmental sector, increasing the flow of technical assistance to the civil society organizations (OECD 2000a, **117**). The creation of REC for Eastern and Central Europe, the organization mandated with raising the non-governmental, environmental capacity for environmental action, represents instructive example of the change of capacity building strategy in environment (VanDeveer Stacy and Geoffrey Dabelko 2001).

As far as the organizational entry points are concerned, most programs and initiatives in environmental capacity building appeared to have hinged on two principal tenants: a) environmental problems are best countered through environmental programs and projects; b) environmental programs and projects are best handled by environmental organizations (OECD 2000a, **14**). However, the study commissioned by the Netherlands Ministry of Foreign Affairs found that *"environmental problems can not be solved by means of specific environmental projects... if they do not or can not address the underlying factors involved"* and that *"environmental interventions do not necessarily bring in environmental benefits while projects not labeled environmental sometime do much to improve environmental management"* (the Netherlands Ministry of Foreign Affairs 1994).

Despite these trends, the preponderance of environmental capacity development programs and projects tend to have involved central state institution(s) for their implementation. For instance, the multiple initiatives and policies produced and

championed by the United Nations agencies to combat desertification have been reliant on the some sort centralized state institution(s) (OECD 2000a, **118**).

Moreover, the emergence of separate funding mechanism have contributed to the increased "sectoralization" of environmental issue, running counter to the integration principle of development and environmental concerns stipulated in the Brudtland Report and Rio Declaration and perpetuate policy inconsistency within donor agencies. (OECD 2000a, **42**)

What is distinctive in the discussion of capacity issues for environment is that environmental policy represents the public policy field where limitations of government to address national and international environmental challenges seem to be the most prominent (Luhmann 1990). These limitations of government are often viewed as the incapacity of the country to apply more preventive approaches to environmental policy (Janicke 1990). However, such *'government failures'* can not be squarely ascribed to the lack of existing capacities, since even relatively potent capacities found in most developed nations are prone to weaken over time as the nature of environmental problem grow in scale and complexity and existing capacities should therefore be continuously revised and strengthened if the government wants to ensure adequate response to the ever-increasing environmental challenges (OECD 1994).

Importantly, the capacity building for environment is by no means the issue to be addressed solely by developing countries. Clearly, the countries with advanced economies can adopt more aggressive policies, and invest more resources, to counter environmental problem domestically as well as internationally. However, there are environmental issues that proved intractable even for countries with fully-developed economies. For example, the transportation and attendant environmental air pollution, loss of biological diversity and natural habitat, industrial pollution continue to plague most developed nations to date (Janicke 1997).

The capacity building for environment is and has always been the major challenge for the developing countries given sparse resources available to attend to all development issues on the agenda. More often then not, they prefer to concentrate their scarce resources to attend to issues of macroeconomic performance and improvement or maintenance of basic social services. To date, only a few countries have been known to genuinely put high premium on the sustainable development as the main development strategy of the country (OECD 2000a).

3.3 The national capacity for environmental policy and management

What is the national capacity for environmental policy and management? The OECD (1994) defines it as 'the ability of the individuals, groups, organizations and institutions in a given setting to address environmental issues'. This concept is instructive in terms of the restrictions implicit in the given environmental policy subsystem, the restrictions that prevent successful resolution of the environmental problems (Janicke Martin 1997). The author contends that 'the objective restrictions such as lack of ecological, technologic or administrative knowledge, lack of material or legal resources, the weakness of environmental organizations or institutions in relation to vested interests' are well-known factors stymieing the effective solution of environmental issues. The author goes on to argue that the national capacity can by no means be reduced to the state administered policies, but is directly proportionate to the 'societal forces of all kind'.

It must be noted, however, that the capacity for environment should be seen as an emergent process. As environmental challenges are changing over time, similarly the capacity to handle new environmental problems should be similarly advancing to be able to address them in an adequate fashion (OECD 1994, **11**).

As regards to capacity limitations, it is equally relevant for both developed and developing countries. Undoubtedly, the industrialized nations made most progress in the environmental field. Nonetheless, the author argues, most success stories were limited to the areas not profoundly interfering with *'the markets or relevant societal routines'*. Rather, these successes were attributable to *the 'standard technical solutions'* - short-term solution approaches to address environmental problems (Janicke 1997).

The concept of the capacity for environmental policy and management has always been complex not only because the concept and practice of capacity for environment is amenable to multiple interpretations, but also because the environment represents the public policy issue that cuts across many other sectors and disciplines (Sagar 2000). For example, it proves difficult to identify and engage actors whose environmentally inimical activities are dispersed across many geographical and legal jurisdictions. It takes long timeframes before effects on environmental systems could be squarely attributed to specific causes and, more often then not, the correlation is rather arduous to establish. The uncertainty poses another challenge. The impacts on environment are external to and remote from to the source of problem, whereas its costs are felt and borne throughout the society. Thus, the solution of environmental problems calls for multi-pronged approaches, which stress the multidisciplinary and comprehensive nature of solutions required (Sagar

2000). The following section focuses on the discussion of the analysis framework that offers comprehensive account of the environmental policy outcomes.

3.4 The capacity model for explaining environmental policy outcome

The environmental policy explanation model developed by Martin Janicke, the Head of the Environmental Policy Research Unit of the Free University Berlin, encompasses a wide range of considerations (see the model, Figure 1) and seeks to give explanation for environmental policy failure or success by allowing for the *'… complex interaction of influences and not by a single, isolated factor, nor a particular instrument, nor a single type of actor, nor a particular framework condition or institution'* (Janicke 1997).

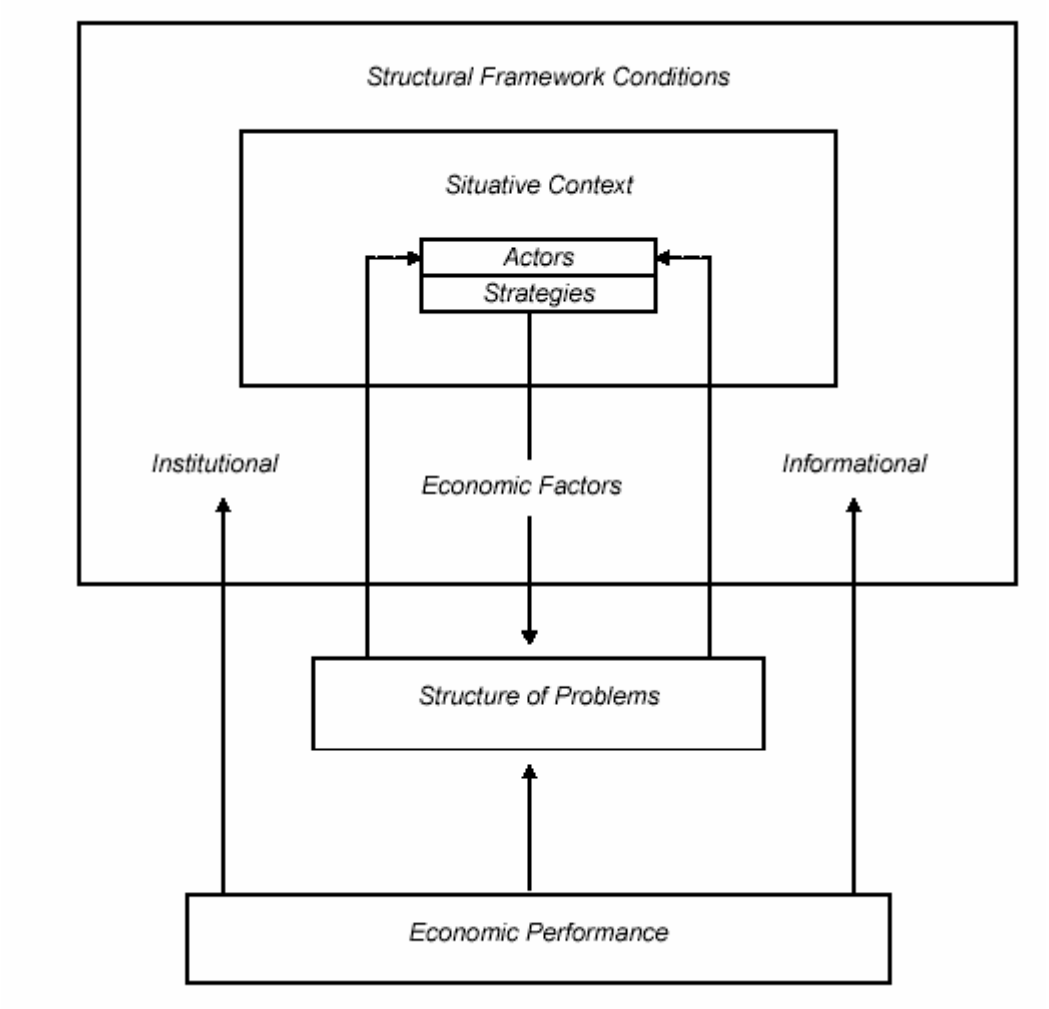


Figure 1. Environmental Policy Explanation Model. Source: M. Janicke (1997)

The author reasons that the duress of environmental problems makes actors to '… develop and implement strategies (typically against opposing target groups) under systemic conditions and situative framework. The outcome then is influenced mainly by the following factors (see the Figure 1): a) actors, b) strategies c) systemic framework conditions, d) situative context and e) problems'. He continues to argue that typically the structural framework conditions and situative context are more important than the policy instruments employed. However, the role of policy instruments can not be underestimated. The shrewdly designed instruments provide for 'appropriate, skillful reaction to changing situations, the exploitation of polluters` weaknesses, or learning processes'.

The utility of the model, as an analytically potent tool, was trialed in a number of developed and developing countries (Janicke 2001). However, several drawbacks inhere in the model, of which Murphy (2001) identifies four: a) lack of engagement with spatial scale; b) focus on capacity at the expense of capacity building; c) failure to consider micro-level influences and; d) lack of sophistication in treatment of environmental problems'.

Firstly, the model stresses structural factors as being formative and determining vis-à-vis policy outcome, and belittles 'the possibility of purposive action to improve capacity for environmental action' (Murphy 2001). The author argues that it makes the model to some extent 'deterministic'. To this, however, Janicke (1997) responds by including the discussion on environmental capacity building into the model, namely the technology and expertise transfer to countries with a poor capacity to counter environmental problems on their own.

The second weakness is associated with the application of broad-spectrum categories which, although comprises many key factors, miss to embrace the micro level dynamics (for example, lobbying, exchange of resources between actors) that may be of significant value to be accounted for (Lundqvist 2000). However, one should admit that Janicke has not intended to use the model for the analysis of micro level processes (Murphy 2001) The third drawback, the author maintains, lies in the model's inherent assumption that the environmental policy is exclusively problem-driven and in author's somewhat uncritical approach to the idea of '*environmental problem'* that fails to acknowledge progress regarding to *'social construction of environmental problems and science'*. In other words, Murphy (2001) is critical of the fact that Janicke draws the clear line between environmental problems and society.

The last criticism is based on the fact that the discussion of the model is concentrated on strictly national level failing to take account of impacts from the sub-national and

supra-national levels (e.g. multilateral environmental agreements, multilateral trade agreements) of policy making. This is particularly relevant to more complex state structures such as federal states or the European Union (Murphy 2001).

4. General capacity constraints for environmental policy and management in CEE and NIS

The implementation of NEAP, one of the major environmental policy papers, across the countries of CEE and NIS appears to reflect the specific capacity issues of these countries for environmental protection. It is instructive to have a closer look at the process whereby the environment ministries sought to bring NEAP to fruition as well as the challenges they come across along the way. The following section offers an insight into the major challenges CEE and NIS countries came across while developing and strengthening the environmental protection capacities adapted to the process of political and economic transition. This is meant to set the context for the discussion of capacity of the Kyrgyz Republic for the environmental policy and management.

4.1 Institutional capacity constraints for environmental protection in CEE and NIS countries

Since the onset of the political changes in early 1990s, the countries of CEE and NIS embarked on the profound economic reforms, the pace and extent of which varied from country to country. Some countries, especially within CEE, made notable progress in reforming their economic as well as political systems, while others' progress was only marginal. In countries of CEE, the change in political system was immediately followed by the rapid economic transition towards market-oriented economies. The pace of transition was markedly slower in NIS countries (EBRD 2002).

As with economic transformations, the extent of environmental reforms diverged across the countries. Notably, the progress in national environmental reforms reflected the pace and scope of economic transformations in the country (OECD 1998). The environmental reforms in the Check Republic, for example, were far-reaching and speedy, whereas reforms in the Russian Federation and Hungary could be characterized as only gradual. Politically troubled Albania made virtually no headway in environmental reforms as early as 1990s (Pavlinek and Pickles 2000).

By early 1990s, almost all countries within CEE and NIS created central agencies with broad range of environmental responsibilities. Typically, newly-founded environment institutions had the status of ministry that was conferred with a range of environmental functions formerly residing in other sectoral ministries and committees (Peterson and Bielke 2001). These types of uneasy institutional marriages typified the environment

ministries across CEE and NIS region and subsequently became the source of multiple problems in the implementation of environmental policies (e.g. enforcement of anti-pollution laws against semi-privatized, state-owned enterprises) (OECD 1998).

Given little experience and tradition within CEE and NIS countries to manage environmental issues in the past, the nascent environment ministries of early 1990s were characterized as inchoate and impotent. The most common capacity problems that plagued the environment ministries included, inter alia, the lack of personnel, chronic under-funding, weak law enforcement capacity and lack of political clout vis-à-vis other line ministries (OECD 2000a; WB 1999).

The integration of environmental considerations into sectoral policies was limited, not least because of the nature of new environment ministries that was shaped by largely inherited institutional structure of the Soviet system. Typically, the environment ministries were able to incorporate environmental concerns into some sectoral policies (privatization, energy efficiency, cleaner production technologies, to less extent transport and agriculture). Such success stories, however, were confined to the areas where benefits of integration were obvious and no major intervention to the market was made (OECD 1998, **44**).

The limited success of the environment ministries to integrate environmental concerns into sectoral policies was rooted in: failure of government to assign high priority to national environmental problems; failure to separate the role of the government as a source and as a regulator of polluting activities; lack of capacity to enforce environmental policies; low political clout of environment ministries vis-à-vis other ministries; failure to manifest the benefits of environmental measures (OECD 1998).

Establishing solid coordination mechanisms between environment ministry and other sectoral agencies was a daunting task to accomplish, given the volatility of public institutions often associated with the transition process. At the same time, the evolving nature of public institutions, including environmental ones, offered the path away from the Soviet institutional structure and generated the opportunity for the continues review and improvement of institutional arrangements for environmental protection. Only few countries, however, seemed to take effective advantage of the transition processes to upgrade existing institutional infrastructure for the environmental management (OECD 2000b).

The countries with the most progress in the environmental reforms encompassed primarily countries aligned to potentially join the European Union (EU). The promise of accessing the EU served as the potent incentive to improve environmental performance of

CEE sates and bring their environmental standards closer in line with those found in the other European countries (Horak 2001). Thus, the accession states had to overhaul the existing institutional infrastructure for environmental management (permitting, inspection, enforcement etc) to meet the environmental requirements under the EU Directives (ECOTEC 2000).

With no comparable incentive in place, environmental changes across the NIS region were unsystematic and driven primarily by the internal forces such as environmental NGOs and willingness of certain political circles (Jonathan 2002). For example, the environmental movement in the Russian Federation had vehemently sought to maintain the dwindling momentum created in the wake of the USSR's break-up to follow through with environmental reforms. In early and mid 1990s, the environmental NGOs attempted to force national referenda to counter growing utilitarian approach to natural resources of the country. The attempts with referendum yielded no practical changes in the utilitarian policy of the government towards the natural, not least because of the political resistance and public inertness. Nonetheless, thanks to the consistent efforts, environmental groups were able to reassert its representation across the most regions of the country (Jonathan 2002).

4.2 Development and Implementation of NEAP in CEE and NIS

The groundwork for developing NEAP was originally laid at the 'Environment for Europe' Ministerial Conference, Lucerne, Switzerland, in 1993, where the Environment ministries from CEE and NIS adopted the Environmental Action Plan (EAP) for Central and Eastern Europe. The rationale of EAP was to provide environmental policy orientations to CEE and NIS in their efforts to build and strengthen environmental protection capacities adapted to the transition processes. The broad range of recommendations focused, inter alia, on priority-setting, identification and use of cost-effective policy instruments, institutional reforms and environmental financing opportunities. Based on EAP recommendations, each country had to develop NEAP which would fit its own capacity needs as well as social and political context (OECD 1998, **6**).

EAP comprised the principles and policy orientations that provided the comprehensive reference for CEE and NIS when putting together their environmental strategies. Each NEAP represented a country-specific document and reflected specific environmental capacity needs and context of the country in question. Subsequently, the principles and

recommendations of EAP found place, not only in NEAPs of CEE and NIS, but also in diverse national and local environmental initiatives across the region (OECD 1998, **7**).

The development and implementation of NEAP in CEE and NIS pointed to the specific capacity constraints of individual countries to follow through with environmental policies. The countries with some environmental management capacity in place worked to devise their environmental policies by building on existing national strategies. At the same time, most countries of NIS and former Yugoslavia had to put in place their environmental policies from the clean slate. In these countries NEAPs took the form of a comprehensive environmental policy document, which included virtually all components of environmental policy subsystem – mechanisms for collection and dissemination of environmental information, environmental policy instruments, new institutional arrangements for environmental protection etc (OECD 1998, **7**).

