

**“NATIONAL CAPACITY SELF ASSESSMENT FOR GLOBAL
ENVIRONMENTAL MANAGEMENT”**

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The current report has been prepared under UNDP/GEF “National Capacity Self-Assessment for Global Environmental Management” project, executed by the Ministry of Nature Protection and implemented by United Nations Development Programme (UNDP) under financial assistance of Global Environment Facility (GEF). The project is aimed at assessment of capacity needs for fulfilment of commitments of Armenia under the United Nations Conventions on Biological Diversity, Climate Change and to Combat Desertification. The ultimate goal of the project is to develop a National Action Plan for capacity building in the cross-cutting areas which can ensure the synergistic effect.

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TABLE OF CONTENTS

ABBREVIATIONS	8
INTRODUCTION AND OVERVIEW	9
CHAPTER I	13
NATIONAL CAPACITY NEEDS ASSESSMENT FOR IMPEMENTATION OF UN CONVENTIONS ON BIOLOGICAL DIVERSITY, CLIMATE CHANGE AND TO COMBAT DESERTIFICATION	13
1. CAPACITY NEEDS ASSESSMENT FOR IMPLEMENTATION OF UNCBD	14
1.1. Commitments Towards Convention Objectives and Implementation Issues in Armenia	14
1.2. Convention Issues Relevance to Ongoing Processes in the Country	14
1.3. Official Steps after Convention Ratification	15
1.4. Convention implementation and sustainable development priorities of the country	17
1.5. Sectoral development plans	18
1.5.1. Nature Protection	18
1.5.2. Agriculture	21
1.6. Institutional framework of implementation	22
1.6.1. Responsible Management Bodies	22
1.6.2. Other Organizations	25
1.7. Information compiling, analysis, maintenance, application and accessibility	29
1.8. International Cooperation	30
1.9. Conclusion	31
1.10. Recommendations	33
2. CAPACITY NEEDS ASSESSMENT FOR IMPLEMENTATION OF UNFCCC	33
2.1. Commitments of the Government of the Republic of Armenia Towards Convention Objectives	33
2.2. Convention Issues Relevance to Ongoing Processes in the Country	34
2.3. Current legislation and regulative framework for implementation of the convention	36
2.4. Convention implementation and sustainable development priorities of the country	37
2.5. Sectoral development plans	38
2.5.1. Nature Protection	38
2.5.2. Water Resources Management	39
2.5.3. Energy Sector	40
2.5.4. Transport Sector	41
2.5.5. Municipal wastes	41
2.5.6. Agriculture	41
2.6. Institutional frameworks of implementation	41
2.7. Information compiling, analysis, maintenance, application and accessibility	42
2.8. Reports and publications	43
2.9. Decision making process in the framework of convention implementation and international cooperation	43
2.10. Conclusions	44
3. CAPACITY NEEDS ASSESSMENT FOR IMPLEMENTATION OF UNCCD	47
3.1. Commitments of the Government of the Republic of Armenia towards convention objectives	47
3.2. Convention Implementation Issues in Armenia	47
3.3. Convention issues relevance in regard to ongoing processes in the country	47
3.4. Official Steps After Convention Ratification	48
3.5. Brief Summary of Projects Implemented in the Framework of Convention	49
3.6. Current Legislative and Regulating Framework for Implementation of Convention	49
3.7. Convention Implementation Issues in the Context of Sustainable Development	50
3.7.1. Land management	51
3.7.2. Agriculture	52
3.7.3. Nature Protection	53

3.8. Institutional framework of implementation.....	54
3.8.1. Responsible Authorities.....	54
3.8.2. Other organisations.....	64
3.9. Information Compiling, Analysis, Maintenance, Application and Accessibility.....	66
3.10. Reports and Publications.....	66
3.11. International Cooperation.....	67
3.12. Conclusions and recommendations.....	68

CHAPTER II

NATIONAL CAPACITY NEEDS ASSESSMENT IN CROSS-CUTTING AREAS1. ENVIRONMENTAL POLICY: LEGAL BASIS, REGULATION AND APPLICATION.....	69
1. ENVIRONMENTAL POLICY: LEGAL BASIS, REGULATION AND APPLICATION.....	70
1.1. Assessment of Armenia’s current environmental legislation, its application and recommendations for improvement.....	72
1.1.1. Availability of normative-methodological and normative-technical acts for enforcing environmental legislation.....	76
1.1.2. The process of control and supervision over the implementation of the requirements of the environmental legislation and its legal regulation.....	77
1.2. Problems of environmental lawmaking activities in the Republic of Armenia.....	79
1.3. International cooperation within the framework of environmental lawmaking activities.....	82
1.4. Action plan for implementation of recommendations on improvement of Armenia’s environmental legislation.....	82
2. INSTITUTIONAL MANAGEMENT, INCLUDING NATIONAL, REGIONAL AND LOCAL LINKS.....	85
2.1. Assessment of existing institutional capacities.....	85
2.1.1. Central governance.....	85
2.1.2. Regional governance.....	89
2.1.4. National coordinating structures and international cooperation.....	93
2.2. Recommendations for improving and developing the institutional framework for the implementation of conventions.....	94
3. MONITORING AND ACCESS TO INFORMATION.....	96
3.1. Assessment of existing capacities.....	96
3.1.1. Organization of environmental monitoring in Armenia.....	96
3.1.2. The legal framework for environmental monitoring.....	102
3.1.3. Financing of monitoring system.....	102
3.1.4. Difficulties, barriers and overall assessment of effective monitoring.....	102
3.2. Dissemination of and access to monitoring information.....	103
4. FINANCIAL TOOLS AND MECHANISMS.....	105
4.1. Analysis of applicable financial tools and mechanisms.....	105
4.2. Recommendations for improvement of financial and economic tools.....	109
5. INTER-SECTORAL, INTEGRATED AND COMPREHENSIVE PLANNING OF THE USE OF NATURAL RESOURCES.....	111
5.1. Analysis of synergistic possibilities of conventions and, based on that, formulation of a comprehensive and integrated plan for the use of natural resources.....	111
5.2. Assessment of capacities and needs for their development.....	115
6. ENVIRONMENTAL EDUCATION AND PUBLIC AWARENESS.....	117
6.1. Assessment of existing capacities.....	117
6.1.1. Legal framework of the relating to ecological education.....	117
6.1.2. Current situation of ecological education.....	118
6.1.3. Assessment of possibilities for using museums’ capacities.....	119
6.1.4. Analysis of mass media capacities.....	121
6.1.5. Analysis of capacities of environmental NGOs.....	124
6.2. Recommendations for capacity building.....	125
7. SCIENTIFIC INFORMATION PROVISION, APPLIED RESEARCH AND TECHNOLOGIES.....	127

7.1. Assessment of current capacities.....	127
7.2. Recommendations for capacity building.....	137
BIBLIOGRAPHY	138

CHAPTER III

FRAMEWORK ACTION PLAN ON CAPACITY BUILDING IN CROSS-CUTTING AREAS OF RIO CONVENTIONS.....	139
FRAMEWORK ACTION PLAN.....	140

ANNEXES

ANNEX 1. LIST OF EVENTS ORGANIZED, SUPPORTED OR ATTENDED BY NCSA PROJECT	145
ANNEX 2. COOPERATION ESTABLISHED IN THE FRAMEWORK OF NCSA PROJECT.....	153
ANNEX 3. LIST OF MATERIALS PUBLISHED IN THE FRAMEWORK OF NCSA PROJECT	154
ANNEX 4. MATERIALS PUBLISHED IN THE FRAMEWORK OF THE THREE GLOBAL ENVIRONMENTAL CONVENTIONS IN PERIOD OF 1998-2004	155
ANNEX 5. PROJECTS IMPLEMENTED IN ARMENIA IN THE FRAMEWORK OF CONVENTIONS IN THE PERIOD OF 1994-2004.....	156
ANNEX 6. SURVEYS CONDUCTED IN THE FRAMEWORK OF NCSA PROJECT	162
ANNEX 7. ENVIRONMENTAL NON GOVERNMENTAL ORGANIZATIONS	163
ANNEX 8. PROJECT PROPOSALS	166
ANNEX 9. NCSA PROJECT WEB SITE	169
ANNEX 10. LIST OF EXPERTS	170
LIST OF EXPERTS	170

BOXES

Box A. Coinciding provisions of the conventions, which allow for applying a common and synergistic approach to capacity building.....	10
Box B. Stakeholder participation in the process of needs assessment.....	11

CHAPTER I

Box 1.1. State of natural pastures	17
Box 1.2. Objectives of biodiversity strategy	18
Box 1.3. SPA system in RA	19
Box 1.4. Main objectives of SPA development strategy.....	20
Box 1.5. Forest sector in Armenia.....	20
Box 1.6. Science-research activities on biodiversity conservation issues.....	21
Box 1.7. Responsibilities of Biodiversity and Water Resources Conservation Division.....	22
Box 1.8. Responsibilities of Bioresources Management Agency.....	23
Box 1.9. Forest Resources Experimental Centre	23
Box 1.10. The system of biodiversity specialists training in RA	27
Box 2.1. RA commitments under Convention	34
Box 2.2. Kyoto Protocol.....	37
Box 2.3. Projects implemented in the water sector in last years	39
Box 2.4. Relation of Climate Change Convention to the Other Agreements.....	44
Box 3.1. RA Government Decrees on land protection	50
Box 3.2. National development plans on land management	52
Box 3.3. Projects implemented by State Committee on Cadastre	63
Box 3.4. Marz governor responsibilities for land management.....	64
Box 3.5. Regional Cooperation	66

Box 3.6. Regional cooperation	67
CHAPTER II	
Box 1.1. Articles and norms relating to the legal regulation of similar issues of conventions.....	71
Box 1.2. Environmental laws of RA.....	72
Box 1.3. The legal basis and approval procedure of normative-methodological and normative-technical acts in the Republic of Armenia	77
Box 1.4. Structures/institutions participating in environmental lawmaking activities	81
Box 2.1. Armenia`s system of governance.....	85
Box 2.2. Problems of institutional management in Lori marz.....	89
Box 2.3. The results of interviews conducted with the local self-governing bodies	91
Box 2.4. Draft RA law on Municipal Service	91
Box 3.1. The significance of information provision for the three conventions	96
Box 4.1. RA Law on Targeted Use of Environmental Fees Paid by Organizations.....	109
Box 4.2. Financial flows of suggested National Environmental Fund (NEF).....	110
Box 5.2. National programmes and plans regarding NR protection and use, which can be integrated in the planning system.....	115
Box 6.1. Natural science museums of RA.....	119
Box 6.2. Selection of interviewee for survey on mass media.....	121
Box 6.3. Organization of information provision by the Ministry of Nature Protection	123
Box 7.1. Stakeholder involvement	127
Box 7.2. Legal framework and funding of science in Armenia.....	128
Box 7.3 The use of GIS in Armenia	134
Box 7.4. Information provision mechanisms of conventions` secretariats.....	135
Box 7.5. Local technologies which can be used for the implementation of conventions' provisions	136
TABLES	
CHAPTER I	
Table 1.1. Current state of implementation of Governmental Decree N 115, 1998	16
Table 1.2. Responsibilities of agencies under RA Ministry of Agriculture dealing in the sphere of biodiversity	24
Table 1.3. Current scientific studies in biodiversity related areas	26
Table 1.4. Organizations dealing with Convention issues.....	28
Table 1.5. Strengths and constrains of the Convention implementation system	31
Table 3.1. State responsables for land use related to implementation of UN Convention to Combat Desertification.....	55
Table 3.2. Desertification issues related scientific-research and educational institutions and specialized organizations.....	65
CHAPTER II	
Table 1.1. Action plan of measures to improve environmental legislation for the implementation of CBD, FCCC, CCD	82
Table 2.1. Duplicated and complementary statutory functions of the units of the Ministry of Nature Protection in view of the general issues relating to the implementation of Conventions on Biodiversity, Climate Change and Combating Desertification.....	88
Table 2.2. Numbers of civil servants in marz governments dealing with environmental issues.....	89
Table 3.1. Overview of regulatory development and monitoring activities of various structures by environmental sub-sectors	98
Table 3.2. Legal basis for monitoring.....	100
Table 3.3. Priority action plan for establishing a national monitoring system	104
Table 4.1. Expenditures from RA state budget for environmental protection.....	107
Table 5.1. The situation of Armenia's natural resource and the consequences of their non-rational use	113

Table 5.2. Activities in Armenia for the implementation of common requirements of international conventions related to the use of natural resources	114
Table 6.1. Trainings held (2003)	122
Table 6.2. Number of environmental publications in 2003	123
Table 7.1. Level of Financing for Science. mln drams.....	130
Table 7.2. Strengths and weaknesses of scientific information provision.....	132

LIST OF FIGURES

CHAPTER I

Figure 1.1. Post graduate students and researchers in the system of NAS of RA, on January 1, 2003.....	27
Figure 3.1. Land management scheme in RA	51

CHAPTER II

Figure 2.1. Structure of the Ministry of Nature Protection.....	87
Figure 2.2. Institutional structure of local self-government in Armenia.	90
Figure 4.1. Flows of environmental and nature use fees	105
Figure 4.2. Environmental and nature use fee structure, 2003	106
Figure 4.3. The Dynamics of Environmental and Nature Use Fees in 1998-2003	106
Figure 4.4. Financial flows for environmental activities.....	107
Figure 4.5. Budget expenses for environmental protection and the GDP dynamics.	107
Figure 4.6. Structure of budget expenditures for environmental protection: A)capital and B)current, 2003.	108
Figure 4.7. The ratio between the inflows for nature use and nature protection and expenditures for nature protection.....	109
Figure 5.1. Link between sustainable use of NR and conventions' issues.....	112
Figure 5.2. Scheme for integration of conventions implementation and framework plan	114
Figure 6.1. Institutional affiliation of the natural science museums.....	119
Figure 6.2. Cooperation between museums and educational establishments	121

ABBREVIATIONS

AMD	Armenian Drams
CBD	Convention on Biodiversity
CCD	Convention to Combat Desertification
CHM	Clearing House Mechanism
CIS	Commonwealth of Independent States
CTI	Climate Technologies Initiative
EECCA	Eastern Europe, Caucasus and Central Asia
EIA	Environmental impact assessment
EU	European Union
FCCC	Framework Convention on Climate Change
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIS	Geographic Information System
IAC	Informational Analytical Center
IUCN	International Union of Conservation of Nature
LSGB	Local Self-Governing Bodies
MNP	Ministry of Nature Protection
NAS	National Academy of Sciences
NATO	North Atlantic Treaty Organization
NCSA	National Capacity Self-Assessment
NEAP	National Environmental Action Plan
NGO	Non Governmental Organization
NIS	Newly Independent States
NR	National Resources
NSS	National Service on Statistics
OSCE	Organization for Security and Cooperation in Europe
PRSP	Poverty Reduction Strategy Paper
RA	Republic of Armenia
REC	Regional Environmental Centre
RIOD	Global network of non-governmental and local organizations involved in desertification and drought issues
SCJSC	State Closed Joint Stock Company
SNCO	State Non Commercial Organization
TACIS	Technical Assistance to Commonwealth of Independent States
TOR	Terms of Reference
TT CLEAR	Technology Transfer Clearing House of UNFCCC Secretariat
UN	United Nations
UNDP	United Nations Development Program
UNEP	United Nations Environment Programme
US	United States
USAID	United States Agency for International Development
USSR	Union of Soviet Socialist Republics
WB	World Bank
WWF	World Wildlife Fund
YSU	Yerevan State University

INTRODUCTION AND OVERVIEW

The last decade is particularly notable for the Republic of Armenia, due to its active involvement in the processes of global environmental protection. In this regard the national efforts need to be actively harmonized with international processes. At the same time, the last ten years are characterized with increased possibilities for external technical, technological, methodological and professional assistance. Herewith, the three UN Conventions - Framework Convention on Climate Change (FCCC), the Convention on Biological Diversity (CBD) and the Convention to Combat Desertification (CCD) have particular significance among the numerous global and regional conventions and treaties ratified by Armenia.

The National Communications to the Conventions on Climate Change (first), Biological Diversity and to Combat Desertification (first and second) have been already submitted by Armenia.

The three international Conventions has own specific significance, objectives and commitments for the Parties, are at the same time closely intertwined and have a number of common provisions, coinciding types of activities and cross-cutting issues, as well as synergistic possibilities, which enable application of a holistic and integrated approach to national capacity building measures, as well as implementation of a comprehensive environmental protection strategy at the national level.

In 2001, the Global Environmental Facility (GEF) Council, underlining the importance of capacity building in developing countries aimed at efficient implementation of the conventions, and in the line with national priorities and sustainable development principles, allocated funds for capacity building needs assessment in developing countries. The process is innovative on its nature and expects flexibility and country initiative in regard to results and recommendations achieved, the latter, however, should be pursued through the application of specific approaches and methodologies. For this purpose the UN Training and Research Institute has developed the corresponding guidelines.

Armenia is one of the first countries in the region initiating a National Capacity Needs Assessment for Global Environmental Management project with the financial support of the GEF. The objective of the project is to identify national capacity building needs in Armenia, taking into account the synergistic possibilities of the conventions for developing a coordinated, harmonized and unified approach to the implementation of conventions' provisions in the country, through identifying capacity needs in the country.

Common and coinciding activities for implementation of Armenia's commitments under the conventions are justified by provisions stipulated in the corresponding articles of the three conventions. The possibilities for addressing those issues were identified within the framework of UNDP/GEF National Capacities Self-assessment (NCSA) project, as a result of the analysis of national capacity needs assessment in three thematic areas - biological diversity, climate change and desertification. The capacity needs assessment in thematic areas served a basis for developing the four year action plan for implementation of conventions. The draft action plan is to be submitted to the RA Government for adoption.

The next stage of the project was focused on assessing the capacities in the identified cross-cutting areas, considering the synergistic capacity of conventions, aimed at developing a coordinated, agreed and integrated approach to meet the country obligations.

This approach is considered as a more realistic for the purpose to consolidate efforts, exclude duplications, rational use of human and financial resources, as well enhancing the effectiveness of activities on environmental protection at national and international levels.

Synergistic approach to the capacity needs assessment process in common cross-cutting areas of the conventions has been assessed in the Report as follows:

- Environmental policy: legal framework, regulations and enforcement
- Institutional management, including national-regional-local links
- Monitoring and access to information
- Inter-sectoral, integrated and comprehensive planning of the use of natural resources
- Public awareness and environmental education
- Scientific information provision, applied research and existing technologies.

The current Report presents the main approaches and methods of the assessment of national capacity needs, justifications for the selected cross-cutting areas, national capacity assessment for selected areas, taking into account the synergistic possibilities of conventions, as well as ways to address common needs, revealed as a result of the synthesis of needs in the mentioned areas. Factors hindering capacity building efforts at systemic, institutional and individual levels have been analyzed.

To address the prioritized issues an Action Plan has been developed, which has to be submitted to the Government for approval.

Activities were implemented by the financial support of the GEF and with UNDP assistance.

Principles and approaches of capacity needs assessment

During the first stage, the national capacity needs were assessed for implementation of UN Conventions on Biodiversity, Climate Change and To Combat Desertification (thematic assessment).

The implemented activities and existing capacity was assessed from the viewpoint of ongoing processes and sectoral development plans of the country, as well as relevance for implementation of conventions decisions.

The second stage covered capacity assessment in seven cross-cutting areas. The selection was based on the following approaches:

- All the seven areas are considered to be common towards the three conventions (Table 1), enable application of the synergistic possibilities of conventions for capacity needs assessment and correspond the national development priorities and peculiarities
- All the seven areas are the tools for environmental policy; their improvement and harmonization will contribute to the development and implementation of a unified environmental protection policy at national and global levels.

Box A. Coinciding provisions of the conventions, which allow for applying a common and synergistic approach to capacity building

Convention provision	CBD	FCCC	CCD
National and regional action plans	Article 6 (a) (b)	Article 4 (1b)	Article 5 (b),10
Identification and monitoring	Article 7	Article 5	Article 16
Legislation	Article 8 (k)	Introduction	Article 5 (e)
Scientific studies	Article 12 (b)	Article 5	Article 17, 19 (b)
Education	Article 13	Article 6	Article 19
Public participation	Article 13	Article 6	Article 19, 5 (d)
Information exchange	Article 17	Article 4 (1h)	Article 16
Personnel training and retraining	Article 12 (a)	Article 6	Article 19
Financial mechanisms	Article 21	Article 4 (1) (7)	Article 21
Technology transfer and introduction	Article 16	Article 4 (1g), (1h)	Annex V, Article 7
Reports	Article 26	Article 12	Article 26

Needs assessment was conducted in specialized working groups. An expert – working group leader has coordinated activities in each working group. Working groups composed of representatives of key ministries and agencies, non-governmental organizations, private sector, scientists, researchers and independent experts.

Functions of working groups included:

- Managing interrelationships with stakeholders, including surveys and agreement on the initial results of assessment
- Information collection, summarizing and analysis
- Developing recommendations on capacity building
- Preparing individual and group reports.

In the initial phase of needs assessment, all participants were provided with methodological guideline for NCSA process and took part in a training course. A holistic approach was applied to the assessment process, which included the analysis of capacity building at three intertwined levels: systemic, institutional and individual. Expert working groups organized periodical discussions with stakeholders during the assessment process, as well as for the presentation of results.

The following methodology for surveys was applied: semi-standardized interviews, official requests for information, interviews and questionnaires, analysis of documents, regulations and operations of key departments and agencies. The project outcomes were presented for stakeholder validation, including regional

consultations, on all stages of the project. The comments and recommendations were considered in the final draft documents, presented to the Project Steering Committee.

Organization of joint events with different donors, ministries, agencies, NGOs and private sector was applied as a valuable tool for assessment and awareness rising.

In the second stage a cross-cutting Action plan has been developed with determining the short, middle and long term measures. The plan was submitted to the stakeholders and discussed on the National Seminar.

Stakeholder participation

Box B. Stakeholder participation in the process of needs assessment

The following stakeholder groups were involved in the process of national capacity building needs assessment:

- Representatives of governmental bodies – Ministries of Nature Protection, Agriculture, Trade and Economic Development, Education and Science, State Water Management Committee, State Committee on Real Cadastre, National Statistical Service
- Representatives of regional governments and local self-governing bodies
- Non-governmental organizations
- Scientists and experts
- Private sector.

16 joint seminars, 12 round-tables, 20 workshops, 11 surveys, 96 individual interviews were organized to acquaint stakeholders with NCSA aims and objectives, receive their opinions and recommendations, as well as assess their potential contribution. 10 NCSA events have been enlighten in the TV and media, 6 articles published in local newspapers, a documentary film has been produced on implementation of three global environmental conventions and environmental issues in the country.

Capacity building through establishing cooperation was considered by NCSA to be a key and necessary activity. 11 memorandums of understanding were signed within the framework of the Project with stakeholder ministries and scientific research institutes, as well as international organizations, the private sector and community based NGOs.

Wide participation of stakeholders was ensured at the initial phase of assessment in order to receive more reliable and diverse information on capacity needs. Main stakeholders and the possible participants were identified based on the objectives and issues of needs assessment in the seven cross-cutting areas. Various forms of stakeholder participation were applied in the process of assessment: seminars, round-tables, consultancies, surveys, etc. (Box B).

Sources of information

The following sources of information were used for the implementation of NCSA:

- Thematic assessment reports for biological diversity, climate change and combating desertification
- Information on the structure and legislative activities of line ministries and agencies, regional governments and local self-governing bodies, non-governmental organizations, scientific research centres
- Opinions and recommendations of stakeholders.

Process benefits

The NCSA project, the assessments and documents developed in the framework of the project were recognized as a valuable resource for the Ministry of Nature Protection staff and perception of MNP as a valuable partner to provide technical consultancy for the staff of the other ministries. The awareness of regional authorities' on the responsibility for the regional environmental management, involving local and global issues, as well as on opportunities for assistance under conventions has been enhanced. NCSA process was discussed on the round table in the National Assembly (organised jointly with "Association for sustainable human development") as a part of implementation of sustainable development strategy. The event supports awareness raising within the representatives of implementing and executing authorities and assessment of sustainable development and activities related to the implementation of Conventions after Johannesburg.

Publication of the assessment materials and outputs produced in partnership with other institutions, including NGOs, private sector and donors, has significant positive impact on awareness on and understanding of global environmental issues.

Involvement of Armenia based consulting companies and NGOs in the NCSA process fostered increasing their awareness on the need to strengthen their capacity for auditing and consulting in the environmental area.

Joint consultations of Conventions' Focal Points on the outcomes of the assessment helps to build better understanding on possible synergistic activities and collaboration benefits and created base for development of comprehensive action plan for implementation of conventions and synergistic measures.

Activities of the project benefited greatly from the active support of the staff of the Ministry of Nature Protection.

CHAPTER I

NATIONAL CAPACITY NEEDS ASSESSMENT FOR IMPLEMENTATION OF UN CONVENTIONS ON BIOLOGICAL DIVERSITY, CLIMATE CHANGE AND TO COMBAT DESERTIFICATION

1. CAPACITY NEEDS ASSESSMENT FOR IMPLEMENTATION OF UNCBD

1.1. Commitments Towards Convention Objectives and Implementation Issues in Armenia

The Republic of Armenia ratified the Convention on Biodiversity on May 14, 1993. Thus, becoming a party to the convention, the country has undertaken commitments to promote the biodiversity conservation, develop efficient mechanisms for sustainable use of biological resources and put these mechanisms into practice. The country cares obligations on identification of the ways for biodiversity conservation, as well as sustainable use of biological resources.

The main provision of the strategic concept of biodiversity conservation that the issues of decreasing the negative impact of anthropogenic and natural factors on the biological diversity should be addressed on the state level.

Thus, according to the Convention principles, measures towards conservation of biological diversity should be taken in the following directions:

- Research and sustainable use of natural resources,
- Prevention and eradication of factors causing a serious damage to biological diversity,
- Fair sharing of benefits arisen from utilization of genetic resources,
- Reduction of negative impacts of natural factors on biological diversity.