The development and early attempts to implement NEAPs in CEE and NIS revealed the inadequacy of existing institutional structure as the principal capacity constraint. The problem with institutional capacity, however, was common to nearly all sectors and was reliant on the effective governance system, which was in the making and took more time to complete then it was initially planned. The task of establishing new governance system, based on the democratic principles and new economic realities, was monumental. The instances of nepotism and corruption were ubiquities. The provision of basic social services by the public institutions was far from ideal and warranted the extensive reforms. These were the fundamental preconditions for the effective implementation of public policies (OECD 1998).

Developing NEAP in some countries dislodged another challenge with preparing NEAP itself given lack of specialized know how and experts domestically. Most of the environmental strategies were prepared by a few numbers of experts, affiliated to the scientific research institutions. Although level of preparedness of the experts to complete such policy documents as NEAP was adequate, they lacked necessary skills in economic and financial analysis as well as project management in general. Thus, NEAPs in some countries NEAPs were bereaved of methodological (specific mechanisms) and financial underpinning to proceed with the policy implementation (OECD 1998, **28**).

Over time, the capacity of domestic experts has been raised substantially, not least because of capacity building efforts of the international donor agencies. And as in-house epistemic community (environmental) began to emerge and know how built up, the environment ministries were able to take effective advantage of the domestic consultants

to complete assignments that previously was done with vast assistance from abroad (OECD 1998, **28**).

On the other hand, the chronic budgetary constraints coupled with the more attractive conditions within private sector deterred the building of capacity for effective environmental management as the environment ministries could not provide necessary incentive to retain qualified experts. Intensive personnel turnover within the environment ministries, which precluded the build-up of environmental expertise, was another reason depriving the ability of the environment ministries to strengthen their capacities (OECD 1998).

In a space of one decade since the disintegration of the USSR, the improved capacity for environmental management was documented, to the larger extent, across CEE, and, with some time lag, in NIS, notably in Belarus, the Russian Federation. The environmental planning became formalized process. The coordination mechanisms between the environment ministry and other line ministries were established. The ministries and state agencies were required to create or assign a unit responsible for maintaining working relations with the environment ministry (OECD 2000b).

Some countries even went so far as to convene an inter-ministerial committee for environmental protection to ensure that environmental concerns are heeded in the highest possible decision making level. For example, comparable committee (Environmental Advisory Committee) was founded in Hungary in 1996 and was tasked to review all development programs, laws and policies pertinent to the environment. The decisions on the sessions of the committee were to be made by consensus of its members, who represented the environmental circles, academia and business community (OECD 1998, **30**).

Despite these advances in strengthening institutional capacity for environmental protection, one of the most lingering capacity constraints common to almost all countries of the former Soviet Union block remained the challenge of integrating the environment into the economic development policies. Most environmental programs and projects continued to target the solution of environmental problems within a single medium; integrative and cross-sectoral approaches were virtually non-existent (OECD 2000b).

The progress with environmental reforms and in particular implementation of NEAPs, across NIS in 1990s can be depicted as marginal (OECD 1998). This could be ascribed to the broader challenge of overhauling the older political and economic systems and erecting new one instead. The countries grappled with issues of transition and fancied to focus their limited resources on macroeconomic stabilization and maintaining or

improving fundamental social services, often to the detriment of environment (OECD 2000a).

With the former ties having been severed among NIS in early 1990s, every country inherited some structures and capacities (e.g. technological and epistemic) for the environmental management. The preponderance of the environmental management infrastructure was taken over by the Russian Federation, not least because the of long-standing Soviet style tradition of planning and making decision at the central level. Thus, some academic research and data collection capacities were descended to the countries like Belarus and Ukraine. Although inherited technological, methodological and academic capacities were important assets for the building up the environmental capacities, most countries had to create environmental policy framework anew (OECD 1998, **50**).

The countries with relatively substantial inherited capacities, like the Russian Federation, Ukraine and Belarus, followed the incremental approach to architecting the framework for the environmental policy. They would gradually add new elements to the existing environmental planning system with the view of creating a new policy framework for the environmental protection. The strategic environmental policy documents in these countries called for the greater use of economic instruments, updating existing legislation and as institutional reforms to adapt them to the new political and economic realities (OECD 1998, **50**).

Several countries within NIS followed more comprehensive approach to developing the framework for environmental policies. For them the development of NEAPs helped to identify the range of capacity problems in order of its importance and mapped out the action-oriented programs. For example, NEAP spawned the number of projects put together to address specific hotspots inherited from the Soviet times (e.g. Molodova, the Kyrgyz Republic, Kazakhstan); it helped to point to, inter alia, the needs for the new institutional structures for the environmental policy as well as point out environmental investment projects (e.g. Moldova, Central Asia and Caucasus) . All in all, the NEAPs for these countries were a multi-purpose document that embraced nearly all elements of the operational environmental policy subsystem (OCED 1998, **51**).

To sum up, in some countries of CEE the development of NEAPs prepared relatively solid ground for bringing their environmental standards closer to conformity with those found in the countries of the Environmental Union (EU). 10 countries from CEE embarked on the process of the approximation of their environmental legislation as they started working towards the accession to the EU in 1998. The prospect of becoming the

full member of the EU proved to be a potent stimulus for the accession countries to bring their environmental standards in line with the EU requirements (ECOTEC 2001).

4.3 The role of international assistance in the environmental capacity building within CEE and NIS countries

That the international assistance to the environmental capacity building in CEE and NIS carried overall positive effect is relatively well documented. The World Bank, TACIS, UN agencies and bilateral donors played the key role in developing and, then, in some cases, implementing national environmental policies and action programs for countries in transitions. The external support was critical in developing environmental policies and bridging the gap in technical expertise, especially in the areas where local expertise were conspicuously inadequate (OECD 1998, **11**).

Some environmental policy documents as well as environmental projects prepared by the donor institutions were bereft of the ownership on the part of the recipient countries. Such initiatives proved to be unsustainable in the long term perspective, given the absence of the country ownership over the initiative and, by implication, the reluctance of the recipient country to follow through with the project in question once the external support discontinues (OECD 1998, **11**).

The concerns were voiced by the recipient countries within CEE that the managerial and methodological expertise flowing into the country as technical assistance was not conducive to local context due to the difference in economic and political background (REC 1994b, **14**). Initial donors' support was largely confined to the provision of consultation to the CEE and NIS by seconding short-term consultants to the recipient countries. This approach made little contribution to the capacity building in the host countries. Experience demonstrated that most projects designed to catalyze policy reforms within short time-span, failed to ensure sustainability of projects and, even, proved to be counter-productive over the long-term perspective (OECD 2000a).

The experience with foreign assistance also revealed that the environmental priorities espoused by the donor institutions did not always match the national priorities of the recipient countries. The instances were documented when the foreign aid institutions forwarded their own interests to the detriment of the environment in the recipient country. The consensus grew in the recipient countries within CEE and NIS that the environmental

aid coordination and alignment mechanisms should be put in place to maximize the constructive effects of the foreign assistance on the environment in the region (REC 1994b, **25**).

Over time, the approach of the donors' assistance shifted to fostering in-house capacity and recruiting local experts for the developing environmental polices and action programs. Central to in-house capacity building was the environmental policies and programs developed by the long-term foreign consultants in close cooperation with local experts. This approach promoted more effective transference of much-needed foreign expertise to the areas where CEE and NIS lacked domestic knowledge and contributed to the sustained development of environmental polices, even after the cease of the external support. (OECD 1998, **35**).

Notable in the environmental assistance to the CEE and NIS was also the fact that the Soviet style, closed decision making traditions, most countries inherited, was modified to make the '*environmental policy input structure'* more sensitive as well as open to the environmental groups and general public at large. For example, by the early 2000s, the countries such as Lithuania, Latvia, Estonia, Check Republic, Hungary, Poland, Romania, Ukraine and Slovak Republic were reported to have established full-blown Environmental Assessment (EA) Systems, which had all internationally practiced elements of Environmental Impact Assessment (EIA), including the obligatory public consultation and disclosure of environmental information to the public. The countries that progressed to the less extent in having functional EA system in place, with the enforcement and compliance being the major issue, include Bulgaria, Kyrgyzstan, Kazakhstan, Russia, Slovenia, Moldova, Uzbekistan and Azerbaijan (WB 2002).

Given the paramount importance of sound and accurate information for the enforcement of environmental quality standards, the sizeable share of the foreign environmental assistance to CEE and NIS was committed to establish the environmental information systems (collection, analysis and distribution of environmental data) and maintain existing environmental monitoring system (REC 1994b, **25**).

The managerial capacity was another missing element for the establishment of the functional environmental protection system in the region. In this respect, CEE and NIS countries relied increasingly on the experience of developed nations that was made abundantly available since the borders opened up (REC 1994b). For example, Central and European Europe benefited extensively from the number of the Western European Programs launched to raise the overall capacity of CEE countries for environmental

protection. It was contended that management practices for environmental protection in Western Europe are not suitable for CEE countries. Despite these concerns, the different views coalesced to recognize the importance of international assistance in the strengthening the managerial as well as institutional capacity in environmental protection in the region (REC 1994b).

Unevenly dispersed across CEE and NIS, the environmental hotspots infamously known to the world as the part of the Soviet legacy allured profuse amount of environmental assistance. The great deal of international efforts and environmental aid were invested to the solution of the environmental problems in the Aral Sea area, Donbass in South-Easter Ukraine, the Baikal Lake, nuclear test site in the northern Kazakhstan and areas around Norilsk and Northern Siberia etc (Mnatsakanian 1992). However, the colossal environmental expenditures usually were not translated to the tangible results on the ground. Rather, these investments were spent to pay for the costly consultants and prepare feasibility studies with no further steps towards implementation phase. Some experts from CEE decried such activities as sheer *'paper work and information collection exercise'* (REC 1994b, **25**).

To sum up, despite some negative experiences, the external environmental assistance was instrumental in developing overall capacity for the environmental policy and management across CEE and, to the less extent, NIS. Multiple successful projects were supported by the external donor institutions: environmental policies were put in place; institutional structures for environmental protection were strengthened; experts and public servants received technical training; environmental information systems and monitoring was improved; investments in technological capital etc (REC 1994b, **24**).

5. The international environmental assistance and capacity requirements within developing countries

The contribution of the international donor agencies in strengthening capacities within developing countries to implement the country-specific environmental projects and international environmental conventions is relatively well documented (REC 1994b). Nonetheless, donor agencies, be it multilateral or bilateral organizations, suffers from structural, financial and ideological capacity constraints to render more substantial environmental assistance to recipient countries (Hunter 2001). This chapter focuses on the capacity constraints within major multilateral and bilateral donor agencies to constructively develop environmental management capacities in the developing countries.

5.1 Capacity constraints within international donor agencies to build capacity in developing countries to respond to the environmental challenges

Since environmental problems has grown global in nature over the last decades, the effective solution to these problems calls for the joint action of both developing and developed nations (Sagar 2000). However, unlike developed countries, the developing nations find themselves in more strained condition to attend in an adequate fashion to the national as well as international environmental challenges. More often then not, they prefer to concentrate their meager resources on more pressing issues of macroeconomic performance and improvement of the basic civil services, which typically leads to the further decline in the state's capacity for environmental action (OECD 2000a).

However, the question of developing country's capacity to manage its input to the global environmental problems should be related to the broader question of developing state's capacity for environmental policy and management (Predersen and Jorgensen 1997). In 1996, DAC/OECD put forward the capacity development as the new paradigm in development theory, which focuses the capacity development on individual, local, regional and national levels (OECD 1996b).

The focus on capacity development of the state has regained new urgency in the 1990s for the reasons closely associated with the worldwide propagation of liberalization and structural adjustment programs spearheaded by the World Bank and International Monetary Foundation (IMF) (WB 1997). Specifically, the fervor to liberalize domestic markets and unbridled spread of market forces in society results in great number of losers and creates sizable social and economic inequality within society. The need to control social and environmental externalities stemming from the entrenchment of free market economies in developing and transition countries calls for greater role of the state to intervene and rectify *market failures* (WB 1997).

The Development Assistance Committee (DAC), the chief body of OECD responsible for the issues related to the cooperation with developing countries, perhaps made the most progress in the field of capacity development. DAC/OECD came up with a new framework for the donors agencies to raise the effectiveness of the international environmental aid in developing countries. In the 1996 workshop, in Rome, *the capacity development in environment* (CDE) was widely recognized as the important approach to deal with environmental and developmental issues and found a solid place among the international environmental community (OECD 1995)

The OECD-DAC report (2000) commissioned to evaluate the capacities of its member states to make effective use of the CDE approach in its development policies and programs found that the international donor community made headway in splicing CDE principles into the developmental and environmental policy documents. For example, by the end of the 1990s, most donor agencies managed to integrate environmental concerns into their sector-specific programs and policy papers through: establishing environmental units within donor agencies; environmental training of generalist personnel within the agencies; putting in place financial mechanisms for environmental projects; introducing the internal environmental impact assessment procedures (e.g. operational guidelines for EIA and SEA).

The report findings also indicates that even though the donor agencies introduced the said measures, the full-scale implementation of, or systematic compliance with, the policy measures across the complete program/project cycle remains to be the major issue to be addressed in the future. To date, unlike the other donor agencies, WB and the

Sweden International Development Agency (SIDA) are the only donor organizations, which have in place mandatory requirements for EIA of the proposed programs and projects. The capacity constraints common to most donor agencies are listed bellow:

- The challenge for donor agencies to balance the accountability in aid delivery before their constituents (e.g. account for the priority issues as perceived by donor agency's constituents) against the need to deliver effective, country-driven development projects.
- Limited representation of budgetary authorities at local levels; centralized structure of donor agencies in the recipient countries
- Deficiency in systemic efforts to draw lessons from past experience and spread lessons to other donor organizations
- The need to prioritize the great number agency-specific operational guidelines and policy papers, which tend to lead to less use of EIA guidelines.
- *Limited institutional memory* of donor agencies due to frequent personnel turnover (short-term assignments of seconded personnel)
- Limited commitment of donor agencies to coordinate the aid coming in to the country
- *Institutional culture of approval* at the donor agencies (*pressure to spend*), where the performance is gauged by the amount of aid dispersed, not by quality of projects implemented
- Limited capacity to coordinate the amount of aid coming in due to understaffed regional offices
- Propensity to endorse policies of heighten complexity but concurrent failure to support these policies with adequate human resources as well as allow for greater timeframe for implementation.
- Dominant culture of contracting external executing agencies and consultants for project/program implementation, which cause '*the fragmentation of responsibility*' along the project cycle.

To add to this, the study undertaken by UNDP (1997) showed in its findings that the environmental issues often prioritized by the donor agencies tend to depart from the environmental priorities as they are viewed by the recipient governments. For example, of all environmental projects implemented by UNDP in Latin America and Caribbean, 27

per cent were realized based on the requirements and needs of the recipient government, whereas 73 per cent of projects were realized because of availability of funds (OECD 2000a).

The following sections focus on strengths and constraints of thee donor agencies - UNDP, WB and UNEP to develop capacities within developing countries to effectively attend to environmental problems at local, national and global levels.

5.1.1 The capacity limits of UNDP to develop capacity of developing countries for environmental management

UNDP is mandated to aid developing countries and countries in transition to develop their capacities to achieve sustainable development by seeking out and spreading best practices, building synergistic partnerships and mobilizing resources to meet the Millennium Development Goals (MDG). Following the World Summit for Sustainable Development (WSSD), UNDP prioritized four environmental practice areas, which include such environmental areas as water, energy, biodiversity and land (UNDP 2003).

At present, UNDP is institutionally represented in upward of 160 countries, has decentralized structure relative to other donor agencies and enjoys comparatively intimate relations with the governments of recipient countries, has multi-sectoral mandate and has instruments for technical cooperation (UNDP 2003).

Given its broad mission, means of technical cooperation and structural presence in more then 160 countries, UNDP is argued to hold a promise of becoming the lead agency to render development assistance to developing nations to respond to the global environmental challenges. Compared to other donor agencies, UNDP is uniquely placed to provide technical and informational assistance to the countries wiling to accede and implement environmental conventions. These types of assistance prove critical as the degree of compliance developing countries with commitments their assumed under the convention ultimately determines the success of the convention (Predersen and Jorgensen 1997).

To bring an international environmental agreement to operation, the parties to the convention should have in place specific capacities at three distinct stages to fulfill their

commitment under the agreement. *These stages include: a) the capacity to set political priorities on the direction of economic and societal development; b) capacity to control the behavior of economic agents; c) administrative and technical capacities* to underpin the implementation of the first stage of setting policy direction and the second stage of identification of appropriate policy instruments and means of intervention (UNDP 1997b).

The role of UNDP in helping convention parties to implement the environmental agreement throughout all three major stages is generally recognized as substantial. Given its direct access to the environmental conventions and their coordinating capacity between developing countries and secretariats of the conventions, UNDP is well placed to aid the country to decide on its national environmental agenda and subsequently identify potential means to manage the country's input to the global environmental problems. More specifically, UNDP can provide extensive informational assistance (e.g. comprehensive update on an environmental problem, its implications for global environment as well as individual countries and possible mitigation options) to the parties during the first stage of prompting national debate to heed to their input to the global environmental problems and identify the development direction conducive to the country's development interests (Predersen and Jorgensen 1997).