These directions are closely interrelated and in most cases explicitly planned and implemented activities may include them completely.

Based on the principles of the Convention on Biodiversity, the mentioned activities should practically involve all the areas of vital activity. The issues of biodiversity conservation in the development of different spheres (industry, agriculture etc.) should be solved on the state level. The society, as well as NGOs and broad public should be widely involved in biodiversity conservation procedure as much as possible. A great attention should be paid to the environmental education of the population, since no step for conservation of biological diversity will be effective unless every person realizes his/her responsibility towards the nature. Actually, the state structures should promote the initiation of any measure to increase the opportunities of natural resources use, first of all, assessing the status of natural resources for use and capacities for their restoration.

Thus, the main issue of environmental actions is conservation of entire biological diversity, and the minimum issue is reducing the impact of negative factors influencing the flora and fauna of Armenia. At the same time, mechanisms for optimal use of existing natural resources, as well as norms and standards should be developed as a guarantee to the conservation of biological diversity.

Despite the small territory, seven different types of landscapes exist in the country with different fauna and flora species. The biodiversity of Armenia is rich in economically valuable species. About 2000 plant species are used as food, fodder, herbs, or are convenient for making dyes, attar, honey and resin. Many animal species are convenient for meat, fell, etc. production. Owing to prevailing species of cultivated plants and breeding animals, Armenia has been famous since ancient times as one of the main centers for cattle-breeding and husbandry.

At present, almost all the ecosystems are under anthropogenic pressure, in the result of which dozens and hundreds of flora and fauna species are threatened. Mostly affected are forest, semi-desert and desert ecosystems, as well as Lake Sevan water-ecosystem. The forests in Armenia have been seriously destructed during the recent years: a number of problems have arisen due to the improper and unbalanced use of forests, degradation and disappearance of forest diversity, mass infectiousness by pests and diseases. The degradation of Lake Sevan ecosystem is conditioned by the decrease of water level, surface cover drop off, destruction of balance between water biogenic elements and nutrition circuit.

Although the “Strategy and Action Plan on Biodiversity of Armenia” project was developed in 1999, the referred strategic priorities for biodiversity conservation and sustainable use are still important for the country (see Chapter 5.1.) and their solution is considered a priority issue for environmental policy.

1.2. Convention Issues Relevance to Ongoing Processes in the Country

Most of the ongoing processes in the country: PRSP, Sustainable Development Concept, MDGs and Environment for Europe, to this or that extent comprise the Biodiversity Convention principles.

One of the goals of **sustainable development** is the following: "...transition to sustainable, balanced use of natural resources...". One of the main global principles in this aspect is to provide the protection of biological and landscape diversity. To this end, a number of steps and measures are proposed to be taken aimed at the sustainable use of the bioresources, as well as their *in-situ* and *ex-situ* conservation.

The concept takes up such issues as existing legislation of the country, improvement of ecological monitoring system, eco-audit, eco-certification, local ecological funds, considering that recommended strategic goals for sustainable environmental development are based on the international principles.

In **PRSP** the environmental issues are included as a separate chapter. They are highlighted from the viewpoint of rural and urban poverty. Poverty from one hand promotes increase of anthropogenic impact on natural resources (forest logging, overexploitation of pastures, salinization, other degradation) and from other hand the poor are located in the most polluted parts and are affected also by this.

It also highlights the issues of natural resources overexploitation and Lake Sevan as serious environmental concerns, as well as it focuses on the issues of forest resources degradation and forest restoration.

Various recommendations have been made in the PRSP document on the improvements of the environment and nature use.

Goal 7 of the "**Millennium Development Goals**" document provides analysis on the situation and implemented policies, as well as the peculiarities and state of environment in Armenia and the causes of degradation.

The biodiversity protection is mainly viewed in the context of improvement of mechanisms for the management of Specially Protected Areas of Nature, establishment of new protected areas, as well as protection and restoration of forest gene pool. Although the goals set in the document are rather generalized, the issue of biodiversity protection and conservation is to be considered as a country priority issue.

The Environment for Europe process has been reoriented to addressing the vital needs of NIS countries since 1998 in Aarhus. Importance of a strategy adapted to the needs for sustainable development was mentioned by environmental ministers (Hague, 2002) and supported by East-West Cooperation declaration on World Summit on Sustainable Development (Johannesburg, 2002). In 2003 the environmental strategy was adopted in Kiev for East Europe, Caucasus and Central Asia (EECCA) countries, one of the key goals of which is the sustainable management of natural resources. It incorporates the issue of "biodiversity protection and ecosystem conservation", and the measures projected for its solution are totally essential, also for Armenia.

However, awareness on the main principles and provisions of the mentioned global procedures in the country and capacity for implementation are not in the interests of the different operating entities, which hinders the integrated approach, relationships and initiations between the government, businesses, local communities and non commercial organizations aimed at reducing biodiversity loss rate and anthropogenic impact.

1.3. Official Steps after Convention Ratification

After the ratification of the Convention, the following has been implemented on the official level by Armenia:

- Appointment of focal points for Convention and CHM in the country by the decree of the Minister of Nature Protection, 1996,
- Governmental Decree no. 115, 1998, according to which an action plan on implementation of Convention commitments in the country has been developed,
- "First National Report" and Biodiversity Strategy and Action plan" have been developed and submitted to UNCBD Secretariat in 1999,
- "Second National Report was developed and submitted to UNCBD Secretariat in 2001,
- Development of "Priority Needs Assessment of Biodiversity Capacities", 2002,
- Endorsement of the State Strategy on the Development of SPANs in Armenia and Action Plan by the Government of Armenia, 2002,
- CHM structures have been established in 2001-2002 and the CHM web page at **www.biodiv.am** hosted in December, 2002.

A number of projects have been implemented in the frameworks of Convention, see *Annex 5*.

Analysis of five-year Biodiversity Convention implementation activities (1998-2002) reveals that planned activities are not conducted on appropriate level (see Table 1.1). The main constraints for the implementation of the envisaged actions are the insufficient funding, as well as the lack of coordinated actions between the executive authorities, scientific sector and NGOs. There has not been any regular observance upon the execution of the Governmental Decree either by Ministry of Nature Protection or the Government Administration.

Table 1.1. Current state of implementation of Governmental Decree N 115, 1998

	Activity (Convention article)	Re- spon- sible	Imple- menting partner¹	Time- frame	Implementation
1.	Organizational activities				
	1.1. Establishment of a coordinating centre (Convention protocols)	MNP		1998	Not implemented
	1.2. Establishment of a Specialized Board	MNP		1998	Not implemented
2.	Approximation of legislation to the requirements of Convention; Laws on flora and fauna (8,15,16,19)	MNP, MJ		1999-2002	Laws are adopted; a number of sub-legislative acts are developed and adopted.
3.	Taxonomy and monitoring (7)				
	3.1. Development and implementation of projects on bio-indicators	MNP	MES, NAS	1998-1999	Project is developed, but not launched yet
	3.2. Establishment of a cadastre on biodiversity genetic resources and database creation; establishment of an information network on biodiversity cadastre	MNP	MES, NAS, IS, AAA	1998-2002	A database for crops wild relatives has been developed; an electronic catalogue is currently being developed on the samples of seed collections, gene plasma and herbarium.
	3.3. Improvement of the SPAN network	MNP	MES, NAS, MUD, AAA		Partially implemented
	3.3.1. Establishment of SPAN Cadastre			1998-2002	Not implemented
	3.3.2. Development of a general layout for SPANs			1998-2002	“Strategy on developing the SPANs and National Action Plan” has been developed and approved by the Government.
	3.3.3. Development of a long term project on development of SPANs			1998-2000	“Strategy on developing the SPANs and National Action Plan” has been developed and approved by the Government.
	3.4. Biodiversity Impact Assessment (8h, 9d, 14)	MNP	MES, NAS, MA, AAA		
	3.4.1. Development of a list on invasive (imported and introduced) species			1999	A draft list on invasive species has been developed
	3.4.2. Development of a project on precautionary approach to impact of invasive species (imported and introduced)			1999	A draft project for relevant actions has been developed
4.	Data base development (6)	MNP	MES, NAS, AAA		CHM structure has been established
	4.1. Reissue of the Red Book			2002	Second Edition of the Red Book is in the process of development
	4.2. Development and publication of the Green Book			1998-2002	Not implemented
5.	Submission of National reports to the	MNP		Annual	Ongoing

¹

AAA Armenian Academy of Agriculture
IS Institute of Standardization
MA Ministry of Agriculture
MES Ministry of Education and Science
MJ Ministry of Justice

MNP Ministry of Nature Protection
MTED Ministry of Trade and Economic Development
MUD Ministry of Urban Development
NAS National Academy of Sciences

	Convention Secretariat (26)				
6.	Staff training and awareness projects development and implementation (5,12)	MNP	MES, NAS, AAA		
	6.1. Development of curricula for schools and higher educational establishments			1998-2000	The subject "Principles of Ecology" is taught in all higher educational establishments in Armenia; a number of subjects on biodiversity and nature protection are taught in the faculties of Biology and Geology at Yerevan State University
	6.2. Development of projects on staff training and reprofiling			1998-2000	Partially implemented
7.	Internal and international cooperation				
	7.1. Cooperation in the sphere of science and awareness				
	7.1.1. Development of mechanisms for biodiversity conservation and sustainable use. (17,18)	MNP	MES, NAS, IS, AAA	1998-2000	Partially implemented (some fish species)
	7.1.2. Development of an international project for cooperation in the sphere application and transfer of biotechnologies (16,18,19)	MNP, MTED	MES, NAS, MA	1998-2000	Not implemented
	7.2. Development and implementation of projects on cooperation with NGOs (13)	MNP			Partially implemented (only with WWF)
	7.3. Facilitating cooperation with other international conventions (22)	MNP			Partially implemented

1.4. Convention implementation and sustainable development priorities of the country

The current state of biological and landscape diversity on the territory of Armenia is alarming. The ecosystems of Armenia are under numerous threats and pressures; the population continues to extend the scale of land use and illegal forest felling. According to Rio+10 National Assessment Report of Armenia during recent years about 30 000 ha of forests have been cut, of which approximately 7 000 ha are entirely eradicated. According to the data provided by independent experts the annual timber produced is about 0.5 mln cubic meters, of which only 10-12% is officially registered. The post-crisis forest cutting continues currently mainly for household use as a cheap energy source and the developing private business is carelessly using the high quality wood for construction purposes.

Forest territories under agricultural use and activation of succession on the rags, on its turn; result in reduction of forest biodiversity.

Box 1.1. State of natural pastures

The natural pastures in Armenia currently cover approximately 819 000 ha, of which the hayfields make up to 137 000 ha, and the pastures - 682 000 ha. The natural pastures lay 400-3700 meters high from the sea level in 6 different eco-geographical zones: from desert/semi-desert to sub-alpine/alpine zones. The pastures in the republic are rather rich. They comprise of about 1090 flora species, pertaining to 462 genus and 88 families, with dominating of cereals. A significant transformation of natural pastures vegetation is marked currently in terms of reducing the quantity of population and species. Due to long-term intensive use of natural pastures and hayfields, often with transgression of terms of use both by time and load, the state of natural pastures and hayfields was already alarming in the beginning of 1990s. The livestock amount exceeded the optimal bearing capacity of pastures 5-7 fold. Over a long time absence of the effective use and maintenance of natural pastures, some of them (approx. 150 000 ha) became useless. At present the pasture fodder is used by livestock in grazing period, over this the 70% of the total husbandry product is ensured. In the nursing period the significant part of the foodstuff comes from hayfield fodders.

Village neighbouring pastures of local significance are under the direct authority of the community administration and are used without any limitations, charges and regulations, though they are usually more degraded, lands are in a bad ameliorative state, they have sparse and poor grass cover often with weeds domination.

The remote (summer) pastures are located mainly in alpine and sub-alpine zones and are distinguished with relatively higher productivity. From 1996 these territories were placed under the marz administrations. Compliant with the governmental regulation, the right for using these areas is granted for short-term (up to three-years) and long-term (from 3 to 10 years) leasing and recently according to the new Land Code the terms are extended up to 25 years.

Land privatization in the Republic didn't improve the state of pastures. During the period of 1991-2000 no any measures have been taken towards setting regulations on pasture use and improvement. This causes continuous degradation and desertification of the pastures.

Compliant with the Decree of the Government no. 93 (02.02.02) all the state lands should pass to the community ownership.

Lack of regulations on pasture use, absence of melioration measures, drainage systems for prevention of land swamping supports the on going process of pastures degradation, which, in its turn, results in the decrease of taxonomic composition of hayfield and pasture vegetation.

1.5. Sectoral development plans

1.5.1. Nature Protection

National Action Plan

In 1997-1998 the Ministry of Nature Protection coordinated the development of National Environmental Action Plan. The following activities have been implemented in the field of biodiversity:

- Assessment of current situation,
- Development of indicators to determine priorities,
- Development of a list for priority actions.

A special attention has been paid to the development of a SPANs network, legislation improvement, recommendations and actions for public awareness raising. The National Environmental Action Plan was submitted to the RA Government and approved in 1998.

Biodiversity Strategy and Action Plan (BSAP)

One of the first commitments of the countries after ratification of the UN Convention on Biodiversity is development of Biodiversity Strategy and Action Plan.

Development of the BSAP document in Armenia has been carried out with the coordination of the Ministry of Nature Protection, under GEF funding and implemented by UNDP in 1997.

The preparatory phase for the development of BSAP in Armenia started in May, 1998, and was based on the First National Report on Biodiversity of Armenia. In the conceptual structure of the document the general principles and approaches of the socio-economical development of the country have been followed up harmonizing them with the provisions of the UN Convention on Biodiversity.

Box 1.2. Objectives of biodiversity strategy

- *To develop mechanisms for reducing the negative economical impacts on biodiversity, meantime ensuring the definition of real market values of bioresources,*
- *To increase the rate of internal and external investments for providing protection and restoration of landscape and biological diversity,*
- *To increase the afforested area through protection, restoration and sustainable use of forest resources,*
- *To improve and enhance scientific skills as a key component for biodiversity protection (including monitoring and scientific research),*
- *To improve the management system for biodiversity protection (including management of SPANs) for ensuring effective operations,*
- *To protect and restore the threatened landscapes, ecosystems, plant and animal species,*
- *To improve legislation and economic mechanisms on the protection and sustainable use of landscape and biological diversity,*
- *To improve and strengthen the environmental education and science system, and to increase public awareness on biodiversity issues,*

- To use ecologically clean technologies to promote the biodiversity protection,
- To ensure the participation of non governmental organizations in development and implementation of biodiversity related projects in all possible stages
- To expand the network of SPANs,
- To insure the sustainable use and restoration of bioresources, including agrobiological diversity,
- To encourage the sustainable development of the country through integrating the management of biological resources with rural community development.

Compliant with the provisions of Convention, 13 main strategic priorities were identified BSAP was envisaged to be implemented during the period of 2000-2004. So far a number of measures have been implemented comprised in the document, among which the following are signified:

- Adoption of the RA law on Flora,
- Adoption of the RA law on Fauna,
- Adoption of a number of decrees on nature protection by the RA government,
- Improvement of the institutional system ,
- Improvement of the spas system,
- Development of mechanisms for sustainable use of biodiversity).

However, the implementation of about 200 measures in the mentioned 13 areas is hindered due to the following reasons:

- Lack of financial means and not targeted use of existing ones,
- Lack of state ownership on the importance of biodiversity conservation and low rating of convention provisions among the priority issues,
- Absence of a number of important by laws,
- Not clear definition of responsibilities and functions of different level structures in the sphere of biodiversity conservation and use,
- Non appropriate manpower policy.

“Strategy on Developing Specially Protected Areas and National Action Plan”

The management of protected areas is considered as one of the strongest tools contributing protection of natural and cultivated resources in the context of sustainable development of the country. Besides addressing specific issues on biodiversity protection, a number of environmental and social activities are being implemented through SPAs, such as

- Water protection, climate regulation, anti-erosion, forest protection, land protection,
- Protection and sustainable use of recreational resources,
- Environmental education.

The system of the SPAN is of a special significance in regard to conservation of the biological and landscape diversity. The network has been established in Armenia since 1958.

Box 1.3. SPA system in RA

Currently 3 state reserves, (“Khosrov”, “Shikahogh”, “Erebuni”) with a total square 39285 ha, 22 state conservation areas with a total square 125000 ha and two national parks (“Sevan” and «Dilijan National Parks) with a total square 81737 ha do exist in the country. The network actually covers around 299322 or 10% of the total area of the country. SPANs cover approximately 60% of Armenian flora and fauna diversity, including endemic, threatened and endangered ones, as well as many wild relatives of cultivated plants. The SPANs of Armenia, except of the Erebuni state reserve and Sevan national park, mostly consist of forested areas. They cover over 6% of the total territory of the republic. For a country with such a rich landscape and biological diversity, and considering the high level of anthropogenic pressure on the natural ecosystems, the area under protection is extremely insufficient.

Analysis of the SPANs activities shows the inconvenience with recent requirements of nature protection. The conservation regime (forest cutting, grazing, unregulated tourism, etc) is violated in all the areas. Despite of this, the SPANs network experiences some structural and organisational unconformities, such as lack of appropriate staff, insufficient equipping, etc.

The reserves are a subject to a special concern. They are not protected actually due to lack of institu-

tional supervision, relevant staff, and conservation regime. The local population, also the responsible bodies are not aware on their existence. The borders of SPANs are reflected just in maps, spatially they are failed. To the moment by-laws on buffer zones of the specially protected areas are absent. The regimes of state reserves and criteria for nomination and inventory of natural monuments have not been set up. The natural monuments are not nominated yet and their inventory and passportization is underway.

The above mentioned factors served a basis for developing a “Strategy for Specially Protected Areas Development and Action Plan”, which was adopted by RA Government in December 2002.

Box 1.4. Main objectives of SPA development strategy

- *Ensuring conservation, restoration and sustainable use of landscape and biological diversity by improving the specially protected areas network,*
- *Harmonic integration of the network into the national policy on social-economic development,*
- *Approximation of specially protected areas network to the international agreements, standards and criteria.*

In 2003 a list of measures for implementation of Action Plan was approved by the decree of Minister of Nature Protection.. The activities should be implemented through structural and detached divisions of the Ministry of Nature Protection, other ministries, RA State Cadastre, marz administrations and other structures.

About 10 actions are envisaged to be implemented in the framework of the state program on medium term expenditures for the period 2004-2006 and, amongst them, creating new specially protected areas, improving of the SPAN management structure, inventory of natural monuments, etc.

Forest policy

In Soviet period the forestries were maintained mostly from the state budget (97-98%). Since independence only 25-30% of required expenditures lay under capability of the limited state budget. The remainder is to be allocated from own incomes of forestries.

In regard to forest rehabilitation and reforestation, the nurseries improvement is highly signified. Currently about 300 nurseries (192 ha irrigated land) are devastated. Most part is not operational; others utilize only 15-20% of their capacities. The assortment of the seedlings is also reduced to 10 -15 species.

Box 1.5. Forest sector in Armenia

Forested areas of Armenia cover over 334 000 ha or the 11, 2% of total territory, which amounts 0,1ha per capita. Forests in Armenia are prominent by their land protective, water protective, climate regulating characteristics. They are distributed unequally: on the north the forest covers 29% of the total territory, in south – 13%, and 2% in bit core. This is ridden by climatic conditions and negative anthropogenic impact. Currently over 70% of forests are overaged and distressed. The aged and overaged forests concentrate about 36% of wood resources - 13,5mln cubic meter. They are located in the regions rather difficult to access. Here forest exploitation needs to blend together economical efficiency and nature protective activities. According to data of recent forest resources assessment the total wood stock comprises 41, 74 mln cubic meters and the annual growth-354 000 mln cubic meters. Forest completeness is 0, 54% and bonitet - III-7.

In the past 70 years, Armenia has twice witnessed a dramatic plunge in forest cover. The first time it was in 1930-1950s for industrial purposes and the second time during the economic and energy crisis in the country in 1991, which again caused a great loss of forests and breached the ecological equilibrium of the environment. The unsystematic use of forests, grazing, mowing, and other reasons have created profound structural changes in the natural reproductive ability of woods, have lowered fertility, activated erosion, and have breached the hydrological regime of forests. Intensive erosion of deforested mountain slopes has increased the likelihood of landslides and mudslides.

Sector development policy is currently underway in the framework of Natural Resources Management and Poverty Reduction Project. The project includes three components:

- Community based watershed management,
- State forest management,
- Protected areas management and biodiversity conservation.

Currently a new draft forest policy is developed under the component “State Forest Management”. The document is developed by support of Forest Institutional Support Project (FISP). A number of related organisations and stakeholders, such as ”Hayantar” SNCO, scientific and educational institutions, NGOs, etc. have participated in development of policy.

Forest policy includes:

- Legal and institutional issues,
- Economical and financial issues,
- Environment and biodiversity,
- Forest management,
- Education, science, training, information and international relations,
- Social issues.

Current state of forest sector, weakness of the legal framework, imperfection of institutional management system, lack of specialists, as well as forest biodiversity conservation and other issues were widely analysed. The constraints and needs for the sector management are identified. However, the works in different working groups are not completed and the integrated document is not developed yet.

To insure the sustainable development of forests and environment in general in Armenia it is necessary to implement a scientifically justified forestry. To this end, it is necessary to develop and implement a national policy on forest sector development in Armenia, as well as to improve the legislation regulating forest protection, conservation, and reproduction and use relationships.

1.5.2. Agriculture

National development plans

The main activities of RA Ministry of Agriculture are set as follows: developing projects on agricultural and food safety policy of RA and control upon their implementation, identification of the priority lines of scientific progress, the scientific and educational arrangements of the system, etc. In this regard the role of the RA Ministry of Agriculture is substantial for agrobiodiversity investigation and conservation.

A number of ongoing national projects propose actions related to agrobiodiversity and genetic resources conservation. Given the “Agriculture development strategy” it is directly related to the pointed issues, as follows:

- Natural resources conservation, rehabilitation of degraded grasslands, sustainable use and improvement of management mechanisms,
- Conservation and improvement of agricultural animals genetic resources,
- Improvement of legislative framework for seed-farming,
- Monitoring of quality and import of chemicals, applied in the field of agriculture.

Based on the decision of the Scientific Board on agricultural policy of the Ministry of Agriculture, the livestock and agricultural plants genetic resources conservation issue was included into the priorities list (1998).

Some scientific themes implemented in the framework of the “Support to Agricultural Reforms” project during 1999-2000, directly address biodiversity conservation. During the project implementation the following was undertaken:

- Inventory, assessment and short term conservation of working collections of autumn wheat and spring barley,
- Collection, assessment and ex-situ conservation of crops wild relatives,

Some large scale projects, such as “Agricultural Services Programme” and “Concept for Balanced Policy on Rural Settlements” do not include the issues on agrobiodiversity conservation and sustainable use. This once more testifies that the idea of involving biodiversity issues into the sectoral policies is not formulated yet.

Box 1.6. Science-research activities on biodiversity conservation issues.

Since 2002 research is undertaken in the scientific centers on developing new grades with high fertility, improving the seed production, crops cultivation, developing effective ways to fight pests and diseases. The biodiversity studies are limited at assessment of genetic diversity of agricultural species in regard to their selective value. UNDP/MAP and Ministry of Agriculture some dispatches were organized aimed at wild grape collecting. Since 2001 some activities are undertaken to describe the local species of the sheep in the framework of international cooperation. A number of farms undertook inventory and description of sheep species aimed at verification of genetic uniformity. Farmers were appropriately consulted on livestock management by specialists.

Hence, currently a series of measures are undertaken in the republic aimed at identification and conservation of the biodiversity components, particularly collection, identification, investigation of the crop wild relatives, ex-situ conservation of the local selection grades of crops wild relatives, creating fruit and grape nurseries, studies on gene pool of some fauna species.

National policy on agrobiodiversity conservation

A need is arisen to develop strategies on access to genetic resources in the field of pedigree, seed farming, industry and agriculture.

Land privatization and formulation of new market relations in the field of agriculture facilitate organic farming on one hand and on the other, causes contradiction with the global issues of nature use, complicating monitoring of chemicals use and import of hybrids and grades of unknown origin. This might result in total extinction of local traditional species.

Given the above mentioned an inventory of the traditional local species is required, as well as measures on their ex-situ and on-farm conservation. The same time starting from the extreme status of natural pastures in the country, a monitoring of hay lands and pastures is required, aimed at developing measures for their rehabilitation.

Implementation of the developed projects is failed due to insufficient financing and information network. Poorly equipped scientific establishments lack the research compliant to international standards and requirements.

The agrobiodiversity issues are not fully integrated into the national strategy and agricultural policy. A national program for conservation and sustainable use of national genetic resources in industrial and agricultural purposes is required.

1.6. Institutional framework of implementation

1.6.1. Responsible Management Bodies

The MNP has overall responsibility for enforcing the state policy on biodiversity conservation, sustainable use and restoration, promoting environmental norms, developing principles of biodiversity ex-situ and in-situ conservation and sustainable use, as well as monitoring and control over the natural resources use.

Management of biological and landscape diversity, coordination and international cooperation is responsibility of *Biodiversity and Water Resources Conservation Division*.

Box 1.7. Responsibilities of Biodiversity and Water Resources Conservation Division

- Development of state policy in the field of biodiversity, establishment of strategic principles and approaches,
- Development of legislative documents (laws, resolutions, decrees, guidelines) for conservation, use and restoration of biodiversity, including state forest resources and specially protected areas,
- Management and monitoring of flora and fauna, species, habitats, migration route,
- Management of biotechnologies and their introduction, ensuring biosafety,
- In-situ and ex-situ conservation of rare, endemic, relic species of flora and fauna,
- Coordination of efforts for landscape biodiversity conservation, as well as specially protected areas management,
- International cooperation, as well as coordination of activities to meet RA Commitments to the Conventions and other international agreements.