In the course of the second stage (ratification of an agreement), the parties to the convention should have in place specific capacities to analyze the economic, social and political implications of the country's ratification and identify the policy instruments necessary to implement the convention on the ground. Here, the scope for direct assistance on the part of UNDP is even greater and may include the analysis of economic and social effects of the country's ratification and decisions on the use of optimal mix of policy instruments for the implementation of the convention at the country level (Predersen and Jorgensen 1997).

The implementation, the third stage and final stage, is usually the most challenging phase, which calls for the longer time span and substantial resources to ensure the positive outcomes. At this stage, there exists vast room for the external assistance on the part of both multilateral and bilateral donor agencies, as the countries often lack technical and administrative capacities to follow through with implementation of the agreement.

The form of external assistance is typically directed to raising or strengthening the governmental capacity: a) to identify and adopt workable strategy to implement the ratified convention; b) decide on the optimal combination of the policy instruments; c) introduce cost-effective enforcement system; d) to prepare investment projects (Predersen and Jorgensen 1997).

One of the capacity constraints of UNDP lies in the fact that it tends to propagate ambitious policies usually sustained by inadequate financial and human resources. Broad mandate (environmental protection, poverty eradication, local livelihoods, empowerment etc) of UNDP is poorly balanced against the resources organization has at its disposal to underpin the execution of the declared polices. The dispersed focus of practice areas is associated with the problem of expertise build-up. Given its current organization of work, UNDP can hardly emerge as the leader in any of the areas within its broad mandate (Predersen and Jorgensen 1997, **39**).

UNDP was formerly viewed as the main proponent of the sustainable development within the international donor community. However, amidst a myriad of international organizations taking up the sustainable development cause in its all three pillars, let alone the advent of the specialized body in the UN System, United Nations Conference for Environment and Development (UNCED), the role of UNDP has been undermined as the lead proponent in the global and national policy on sustainable development (Predersen and Jorgensen 1997, **39**).

To date, the debates are still underway on the precise role for UNDP in the development architecture, with primary focus on effectiveness of the organization. In the field of global environmental management, UNDP holds a promise of becoming principal coordinating agency, given its comparative advantage (proximity with developing countries' governments, technical instruments, access to the secretariats of environmental agreements etc) compared to the other multilateral donor agencies. The other view for UNDP's role suggests focusing on the capacity development at the country level – the area where UNDP can excel by the virtue of its resources and strengths (Predersen and Jorgensen 1997).

5.1.2 The capacity limits of the World Bank to develop capacity of the developing countries for environmental management

Being one of the specialized agencies in the UN system, the Would Bank works in upward of 100 developing and CIT countries to improve the quality of life and combat poverty by providing loans and spreading good practices to improve the health and education systems, governance, macro-economic reforms, private entrepreneurship and environmental protection.

The World Bank champions the sustainable development as one of its focal practice areas. Specifically, the areas where World Bank is most active include: biodiversity, climate change, human environment, water resources and water pollution, air pollution, forests protection and management and protection of international waters. However, unlike UN agencies the sustainable development endorsed and promoted by the World Bank is more inclined to a sustained economic growth rather then environmental pillar of the sustainable development (UNDP 2003).

Following the Earth Summit, the World Bank endeavored to take a lead in promoting the sustainable development with a specific focus on the environment. It introduced specific measures to raise the profile of the environment in the bank's development projects and its operation as a whole. The World Bank adopted comprehensive policy frameworks for environmental protection, which laid the solid foundation for the number of operational guidelines for addressing environmental and social aspects of the bank-supported projects. For example, one of the earlier policy documents the World Bank adopted includes Operational Manual Statement 2.36 on Environmental Aspects of World Bank, which stipulated the major guiding principles of the World Bank's approach to the environmental protection (Hunter 2001).

As late as 1990s, the World Bank was one of the few donor agencies to require the environmental impact assessment for its development projects as mandatory procedure (OECD 2000a). As far as public participation is concerned, the World Bank was one of the first agencies to lift in January 1994 the restrictions on the access to its documents, formerly classified as confidential. This was followed by the opening of the Public Information Centres in world's largest cities like Tokyo, Paris and Washington. These

developments within the World Bank set good example and inspired tangible changes among other donor agencies in their approach to environment (OECD 2000a).

The World Bank tops the list of international donor institutions in an amount of the technical assistance disbursed to the environmental projects. In fiscal year 2002 alone, the estimated environmental project portfolio of the World Bank averaged 16 billion USD It was one of founders, together with UNDP and UNEP, of the Global Environmental Facility (GEF) – the financial mechanism to address global environmental challenges, and acts as one of the three executing agencies of GEF (UNDP 2003).

Fundamentally, the World Bank could be more influential proponent of environmentally sustainable development, given the resources and technical assistance instruments the bank has at its disposal (Hunter 2001). The World Bank's structural adjustment lending (SAL) could be used as way of furthering environmental objectives in the borrower country. For example, the research undertaken by the World Resources Institute (2000) found that the use of the conditionality by the World Bank in SAL could contribute substantially to the positive changes in the forestry sector of such countries as Papua New Guinea, Cameroon and Indonesia. The findings of the report emphasizes the critical role of forest-related conditionality in the context of SAL to push the national governments to take up more proactive role in forestry policies, raise the profile of the forest and environmental issues on the national agenda and building up domestic reformist elements grappling against entrenched interested (WRI 2000).

In addition, the World Bank could facilitate the spread of the environmentally friendly technologies worldwide and thus ensure the greater transference and acceptance of environmental technologies in global markets (WB 2000). For these changes to take place, however, the bank should mainstream environmental concerns into the earliest stages of formulating development programs for recipient countries. The World Bank can ensure that environmental priorities are reflected in CAS. To date, however, the bank failed to make significant headway in mainstreaming the environmental objectives into CAS and limited itself to attending to individual aspects of the environment, often considered in isolation from, rather then constituting an integral part of, the other development priorities (WB 2000).

Part of the reason for the World Bank's failure to promote environmental objectives and follow through with environmental capacity building projects in the borrower countries is associated with the internal incapacities of the World Bank. The most widely cited incapacity of the World Bank lies in the 'dominant culture of approval'. The task managers are inclined to endorse the large projects, often detrimental to the environment, and focus on the approval of the projects, as opposed to the transfer of skills and enhanced management capacity. The incapacity of this kind may prove especially deleterious for the capacity building projects, as the task managers fail to take heed of the larger context of capacity building projects like the political and economic environment, degree of ownership of the project by the recipient government and the capability of the implementing agencies to follow through with the assignment conferred on them (WB 1999).

Another internal constraint of the World Bank has to do with the preponderance of 'blueprint' solutions in the bank's environmental capacity building projects. This approach often fails to take into account the specific nature of institutions in individual countries and may adversely influence the project's outcomes. To add to this, the World Bank has incentive to promote complex environmental projects in the countries where institutional capacity is inadequate or overly weak to proceed with the implementation of assigned activities. The complexity of bank-supported projects may be also a function of the cross-sectoral nature of environmental problems and involvement of a variety of institutions (WB 1999).

Importantly, the project length for the institutional capacity building efforts does not match the time it takes to for a task manager to complete the environmental work he or she has embarked upon in a given country. Typically, the capacity building projects requires the longer time span compared with other projects. And an average term for the task managers handling environmental capacity building projects is as long as 2.2 years, which is by far not enough to follow through with the environmental project. Frequent change of task managers may often compromise the projects' outcome, in that it disrupts the continuity of the project and by the time a new task manager takes over, hard-won 'momentum is often already lost. To do justice to the World Bank, it should be noted that

the most internal capacity challenges are not specific to the World Bank, but common to other bilateral and multilateral donor agencies (WB 1999).

To sum up, in spite of its major accomplishments and major role of in global and national environmental protection, the World Bank can hardly emerge as the leader in advancing environmentally sustainable development primarily for ideological reasons (UNDP 1997a; Hunter 2001; OECD 2000a). Besides, a variety of internal capacity constraints mentioned above bars the World Bank from making effective use of the bank's technical cooperation instruments. However, these challenges are not unique to the World Bank, but could be generalized to other bilateral and multilateral donor agencies. The World Bank is committed to catalyzing environmental improvements in developing countries by, *inter alia*, environmental institutional development projects, by applying EA to the bank-financed projects, by raising the number of environmental specialists working at the bank. At the same time, it continues to prioritize the liberalization as the main component of the bank's technical assistance to the recipient countries, and the latter tend to take precedence over other causes, environment included (Hunter 2001).

5.1.3 The capacity limits of UNEP to develop capacity of the developing countries for environmental management

UNEP was conceived in 1972 in response to the growing concerns over the unprecedented environmental despoliation worldwide and to the mounting public demand to attend to the global environmental challenges in a more systematic and effective fashion. Being *'an environmental voice'* in the UN System, UNEP was mandated to catalyze the environmental action at global and national levels, gather and disseminate environmental information and coordinate environmental activities within the UN System (UNEP 1997).

In fulfilling its mandate, UNEP has achieved relatively appreciable gains, notably in the field of international environmental law and environmental monitoring and assessment (Mitchell 1994; Haas 1990; Gusman *et al*. 1980). At the same time, UNEP has been openly criticized for the failure to support and follow through with the global

environmental agenda that includes virtually all environmental challenges on the earth (Speth 2002). Although much of the criticism raised is tenable, some UNEP annalists contend that UNEP had been effective as the global advocate of the sustainable development. For example, Konrad Moltke (1996) put it succinctly as follows: *'…given its mandate, its resources and its authority, UNEP has been remarkable success'.*

The prominence of UNEP's work becomes evident if the portfolio of the organization is put into perspective. The period between 1970s and 1980s, when most environmental conventions were negotiated, was marked by the challenge of building international consensus over the issues other then international security. The era of Cold War proved perhaps the most inauspicious for developing international relations. These difficulties notwithstanding, the environmental protection was the only field that witnessed the dynamic growth in the field of international relations, not least because of the initiative taken by UNEP (Moltke 1996, **59**).

The number of environmental conventions negotiated under the UNEP's aegis is convincing. UNEP spearheaded the process of negotiation and subsequent implementation of the Montreal Protocol, under the Vienna Convention for the Protection of the Ozone Layer; it put together the framework wherein the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was negotiated (Barbara Kwiatowski and Alfred Soons 1993); it contributed substantially to effective negotiations of the Convention on Biological Diversity; it was also instrumental in initiating the global approach to the chemicals control and the list can go on (UNEP 2002).

It is frequently argued that the environmental agreements would have emerged in any case, even if there was no international environmental organization like UNEP to provide international focus to the environmental protection. However, these sort of counterfactual arguments are difficult to test and often untenable (Moltke 1996, **59**). As a rule, the numerous issues populate the development agenda of global forums and without a strong advocate, rarely the profile of a particular issue could be raised to command enough spotlight so as to garner international support and subsequent action on the ground. In this context, UNEP's role as a catalyst of environmental action has been justified, as

much of the accomplishments achieved would not have come about otherwise (Moltke 1996).

The monitoring and assessment of global environmental problems has been noted as another crucial area where UNEP fared well as the lead organization for environmental protection. UNEP's seminal work, the Global Environmental Outlook (GEO) has been widely applauded as one of the most influential environmental outlook publication. The GEO process was most useful in pointing to the emerging environmental problems, drawing international attention to these challenges, transmitting contemporary information regarding environmental trends and issues to the political decision makers, technical experts and general public (Haas 2004).

On more specific terms, the GEO process was instrumental in raising the institutional capacity of such countries as Ghana, Costa Rica, Senegal, Cuba, Peru, Cameroon, among others, to report on the state of their environment. The GEO process aided to put in place or strengthen their nation-wide environmental reporting systems by introducing and, then, making effective use of the GEO methodologies. In the countries where GEO methodologies have been effectively infused, the immediate outcome was the improved quality of environmental reporting (Haas 2004).

In addition, the role of UNEP as the central clearinghouse mechanism for environmental information has been prominent in the negotiation process of multilateral environmental agreements. Here, the countries desirous to enter an environmental agreement should have the capacity to initiate the full-scale debate on the need to attend to the global environmental challenge in question, which assumes that the governments have complete knowledge on the essence of the environmental problem, its impact on the global and, by implication, national environment and the possible mitigation options etc. In this regard, UNEP, along with UNDP and WB, is uniquely positioned, given its immediate access to the secretariats of all environmental conventions, to provide the recipient governments with comprehensive and first-hand information upon which the governments or national parliaments should base their decisions regarding further development direction of the country (Predersen and Jorgensen 1997).

In keeping with other development agencies, the focus of UNEP's technical assistance to the recipient countries shifted to the capacity development over the last several decades. The change in the technical assistance paradigm was largely associated with growing knowledge over the intimate balance between three pillars of the sustainable development - economic growth, social progress and environmental protection, and the need to strengthen the ability of the recipient nations to evenhandedly address all three pillars in their developmental decisions (UNEP 2002).

To deliver on the capacity development agenda, however, UNEP should have the range of more powerful technical assistance instruments, more substantial funding, more qualified personnel and greater authority. According to its mandate, the UNEP is restricted to the catalytic as well as normative role in its capacity development activities, while the general pressure is progressively mounting for concrete actions on the ground. The latter coupled with the mandate the UN system to respond to the requests of its constituent countries tends to prod UNEP to descend to the operational part of capacity building strategies, especially when projects are considered the currency of the effective performance (Moltke 1996, **60**). Although incentive grows to move further into the operational course, the analysts argue that UNEP has little technical and structural capacity to undertake far-flung operational activities (Speth 2002).

Comparable criticism of UNEP as of the failure to mach up to the general expectations has been ubiquitous ever since its inception. The main reasons that underpin chronic debilitating challenges in the performance of UNEP have been ascribed to the decisions taken in Stockholm Conference in 1972. The junior status of a program relative to the other bull-blown UN agencies, minimal resources to follow through with its agenda, remoteness from the major decision making forms and limited staff – all these have curtailed the capacity of UNEP to emerge as the lead institution promoting the environmentally sustainable development worldwide (Speth 2002). In early 1970s, little was known about the emerging environmental challenges: climate change was largely dismissed as the far-fletched threat; ozone depletion was regarded as a mere academic debate, biodiversity was chiefly an esoteric concept and pollution prevention was deemed to be a problem peculiar to developed world (Moltke 19996).

Given little knowledge over nature of environmental problems, decision concerning the specific mandate of UNEP was the compromise among numerous contending views. The present role of UNEP mirrors the disputes over whether the environmental management commands a full-blown environmental organization with its own agenda, research and enforcement responsibilities or the environmental management could be effectively carried out by the organization with role limited only to liaising and coordinating the activities of other national governments. Although UNEP is believed to have failed to act as the major environmental coordinator, the definite answer with respect to specific mandate for UNEP was not explicit at that time (Moltke 1996).

The financial structure of UNEP has been cited as one of the major limiting factor for the organization to match its mandate (Najam 2001).UNEP is primarily reliant on the voluntary contributions, which are not regular and often have specific strings attached to them. The latter gives space for the donors to interfere with UNEP's agenda, infusing their own priorities and, thus, blurring the focus of UNEP's capacity building activities (Moltke 1996).

Perhaps, another equally critical factor for the underperformance of UNEP is geographical one. The location of UNEP's headquarter in Nairobi, thousands miles away from the decision making centers and coordination forums, has adversly influenced the ability of UNEP to coordinate environmental action of the governments and other concerned organizations. It is increasingly difficult to maintain effective coordinating role, not lest because of the high transaction costs and challenge to find and retain highly-qualified staff due to security reasons. It should be noted that the UNEP regional offices in Norway, Paris, Geneva and New York have partly addressed the issue with t. he coordination (Eastby 1984).

With new organizations entering the field of environmental protection, the credibility and authority of UNEP has been further diminished in the eyes of its constituents (UN 1993). The emergence of GEF, the Commission for Sustainable Development (CSD) and countless of other organizations with environmental causes has cannibalized the mandate of UNEP as the lead global environmental institution and pushed UNEP further to the sidelines of the institutional space. For example, unlike

UNEP, CSD has been more efficient over the last years in coordinating the activities of the organizations addressing development and environment matters (Downie and Lewy 1999). To add to this, GEF tends to further divest UNEP of its environmental capacity building functions through its financial superiority (Moltke 1996).

The capacity constraints discussed above, emergence of numerous organizations with environment-related mandate as well as ever-increasing criticism of UNEP for the failure to measure up to its mandate led national governments, civil society organizations and experts to suggest the necessity to transform UNEP into more influential organization within the global environmental governance. The idea of transforming UNEP into 'World Environmental Organization' or 'super-UNEP' with its own agenda, decision making power, research capacity and financial resources to underpin its mandate, has gained many supporters over the last years (Biermann and Steffan 2004).

All in all, UNEP had an impossible mission to accomplish from the very outset (Robert Poujade 1976). In spite of the share of gains in the field, decisions made at Stockholm Conference had far-reaching and debilitating ripples to the effective operation of UNEP. The status of the Program, which denied UNEP the equal treatment by other UN agencies, derisory operational budget, which precludes tangible action, lack of personnel and relative isolation from the decision making centres – all these limit the capacity of UNEP to be effective proponent of the sustainable development in developing countries. Given this, there is growing consensus within international community over the reforming UNEP into more proactive, politically influential and financially independent organization, which will be more effective advocate of the sustainable development in developing countries and the rest of the world.