In August 2002 a new structural unit under the Ministry of Nature Protection - Bioresources Management Agency was established. The Agency is responsible for the management of the following SPANs:

- “Sevan” National Park,
- ”Dilijan” National Park,
- “Khosrov forest” State reserve,
- “Shikahogh” State reserve,
- “Reserve-park complex” (including “Erebuni” state reserve, “Sev Lich” and “Vordan Karmir” state reservations).

According to the regulation, the Bioresources Management Agency is in charge for scientific research, conservation, sustainable use and restoration of natural ecosystems (including forests), landscapes and bio-

logical diversity, nature heritage. The agency supports management of the field and formulation of state policy.

Box 1.8. Responsibilities of Bioresources Management Agency

- Developing normative acts on biodiversity conservation, restoration, sustainable use,
- Organisation and implementation of research of the plant and animal diversity,
- Implementation of measures on animal and plant diversity conservation, restoration, sustainable use,
- Inventory, monitoring and maintaining a data base cadastre on animal and plant diversity,
- Participation in ecosystems assessment, scientific justification and prognosis,
- Developing proposals on ecosystems and bioresources use and restoration,
- Implementation of scientific measures in the sphere of ecosystems, resources use and restoration,
- Provision of Licenses and agreements on the use of animal and plant species.

Forest management is implemented through “*Hayantar*” SNCO, established in 2002, based on “Hayantar” CSJC. The regulation is adopted in 2003. The main responsibilities of “Hayantar” SNCO include development of state policy on forests protection, conservation, restoration and use, development of strategic principles, improvement of legal framework.

Activities are based on state and non-state order. “Hayantar” SNCO includes 24 regional branches - daughter enterprises (legal entities). A brief analysis of the current state of forest management reveals a number of contradictions and obstacles to improve the effective management of forestries, mainly:

- Lack of up-to-date state policy and forest management strategy,
- Weak and obsolete legislative framework to address the forest management,
- Combination of forest use, conservation management and monitoring responsibilities in one system,
- Not clear definition of competence and responsibilities, often duplications at national, regional and local levels,
- Weak community participation into the forestry activities,
- Low public awareness, related to forest management,
- Poor involvement of the forest biodiversity issues in the development projects

Analysis of professional capacity reveals lack of specialists, particularly in the sphere of management, forest rehabilitation and restoration. The number and quality of specialists is not sufficient.

From about 1000 employees of Hayantar SNCO only 40 (4%) have professional background. Hayantar is poorly equipped, the equipment is generally outdated. The situation is extreme in the high level management; no one from the 20 heads of forestries has appropriate higher education

Hayantar is poorly equipped, the equipment is generally outdated. Relevant qualification and training courses do not exist due to financial restrictions.

Box 1.9. Forest Resources Experimental Centre

Established in 1998 and reorganized into State Non Commercial Organization in 2002

- *increasing the efficiency of the forests, improving the nature conservation and elaborating scientific and applied principles for increasing forest area,*
- *elaborating ways of effective recovering the damaged forest areas caused by non-coordinated cutting,*
- *forest management and inventory of forest resources, creating forest resources data base.*

The Centre conducts activities on conservation and sustainable use on state and non-state order. The forest survey division is staffed mainly with young specialists, qualified in European countries in the framework of international cooperation. However, there is a need for professionals in forestation, due to the lack of appropriate specialization in the educational system of Armenia. The technical equipment of the Centre is not sufficient. The Centre needs modern technical support for undertaking forest surveys, including computers. Transport and technical supplies for forest conservation is also poor. Currently in Zikatar branch of the Center (Tavush region) a training course is undertaken, which is implemented in the framework of “Natural Resources Management and Poverty Reduction” Project.

State Environmental inspection controls conformity of the norms of environmental legislation in the field of air and water pollution, land use, biodiversity conservation, forest protection. *State Environmental inspection consists of 11 territorial divisions with a headquarter in Yerevan.*

According to regulation the State Environmental Inspection is in charge for nature protection and natural resources sustainable use and restoration.

State Environmental Inspection functions in regard to bioresources use and conservation:

- Contractual commitments and norms on conservation, use and restoration of flora and fauna, forests and - specially protected areas,
- Requirements on import/export of wildlife,
- Legislative provisions of Red book species conservation.

All the mentioned structures operate within the MoNP and are often restructured. Thus, in August 2003, 5 divisions of the Ministry, including Biodiversity Conservation Division, were combined into Department of Environmental Protection. The regulation of the department is not ratified yet, which actually constrains the rhythmic work of the Ministry.

Management liabilities on the territories outside of protected areas are given as well to local governance - marz administrations. Pursuant to RA legislation, the main activities of marz administrations are:

- Participation in developing the national environmental plans and control of their implementation in the marzes,
- Ensuring implementation of the environmental legislation in the marzes,
- Facilitating protection in the specially protected areas, ensuring sustainable use of natural resources, preventing illegal hunting, fishing and forest cutting,
- Cooperation with environmental NGOs.

Another level, community authorities are responsible for community level management. They are responsible for local issues and managing the local property (community land, water resources management). Community leader supports also natural resources (mining, forests, and biodiversity) protection and sustainable use.

Environmental management is characterized by strong vertical structure with limited independence of territorial administration. The structure is not flexible and this along with, lack of technical and financial resources, results in breaking the linkages between the management system of the country and inconveniency of activities on different levels. Given the above mentioned and in regard to strengthen the efficiency of environmental management in the country the important and priority precondition is clear definition of management responsibilities within the system, enhancing the competency of the local self-governance and identification of responsibilities.

Agrobiodiversity management is implemented also by the RA Ministry of Agriculture through its affiliated structures. The biodiversity related responsibilities are given in *Table 1.2*.

Table 1.2. Responsibilities of agencies under RA Ministry of Agriculture dealing in the sphere of biodiversity

Name of subdivision/ organization	Responsibilities
“National Agricultural Support Center” (NASC) SJSC	Coordination, monitoring of scientific projects in the different spheres of agricultural science, including gene pool conservation and use of ecologically safe medication, consultation, awareness raising
Marz (regional) Agricultural Support Centers (10 Centers)	Technical support and coordination of activities to introduce new technologies and to apply ecologically safe medication for combating pests and crop diseases
“State Center for Seed Quality and Selection Achievements Protection” SJSC	Testing new grades of cultivated plants; Provision of licenses according to the RA Law on Selective Achievements
State Service for Plant Quarantine	Provision of phyto-sanitary certificates, organization of measures to combat quarantine diseases and dangerous organisms of agricultural crops
“Scientific Center for Agriculture and Plant Protection” SJSC	Selection of autumn wheat, oats and edible plants; Development of potato biotechnology; Development of field crop and seed growing technologies; Improvement of technologies for combating against diseases of agricultural plants, perennials, forests, pests and weeds. Selection of autumn wheat and barley, fodders, biotechnology of potato, development of technologies for field crops growing, seed farming, developing technologies to combat weeds, pests and agricultural plants and forests diseases

“Scientific Center for Husbandry and Veterinary” SJSC	Improvement of technologies for protection of agricultural animal species, establishment of local sheep herds in farms; Development of effective measures for prevention of animal diseases; Development of methods for increase of natural fodders efficiency in meadow-desert belts.
“Scientific Center for Melons” SJSC	Targeted selection of melon and technical crops; Development of methods for recultivation of melons; Use of biotechnologies for producing their sorts and hybrids; Fast breeding/ reproduction.
“Scientific Center for Agriculture, Agrochemistry and Melioration” SJSC	Definition of fertility indexes of land resources; Identification of erosion processes, nutrition regime studies; Definition of optimal proportions for fertilizers.
“Scientific Center for Viticulture, Fruit growing and Wine Making” SJSC	Study of fruit crops and grapes; Protection and reproduction.
“Gyumri Selection Station” SJSC	Seed growing and selection of grains and vegetables; Improvement of technologies for their growing.
Stepanavan experimental station	Production of virus free potato seeds.
Merdzavan experimental basis	Selection of autumn wet and oats; Protection of seed gene pool of selective grades.
Darakert forestry	Selection, primary seed growing and protection of melon gene pool.
Aygavan experimental station	Selection; Gene pool protection; Improvement of technologies for technical crop growing.
Eraskhahun experimental ameliorative station	Improvement of technologies for saline land melioration; Improvement of meliorated lands; Agromeliorative ecological monitoring.
Merdzavan model area	Protection of grape and crop gene pool; Improvement of vine making technologies; Improvement of selection
Nalbandyan model area	Protection of grape and crop gene pool.

1.6.2. Other Organizations

Several organizations are in charge for scientific research, related to biodiversity conservation and sustainable use. Several organizations are in charge for scientific research, related to biodiversity conservation and sustainable use.

Generally they are:

- RA research institutes,
- Scientific centers and stations of the Ministry of Agriculture (applied studies),
- Higher education institutions (Yerevan State University, Armenian Agricultural Academy, Armenian Pedagogical University),
- State reserves and national parks.

Research Institutes

Table 1.3 represents the list of main organisations dealing with scientific projects on biodiversity, as well as brief summary of their activities.

Table 1.3. Current scientific studies in biodiversity related areas

Organization	Brief summary of scientific activities related to biodiversity
Institute of Zoology, RA National Academy of Science	Studies on the state and taxonomic composition of some vertebrates, total composition of insects in some SPANs, rare, endemic and endangered species. Data base on vertebrates of reserves and national parks. Taxonomic data for Red book republication.
Institute of Botany, RA National Academy of Science	Developed and published the multivolume “Flora of Armenia”(10 volumes)devoted to different families of flora of Armenia – the taxonomy, distribution, etc. The 11 volume is under development. Electronic version of Red book of Armenia is being developed. Investigation of different bioecological and taxonomic groups’ representatives of aborigine dendroflora on the matter of ex-situ adaptation in regard to conservation and restoration of gene pool. Investigation of natural resources and the norms for use in different regions of Armenia. Identification of the species, distribution and phytocenetic peculiarities of endemic species in different ecosystems. Investigation of crops wild relatives, valuable from the viewpoint of gene pool conservation. In the model habitat (biotope) developed by biodiversity conservation ecocenter some rare and threatened species of plants and animals are introduced and investigated in purpose of implementation of their further conservation and restoration.
Institute of Hydroponics, RA National Academy of Science	A number of biotechnologies for cultivation of valuable and endangered medicinal plants are developed, investigated peculiarities of plants introduced into hydroponics culture. A number of valuable tree-bunch species characteristics are investigated aimed at developing phytotechnologies for their cultivation in situ. Contemporary issues on peculiarities of hydroponics and soil plants.
Institute of Hydroecology and Ichthyology, RA National Academy of Science	Studies on the state of white-fish population in Sevan Lake, fodder base and industrial school size. Structural changes in the phytoplankton of the lake.
Scientific Center on Agriculture and plant protection, RA Ministry of Agriculture	Developing of ecological methods to fight in integrated manner the insects aimed at improvement of forest ecosystems. Developing measurements for combating more active insects to improve vineyards and fruit gardens and field crops.
Scientific Center on Husbandry and Veterinary, RA Ministry of Agriculture	Investigation of natural fodders in meadow-steppe zones aimed at enhancing productivity.
Scientific Center on Melons, RA Ministry of Agriculture	Crops selection activities aimed at developing new grades and hybrids. Investigation of most effective grades of melons and development of ways to create and improve new ones.
Forest Research and Experimental Centre (FREC)	Current state of forests, role and significance of species, in regard to forestation and rehabilitation, taxonomic composition of wild flora, main habitats of species.
Protection “Reserve-park complex” SNCO, RA Ministry of Nature Protection	Investigation of rare, endemic species taxonomic data, peculiarities and distribution are investigated.
“Dilijan” and “Sevan” National Parks, RA Ministry of Nature Protection	Inventory and assessment of flora and fauna representatives in different zones of national parks.
Yerevan State University	Investigation of biological characteristics of parthenogenesis lizards’ population in regard to climate adaptation. Investigation of Sevan National park macro-micelles, mapping of Red book fungi. Medicinal mushrooms peculiarities aimed at their further involvement into biotechnology.
Armenian Agricultural Academy	Investigation of valuable wild species of Armenian gene pool, developing of data base. Developing proposals for Sevan basin agroecosystems monitoring.

The level of basic and targeted financing is very small. For example, in 2002 allocations from state budget were made only to the “State Microbial Depository Center” and the Dendropark of the Institute of Botany. The total number of the researchers in the system of NAS is as follows:

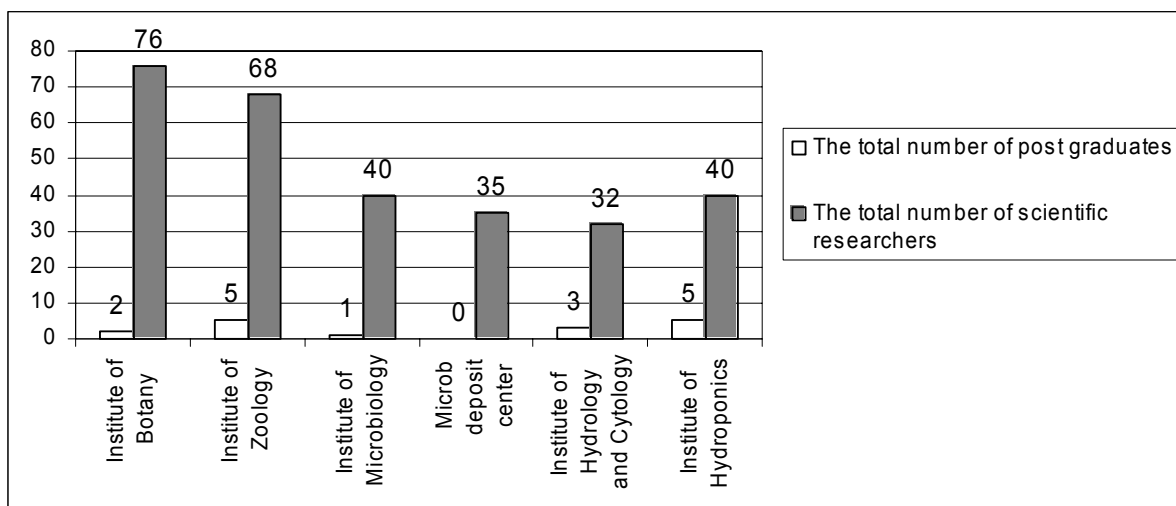


Figure 1.1. Post graduate students and researchers in the system of NAS of RA, on January 1, 2003.

The post graduate studies (Aspirantura) within the RA NAS system have been extremely reduced in recent years (Fig. 1.1).

The educational projects in the sphere of biodiversity and sustainable development are developed and implemented pursuant to provisions of RA Laws "On Education" and "On Environmental Education". In regard to Convention provisions subject « Ecology is envisaged in the curricula's for all the levels of education. The public involvement and training of ecologists is also anticipated.

Box 1.10. The system of biodiversity specialists training in RA

The training of environmental specialists, particularly biodiversity specialists, is mainly provided in the faculties of Yerevan State University, where education system comprises three levels – Bachelor's Degree (4 years), Master's Degree (2 years) and post graduate studies – 3 or 4 years (stationary studies or studies by correspondence). The basic subject taught is "Principles of Ecology and Environment" - mandatory for all specializations since 2001-2002 academic years.

The Faculty of Biology has 3 specializations and 10 profiles thanks to 8 specialised cathedras. 26 doctors and more than 100 PH.D.s (Doctors of Philosophy) are involved in education provision within the Faculty. All the students of 3 specializations are taught courses on botany, zoology, mycology and microbiology by different credit-hours (courses for biophysics and biochemists are more limited).

Biodiversity specialists are trained mainly in Cathedras of Botany and Zoology. Graduates with Bachelor's Degree are granted the specialization of a biologist and those with Master's Degree - the specialization of a botanist or a zoologist.

Besides the Faculty of Biology, environmental and biodiversity specialists are trained also in the Faculties of Chemistry and Geography, YSU. The Department of Ecological Chemistry is recently operational in the Faculty of Chemistry and it trains chemists in the sphere of ecology and environment. The duration of this course is 5 years. Ecological and biodiversity subjects within this Faculty are taught by approximately 670 credit-hours.

Subjects on Biodiversity and Ecology are taught also in a number of other state and private higher educational establishments of the Republic. The "Chemistry, Additional Nature Protection", "Biology" and "Biology, Additional Nature Protection" specializations at Biochemistry Faculty of Yerevan State Pedagogical University after Kh. Abovyan, are related with the sphere of biodiversity. The University has a Department of Ecology, which provides education in ecological and environmental subjects.

Forest related higher education has been provided in Armenia for over 70 years (since 1930, at former Armenian Institute of Agriculture (nowadays Agricultural Academy). However, it has not had regular operation, since it did not meet the national forestry requirements. At present (since 2000) forest sector specialists are trained in two specializations: "Park Forestry" and "Forest Engineering" on two-degree levels (Bachelor's Degree and Master's Degree). Considering the current state of forest sector human resources, forestry education is envisaged to be provided in NAS by a joint 5-year specialized course of "Park Forestry and Forest Engineering". The list of curricula, duration and logical framework is being clarified.

For the past few years the Ijevan branch of YSU has also started to train specialists on "Forest and Park Forestry". The curricula of the mentioned course comprises subjects on ecology and biodiversity.

Forest and biodiversity specialists have recently started to be trained also in another university- Gavar State University, which in 2003 gave the first graduates in “Ecology” specialization. Specialists in ecology are being trained also in some private universities, e.g. “International Independent Ecological-Political University”, “Armenian Institute of Ecology, Economy and Law”. Post graduate studies also play a significant role in biodiversity, ecological and environmental specialists training. Despite the small number of granted places for post graduate research, the YSU keeps on training specialists in mentioned specializations. Currently 10-12 places are allotted annually for post graduate studies, of which 20% for stationary studies and the rest- for studies by correspondence. Part of the graduate specialists are getting involved in related scientific-educational and research institutions, as well as in other establishments of the country.

Specialized institutions

Some other state and non-state structures, directly or indirectly dealing with Convention issues are given in *Table 1.4*.

Table 1.4. Organizations dealing with Convention issues

	Name	Responsibilities	Current Capacities	Constraints
1.	“State Hydrometeorology and Monitoring Service ” SNCO	Hydrometeorology and environmental monitoring	Data can be used for biodiversity impact identification and assessment	Biodiversity monitoring is not presented as a separate provision
3.	“Environmental Impact Monitoring Center” SNCO under RA MNP	Regulations- still not approved. Monitoring of environmental (including wild world of flora and fauna, ecosystems and SPAs) anthropogenic impact and its consequences; conduction of research, EIA	Is in formation process	
4.	State Service on Plant Quarantine, RA Ministry of Agriculture	Monitoring the import and export of cultivated plants of quarantine importance under quarantine		
5.	RA Customs Department	Monitoring the import and export of animals and plants	Relevant legislative framework	Non implementation of legislation requirements. Lack of relevant specialized staff in Custom Houses. Insufficient monitoring of biodiversity component.

Non-governmental organizations

A number of non-governmental organizations of Armenia deal with Convention related issues. Over 80 non-governmental organizations currently do exist in the country, dealing with ecological education, publication of scientific materials, methodological guidelines, and public supervision of a number of projects; participate in developing and implementation of environmental projects.

Despite of the great number of environmental NGOs (Annex 7), their activities can not be considered as satisfactory due to:

- Lack of coordination and cooperation,
- Weak cooperation with governmental structures and lack of coordination,
- Low participation in solving of priority issues and decision making,
- Scientific investigations resulted from the regulations, particularly monitoring and environmental inspection and lack of appropriate specialists.

The most active NGOs are:

- “Environmental Public Advocacy Center” (EPAC),
- “Greens Union of Armenia”,
- ”Armenian Botanical Union”,
- “Sustainable Human Development Association”,
- “Ecological Sustainability”,

- “Union for Landscape and Biodiversity Protection ”,
- “Union for Professional and Enterprise Orientation”.

1.7. Information compiling, analysis, maintenance, application and accessibility

To ensure efficient conservation and use of biodiversity an inventory, monitoring and information exchange on biodiversity components is essential.

Currently a comprehensive state inventory haven't been conducted so far, although some inventory on forests, pastures and hayfields was undertaken in different periods.

During the 1950-1990 an inventory of some 10-12 species of Armenia's flora has been conducted by several organizations, as well as partial inventory of some rare species, particularly mammals. Periodically an inventory on game animals is carried out.

Owing to joint efforts of scientific institutions and specially protected areas the lists of vascular plants of some protected areas (Erebuni, Dilijan, Khosrov, Sev lich) and Sevan National Park are compiled and taxonomy of some flora species (fish, birds, mammals, etc) investigated . The data can serve as an initial material during the inventory.

For efficient assessment of current situation the forest inventory is required.

Currently inventory of Tavush marz forests is envisaged in the framework of the "Natural Resources Management and Poverty Reduction" project.

Biodiversity in Armenia is investigated rather well, but unequal.

In the line with well studied taxons there are ones not investigated at all. The main work was done in Soviet period and relates to taxonomic data. The population-genetic and ecosystem approaches are lacked.

Taxonomic research should serve a basis for identification of populations' status. *First and the most important step* is to get informed on organisms inhabiting on the current area. Improper taxonomic data should bring to extinction of really rare species on one hand and investment into the species, not threatened by the moment from the other. *The second issue* should be solved by long term investigation of natural ecosystems, with respect to registering all the changes, analyzing the data and forecasting further changes.

The environmental measures should become useless or, even harmful to nature when the prediction of ecosystem changes is absent.

This may be achieved by monitoring the biodiversity. To undertake biodiversity monitoring it is essential to investigate all the biodiversity components and identify biodiversity indicators. Assembled data currently is given in a number of monographies, volumes on flora and fauna, articles, while the electronic data is very poor. Most taxonomic data is published in mass media and is actually open for officials and general public. Some publications, for example 9th and 10th volumes of the "Flora of Armenia" published in Germany are unavailable due to high price.

The level of scientific publications is currently reduced, first of all due to financial hardships. Scientists are mostly publishing abroad and this reduces availability of studies.

The issues of biodiversity are mainly elucidated in the following periodicals:

- "RA NAS information bulletin",
- "RA NAS reports",
- "Biological Magazine of Armenia",
- "Scientific information bulletin of Yerevan State University",
- "Healthcare",
- "Armenia Medical Science".

The former environmentally sound popular scientific magazine, "Hayastani Bnutyun", has been closed down due to the lack of finance. "Flora, Vegetation and Plant Resources", a publication of the Armenian Botanical Society, appears very irregularly, due to financial hardships.

Separate electronic databases have been developed, or are under development in botanical organizations of Armenia. They are:

- On Flora of Armenia,
- On the Red Book of Armenia,
- On Endemic Species of Armenian Flora,
- On Macrofungi,

- Vertebrates of Reserves and National Parks,
- Collection of State Microbial Depository Center,
- Wild Crops and Fodder Species,
- Traditional Wild Crops,
- Wild Relatives of Cultivated Plants,
- Electronic Data Base of Seed Collections.

During 2002 CHM structure has been developed in Armenia in the framework of Biodiversity Strategy and Action Plan project. The CHM structure is of a high importance from the viewpoint of biodiversity data base and information accessibility. Under CHM the biodiversity web page has been developed and is available at www.biodiv.am. Currently the CHM structure is destroyed due to failure of appropriate structure in the Ministry of Nature Protection. In this regard information on CHM structure on different levels is a priority issue. In the institutional level ensuring of CHM structure operation and monitoring is an urgent need. The process requires:

- Periodical update of Web page,
- Identification of contact persons in the institutions dealing with biodiversity and network development,
- Biodiversity data compilation in a unified electronic format via identified contact persons,
- Information data base hosting on CHM web page and developing a search engine.

1.8. International Cooperation

Due to rich and unique biodiversity Armenia is of high interest for international and regional cooperation. Endemic species of the wild flora and fauna, rich genetic resources attracted the attention of international scientists. Currently a number of joint investigation projects are being implemented in the sphere of the biodiversity in-situ and ex-situ conservation. High scientific level of Armenian scientists and large involvement in the international projects and activities of scientific centers is attractive also for international and regional cooperation. Free and open access to the collections on national and international levels contributes scientific educational purposes. In this regard a number of environmental projects are focused on investigation, conservation of flora and fauna of Armenia, developing mechanisms for sustainable use. Creating specially protected areas, particularly transboundary ones, is envisaged within joint projects with Germany, Czech Republic, Iran and Georgia. Armenia is involved in the “In-situ conservation of crops wild relatives by “Strengthening management and application of modern methodologies” project.

As a Party to the Convention Armenia has timely submitted all the reports to meet it’s commitments and, up to 2002 participated in all the COPs. except of COP IV (1998, Bratislava), SBSTAA all the meetings, except of the SBSTAA VII(Montreal, 2003), all the meetings and sessions in the framework of Pan-european strategy on landscapes and biodiversity, CHM meetings, except of meetings in 2002.

The Biodiversity component is fully reflected in the National reports on Climate Change and Desertification Conventions, as well as in projects implemented in the framework of Ramsar Convention.

Harmonization and implementation of activities in the framework of the environmental conventions is of great significance to regulate biodiversity conservation and use. From this viewpoint correlation of the biodiversity status and climate change is obvious. In this context a number of measures should be undertaken, such as assessment of ecosystems vulnerability, adaptation measures, and development of greenhouse gas sinks. Given correlation biodiversity status and desertification, combating desertification should be addressed to biodiversity in-situ conservation, improving and developing the SPANs network, investment of economical mechanisms for biodiversity resources, reproduction of economically valuable species.