6. Capacity for Environmental Protection in the Kyrgyz Republic

As with virtually all countries of the former USSR, environmental problems find their origins in the policies sought under the centrally planned economy (see Komarov B. 1978; Mnatsakanian R. 1992). The Kyrgyz Republic was no exception in that respect. The structure of environmental problems in the country could be traced back to the centrally-designed policies, which were characterized by, among others, the focus on large and heavy industries, centrality of the government in the economy, inefficiency of production plants coming from the underrated energy and natural resources and priority placed on the military development.

6.1 Evolution of environmental problems in the Kyrgyz Republic

Endowed with substantial rare minerals (e.g. mercury, antimony, uranium etc) so vital for the development of military and other sectors of the Soviet Union, the Kyrgyz Republic unwillingly turned into the one of the largest supplier of the rare commodities, having become the haven to the large and polluting industries. (Environmental Performance Review 2000). The operation of multiple plants and mines across the country and virtually non-existent supervision over environmental concerns created problems so daunting that it will take colossal efforts and resources to completely neutralize the risks emanating from the inherited dumps and tailings. The Haydarken Combine alone, for example, supplied 50 per cent of the USSR's needs in mercury, whereas the Kadamjai Combine was the only producer of antimony across the Soviet Union. As far the uranium is concerned, the largest uranium-processing plant in the USSR was built in Kara-Balta, which produced the uranium oxide concentrate. These facts illustrate the scale of the production processes and, by implication, the amount of waste generated in the country (Environmental Performance Review 2000, **51**). In many cases the conditions in which the waste are stored fails to meet elementary environmental requirements and, thus, pose threat to the environment and the surrounding population.

The waste stored includes high content of minerals and radioactivity as well as fluorides, arsenic and sulfur-based compounds. As with uranium storage, natural disasters may prompt dispersion of the hazardous substances for vast areas (State of the Environment Report of the Kyrgyz Republic 2003).

At independence, the Kyrgyz Republic inherited 49 tailings, which amounts to 75 million $m^{3.}$ The total amount of mining waste reached 620 million m^3, which covers the area of 2 000 hectares. The uranium tailings (see the Table 1) in Mailii-Suu settlement accounts for the largest uranium waste in the country with the total volume of uranium waste amounting to 2 million m^3 , which presents substantial amount of radioactive waste by international standards. For example, the average amount of radioactive waste in OECD countries equals 1.6 million tons (OECD 2004). The total radioactivity in all tailings within Mailii-Suu is around 1.1 x 10^{15} Bq (Environmental Performance Review. 2000 **52**). Besides uranium, the Kyrgyz Republic houses a decent number of tailings as well as dumps of antimony, mercury, gold and other heavy metals (see Table 1).

At present, the majority of waste containments and storages fail to meet fundamental safety standards, with many sites containing significant radioactive waste and heavy metals (e.g. arsenic, mercury, molybdenum, fluorides etc) not least because of inadequate extraction techniques and disregard to environmental considerations during the production processes. The immediate proximity to the settlements and poor maintenance of dumps and tailings over the last decades expose the local population to the serious threat of radioactive contamination. The tailings and dumps located near such settlements as Mailuu-Suu, Shekaftar, Sumsar, Kadji-Sai, Ak-Tuz and Min-Kush pose serious health risks to the local populations. These risks are further compounded by the frequency of natural calamities (e.g. earthquakes, mudflows, landslides) typical to the country and by the proximity of tailings and dumps to rivers of regional importance. Of particular concern are the uranium tailings and dumps in the settlement Maily-Suu, Djalal-Abad oblast, as they accommodate formidable amount of radioactive waste with no adequate fencing infrastructure in place. Because of the proximity of the tailings/dumps to the river Maily-Suu - the tributary to the Syr-Darya, the release of the radioactive substances can affect the large areas in the Ferghana Valley (Djenchuraev 1999).

Table 1. Inherited tailing and dumps

Town *(Oblast)*	Number of dumps	Number of tailings	Period of operation	Minerals produced
Mailuu-Suu *(Djalal-Abad)*	13	23	1946 – 1968	Uranium
Kadji-Sai *(Issyk-Kul)*	1 equipment dump	1	1949 – 1967	Uranium, (Coal)
Min-Kush *(Naryn)*	4	4	1955 – 1969	Uranium
Shekaftar *(Djalal-Abad)*	8	-	1946 – 1967	Uranium
Kara-Balta *(Chui)*	-	1	1955 – today	Uranium, Molybdenum
Ak-Tyuz *(Chui)*	3	4	1942 – 1978	Rare earths
Sumsar *(Djalal-Abad)*	-	3	1950 – 1978	Heavy metals
Sovetsky *(Osh)*	1	2	1950 – 1971	Heavy metals
Kadamzhai *(Osh)*	2	4	1953 – today	Antimony
Terek-Sai *(Djalal-Abad)*	1	3	1954 – today	Antimony
Haidarkan *(Osh)*	1	1	1967 – today	Mercury
Chaurai *(Osh)*	-	1	1967 – today	Mercury
Makmal *(Naryn)*	1	2	1986 – today	Gold

Source: Department of Environment and Natural Resource Management. 2004.

Over the last decade, the quality of ambient air has shown the signs of improvement across the country with overall emission having slanted from 662 000 tonnes in 1989 to 239 000 tonnes in 1998. The downward tendency was observed virtually for all pollutants (see Table 2). Fundamentally, the decline in emission level could be largely ascribed to the economic recession and, subsequently, closure of many manufacturing and mining enterprises in the country. Although the overall level of air pollution from stationary and mobile sources went down, the share of pollution from mobile sources relative to stationary ones increased (State of the Environment Report of the Kyrgyz Republic 2003).

Table 2. Dynamics of air pollutants from stationary sources (thousands ton)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2001	2002	2003
Total	161.3	128.5	94.1	64.8	55.0	47.4	37.6	41.2	---	35. 2	32.2	35.7
Dust	57.3	48.6	38.0	27.9	25.1	21.6	17.0	18.8	---	15.3	14.5	18.5
SO2	52.1	40.8	31.6	21.0	15.7	14.0	9.9	10.8	---	---	---	---
N0x	20.0	8.9	6.5	3.3	3.4	3.5	3.5	3.4	---	2.8	3.0	3.0
CO	26.2	21.3	13.2	9.5	7.5	5.5	4.6	5.0	---	3.4	3.1	3.4
HC	8.0	6.9	4.0	2.5	2.8	2.4	2.4	2.7	---	3.4	3.3	2.5
Other	1.3	2.0	0.8	0.6	0.5	0.4	0.2	0.5	---	---	0.09	0.06

Source: Department of Ecology and Natural Resources (2004); State of the Environment Report (2001-2003)

The air pollution is the cause for concern especially in major cities like Bishkek, Tokmok, Kara-Balta and Cholpon-Ata; notably, the pollution level was characterized as alarming, with virtually all pollutants, except for SO_2, regularly exceeding maximum allowable concentration (MAC): annual mean concentration of dust in cities for 1998 was reported to be 0.7 mg/m^3 (4.5 times the MAC), for NO2 - 1.2 mg/m^3 (1.5 times of the MAC), for CO – 5 mg/m^3 (1.7 times of the MAC). The data for such pollutants as NO, formaldehyde, VOCx, ozone and NH3 is not available or inconsistent, as the measurements for the pollutants are sporadic or non-existent (State of the Environment Report of the Kyrgyz Republic 2003).

The quality of both surface and underground water resources could be described as adequate throughout the country. The water consumption for industrial purposes has decreased, from 674 million m^3 in 1991 to 138 million m^3 in 1998, with over 50 per cent of water having been used in Chuy province, where most industrial enterprises are located. The water pollution across the country is generally low. In virtually all river basins (Chuy, Naryn, Kara-Darya, Syr Darya etc), the water oxygen content is adequate (5 mg/l) and content of organic substances is low (BOD5 is 2-3 mg/l, nitrates is 1.0 mg/l). The water quality worsens in the areas where water bodies run alongside the industrial, mining or urban zones. The instances of pollution by radioactive waste have been documented in Maili-Suu River. In Sumsar River, the pollution was reported to exceed the permitted concentration by 9 times for manganese and by 320 times for cadmium. The pollution by other heavy metals is suspected in the proximity of tailings and dumps.

There has been no consistent monitoring done, however (State of the Environment Report of the Kyrgyz Republic 2003).

The measure of water conservation is generally insignificant (see Table 3). In 2002, only 4 % of waste water was treated to the legally required norms (cf. in 2001, 11 % of waste water was treated to required norms). Of 120 waste water treatment installations, 84 do not function to the adequate extent, chiefly due to lack of regular maintenance and upgrading (State of the Environment Report of the Kyrgyz Republic 2003).

Table 3. Share of sewage discharges by provinces

Province	Total sewage volume	Slightly treated discharge	Treated to the legally required norms
Djalal-Abad	1.6	---	0.04
Issyk-Kul	15.9	3.5	5.4
Batken	2.8	2.7	---
Osh	---	---	---
Talas	1.4	---	---
Chuy	2183.2	1.9	44.1
Bishkek (capital)	65.5	5.7	58.3
Total	2270.4	13.8	108

Source: National Statistics Committee of the Kyrgyz Republic (2002)

Of special concern is the quality of groundwater in once industrially vigorous areas like Makmal, Kara-Balta and Kadji-Say. The underground waters around the industrials premises in Kara-Balta[2] suffer high level of pollution by manganese (15 mg/l), sulphates, nitrates, chromium, molybdenum (7.0 mg/l), uranium (0.03 mg/l). The heavy pollution of groundwater in the vicinity of settlements made many wells unfit for human consumption. In the settlement of Makmal, where gold has been mined for decades, the groundwater contamination by heavy metals has been reported. The cities and settlements like Kyzyl-Burak, Suzak, Kutarma, Karavan, Kerki-Dong in the southern region also suffer extensive groundwater pollution by pesticides and fertilizers, posing serious threat to the health of local population (State of the Environment Report of the Kyrgyz Republic 2003).

6.2 Characteristics of environmental policy development in the Kyrgyz Republic

In the model of environmental policy explanation, Martin Janicke draws a line between "the capacity as the relatively stable condition of action and its utilization". In the section that follows, the capacity of principal environmental actors, both governmental and non-governmental ones, will be described. Then, the discussion focuses on how these capacities are used in the context of structural framework conditions: cognitive-informational framework, political-institutional framework and economic-technological framework.

6.2.1 Institutional framework for environmental protection

The central state institution responsible for the environmental protection has undergone a number of structural changes since late 1980s. The State Committee on Nature Protection (Goskompriroda) was founded in 1988 as the chief state agency to oversee the issues over the protection of nature and conservation. It was not until 1996, however, that Goskopriroda was renamed into the Ministry of Ecology and Natural Resource Management (Postanovleniye Pravitelstva 1996) and its formal mandate and functions were refined and reaffirmed in the Law on Environmental Protection. The new ministry received relatively substantial powers – powers which were formerly placed within the purview of other line ministries and state committees. For the implementation of its policies, the ministry was dependant on other state agencies and committees, notably, the State Agency on Hydrometeorology (air quality), Ministry Agriculture (land management), Ministry of Water Resources (management of water resources; water quality), Sanitary and Epidemiologic Station (public health) (Postanovleniye Pravitelstva 2003).

Following the recent institutional reorganizations in 2001, five once discrete institutions - the Ministry of Ecology and Natural Resource Management, the State Agency of Hydrometeorology, the State Inspectorate of Industrial and Mining Safety, the Ministry of Emergencies and Civil Defense were lumped together to establish the Ministry of Ecology and Emergencies (MEE). At present, MEE oversees environmental

sector, industrial safety and mining, hydrometeorology, emergencies and civil defense sectors (Postanovleniye Pravitelstva 2003) with its main offices headquartered in Osh (known as southern capital of the Kyrgyz Republic) and in Bishkek. Present organizational structure of MEE is shown in Figure 2 and Figure 3.

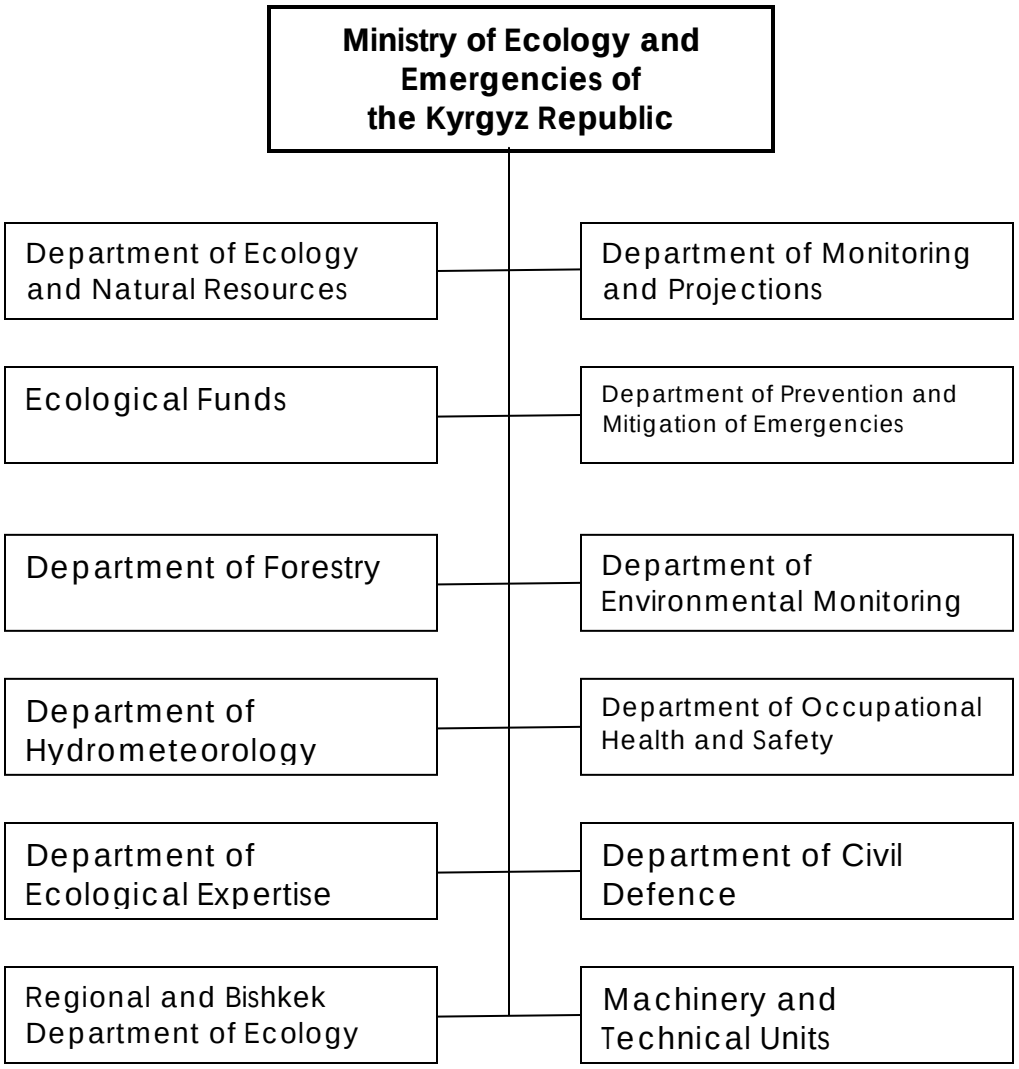


Figure 2. Organizational Structure of the Ministry of Ecology and Emergencies
Sources: Ministry of Ecology and Emergencies of the Kyrgyz Republic (2003).

Within MEE, the Department of Ecology and Natural Resource Management (DENRM), Department of Ecological Expertise, the Department of Environmental Monitoring (DEM), the network of environmental funds and the regional and Bishkek committees on environmental protection represent the environmental bloc. The environmental bloc is subordinate to the ministry and is overseen by one of the deputy ministers to be appointed by the minister of the MEE (Statute of Ministry of Ecology and Emergencies of the Kyrgyz Republic 2003).

As of 2003, MEE, in the person of DENRM and its regional offices for environmental protection (7 regional offices) including city committees in Bishkek and Osh, administers the state control in the field of environmental protection (Law on Environmental Protection 2003). The Department of Ecological Expertise (DEE) has as its primary goal conducting the state environmental expertise of plans, projects and other documentation as well as developing methodological guidance and procedures as of how to carry out state and public ecological expertise. The local- or regional-scale projects' environmental expertise rests with Regional Environmental Protection Offices (Law on Ecological Expertise 1999).

At present, the main functions of the environmental block within MEE are listed below:

- Determining of the maximum allowable limits to the emissions, discharges, waste (including radioactive) generation and its utilization;
- Setting the charges for the special use of natural resources, discharges and utilization of toxic and radioactive waste;
- Collecting and distributing environmental informational;
- Nature and landscape protection
- Promotion of environmental education; organizing awareness-raising campaigns;
- Environmental monitoring;
- Ecological expertise (EIA) of development projects and program;
- Reporting on the state of the environment;
- Ecological certification;

Source: the Ministry of Ecology and Emergencies of the Kyrgyz Republic. 2003.