Armenia participates in the following bilateral and multilateral projects and initiatives,

Cooperation in Caucasus ecoregion

- Developing the first draft of legal document on Caucasus mountain ecosystems (Caucasus Convention),
- Developing the Caucasus Environmental Outlook
- Developing a WWF project« Biodiversity of Caucasus ecoregions

- Preservation of the Nature and Biological Diversity of the Region project by support of the Ministry of Cooperation and Development of Germany

Bilateral cooperation

- Ministry of Cooperation and Development of Germany
- Swedish International Development Agency
- Japan Agency of International Cooperation
- ICARDA

Ministry of environment gained wide experience of international cooperation, in result of efficient cooperation with secretariats of relevant conventions, United Nations structures (UNEP, UNDP, GEF, FAO) and World Bank. A number of strategic projects were developed in this framework.

1.9. Conclusion

Main provisions and principles of the Convention are reflected in the environmental policy of the Republic of Armenia in systemic, institutional and individual levels. These levels form a whole system, which is obviously not an ideal one. Currently it is in the process of development.

Table 1.5. Strengths and constrains of the Convention implementation system

Capacities	Constrains/ Needs
<i>Systemic level</i>	
<ul style="list-style-type: none"> • Existence of laws, sub-legislative acts regulating the sector; • Understanding the importance of environmental issues; • Funding (for recent three years) from the state budget for scientific research on biodiversity (including thematic, basic and targeted financing); • Implementation of international projects aimed at staff training and science development; capacity to mobilize external resources for staff training and science development; • Enhancement of cooperation frameworks with international organizations; improved negotiation and cooperation capacities that lead to enhanced cooperation with international organizations • Membership to the international conventions and international treaties; • Public awareness raising campaign on environmental issues, especially on biodiversity conservation; • Improvement in the human resources policy (adoption of principal for civil servants on competition basis and their regular attestation); • Rich biodiversity and interest by international community; improved communication capacity to draw attention of the international community to the global importance of Armenia's biological resources • Political stability to enable capacity building for environmental protection • As a result of well established coordination mechanisms between the ministries of Nature Protection and Agriculture Incorporation of 	<ul style="list-style-type: none"> • Poor coordination mechanisms between the ministries of Nature Protection, Foreign Affairs and Finance. Poor capacity of the ministry to participate in the budgetary planning to ensure that the financial allocations are provided to meet country's obligations to the convention may be capacity related reason. (<i>UN CBD membership fee is not payed by the government</i>); • Biodiversity protection aspects are ignored in socio-economical development projects of different spheres; • Poor knowledge/expertise and thus capacity for integrated planning and decision making to incorporate aspects of biodiversity conservation in socio-economic development programmes and projects • Poor enforcement capacity leading to inadequate implementation of laws; • New normative-legislative acts regulating different spheres need to be developed and adopted; • Poor capacity to participate in budgetary planning. Decision makers are not aware on Biodiversity Convention issues; • Studies on biodiversity, as well as biodiversity protection issues are not considered as priorities of the sector; • Specialists are prevented from opportunities to be trained abroad or in advanced international institutions; • Biodiversity Convention issues are ignored of in case of state funding for scientific themes; • Biodiversity is not considered in sustainable development priorities of the country; • Weak implementation of biodiversity issues in designed by the Governmental Decree no. 115 in 1998; • Non official adoption of biodiversity strategy and action plan by the government; • Lack of interconnection between country procedures, insufficient integration of Biodiversity Convention issues in country level implemented procedures; • Lack of skilled specialists in governing bodies; • Lack of policy for forest sector development;

<p>issues on agriculture and conservation of cultivated plants into agricultural priority issues;</p> <ul style="list-style-type: none"> • State funding prospective for biodiversity protection activities during 2004-2006. 	<ul style="list-style-type: none"> • Non wise use of biodiversity in the result of land privatization; • Increase of improper use of bioresources and anthropogenic impacts on ecosystems; <p>Lack of indicators for assessing the current status and tendencies of biodiversity.</p>
<i>Institutional level</i>	
<ul style="list-style-type: none"> • Presence of environmental department in regional state administration offices; • Great number of institutions implementing scientific research (scientific research institutions, scientific canters, relevant departments of higher educational establishments, scientific departments); • Presence of Department of Natural Sciences, General and Applied Biology Scientific Board, Experimental Committee on protection of Lake Sevan and international scientific cooperation board in the RA National Academy of Sciences; • Presence of rich materials on biodiversity (archive, publications, chronicles); • Presence of highly qualified specialists; • Presence of a great number of environmental NGOs and their active involvement; • Creation of computer databases on biodiversity for information exchange and access increase; • Presence of a web page on biodiversity of Armenia; • Presence of a state authorized body, Ministry of Nature Protection for Biodiversity Convention implementation; • Presence of Biodiversity Protection and Natural Use Subdivisions in the system of MNP; • Presence of structures on agro-biodiversity in the system of Ministry of Agriculture; • Presence of environmental monitoring services; • Relevantly higher level of biodiversity studies in the republic; • Presence of Red Books; • Presence of a sustainable system for SPANs; • Organization of a number of training courses on wetlands. 	<ul style="list-style-type: none"> • Unstable institutional structure of MNP, regular establishment of new structures, separations and allocations; • Non concise differentiation of structural activities responsible for the sphere management, planning and monitoring. Frequent occurrence of duplications or breaks. • Weak cooperation between state regional governmental and authorized bodies; • Little and unbalanced funding for scientific themes; • No request for staff training and scientific research by the Ministry of Nature Protection • Lack of modern equipments, technologies and communication means in relevant structures; • Absence of a Science and Education Management subdivision within the structure of Ministry of Nature Protection; • Migration of specialists/staff • Insufficient number of high quality specialists on some specializations, including forest building • Absence of information database, as well as monitoring system • Weak cooperation between state environmental structures and NGOs; • Non active functioning of the information analytical center of the Ministry of Nature Protection; • CHM capacities are not used properly due to the lack of the relevant authorized structure; • Lack of projects for public awareness increase, insufficient involvement of mass media; • SPANs' affiliation to different structures /ministries/; • Weak coordination and cooperation between governmental and non governmental organizations; • Lack of means for Red Book new publications; • Lack of wide opportunities for introduction of information and bio technologies; • Imperfect institutional structure of forest sector, unclearness in authorizations and functions; • Lack of community participation in forest economical activities. Lack of biodiversity monitoring, inventory and state registry system; • Lack of institutional structures in different sectors (agriculture, urban planning, etc) for planning and coordination of environmental activities; • Lack of public sector involving mechanisms in decision making processes in the sphere of biodiversity protection; • Ignorance of biodiversity components in conducting ecological experiments of projects. • Lack of a national genetic bank. • Lack of information, limited use of traditional knowledge and methods.
<i>Individual level</i>	
<ul style="list-style-type: none"> • Increase of interest on nature protection, including biodiversity protection, by broad pub- 	<ul style="list-style-type: none"> • Low level of environmental education; • Unawareness on Convention issues;

<p>lic during the last years;</p> <ul style="list-style-type: none"> • Ambition of young scientists to get relevant knowledge and work in international projects and scientific centers; • Increase of information access for individuals, internet development; • Wide opportunities for competition based education and implementation of scientific work; • Wide opportunities for individual initiations. 	<ul style="list-style-type: none"> • Passiveness towards individual initiations; • Low participation in international conferences because of high membership fees and lack of funding; • Low salary and absence of interest for professional improvements; responsibility towards the work and discipline; as well as interest towards the field among the youth because of the lack of job progress opportunity.
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1.10. Recommendations

Taking into consideration the Convention Provisions, as well as cross cutting issues on UNCBD and UNCCD, the following recommendations have been set towards biodiversity conservation, reproduction and sustainable use in Armenia.

1. Incorporate issues of biodiversity in sustainable development priorities,
2. Incorporate the issues of biodiversity in the policies of different areas for the development of country's economy,
3. Review and improve the relative legislative framework, bringing it into agreement with convention principles and harmonizing with requirements of other conventions,
4. Improve the institutional structure of the field, clarify and separate the authorities and functions of different structures,
5. Develop a state policy for the forest sector of Armenia, including strategy on forest resources management and action plan,
6. Develop national action plan on conservation, sustainable use of genetic resources, as well as increase of their accessibility,
7. Ensure the biodiversity protection of in-situ and ex-situ cultivated plants and their wild species,
8. Promote to all kinds of research on biodiversity in the republic, including inventory, computation, definition of use ratio of biodiversities,
9. Develop indicators on assessment of current state of biodiversity in Armenia and its development tendencies,
10. Establish a biodiversity monitoring system, ensure the inclusion of biodiversity components in the environmental impact assessment process,
11. Support the restoration of degraded ecosystems, including the biodiversity of forests, high fields, pastures and swamps,
12. Establish a databank for biodiversity of the country and incorporate it with national CHM system,
13. Ensure the information access and exchange in different levels;
14. Develop mechanisms for staff training coherent with national and international opportunities,
15. Promote the increase of eco-education level,
16. Implement public awareness increase activities on the need for biodiversity conservation,
17. Promote the cooperation between state structures and NGOs,
18. Develop methodologies for the assessment of the caused damage to the biodiversity, as well as on compensation and their use,
19. Publish the updated versions of the Red Book,
20. Improve the system of SPAs (Specially Protected Areas), set up new specially protected areas matching them with the status of IUCN categories,
21. Promote the creation of ecological network in Armenia, including the present SPA system, ecological corridors and buffer zones,
22. Promote joining of the Republic of Armenia to other environmental conventions (Bern, Bonn, CITES), as well as its participation in international initiatives (GBIF, DIVERSITAS, Natura 2000 etc).

2. CAPACITY NEEDS ASSESSMENT FOR IMPLEMENTATION OF UNFCCC

2.1. Commitments of the Government of the Republic of Armenia Towards Convention

Objectives

UN FCCC has one main goal, which is presented in Article 2 of the Convention. An extract of it is as follows: "...to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."

Box 2.1. RA commitments under Convention

The Republic of Armenia as a non Annex I country has certain commitments, which are envisaged by Article 4, Point 1, of the Convention:

- Make an inventory of the anthropogenic emissions and outflows of GHGs according to the manual prepared by the IPCC on development of national inventory of greenhouse gases,
- Identify the regions, natural ecosystems and sectors likely to be vulnerable due to the expected climate change in the republic, as well as to assess its socio-ecological consequences. To develop a relevant strategy that will comprise all the necessary measures to mitigate climate change and will be aimed at the socio-economical development of the country,
- Provide trainings, educate/train specialists and increase public awareness on climate change issues and bring to public's attention those problems,
- Be involved in international cooperation and information exchange on implementation of UNFCCC,
- Provide information to the Conference of Parties (COP) on execution of national measures in regard to Convention implementation and their outcomes, cooperate, as well as promote the transfer of technologies meant for the reduction of anthropogenic emissions of greenhouse gases and preservation and development of sinks and absorbents in all sectors of economy especially in energy, as well as in transport, industry, agriculture, waste removal and forestry.

Convention implementation issues and priorities resulted from the possible consequences of climate change in Armenia are summarized in the First National Communication of the RA under the UNFCCC. It is assessed that the global climate change will result in increase of the temperature by 2⁰ C and decrease of precipitation by 10% in Armenia. This will most negatively affect the agriculture, which is already recognized by FAO as a vulnerable and "risky", since climate aridization should take place, conditioned by decrease of water resources. The process should also be accompanied by increase of desertification rate and change of climate zoning of the territory of the country with all the negative impacts on biodiversity and ecosystems as a whole. Climate change will essentially affect the water balance of Lake Sevan, reducing the inflow and increasing the outflow components.

Comparing the outcomes of the research on climate change with we can state that the most vulnerable sectors affected by climate change are the same time the most important spheres and resource sectors for the sustainable development of the country. To this regard, the priority issues for the country are: provision of food security, combating desertification, land conservation, restoration and expansion of forests, restoration of natural water resources of Lake Sevan, prevention of lake's water from pollution, careful and rational use of other renewable water resources, implementation of a wide range of preventive measures for biodiversity protection, the fundamental review of structure and management approaches in the agriculture, as well as introduction and implementation of advanced technologies for insuring all the above mentioned problems. Although Armenia, as a developing country, has not assumed any quantitative responsibilities for reducing the GHG emissions, it is very advantageous for the sustainable and balanced development of the country to participate in the international cooperation targeted at mitigation of GHG emissions, actually, in almost all the sectors of the national economy, such as energy, forest restoration and forestation, transport, waste, restoration of degraded lands, industry, etc.

2.2. Convention Issues Relevance to Ongoing Processes in the Country

Poverty Reduction Strategy Paper

PRSP formulates the nature protection issue as a separate chapter. Environmental problems are discussed from the viewpoint of rural and urban poverty. Assumptions are based on the fact that the poverty increases the anthropogenic pressure on natural resources (deforestation, overgrazing, and land salinization and other types of degradation) from one hand and from the other the poor are inhabited on the most polluted areas, which threaten them essentially.

The issues of the Convention on Climate Change are not implied in the project, though some related issues, such as forest resource degradation, the Lake Sevan problem, industrial harmful wastes are enlightened. The abovementioned issues are enlightened superficially and not completely from the professional point of view.

The UNFCCC with its financial and international cooperation mechanisms could significantly contribute poverty reduction, more over; it is implied in many articles of the Convention and documents of Conference of Parties. The Kyoto protocol provisions concerning poverty reduction could also be useful.