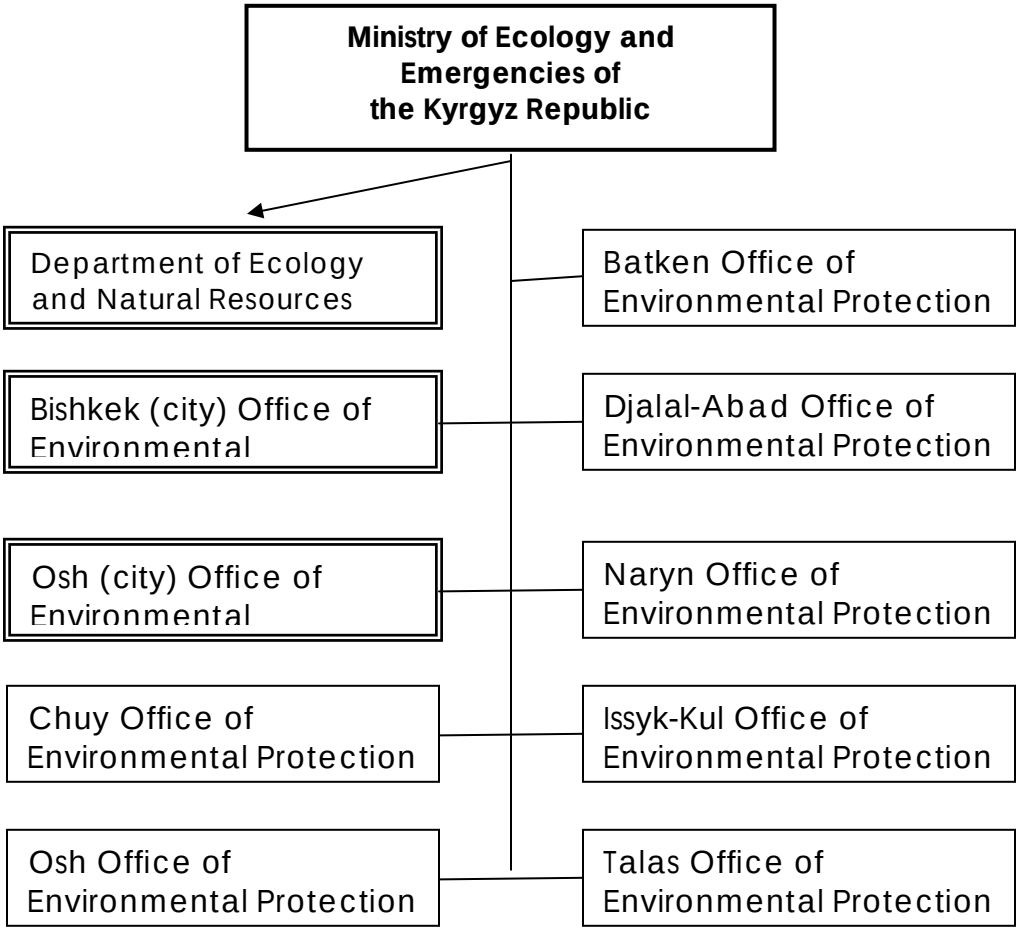


Figure 3. Organizational Structure of the Department of Ecology and Natural Resource Management

Sources: Ministry of Ecology and Emergencies of the Kyrgyz Republic (2002).

The implementation of environmental requirements across the country is ensured by over 150 environmental inspectors, who carry out their functions at regional (by Regional Inspection Offices) and central level (Central Inspection Office). Frequency of planned, on-site inspections formally varies from 2 to 4 times, depending on the gravity of environmental risks associated with the inspected enterprise. Unplanned inspections are warranted when citizens' complaints on perceived gross violations of environmental standards are filed with DENRM (see Box 1).

Box 1. Case with Issyk-Ata Tannery

The Chinese tannery based in Issyk-Ata settlement was reported by the local population to violate the fundamental environmental requirements. The tannery was reported to emit vastly highly noxious pollutants in to the atmosphere and discharge untreated production wastes into the adjacent ditches, which would produce stifling smell in the neighbourhood. Following several on-site environmental inspections, the tannery was given the grace period to implement the number of corrective measures meant to bring the plant into compliance with the environmental standards. However, no improvement in the quality of ambient air followed, even after the grace period elapsed and, subsequently, DENRM revoked its permit for production activities.

Source: Department of Ecology and Natural Resource Management. 2004.

However, the recent legislation (Postanovleniye Pravitelstva 2002) reduced the number of environmental inspections to once a year (see Table 4), with any additional inspections requiring authorization from the Ministry of Justice. Furthermore, the lack of personnel and financial resources does not allow the inspectors to thoroughly inspect all large enterprises of which they are over 2000. This figure, however, excludes the small and medium companies (Rustambekov. pers. comm.).

Table 4. Environmental Inspection Activities

Inspection Activity	**Institution: Environmental Inspection**	**Institution: Water Inspection (DWR)**
Scope	Water discharge and Emissions	Water abstraction, Ground water
Frequency	Once a year (excluding unplanned inspections)	Once a year (Excluding unplanned inspections)
Surprise Inspections	No	No
Cursory Inspections	Yes	Yes
Comprehensive Inspections	Yes	Yes
Noncompliance Responses	- Provision of grace period for implementing recommendations issued by the environmental inspectors (in case of deviation from required standards). - Application of fines and penalties and closure of the enterprise with permit-license withdrawal	- Application of fines and penalties and closure of the enterprise with permit-license withdrawal
Coordination	DEP	Department of water resources
Reporting	DEP	Department of water resources

Source: Department of Environmental Protection, Department of Water Resources of the Kyrgyz Republic. 2004.

6.2.2 Development of environmental policy in the Kyrgyz Republic

The environmental protection in the Kyrgyz Republic in late 1980s had virtually no role to play in the public policy and was largely confined to clean-up measures – the feature peculiar to the most former Soviet Union republics up to 1990s. This situation somewhat changed shortly after independence. The Kyrgyz Republic demonstrated the will, at least outwardly, to address environmental problems in visibly more comprehensive manner then it has been practiced in the past. To date, the country signed and ratified 6 environmental conventions (see annex 1). The National Environmental Action Plan (NEAP) adopted in 1995 was meant to prioritize environmental problems in the country, establish immediate as well as long-term objectives for the national environmental policy and propose the appropriate mix of instruments to achieve the said objectives. Although NEAP intended to guide the environmental action for several years starting from 1995, most priority problems and recommendations laid out in NEAP remain relevant today and are reiterated as still important in the recent policy papers.

The list below shows the most pressing environmental issues identified in NEAP:

- Sustainable use of water resources and upgrading waste water treatment facilities across the country
- Reduce urban air pollution
- Improve the environmental monitoring system
- Increase the total territory of protected areas
- Naturalize the threat posed by radioactive dumpsites and tailings
- Preserve the arable land against degradation
- Ensure sustainable management of forest resources
- Control over production, treatment, transportation and disposal of hazardous waste

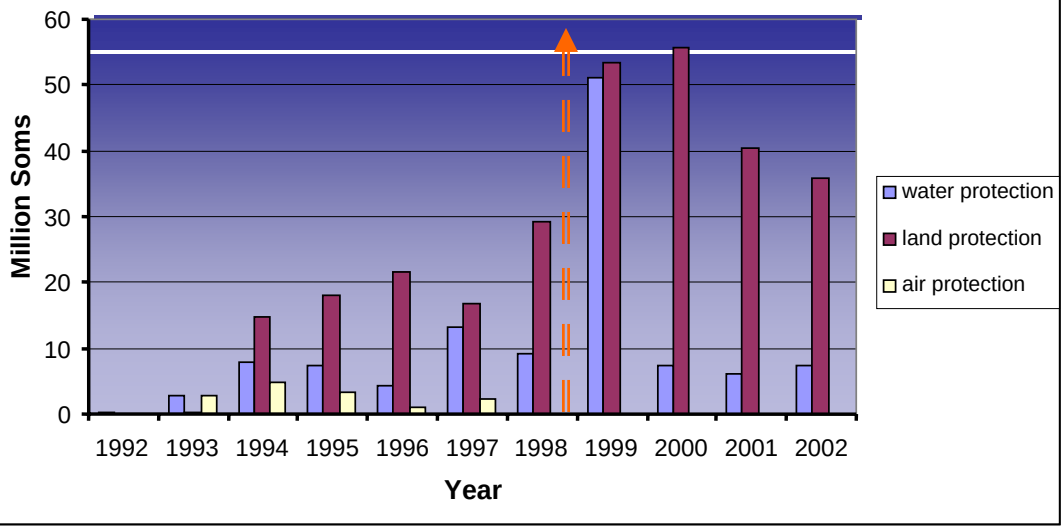
Source: National Environmental Action Plan. 1995.

In 1996, the Security Council of the Kyrgyz Republic (superior inter-ministerial body) approved the Concept of Ecological Security, which proclaimed the sustainable natural resource management as essential precondition for the long-term economic development of the country and the ecological security of the nation. In addition, the reference was

made to the sustainable development in other politically influential documents such as the Strategy for Sustainable Human Development (1997) and the Comprehensive Framework for Development (CDF). Implemented under CDF and being an integral component thereof in its realization, the National Poverty Eradication Strategy puts forward concrete measures to ensure ecological security, which is to be based on sustainable use of natural resources.

Prior to the independence of the Kyrgyz Republic, the environmental policy was largely based on clean-up measures, which was associated with sizable and continuous investments into various sectors of economy. Soon after the breakup of the Soviet Union, the extent of environmental investments in the Kyrgyz Republic plummeted in both absolute and relative terms and totaled 0.3 million soms* in 1992, causing the corresponding deterioration environmental media such as water, land management, to less extent atmosphere (State of the Environment Report. 2003). However, in the subsequent years, as the economic recession halted and macroeconomic situation stabilized, the share of environmental expenditures increased, notably to the measures focused on water and land protection. For example, the share of state expenditures to the land protection increased markedly relative to the early 1990s and amounted to 55.6 million soms in 2000 (see Figure 3. below). The impact of the increase in expenditures, however, is largely not clear.

Figure 4. Environmental Expenditures from 1992 through 2002



Source: The State of the Environment Report for the Kyrgyz Republic (2003)

On the other hand, the state expenditures for the air protection was entirely discontinued in 1998 (see Figure 3), which could be associated in part with large amount of investments needed for upgrading existing technological equipment in most state enterprises. The general slump in environmental expenditures that followed afterwards reflects the deep economic crisis in Russia, ripples of which inevitably affected the economies of its neighboring countries. Presently, the share of environmental expenditures equals 0.025 per cent of GDP. This is critically sparse figure compared to 1 to 2 per cent of GDP as it was planned by NEAP.

The use of economic instruments (e.g. pollution charges, fines for exceeding permitted level of pollution) in regulating the behavior of the industrial operators has been a commendable feature of the environmental policy in the Kyrgyz Republic since early 1990s. With a series of twists in the national economy, however, (inflation, economic crisis in Russia in 1998 etc), the economic instruments became largely dysfunctional and failed to provide adequate incentive for the industrial operators to reduce the level of pollution. Paying the complete brunt of environment-related fines and penalties proved to be therefore more cost-effective for the industrial polluters, rather then undertaking any major measures to improve their environmental performance. The broadly based efforts of DENRP (then the Ministry of Environmental Protection) to adjust the current rates of pollution charges and fines to bring the polluters into compliance with environmental requirements has been opposed by the Government mainly on economic grounds (Pechenyuk. pers. comm.).

The skewed focus of the environmental enforcement authorities is compounding the administration of the economic instruments. The pollution charges, besides intending to ensure compliance with environmental requirements, serve to raise substantial revenues, which are used to finance the activities the environmental inspectors as well as state-run environmental programs. Since the environmental authorities had became increasingly dependent on the revenues generated from pollution charges and penalties, their focus has gradually moved from achieving *bona fide* environmental improvements on the ground to collecting environmental revenues. Thus, the environmental protection appears to be

trapped in a vicious circle, which is eroding in the eyes of the other actors the true mission of environmental policy subsystem. It has been long suggested to decouple the financing of environmental projects and programs as well as other environment-related activities from the revenues raised from pollution charges and fines by securing the financial needs of the environmental protection from state budget allocations (Rustambekov pers. comm.).

Frequent institutional reorganizations, invariably leading to the curtailment of powers bestowed on environmental authorities, preclude the buildup of the 'institutional memory' within the state environmental institutions and underlie much of the dispersion in environmental expertise and financial resources. Following the string of such reorganizations, the Ministry of Environmental Protection was reduced to the Department of Ecology and Natural Resources with much of its powers having been transferred to other state agencies and committees. Nowadays, the scope of DENRM's responsibilities was curtailed to the supervision of only pollution from stationary sources (Bekkulova pers. comm.).

The fact that the institutional reforms are undertaken with no clear vision or strategy for the environmental policy exacerbates the effective operation of the environmental policy subsystem. For example, the recent institutional reforms placed the supervision functions over the flora and fauna, including the conservation of biological diversity, upon the State Forestry Service (SFS), thus lumping together the permit-granting and controlling functions over forests resources and game (Ukaz Prezidenta 2001). Thus, the single institution is supposed to control its own performance. This precarious marriage of functions within the single agency may foment excessive use natural resources (e.g. forests, game etc). The transfer of powers was accompanied by the transfer of DEP personnel to the regional offices of SFS, thereby further undermining the capacity of environmental authorities to carry out it immediate responsibilities.

6.2.3 Target group of environmental policy: capacity for purposive action

Established in 2001, the Council for Economic Policy (hereinafter 'Council') under the Government of the Kyrgyz Republic represents the supreme consultative body responsible for coordinating economic policy measures among key ministries, state committees and agencies. The council is tasked to promote economic growth and was bestowed with substantial powers.

The agenda of the business community, which has been assertively lobbied at the Council, has become progressively hostile to environmental protection in the Kyrgyz Republic of late. Once weak and unorganized, the businesses have grown stronger over the last decade with the increased capacity to organize into the major associations in order to lobby for their interests, making it harder for the Government to ignore their claims and demands. Subsequently, the vigorous pressure to slacken the overall regulatory regime for businesses led the Council to take the range of assertive measures, which, by implication, resulted in the suppression of the legislation regulating air pollution and of environmental inspections of private companies (Cheban. pers. comm.). According to the Governmental Decree No. 194 (2002) on the Procedures for Conducting Inspections of Business Subjects by the State Executing Agencies, the number of on-site environmental inspections was limited to one planned inspection, with any additional inspections warranting the permission from the State Committee on Entrepreneurship. These measures advanced by the business community tangibly impinged on the capacity of the environmental authorities monitor and ensure compliance of economic agents with environmental requirements.

Furthermore, upon advice of the Council for Economic Policy, the Parliament of the Kyrgyz Republic repealed two key articles (No. 12 and No. 13) in the Law on Air Protection (Postanovleniye Jogorku Kenesh 2003), giving way to uncontrolled air pollution by the industrial operators. Attempts to reinstate the repealed articles by the environmental NGOs and DENRM produced little effect: the claim was reconsidered by the Council, but the repealed articles in the legislation remained unchanged (Cheban. pers. comm).

The hostility of the business agenda seems to reflect generally adversarial relations between businesses and environmental proponents. At present, there is virtually no forum exist where businesses and environmental authorities as well as other stakeholders could jointly seek opportunities and solutions, which would reconcile the interests of the both parties. The inclusion of the spokesperson from DENRM to the Counsel for Economic Policy is one way to open the constructive dialogue between environmental interests and business interests. The immediate issue that merits thorough discussions is the strategic approach to be taken on by the environmental authorities in ensuring the better compliance of the regulated community. The current, overly legalistic and rigid approach does not seem to make for the change in the behavior of the regulated companies. For example, the limited length of the environmental permits, issued by the DENRM up to one year to the polluters, provides little incentive to the businesses to explore more innovative and cost-efficient ways to comply with the environmental requirements.

Just as important is the emerging regulatory framework for economic growth that does not seem to favor the environmental protection and tends to set limits to the purposive environmental action. For example, DENRM together with the Sanitary and Epidemiological Station put forward a bill aiming to improve the air quality in the country by banning the import of leaded gasoline. The initiative, however, failed through as the bill has proved to be at variance with the number of binding obligations the Kyrgyz Republic had assumed by entering the multilateral as well as bilateral free trade agreements. The illustrative example includes the requirements of the World Trade Organization (WTO) to reduce or lift altogether the technical barriers for import (Cheban pers. comm.).

6.2.4 Environmental legislation

The environmental legislation in the Kyrgyz Republic has developed in relatively short time span, with the principal laws passed between 1997 and 2001. Most of the laws are of framework type and covers largely all aspects of the legal relations arising in the field of environmental protection with some laws and provisions being in line with

principles of international conventions the country has acceded to. The latter points to, at least outwardly, rather elaborate nature of the environmental legislation in the country. The Law on Environmental Protection provides the general framework for overall environmental protection and use of natural resources, and serves as an umbrella act for the other five specialized environmental laws (see Table 4). The Law on Environmental Protection regulates a wide spectrum of environmental issues; notably, the legal regime of protected areas, environmental standards and limits, rules and procedures for nature use, the rights and obligations of non-for-profit organizations and general public among others. The law implicitly suggests MEE as the central institution to carry out the state environmental policy and mandates it to exercise control over other line ministries and committees for their compliance with environmental legislation (Law on Environmental Protection 1999).

The comprehensiveness of environmental legislation, however, is more a function of so called '*leapfrogging'*, the phenomenon seems to be peculiar to most countries in transition (CIT) where up-to-date policy tools and legislation are adopted without having experienced 'contentious developmental processes' countries with longer democratic traditions have experienced. The *leapfrogging* at policy and legal levels are not necessarily translated into the effective outcomes on the ground and may call for far-flung streamlining to bring the legal framework for environmental protection closer to the national characteristics (Cheban pers. comm.).

Another feature peculiar to the national legislation is its increasingly top-down approach when passing the laws and regulations. The majority of the regulations (around 80 per cent) is developed and initiated by the President and the Government, and the rest 20 per cent by the Parliament and the Judiciary branch (*Pravo na dustup k pravotvorchestvu: zakon, opyt, rekomendatsii* 2003). As far the international legal instruments are concerned, the Kyrgyz Republic has committed itself to multiple environmental conventions with some having been already ratified by the Jogorku Kenesh (National Parliament). The annex 1 provides an overview of environmental conventions the Kyrgyz Republic is affiliated to.

At present, the environmental legislation calls for thorough revision in the light of the recent institutional reorganizations within the ministries and state agencies as well as the

commitments that the Kyrgyz Republic assumed under the international environmental agreements. Doing so, however, does not seem practicable in the near future, not least because strong political will and vast financial resources are presently lacking (Rustambekov pers. comm).

Table 5. List of Environmental Laws of the Kyrgyz Republic

Title of Law	**Year of adoption**	**Year of revision**
Law on Environmental Protection	1991	1999, 2002 (February 4, #22)
Law on Air Protection	1999	2003 (June 24, # 109)
Law on Specially Protected Areas	1994	
Law on Waters	1994	1995 (July 28 and September 26, # 21-1)
Law on Biosphere Territories	1999	
Law on Drinking Waters	1999	2000 (December 29)
Law on Ecological Expertise	1999	2003 (June 11, # 102)
Law on Radioactive Safety and Population	1999	
Law on Wildlife	1999	2002 (January 24, # 13)
Law on Plants	2001	
Law on Fisheries	1997	1998
Law on Subsoil	1997	1999 (July 21, # 82), 2002 (February 4, # 22)
Land Code	1999	2000 (28 December, #23; 2001 (January 4, #2 and #3); 2002 (May 11, #78)
Forestry Code	1999	
Law on Industrial and Domestic Wastes	2001	
Law on Human Population Health	1992	2002 (October 16, # 144)
Law on Tailing Dumps	2001	

Sources: the Department of Environment and Natural Resource Management of the Kyrgyz Republic

Formally, the scope of environmental legislation is wide enough to extend to almost all directions of public policy: environmental provisions are being worked into various laws and regulations and deemed to be comprehensive. However, this comprehensiveness

extensively coexists with general ill-enforcement and, occasionally, gross violations of environmental laws. One of the striking examples corroborating the point would be the go-ahead granted to German firm, RWE Nukem, after several years of negotiations, for importation of uranium-containing granite material to the country for processing it in Kara-Balta mining combine. This, among others, contradicts to the country's thrust declared to international donors to dispose of the radioactive legacy and for which it has been receiving substantial support.

As a rule, environmental regulations can be circumvented by a virtue of political decisions made at high enough levels. For example, by the presidential decree as of 2001 (No. 342) the State Forestry Service was established. The decree runs in contravention to the hierarchy of regulations and laws in that presidential decree is not in position to alter state agencies' competencies stipulated by laws. SFS has come to assume a wide spectrum of competencies, including some formerly invested with DENRM. As a result, supervision over biodiversity and specially protected areas were transferred from DENRM to SFS (Pechenuk pers. comm..).

Presently, the environmental requirements are ill-enforced and preponderance of violations go unprosecuted. This could be traced in part to the 'compassion' that environmental authorities exercise towards businesses, which are still weak and constitutes the majority of regulated objects of the environmental policy. The poor measure of enforcement, however, should be related to the broader issues of the governance, which is still in the making.

6.2.5 Environmental movement

The first organization founded in the Kyrgyz Republic with explicitly environmental focus was the Community for Nature Conservation (CNC), which was established back in 1964 and had impressive number of affiliated members and allied organizations in various parts of the country. The initial activities of CNC had focused on solely awareness-raising campaigns and clean-up measures. Later on, CNC extended its activities to conduct public environmental inspections and 'green patrols'. Since the onset

of the independence in early 1990s, most members resigned their membership with CNC and joined new-founded environmental organizations, thereby, preparing the platform for the emergence of the broadly based environmental movement in the country. (Shukurov pers. comm..).

The far-reaching democratic reforms of the political system and extensive external support created the conditions conducive for the growth of civil society organizations in general. Since early 1990s and continuing up to the late 1990s, the extensive capacity building programs designed and administered by the International Donor Agencies underlied much of the dynamic growth of the NGO sector (Shukurov pers. comm.). The first environmental NGO to register with the Ministry of Justice of the Kyrgyz Republic was the environmental movement of Kyrgyzstan 'Aleyne', which was established in 1993 and focused primarily on environmental education and raising the environmental awareness of the population. By 1997, the number of environmental NGOs has grown to count as many as around 70. Some environmental NGOs, however, proved to be institutionally and financially fluid and discontinued their operations soon after the completion of the donor-supported projects. In 2000, there were over 150 organizations registered with some sort of environmental focus in its charter (*Aktsii eklogicheskih organizatsiy Kirgizstana* 1999).

By the late 1990s, the environmental NGOs had grown more specialized and focused on a specific domain of environmental protection (Pechenyuk pers. comm.). For example, the environmental movement of youth 'BIOM' is the largest NGO with its focus on environmental education at secondary schools, universities and among young NGOs active in environmental field; nowadays, the coverage of the BIOM's activities has expanded to reach three provinces – Issyk-Kul, Djalal-Abad and Talas. Another NGO, 'Independent Ecological Expertise', specializes in carrying out 'public environmental expertise' of the various projects, programs and plans. 'GLIP' together with the Center of Eco-enlightenment 'Azamat' is concerned with issues of environmental safety and genetically altered organisms in the Kyrgyz Republic. 'Drevo Jizni' is an association of medical workers who are involved in, among others, provision of medical as well health-related consultations.

Despite the numerical growth of environmental NGOs all across the country, the environmental groups are largely fragmented and have little experience in organizing and articulating environmental interests in a more effective fashion. Nonetheless, there are indications of the improved cohesion among some segments of the environmental movements: successful campaigns of joint action by environmental NGOs (see Box 1 and 2) illustrate the point. It is therefore instrumental for the members of the environmental movement to search ways to further consolidate and raise overall capacity for exercising more meaningful powers in the environmental decision making (Kirilenko pers. comm.).

Box 2. Incinerator controversy

> In 1999, the contract was concluded between the Mayor Office of Bishkek and the Italian Company ITI Spa on building an incinerator nearby the capital of the country, Bishkek. The journalists of the newspaper, 'Vecherniy Bishkek', were the first to bring up the issue into the public scrutiny. The project proponent violated a number of environmental regulations (e.g. failure to conduct EIA, consult the public concerned). Consequently, International organizations become involved Law and Environment Eurasia Partnership (LEEP) and Global Anti Incinerator Alliance (GAIA). In the end, following numerous revisions of the project, it was frozen.

Source: Rukovodstvo po primeneiyu konventsii EEK OON o dostupe k informatsii, ucshatii obshestvennosti v prosesse prinytiya resheniya i v dostupe k pravosudiyu po voprosam kasayushegosya okrujayushey sredy v Kirgizstane. 2003 (p. 56).

6.2.6 Environmental awareness

The environmental awareness of the population has markedly dwindled compared to the pre-Soviet times. The low level of environmental awareness of the general public has been long recognized as an important issue to be addressed alongside many other pressing environmental problems (Dyushenova pers. comm.). Subsequently, in 2003 the Ministry of Education of the Kyrgyz Republic adopted the Concept of the Continuous Ecological Education which aimed to raise the environmental consciousness of the population by focusing on the following six areas:

- Pre-school environmental education
- Environmental education at schools
- Environmental education at vocational schools and colleges
- Environmental education at universities
- Raising environmental consciousness of public officials at all levels
- Civil environmental education

At the core of the concept lies the recognition that the environmental issues can no longer be viewed separately from social and economic questions and should be addressed by the concerted input from all stakeholders if the sustainable development of the country is to be achieved. Today, the environmental courses have been introduced in 18 major universities and some schools. The civil environmental education is covered by the environmental NGOs, who have been active in providing the multiplicity of environmental trainings for the local populations all across the country (Dyushenova pers. comm.).

6.2.7 Environmental reporting and the mass media

The critical role of the media in the environmental protection features prominently in most comparative studies of Janicke and Weidner (1997). In particular, the measure of freedom for environmental reporting (availability of and access to environmental information as it is stipulated in legal norms) is stressed as a critical element of environmental capacity. Thus, most countries examined in the comparative studies found that the media proved influential in not only raising the environmental consciousness of the general public, but also exerting pressure on the government to take on more assertive position vis-à-vis the economic agents.

In this context, the Kyrgyz Republic presents an illustrative example of emerging favourable conditions for environmental reporting. Encouragingly, the conditions for environmental reporting could be described as advantageous, given their relative independence of most media outlets from the ruling power or individual political fractions. In addition, environmental reports and studies produced by either the state

agencies or the international organizations are readily accessible to general public at various public fora (e.g. libraries, internet etc) with some major documents prepared in English. Thanks to the international environmental institutions and NGOs, the environment has been accepted as an issue among most media outlets. There are even several TV programs such as 'BioRythm', 'Vertikal' piloted to extend the coverage of the environmental education. While numerous representatives of the mass media have completed various environmental workshops specifically organized by NGOs as well as donor agencies, it is still not enough for the environmental issues to be treated more extensively in the mass media.

6.3 Environmental Policy Evaluation: Applying the Capacity Model

The analysis of the capacity of the Kyrgyz Republic for environmental policy and management revealed rather informative results to examine the utility of the capacity model. While some specific capacities (relatively open input structure of the policy process, comprehensive legal framework for environmental protection, cooperative non-governmental environmental organizations and significant measure of freedom for environmental reporting) were developed since early 1990s, the conditions for taking advantage of the emerging capacities have been hindered by the structural framework conditions, which have proved critical for effective environmental action of late.

6.3.1 Cognitive-Informational framework

The cognitive-informational framework, as it is described by Janicke and Weidner (1997, **8**), *encompasses the public awareness, environmental knowledge and information, cultural and value systems* (e.g. post-materialism) as essential components of the capacity for environmental policy and management. In the last decade, the Kyrgyz Republic witnessed the deterioration of the conditions in virtually all of the said components, especially, in the environmental information system and the public awareness. Most

countries examined in the cross national study (Janicke 1997) showed that the high degree of the environmental awareness served as an immediate resource to be used by the environmental actors for the purposive action.

In line with newly emerging expectations and needs for environmental information since the 1990s, the environmental information system of the Kyrgyz Republic underwent significant reforms. The authority of the National Statistical Committee (NSC), whose principal task was to monitor the performance of state enterprises against the prescribed targets (Blades 1991), to influence the collection and interpretation of (environmental) information had been trimmed down significantly: the monitoring over pollution and data collection functions were transferred from NSC to the other environment-related institutions, subsequently, raising the role of MEE in monitoring and collecting environmental data (Sydykov, pers. comm.).

At present, the system of environmental monitoring and data collection is fragmented and rests with the Department of Environmental Monitoring (industrial emissions), the Department of Hydrometeorology (air quality), the State Agency on Geology and Mineral Resources (ground water monitoring), the Ministry of Agriculture, Water Resources and Processing Industry (agricultural practices), the Department of Water Resources under MAWRPI (surface water), the State Forestry Service (flora, fauna and forests) (State of the Environment Report 2003). Such dispersion in monitoring functions and data collection combined with the outdated technical and methodological techniques resulted in environmental information being of varied quality and accuracy, not comprehensive in coverage and historical record as well as inconsistent. Furthermore, the absence of the established framework for the flow of environmental information compounds the centralized collection of accurate and up-to-date environmental information. The lack of sound and accurate environmental information bars the environmental authorities from drawing concrete strategic as well as operational plans (Sydykov pers. comm.). The state-of-the-environment reports are often criticized for being devoid of comprehensiveness and not reflecting the present situation on the ground. The funding for environmental research is virtually unavailable, although the potential to develop the scientific base exists.

6.3.2 Political-Institutional framework

Besides the challenges arising from the transition period, Janicke and Weidner (1997, **11**) emphasis three factors as being important in determining the success or failure of the environmental action; notably, it is *the participative capacity, integrative capacity and capacity for strategic action*. As far as *the participative capacity* is concerned, there have been significant advances made to enhance the openness of the input structure of the policy process. The opportunities for the participation have been broadly formalized and mechanisms put in place. The legal framework for the public participation in the environmental decision making is rather well developed and comprises such laws as the Law on Environmental Protection (1999), the Law on State Environmental Review (1999) and the Law on the Accession of the Kyrgyz Republic to UNECE Convention on Access to Information, Public Participation and Access to Justice on Environmental Matters (2001).

Most notably, the environmental assessment (EA) system inherited from the USSR had been transformed from rigid, 'closed-to-public' system to more responsive and open for the public input process with many provisions having been aligned with EA principles long practiced in industrialised countries. There have been successful examples when environmental NGOs prevented projects with potentially adverse impact on the environment by virtue of emerging participatory mechanisms in EA system (see Box 2) Viewed broadly, comparable transformations towards to more participatory decision making could be largely ascribed to the availability of international expertise, influence of international conventions such as the Aarhus Convention and operation of IDO as well as investors in the country (Djenchuraev pers. comm.).

Generally, there has been low take-up of emerging participatory opportunities by the environmental proponents. The laws and regulations passed are often not underpinned by the workable mechanisms for these regulations to become effective and to be put to the service of the general public. The broadly based efforts and cooperative approach (informal consultations) of DENRM and environmental NGOs in putting in place the participatory mechanisms DENRM should be noted as most useful in strengthening capacity for the strategic action. The creation of the permanent consultative council under

the DENRM auspices has been long suggested where major environmental bills as well as other issues are thoroughly discussed before being proposed to the Government or the Jogorku Kenesh.

The decentralization reforms, unravelling in the Kyrgyz Republic since early 1990s, serve as potent contributory factor to the enhanced participatory capacity. Presently, 1 880 villages and small settlements are grouped into 470 local self governments (*ayil okmotu*), where local communities are being devolved relatively tangible decision making powers. The heads of *ayil okmotu* are elected by the local communities to serve the term of four years and to manage the social and economic issues locally. While, formally, the contours of the local self governance has emerged, the democratic processes are still weak at local levels (Kan and Feyuk 2004) and the local communities need to be more assertive in taking advantage of the emerging opportunities offered by the decentralization reforms.

The establishment of the Council of Non-For-Profit and Community-Based Organizations under the Administration of the President of the Kyrgyz Republic in 2001 has become another practical step to encourage 'stronger voice' from the civil society organizations in the decision making and enhance the integrative capacity of the environmental policy (*Rukovodstvo po primeneiyu konventsii EEK OON o dostupe k informatsii, ucshatii obshestvennosti v prosesse prinytiya resheniya i v dostupe k pravosudiyu po voprosam kasayushegosya okrujayushey sredy v Kirgizstane*. 2003). The latter is an important as the large-scale projects and programs are often approved by the Government or the Jogorku Kenesh without exposing them to EA or the public scrutiny for its potentially inimical effect on the environment (see section 6.2.4 for an example to the point).

The integrative capacity of the environmental policy is still weak and commands substantial improvements. To date, the integration is necessary across various state institutions. For example, the permitting system is fragmented with permits being issued separately for water, waste and air (see annex 2). Notably, DENRM administers the review and issuance of permits for air emissions and waste water discharges, whereas the Ministry of Water and Agriculture and the State Agency of Geology and Mineral

Resources oversee the issues related to water abstraction of surface water (permit granting included) and monitoring of ground water quality, consequently. In addition, SFS, since it assumed the overall competencies over forests and biodiversity management, it pursues policies with little or no coordination with DENRM (Rustambekov pers. comm.).

The creation of the National Coordination Council for Sustainable Development, which is being considered by the Government of the Kyrgyz Republic in concert with some active members of the environmental movement, holds a promise of achieving the much-needed cross-sectoral integration of environmental policy. Of particular importance is more intimate and constructive cooperation of MEE with the state institutions that have immediate relation to the environment and natural resources, notably, the Ministry of Agriculture and Water Resources, the State Committee on State Property, the State Committee Geology and Mineral Resources. This inter-ministerial body is meant to coordinate the implementation of the major environmental projects and international environmental conventions the Kyrgyz Republic has ratified to date, and is to be consisted of the representatives from the line ministries, environmental NGOs and international organizations.

Box 3. Case with the paper mill in Tokmok

In 1994, the agreement was signed between China and the Government of the Kyrgyz Republic on building a paper mill in the area of Chuy-Tokmok. The Ministry of Environmental Protection (MEP) turned to the environmental NGOs to conduct PER, which identified gross violations the environmental requirements and legislation on the part of the project developer. Only after three years of the 'paper war' was the project halted on the account that the developer was reluctant to make necessary adjustments in the project documentation and carry out EIA as advised by MEP. Eventually, under the duress of environmental NGOs and MEP the project developer agreed to upgrade the project to incorporate required environmental considerations.

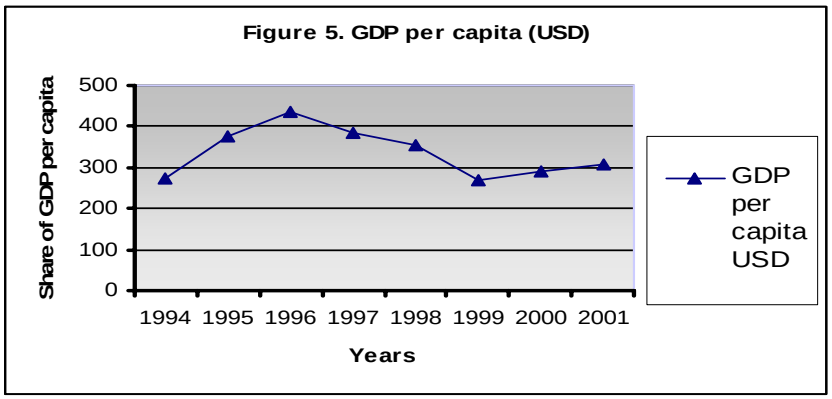
Source: *Aktsii eklogicheskih organizatsiy Kirgizstana*. 1999.

The institutional capacity of the country is still weak and calls for the major streamlining before the long-term strategies could be effectively implemented. The latter

also underlies much of the inefficiency in the strategic planning of the major environmental projects and programs. Although the Kyrgyz Republic joined the Convention on EIA in the Trans-boundary Context in 2001, there is little methodological, organizational and epistemic capacity to follow through with the best international practices on the Strategic Environmental Assessment (Shabaeva pers. comm.).

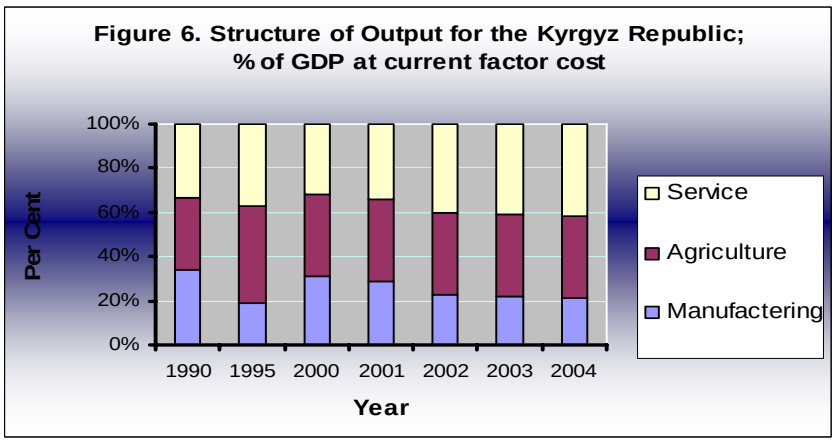
6.3.3 Economic and technological framework

The economic performance, structure of economy, technological standards - all being part of economic and technological framework, constitute an important factor in determining the existing capacity for environmental action (Janicke and Weidner. 1997, **17**). The authors go on to argue that the environmental improvements in the country typically correlate with the improved economic performance and wealth of population measured by per capita Gross Domestic Product (GDP). In this respect, the limited advances in environmental policy of the Kyrgyz Republic correlate well with the poor economic performance of the country in the past. For the last decade, the national economy had not fared well compared to the general projections for the economic growth. In first part of 1990s, the country had to grapple with issues of macroeconomic stabilization: GDP of the country reduced in half and instances of poverty across the country increased dramatically. In the late 1990s, the economy of the Kyrgyz Republic was deeply troubled by the far-reaching ripples of the economic crisis in the Russian Federation and the growth of the national economy slowed down (see Figure 5).



Source: Transition Report 2002. EBRD.

With the collapse of the Soviet Union, there occurred changes in the sectoral composition of economy. The Soviet bias towards the large industries was superseded by the focus on small and medium businesses. The share of machinery manufacturing and light industry shrunk in the structure of GDP and gold mining and generation of hydropower increased, instead. By 2001, the share of industry in GDP of the Kyrgyz Republic had ultimately decreased compared to 1990 level (see Figure 6). Conversely, the agricultural production in the structure of GDP has increased and the structure of agricultural output has altered, changing once popular crops such as tobacco, corn and barley to sugar beet, grain and potato (National Statistics Committee 1999).



Source: Asian Development Bank. 2004.

The technological standards remain obsolete in most manufacturing enterprises and contribute vastly to the air and water pollution in the country (State of the Environment

Report 2004). The operation of the long outdated machinery in production processes underlies much of the air pollution from stationary sources. The waste water treatment facilities do not operate properly and call for thorough upgrading: of 120 facilities available across the country, only 40 units are functional today (State of the Environment Report 2004). The backward technological standards, however, should be balanced against the potential opportunities offered by the fast-paced liberalization processes unfolding in the Kyrgyz Republic since independence. The liberal trade regime and WTO membership can potentially not only boost the economic growth, but also facilitate the advent of the advanced and environmentally friendly technologies to the country, thus contributing to the greater efficiency of national industries.

Conclusion and recommendations

The thesis objectives were to explain the capacity challenges in the environmental policy and management of the Kyrgyz Republic through the capacity model developed by Janicke. and Weidner. Through the analysis of the main capacity categories of the environmental policy in the country, the research intended to understand in a broader sense the capacity needs in the environmental policy and management and suggest the policy orientations on the further environmental capacity building efforts. Last but by no means least, present thesis aimed to test the utility of the capacity model as an analytical tool.

The application of the capacity model to the Kyrgyz Republic dislodged curious findings in the capacity categories. Since the early 1990s, the Kyrgyz Republic has witnessed improvements in such capacity categories as input structure of the environmental policy process, congenial relations between environmental NGOs, state environmental institutions (DENRM, SES) and international development organizations, environmental legislation and generally favourable conditions for environmental reporting. However, these were not enough to produce positive outcomes in environmental policies; the capacity of main actors for the purposive action was restricted by largely suppressive structural framework conditions expressed, *among others*, in declining environmental consciousness, fragmented environmental information system, poor coordination among the environment-related institutions, severe opposition from the businesses community and sluggish economic performance. The transition reforms which are still underway in the country and typically associated with frequent institutional reorganizations and weak administrative capacity of the local institutions have served as a limiting factor for the capacity building in environment.

Opening the input structure of the environmental policy process to the civil society organizations, thanks to the early democratization reforms in the country, have been commendable feature of the environmental policy development in the Kyrgyz Republic. One illustrative example includes EA systems in the country that changed from once ‘rigid and closed-to-public’ system to more transparent and open process with some principles attuned to the international practices. These improvements in the policy

process are not the usual practice yet and, therefore, should be further strengthened to prevent the possible rollback of the hard won participation mechanisms. The more assertiveness and stronger consolidation of dispersed segments within the environmental movement may improve the generally low take-up of the emerging opportunities by the members of the public and NGOs and, thereby, strengthen emerging participatory mechanisms along the policy process.

The emerging culture of informal cooperation between state environmental institutions and the environmental NGOs has marked the improved capacity of the environmental proponents to organize and put pressure on the government to take action. This positive development should be further advanced by formalizing the relations between DENRM and environmental NGOs. Establishing the consultative forum within DENRM where the major strategic programs are discussed with members of the environmental movement can meaningfully contribute to the increased capacity for the purposive action.

The rising role of environmental NGOs in the environmental policy process and the emerging process of specialization among the environmental groups has been most important in raising overall influence of environmental actors. The consolidation amongst the segments of the environmental improvement should be further strengthened as well as closer links with regionally-based environmental NGOs should be also sought.

Despite the comprehensive environmental legislation the country has developed since early 1990s, the implementation remains still to be the major issue to be addressed. Many provisions of the present legislation should be revised to reflect the recent institutional reorganizations and be in line with the principles of the international environmental conventions the Kyrgyz Republic has ratified. It is most important that revision should be made along specific environmental strategy to contribute to the internal consistency of the laws and improved implementation capacity of the regulated community.

The systematic demotion of the main state environmental institution, DENRM, and resultant fragmentation of environment-related function across disparate state agencies has eroded technical as well as organizational capacity of state environmental institutions to carry out their immediate responsibilities; notably, ensure compliance of industrial operators with the environmental requirements given lack of the personnel and technical

equipment. Raising the status of DENRM vis-à-vis other line ministries and promoting more cooperative relations amongst the institutions upon which DENRM relies for the implementation of environmental policies, is instrumental for the environmental considerations to be heeded across other sectoral policies. The establishment of the National Coordination Council for Sustainable Development may potentially raise the profile of the environmental issues amongst the line ministries and contribute to better integration of the environmental policy.

The skewed, revenue-seeking focus of the environmental authorities has fomented aversion of the regulated enterprises, pushing the existing gap in cooperation between environmental authorities and the regulated agents further apart. The financial independence of the environmental authorities appears to be most needed to allow the environmental authorities to focus on attaining true environmental improvements on the ground, rather then concentrating on revenue collection for the pollution.

The rising antagonism between business interests and those of environmental proponents, fueled in part by the revenue-seeking motives on the part of environmental authorities, may potentially hinder the implementation of strategic plans and block key environmental law in the future. The suppression of the environmental subsystem, overwhelmingly driven by the business interests, may be further compounded by the emerging trade regulatory regime. The inclusion of the representatives from DENRM and other state environmental institutions to the Council for Economic Policy may facilitate constructive dialogue between *environmental actors* and lead to better outcomes in reconciling the interests of both parties. Prior legal expertise of the bills, programs as well as agreements for their potential impact on the implementation of environmental policy should be carefully made to rule out the head-on clashes between economic interests and environmental protection.

List of References

Aktsii eklogicheskih organizatsiy Kirgizstana 1999. Posobiye dlya nepravitel'stvennyh ekologichskih organizatsiy [Sourcebook for environmental non-for-profit organizations]. Bishkek.

Asian Development Bank (ADB). 2004. *Key Indicators of Developing Asian and Pacific countries.* Manila: Asian Development Bank (ADB).

Berg, E.J. 1993. *Rethinking Technical Cooperation: Reforms for Capacity Building in Africa.* New York: United Nation Development Program (UNDP).

Biermann, F. and Steffan, B. 2004. Does Effective International Environmental Governance Require a World Environment Organization? The State of the Debate Prior to the Report of High-Level Panel on the Reforming the United Nations. *In Global Govenance Working Paper.* No 13. Amsterdam: Global Governance Project.

Dasgupta, P. and Maller, K. G. 1994. *Poverty, Institutions and the Environmental Resource Base.* World Bank Environmental Paper No. 9. Washington. D.C.: World Bank (WB).

Djenchuraev, N. D. 1999. Current issues associated with mining wastes in Kyrgyzstan. Master of Science thesis. Department of Environmental Science and Policy, Central European University, Budapest.

Eastby, J.H. 1984. David Mitrany's Approach to Politics: Functionalism in Theory and Practice. PhD Thesis, University of Virginia.

European Bank for Reconstruction and Development (EBRD). 2002. *Transition Report: agriculture and rural transition.* Economic transition in central and eastern Europe and the CIS. London: European Bank for Reconstruction and Development (EBRD).

Grindle, M.S. 1997. *Getting Good Governance: Capacity Building of the Public Sector in Developing Countries.* Cambridge, MA; Harvard University Press.

Gusman, S. Irwin, F. Moltke, K. and Whitehead, C. 1980. *Public Policy for Chemicals: National and International Issues.* Washington, D.C.: The Conservation Foundation.

Hass, P. 1993. *Saving the Mediterranean: the Politics of International Environmental Cooperation.* New York: Columbia University Press.

Haas, P. 2004. Addressing the Global Governance Deficit. *Global Environmental Politics.* 4 (4): 1-15.

Hildebrand, M. E. and Grindle, M. S. 1994. *Building sustainable capacity: challenges for the public health sector*. Harvard University: Harvard Institute for International Development

Hizenga, C. 1997. *Management of Capacity Development in Environment Program and Projects: Experience and Challenges in the Dutch development cooperation*. Amsterdam: Geoplan International

Hunter, D. 2001. The World Bank: A Lighter Shade of Green? *Yearbook of International Cooperation on Environment and Development.* 12: 5 9- 67.

Janicke, M. 1990. *State Failure*. Cambridge: Polity Press.

Janicke, M. and Weidner, H. 1997. *National Capacity for Environmental Policy and Management: a comparative study of capacity building.* Berlin: United Nations University.

Japan International Cooperation Agency (JICA). 2001. *The Second Study on Development Assistance for the Environment: Practical Approaches towards the Environmental Challenges.*Tokyo: Japan International Cooperation Agency (JICA).

Jonathan, D. O. 2002. Russian Environmentalism. *European Environment.* 12: 177 – 129.

Kan, O. A. and Freyuk, G. V. 2004. *Survey of local self governments for their training needs under the program aimed at creating the accountability system in the local self governments.* Bishkek: Academy of Management under the President of the Kyrgyz Republic.

Kelle, U. 1995. *Computer-Aided Qualitative Data Analysis: Theory, methods and practice.* London: Sage.
Komarov, B. 1978. *The destruction of nature in the Soviet Union*. Great Britain: Redwood Burn Limited.

Koncheptsiya nepreryvnogo ekologicheskogo obrazovaniya v Kirgizskoy Respubliki. 2003. The Ministry of Education and Culture of the Kyrgyz Republic. Bishkek.

Luhmann, N. 1990. *Autopoiesis of Social Systems: Essays on Self-Reference*. New York: Columbia University Press.

Lundqvist, L. 2000. Capacity building or social construction: Explaining Sweden's shift towards ecological modernization. *Geoforum.* 31 (1): 21-32

Mitchell, R. 1994. *International Oil Pollution at Sea: Environmental Policy and Treaty Compliance*. Cambridge: MIT Press.

Mnatsakanian, R. 1992. *Environmental Legacy of the Former Soviet Republics.* Edinburgh, Centre for Human Ecology, University of Edinburgh.

Moltke, K. 1996. Why UNEP Matters. *Green Globe Yearbook.* 6: 55 – 64.

Murphy, Joseph. 2001. *Analyzing Environmental Policy: Capacities and Discourse.* OSEES Research Paper No. 22. Oxford: Oxford Centre for the Environment, Ethics and Society (OCEES).

Najam, A. 2001. Vision 2010: Towards Better Global Governance. *In 2010 Global Architecture Vision Conference*. University of Victoria, Canada: Centre for Global Studies.

National Statistics Committee of the Kyrgyz Republic. 1999. *Kyrgyzstan in Figures.* Bishkek: National Statistics Committee.

Netherlands Ministry of Foreign Affairs. 1994. *Environment and Development Cooperation: Evaluation of Netherlands Aid Policy with regard the Environment, with special reference to Burkina Faso, Indonesia and Kenya.* The Hagu.

Organization for the Economic Cooperation and Development (OECD). 1991. *Principles for New Orientations in Technical Cooperation*. Paris: Organization for the Economic Cooperation and Development (OECD).

Organization for Economic Cooperation and Development (OECD). 1994. Capacity Development in Environment. Proceedings of a Workshop held in Costa Rica. Paris: Organization for Economic Cooperation and Development (OECD).

Organization for Economic Cooperation and Development (OECD). 1995. *Development of Environmental Capacity: Framework for Donor Involvement.* Paris: Organization for Economic Cooperation and Development (OECD).

Organization for the Economic Cooperation and Development (OECD). 1996a. *Development Cooperation: Efforts and Policies of the Members of the Development Assistance Committee*. Paris: Organization for the Economic Cooperation and Development (OECD).

_____ .1996b. *Shaping the 21st Century: The Contribution of Development Cooperation.* Paris: Organization for the Economic Cooperation and Development (OECD).

Organization for Economic Cooperation and Development (OECD). 1997. *Criteria for the Donor Agencies' Self-Assessment in Capacity Development*. Background Document for the Forum for the Developing Partners and Senior Level Meeting. Paris: Organization for Economic Cooperation and Development (OECD).

Organization for the Economic Cooperation and Development (OECD). 1998. *Evaluation of Progress in Developing and Implementing National Environmental Action Programs in CEEC/NIS*. Paris: Organization for the Economic Cooperation and Development (OECD).

Organization for Economic Cooperation and Development (OECD). 2000a. *Donor Support for the Institutional Capacity Development in Environment: Lessons Learned.* Paris: Organization for Economic Cooperation and Development (OECD).

Organization for the Economic Cooperation and Development (OECD). 2000b. *Environmental performance review: conclusions and recommendations for 32 countries*. Paris: Organization for the Economic Cooperation and Development (OECD).

Organization for the Economic Cooperation and Development (OECD). 2004. *OECD Environmental Data Compendium.* Paris: Organization for the Economic Cooperation and Development (OECD).

Pavlinek, P. and Pickles, J. 2000. *Environmental Transitions: Transition and Ecological Defense in Central and Eastern Europe*. London: Routledge.

Peterson, D. And Bielke, E. 2001. The reorganization of the Russia's environmental bureaucracy: implications and prospects. *Post-Soviet Geography and Economics*. 42 (1): 65-76

Polojeniye Pravitelstva. 1996. *Polojeniye o Ministerstve ohrany okrujayushey sredy Kirgizkoy Respublik* [Statue on the Ministry of Environment of the Kyrgyz Republic]. No. 443.

Postanovleniye Pravitelstva. 2000. *Polojeniye o gosudarstvennom kontrole za ohranoy okrujayushey sredy, ratsional'nym ispol'zovaniyem pririodnyh resursov i obespecheniyem ekologiocheskoy bezopasnosti Kirgizskoy Respubliki* [State Control over the Environmental Protection, Regional Natural Resource Management and Securing Environmental Security of the Kyrgyz Republic]. No. 295.

Postanovleniye Pravitelstva. 2002. *O poryadke provedeniya proverok gosudarstvennymi kontroliruyushimi organami deyatel'nosti subyektov predprinimatelstva* [Procedures for Conducting Inspections of Business Subjects by the State Executing Agencies]. No. 194.

Postanovleniye Pravitelstva. 2003. *Polojeniye o departamente ekologii i prirodopol'zovanii pri Ministerstve ekologii i chrezvychaynyh situachiyKirgizskoy Respubliki* [Statue of the Department of Environment and Natural Resource Management under the Ministry of Ecology and Emergencies the Kyrgyz Republic]. No. 365.

Postanovleniye Jogorku Kenesh Kirgizkoy Respubliki. 2003. O vnesenii izmenenii v Zakon Kirgizkoy Respubliki ob ohrane atmosfernogo vozduha [On amendments to the Law of the Kyrgyz Republic on Air Protection].

Poul, Engburg-Predersen and Caus, Hvashoj Jorgensen. 1997. UNDP and Global Environmental Problems: The Need for Capacity Development at Country Level. *Green Globe Yearbook.* 37 - 44

Pravo na dustup k pravotvorchestvu: zakon, opyt, rekomendatsii. 2003. Bishkek.

Predersen, P. E. and Jorgensen, C. H. 1997. UNDP and Global Environmental Problems: The Need for Capacity Development at a Country Level. *Green Globe Yearbook.* 10: 37 – 44.

Punch, F. K. 1998. *Introduction to Social Research: Quantitative and Qualitative Approaches*. London: Sage.

Regional Environmental Center for Eastern and Central Europe (REC). 1994a. *Strategic Environmental Issues in Eastern and Central Europe: Environmental Needs Assessment in Ten Countries.* 2nd ed. Vol. 2. Budapest: Regional Environmental Center for Eastern and Central Europe (REC).

Regional Environmental Center for Eastern and Central Europe (REC). 1994b. *Strategic Environmental Issues in Eastern and Central Europe.* Regional Report. 2nd ed.. Vol. 1. Budapest: Regional Environmental Center for Eastern and Central Europe (REC).

Rukovodstvo po primeneiyu konventsii EEK OON o dostupe k informatsii, ucshatii obshestvennosti v prosesse prinytiya resheniya i v dostupe k pravosudiyu po voprosam kasayushegosya okrujayushey sredy v Kirgizstane. 2003. Bishkek.

Sagar, A.D. 2000. Capacity Development for Environment: A View for the South, A View for the North. *Annual Review of Energy and Environment*. Vol. 25: 377 – 439.

Silverman, D. 2000. *Doing Qualitative Research: A Practical Handbook*. London: Sage.

Singleton, R. A. and Bruce C. S. 1999. *Approaches to Social Research.* 3rd ed. New York: Oxford University Press.

Speth, J. G. 2002. Global Environmental Agenda: Origins and Prospects. Global Environmental Governance: Options and Opportunities, edited by D.C. Esty and M. Ivanova. New Haven: Yale School of Forestry and Environmental Studies.

State of the Environment Report of the Kyrgyz Republic. 2003. Department of Environment and Natural Resource Management, the Ministry of Ecology and Emergencies of the Kyrgyz Republic. Bishkek.

Sudman, S. and Kalton, G. 1986. *New Developments in the Sampling of Special Populations. Annual Review of Sociology* (12): 401-429 p.

United Nations. 1993. Agenda Item 79: Institutional Arrangement to Follow up United Nations Conference on Environment and Development. A/RES/47/191. Available at URL: http://www.un.org/documents/ga/res/47/ares47-191.html [Consulted 2 May, 2004]

United Nations Conference on Human Environment (UNCHE). 1972. *United Nations Conference on Human Environment,* Stockholm, Sweden. June 5 - 16.

United Nations General Assembly Resolution. 1989. Co-operation between the United Nations and the Southern African Development Co-ordination Conference. 44/221/1989.

United Nations Conference on Environment and Development (UNCED). 1993. *Rio Declaration on Environment and Development.* New York.: United Nations Department of Public Information

United Nation Development Program (UNDP). 1997a. *Environmental Programmes in Latin America and Caribbean.* An Assessment of UNDP experience. Office of Evaluation and Strategic Planning. New York: United Nation Development Program (UNDP).

United Nation Development Program (UNDP). 1997b. Capacity Development. [On-line]. Technical Advisory Paper 2. New York.
URL: http://magnet.undp.org/Docs/cap/Capdeven.pdf [Consulted 12 June, 2004]

United Nation Development Program (UNDP). 2002. *Capacity for Development: New Solutions to Old Problems*. Ed. by S. Fukuda, C. Lopes, and K. Malik. New York: United Nation Development Program (UNDP).

VanDeveer, Stacy D. and Geoffrey, D. Dabelko. 2000. *Protecting Regional Seas: Developing Capacity and Fostering Environmental Cooperation for Europe*. Washington DC: Woodrow Wilson Center.

Ukaz Prezidenta. 2001. *Ob Gosudarstvennoy Lesnoy* Slujbe *Kirgizskoy Respubliki* [State Forestry Service of the Kyrgyz Republic]. No. 342.

Ukaz Prezidenta. 2001. O Sovete po Ekonomicheskoy Politike *Kirgizskoy Respubliki* [Council of Economic Policy the Kyrgyz Republic]. No. 332.

United Nation Development Program (UNDP). 2003b. *Environmental Governance Sourcebook*. Bratislava: United Nation Development Program (UNDP).

United Nations Environment Program (UNEP), 1997.Nairobi Declaration on the Role and Mandate of UNEP. Adopted on Nineteenth Session of the Governing Council. Kenya: United Nations Environment Program (UNEP). Available on Internet at URL: http://www.unep.org/Documents.multilingual/Default.asp?DocumentID =287&ArticleID=1728&l=en [Consulted 22 May, 2004]

United Nations Environment Program (UNEP), 2002. *Capacity building for sustainable development: an overview of UNEP environmental capacity building activities*. Kenya: United Nations Environment Program (UNEP).

World Bank (WB). 1989. *Sub-Saharan Africa: From Crisis to Sustainable Growth.* Washington, D.C.: World Bank (WB).

Work Bank (WB). 1994. *Environmental Assessment and Development*. Ed. by Robert Goodland and Valerie Edmundson. Washington, D.C.: The World Bank (WB).

World Bank (WB). 1995. The Kyrgyz Republic: National Environmental Action Plan. Washington, D.C.: World Bank (WB).

World Bank (WB). 1997. *World Development Report: State in a Changing World.* Washington, D.C.: World Bank (WB).

World Bank (WB). 1999. *Environmental Capacity Building: A Review of the World Bank's Portfolio*. Washington, D.C.: World Bank (WB).

World Resource Institute (WRI). 2000. *The Right Conditions: The World Bank, Structural Adjustment and Forest policy Reform*. Washington, D.C.: World Resource Institute (WRI). Available at URL: http://www.wri.org/governance/pubs_description.cfm?pid=3011 [Consulted 19 June, 2004]

World Bank (WB). 2000. *The World Bank and Global Environment: A Progress Report*. Washington, D.C.: World Bank (WB).

World Bank (WB). 2002. *Environmental Impact Assessment Systems in Europe and Central Asia Countries.* [On-line] Available on Internet at URL: http://eco-kg.net/upload/EIA%20in%20Europe%20and%20CA.pdf [Consulted 4 July, 2004]

World Commission on Environment and Development (WCED). 1987. Our Common Future. Oxford: Oxford University Press.

*Zakon ob Okrujayushey Srede Kirgizskoy Respubliki. 1999. [*Law on Environmental Protection*]*. No. 53.

Zakon ob Ekologicheskoy Ekspertize Kirgizskoy Respubliki. 1999. [Law on Ecological Expertise of the Kyrgyz Republic]. No. 54.

Personal Communications

1. Abaihanova, Zuhra. National Project Manager. UNDP Program: Enabling Activity in Climate Change (EACC). Formal Interview. 19 May, 2004

2. Bekkulova, Djyparkul, Head of Environmental Policy and Strategy Office, Department of Ecology and Natural Resource Management. Formal interview. 18 May, 2004.

3. Cheban, Galina. Head of Environmental Legislation Office, Department of Ecology and Natural Resource Management. Formal interview. 16 May, 2004

4. Gruzdova, Olivia. Deputy Head of Environmental Policy and Strategy Office, National Office of International Cooperation. Department of Ecology and Natural Resource Management. Formal interview. 21 May, 2004

5. Djyldyz, Dyushenova. Deputy Head of Environmental Education Office, Department of Ecology and Natural Resource Management. Formal interview. 12 May, 2004

6. Djenchuraev, Nurlan. Senior Researcher. Alex Stewart & Environmental Laboratories. E-mail communication. 16 June, 2004.

7. Djangaracheva, Mira. Project Manager, UNDP/GEF Project: National Capacity Self-Assessment for Global Environment Management in the Kyrgyz Republic. Formal interview. 17 May, 2004.

8. Garifulin, Vazykh. National Consultant, UNDP Project: End-User Incentive and Awareness Project, Ozone Centre. Formal Interview. 18 May, 2004.

9. Glooshkova, Marina. Independent National Coordinator, UNDP/GEF Project: National Capacity Self-Assessment for Global Environment Management in the Kyrgyz Republic. Formal interview. 17 May, 2004.

10. Kachkynbaev, Kulsina. Director of the Regional Environmental Centre In Central Asia (Kyrgyzstan). Formal interview. 16 May, 2004.

11. Kirilenko, Anna. Coordinator of Environmental Programs. Youth Ecological Movement of the Kyrgyz Republic BIOM. Formal interview. Bishkek, 28 May, 2004.

12. Korotenko, Vladimir. Director of the Youth Ecological Movement of the Kyrgyz Republic BIOM. Formal interview. Bishkek, 29 May, 2004.

13. Musuraliev Almaz. Deputy Director of the State Forestry Service. Formal interview. Bishkek, 23 May, 2004.

14. Pechenyuk, Oleg. Director of NGO "Ecological Expertise". Formal interview. Bishkek, 28 May, 2004.

15. Rustambekov, Omor. Director of the Department of Ecology and Natural Resource Management. Formal interview. Bishkek, 15 May, 2004.

16. Shukurov, Emil. Director of Ecological Movement in the Kyrgyz Republic "Aleyne". Formal interview. Bishkek, 18 May, 2004.

17. Shabaeva, Gulfia. Head of the Environmental Protection and Ecological Expertise Office, Department of Ecology and Natural Resource Management. Formal Interview. 11 May, 2004.

18. Sydykov, Turar. Head of the Environmental Monitoring Office, Department of Environment and Natural Resource Management. Formal Interview. 23 May, 2004.

19. Djumagulov, Kadyrbek. Environmental Inspector, Chuy Environmental Inspectorate Office, Department of Ecology and Natural Resource. Formal Interview. 29 May, 2004.

Annex 1. Information on the Environmental Conventions the Kyrgyz Republic acceded to and ratified.

Title	**Date of ratification/accession**	**Chief Implementing agency**	**Measure taken towards implementation**	**Projects**	**Assisting international organization**
FCCC / Kyoto Protocol to the FCCC	Law on Accession of 14 Jan.2000. No. 11	MEE of the Kyrgyz Republic	Governmental regulation 'On implementation measure of FCCC' No. 369 of 21 July 2001 (introduction of statistical accountability for such GHG as CO2, CH4, NO2, HFCS, PFCS, SF6)	1st phase of the UNDP project 'Enabling the Kyrgyz Republic to prepare its First National Communication in Response to its Commitments to the FCCC' is completed. Realization of the 2nd phase of the project 'Enabling the Kyrgyz Republic to implement the obligators to the FCCC' is underway.	GEF/ UNDP
Convention on Biological Diversity	Law on Accession No. 40 of 26 July 1996	State Forestry Service	Strategy and Action Plan on protection of biodiversity was drawn up (not approved by the Government). Assessment of the implementation of the CBD in Kyrgyz Republic was conducted by the CBD Secretariat together with WMO	'The Western Tien-Shien Biodiversity Project' Project 'Snow Leopard' to fight poaching for red-listed species 'Development of framework document on biosafety' GF/2716-01-4319 (project aims at making a research on GMO and subsequent	NABU, GEF/WB, GEF/UNEP

				drafting of the framework document).	
Convention on Long-range Trans-boundary Air Pollution	Law on Accession No. 11 of 14 Jan. 2000.	Main Office of Hydrometeorology under MEE	1st National Report on air emissions for 1999-2000 is completed. Database on air emissions is being created		
Vienna Convention on substances depleting Ozone Hole and Montreal Protocol on ozone depleting substances (ODS)	Law on Ratification No.16 of 15 Jan. 2000	Ozone Center in cooperation with the MEE	Inventory of the consumption volume of ODS across the country for 1997 Governmental Regulation No. 552 of 6 Sep. 2000 on 'The state control of export and import of ODS and goods containing ODS'. Introduction of statistical accountability for ODS. The KR has been enlisted among developing countries who can access the Multilateral Funds, as well as was granted a grace period for phasing out the application of ODS. The Government approved the Law on Ratification of London, Copenhagen, and Montreal amendments to the Montreal Protocol.	Strengthening of Institutional and organizational capacity (Ozone Center) IM/40402-02-14 Monitoring of hladagents RYR/002/G61 Training of the customs personnel and provision of the equipment to control ODS IVV-40400-02-61-2224 Extraction and recycling of ODS RYR/02/G61 Public-awareness campaigns and work with consumers KYR/02/G63	UNEP, UNDP
Rotterdam Convention on Prior Informed Consent procedure for	Law on Ratification No. 15 of 15 Jan 2000	Ozone Center in cooperation with the MEE of the KR	Governmental Regulation No. 376 of 27 July 2001 ' Measures on environmental protection of environment and population health against inimical impact exerted by certain hazardous chemicals and pesticides		

certain hazardous chemicals and pesticides in International trade			Preparation of notifications of final regulatory measures in respect to 5 substances and their import for the Convention Secretariat.		
Basel Convention on the Control of the Movement of Hazardous waste and their disposal	Parliamentary Regulation on Ratification No. 225-1 of 30 Nov. 1995 and No. 304-1 of 18 Jan. 1996	Ozone Center in cooperation with the MEE of the KR	Governmental Regulation No. 193 of 6 Apr. 1999 'Measures on Control over trans-boundary movement of hazardous wastes and their use' 'Law of the KR on industrial and domestic wastes' No. 89, of 13 Nov. 2001		
Convention on EIA in the Trans-boundary Context	Law of the KR on Accession No. 6 of 12 Jan. 2001	Department of Ecological Expertise and environmental protection under the MEE	Development of the 'Guidelines on EIA in CIS' (Within the framework of the Convention little movement has been done)		
Aarhus Convention on Access to Information, Public Participation and Justice on Environmental matter	Law of the KR on Accession No. 5 of 12 Jan 2000	MEE	National Report on the State of the Environment in the Kyrgyz Republic is published. Creation of the web-site on implementation of the Aarhus Convention in the Kyrgyz Republic in both English and Russian Languages Conference on how to improve the effectiveness environmental education in the higher education institutes in the Kyrgyz Republic (Feb., 2002)		

			Under the sponsorship of the OCSE the resource Center of the Aarhus Convention is being created.		
Ramsar Convention Wetlands	Law on Ratification of the Kyrgyz Republic No. 54 of 10 Apr., 2002	State Forestry Service	Lake Issyk-Kul and Issyk-Kul strict reserve were designated as the wetland of international importance	Assistance to Biosphere Territory Issyk-Kul	GTZ
Stockholm Convention on Persistent Organic Pollutants	Government al Resolution of joining the Convention No. 4-P, of 5 May 2002	MEE		Project 'Enabling the Kyrgyz Republic to prepare its National Action Plan to its commitments to the Convention'	GEF /UNEP
UN Convention to Combat Desertification	Law on Accession of the KR No. 85 21 July 1999	Institute of Irrigation under National Academy of Science	Creation of the steering panel for coordinating the implementation of the Convention Preparation of the National Action Plan to Combat Desertification in the Kyrgyz Republic		

Source: Office of International Cooperation under DENRM. 2003.

Annex 2. Enforcement responsibilities of environmental policy institutions

Medium	Legislative base	Permitting	Monitoring	Inspection/ enforcement	Reporting
Air quality					
Stationary sources	Law on Air	DENRM	Env. Inspection	Regional Inspection, DENRM	
Mobile sources	Law on Air	State auto inspection	Office of hydro meteorology		
Fuel quality	Law on Air				
Water quality					
Urban waste water					
Drinking water	Law on Drinking Water				
Surface water	Law on Water	MAWR&PI	Department of Water Resources	Water Inspection	
Waste discharge	Law on Water	DENRM		Regional Inspection	
Waste management					
Dumps/tailing management	Law on Radioactive Safety		Department of Monitoring, Emergency Project & Dumpsite Management		
Municipal management	Law on Industrial and Domestic Waste				
Hazardous waste	Law on Radioactive Safety/Law on Industrial and Domestic Waste	DENRM			

Biodiversity					
Flora and Fauna	Law on Wildlife, Law on Plants	SFS	SFS	SFS	
Protected Areas	Law on Specially Protected Areas, Forestry Code	SFS	SFS	SFS	
Soil and Agriculture	Land Code		Lands Real Estate Managerial Agency		

Source: Department of Environment and Natural Resource Management. 2004.