A separate section is devoted to water economy, though here also the consequence of climate change on water resources is not implied. The chapter analysing the energy sector highlights the issue of water supply restoration and enhancing efficiency of energy system to ensure energy security, as well as development of energy sector based on alternative sources of energy. However any implication on UNFCCC and Kyoto protocol financial mechanisms and the capacity, created under UNDP/GEF “Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply” project were not made in the Paper.

Sustainable Development Concept

The separate chapter is devoted to the climate change issues. The consequences of climate change on ecosystems, water resources, agriculture and human health are briefly described.

The Concept includes the following measures:

- Developing plans on adaptation measures to the forecasted climate change, based on investigations on the impact of climate change on economy and natural ecosystems,
- Development and implementation of national strategy on limitation of greenhouse gas emissions, development of absorbers and sinks, application of modern technologies with international assistance,
- Forest restoration, creation of protective forest belts, fast growing tree plantations, etc,
- Development and application of alternative methods on water saving in the field of irrigation and rational water use.

The principles given in the Environmental Aspects of the Concept are indirectly related and coherent to the problem of climate change.

Thus, the concept briefly includes all the principles highlighted in the «First National Communication» developed under UN Framework Convention on Climate Change.

The national potential and benefit from application of international cooperation mechanisms formulated under Convention is likely to be mentioned to ensure sustainable economic development. The frames of cooperation should be emphasized in the following fields: energy, waste management (processing), motor transport and industry, agriculture, etc.

Millennium Development Goals

The information on climate change problems and conclusions are presented in the basic document in the point of the *Goal 7*. The general chapter “Ensuring Environment Protection” just presents the quantity and assumptions of CO₂ emissions. The document emphasizes developing “GHG inventory” and “national strategy on limitation of GHGs”.

Some expert data on the state of forest sector and forest cutting is presented without connection with the climate change issues. It is necessary to mention that the data given does not comply with the investigations done in the framework of climate change problem. The emissions of CO₂ in 2001 and forecast (for 2015) are moot.

It is essential, that Armenia, as a developing country, does not have a commitment on limitation of the greenhouse gas emissions and has to be obligatory mentioned in the document, as an important political matter. At the same time, the needs of Armenia in adaptability to climate change should be presented, as it is mentioned in the “First National Communication of the RA under the UNFCCC”.

It was important to observe this and other matters in the context of country’s sustainable development and for that reason to refer to Kyoto Protocol and emphasize Armenia’s interest to participate in Clean Development Mechanism, in accordance to the Sustainable Development Strategy and its indicators. In this regard the capacity of the country might be shown, citing the data on energy indices per GDP, necessarily with its corrected dates. The above mentioned might be correlated with the problem of poverty reduction.

Environment for Europe

In the framework of this process the Ministerial Report of RA presented on Pan European Ministerial Conference in Kiev is mostly signified.

The climate change issues are mainly presented in the section “International Cooperation». The report refers to the RA Government decree no. 115 (February 25, 1998), which appointed responsible state bodies for implementation of commitments under the Convention. The chapter “Economical mechanisms” refers to the Clean Development Mechanism as a tool for international environmental cooperation, and highlights the need to formulate necessary legal and institutional framework. The report, in essence, discusses all the main ecological matters, indirectly related to climate change problems.

The chapter “National Priority Problems” presents seven key issues, though their relation to the climate change problems is not presented. The report will benefit, if the cross-cutting issues and synergies are be emphasized.

It is necessary to mention, that “Environment for Europe” process as a whole, and especially the Ministerial Conference held in Kiev facilitates the assistance of European Union to ex-Soviet Republics in capacity building and implementation of Kyoto Protocol flexibility mechanisms. Currently a capacity strengthening project is envisaged in the framework of TACIS regional project (2004-2006) aimed at participation in the mechanisms of Kyoto Protocol.

2.3. Current legislation and regulative framework for implementation of the convention

The problems of climate change are not mentioned, nor special regulating mechanisms for Convention implementation are envisaged by the state legislation, thus, . the legal document for implementation of the Convention is considered just the Convention, which is put into force after the ratification by the National Assembly.

It is necessary to mention, that the RA Law “On Hydrometeorological Services” states some regulating points on climate change studies and systematic observations.

A draft Law «On Energy Efficiency and Renewable Energy» is being developed with technical support of USAID and in conformity with the principles of the new strategy on energy sector development.

There is no need for adopting a special law on climate change regulation, however, it is expedient to make amendments in existing laws, which can stimulate measures to mitigate the consequences climate change and facilitate implementation of the commitments of the country under the Convention.

Is recommended to:

1. Include the following items in the scope of Forest Code:
 - Provision of adaptability for the forest sector to envisaged climate change,
 - Adoption of country’s perspective optimal forestation and long-term strategy on forest sector,
 - Consideration of the forest as a GHGs (CO₂) absorber and sink in the forest policy and provision of the perpetual increase of those features.
2. Include the following issue in RA Laws “On Specially Protected Areas of Nature”, “On Flora” and “On Fauna”.
 - To ensure adequate conditions for study and inventory, and develop adaptive measures for vulnerable to the climate change species of flora and fauna and
3. To consider the envisaged vulnerability of water resources resulted from the climate change in the RA Water Code. It is expedient to imply not only that aspect, but also mitigation measures to reduce vulnerability to water shortage.

Government decrees

RA decree no.115 adopted in 1998, assigned a number of measures to be implemented by different ministries and organizations coordinated by the Ministry of Nature Protection.

The project is based on Armenia’s commitments to the Convention and includes 9 points, which should be funded by the means of ministries and departments, pointed in the plan. None of the ministries or departments, including also the Ministry of Nature Protection of RA has allocated (received) financial means for the implementation of the plan. However, the envisaged activities were partially implemented in the framework of the “Armenia: Country Study on Climate Change” project.

The coordinating mechanisms in the country are almost absent. For the purpose of implementation of the decree no. 115 interdepartmental and working groups were established by the order of the Minister of Nature Protection. However, those groups were operationally incapable for a number of reasons: rapid turnover of staff, low level of awareness, absence of funding, etc.

Some coordinating functions are realized by Steering Committees, formed in the framework of the projects, though they act only in the framework certain projects and on limited issues. Here also it is necessary to mention that the Steering Committees are established formally, which doesn't support creating a specialized body, with permanent composition.

The Climate Change Convention was supported by the RA Government decree no. 1384 "On Reform in Urban Heating in RA" (September 5, 2002). According to the point 3b of the decree the Ministry of Finances and Economy of RA and Ministry of Nature Protection of RA were appointed to negotiate with the UNDP, GEF and other donor organizations on implementation of heat supply strategy, in the context of energy efficiency and environmental approach.

According to the point 15 of the same the Ministry of Nature Protection decree was entrusted to negotiate with the interested donor countries and international organizations in the framework of "Climate Change Convention" for implementation of projects in the spheres of heat supply, increase of energy efficiency and forestation.

In the plan approved by the decree a strategic issue is envisaged, aimed at preservation of the forests, as a GHGs absorber and sink

National Assembly of RA has ratified the Kyoto Protocol on December 26, 2002.

Box 2.2. Kyoto Protocol

The Protocol is not assigning a commitment on limitation of GHGs emissions for developing countries not included in Annex I. However, the developing countries can anticipate getting favorable investment projects and clean technologies from developed countries, using so-called "flexible" mechanisms, which will the same time result in reduction of GHGs. This mechanism is adopted by the Article 12 of the Protocol and is called "Clean Development Mechanism". A mutually beneficial cooperation is anticipated in the framework of that mechanism, where the developing countries will receive additional incentives (including financial) for development, and the developed countries should realize their commitment on limitation of GHG emissions, as the result of the projects in the developing countries the GHG limitations will be accredited to the developed one. By facilitating such mechanisms the developing countries will benefit from investment projects. As a result worldwide reduction of GHG emissions is anticipated. The Protocol does not assign any financial commitment for developing countries.

Participation in Kyoto Protocol creates perspectives for Armenia to create profitable international cooperation in many fields of economy (especially in the field of energy), agriculture and forest sustainable management, and afforestation, waste processing. The Ministry of Nature Protection of RA is appointed as Designated National Authority for CDM and has to evaluate and approve CDM projects.

Creation of national capacity, establishment of institutional and organizational field and especially information sharing and creation of corresponding service is critical for Armenia to actively participate in the Convention and Kyoto Protocol mechanisms.

Currently, Ministry of Nature Protection of RA in cooperation with UNDP is working towards mainstreaming CDM process and, in general, environmental projects and programs targeted at sustainable development.

The main component of the second phase of the "Armenia: Country Study on Climate Change" project is aimed at this issue, which is devoted to identification and assessment of the needs for establishing sustainable basis for technology transfer.

2.4. Convention implementation and sustainable development priorities of the country

As a result of the envisaged climate warming evaporation from the surface of the Sevan Lake is anticipated to increase by 13-14%, in case of decrease of precipitations by ~10% and correspondingly reduction of the water inflow and increase of the outflow of the lake. Therefore, to provide increase of the water level of the lake it is necessary to urgently enforce Vorotan-Arpa channel and limitate the water outlets from Lake Sevan to the amount of Hrazdan river natural flow by improving the irrigation system and investment of modern technologies.

To mitigate negative impact of climate change to the ecosystems of Armenia some adaptive measures are required, such as formulating of landscape zoning for entire territory of republic (to the 2050 to enlarge the share of forest territory to 20,1%, including protective belts), establishing reserves and specially protected areas aimed at mitigation of anthropogenic pressure on the vulnerable ecosystems, introduction of the threatened species aimed at conservation of gene pool, conservation of the gene banks, monitoring of threatened ecosystems. The activation of desertification process will negatively impact the food security, which will aggravate poverty.

A series of comprehensive adaptive measures is required to ensure mitigation of negative consequences of climate change: improvement of land use, application of technologies for moisture protection, revision of land zoning, application of modern agro technical measures and introduction of draught resistant crops with high fertility, pasture rehabilitation and protection and improvement of cattle pedigree characteristics.

2.5. Sectoral development plans

2.5.1. Nature Protection

National Action Plan

The National Action Plan for Environmental Protection do not include the climate change related issues, possibly because during the studies on climate change were not completed by the time of project development.

National Strategy and Action Plan for Climate Change

The strategy has not been elaborated yet. The “First National Communication of RA under UNFCCC” can serve as a concept for the strategy, as well as the report of “Armenia: Country Study on climate change” phase II project. The report presents the climate change related needs of Armenia in regard to technology transfer and investment.

Forest Development Strategy

The project was elaborated in 1995 and has not been approved or adopted by the Government of RA till now. Currently a “National Policy on Forest Sector Development” is being developed in the framework of “Natural Resources Management and Poverty Reduction” World Bank funded project.

The peculiarity of the policy is stimulation of establishment of communal forests, by involvement of communities, public organizations and private sector in the forest protection.

The significant innovation is that in line with forest rehabilitation and forestation issues the problem of reduction of CO₂ accumulation by the forests and reduction of the role of the forest as a GHG absorber is emphasized. The forest vulnerability to climate change is mentioned as one of factors of forest degradation in Armenia.

In the range of strategic measures are particularly emphasized the following climate change related activities:

- Rehabilitation and development of the forest carbon absorbing capacity,
- Mitigation of climate change consequences and implementation of adaptive measures in the processes of forest rehabilitation and afforestation,
- Implementation afforestation and forest rehabilitation of projects by applying international financial mechanisms,
- Establishing of drought-resistant forest belts.

However, an important climate changes related component is absent in the draft policy on forest sector development - the remote target of the country’s forestation. An attempt was made in the First National Communication under UNFCCC to establish such a target “Optimal Forestation of the Territory of RA” comprising in 21% of total territory of republic. Despite the index is preliminary, it is necessary to strengthen that idea, so that to have the necessary target for the policy under elaboration.

“The National Strategy and Action Plan of the Specially Protected Areas of Armenia”

The document was officially adopted by RA Government Decree no. 54 in 2002. The issue is presented in details in the Final Assessment Report on Biodiversity Convention (*Chapter I*).

While establishing SPANs and developing the protection regime the issue of biodiversity vulnerability as a climate change consequence is not considered. The mentioned aspect should necessarily be included in the scientific studies of SPANs, especially in the projects targeted to regional biodiversity conservation.

2.5.2. Water Resources Management

A number of projects (Box 2.3.) have been elaborated in the last years in RA for the purpose of Water Resources Management.

Box 2.3. Projects implemented in the water sector in last years

IWRMP – Integrated Water Resources Management Project

The project was implemented in 1999-2001 by the assistance of World Bank and by funding of the Government of the Netherlands.

The project report (“Armenia-Towards Integrated Water Resources Management Network” - WB technical document, November 2001), considers the results of the IWRMP project, as well as other projects, such as “National Project on Environmental Activities”, “Strategic Project about Sanitation”, “Irrigation System Rehabilitation and Development Programs”, “Water Basin Security Program” and etc..

SCRE/111232/C/SV/WW “Support to Environmental Policy and National Environmental Activities in CIS» TACIS project

The goals of the project for Armenia are to discuss and identify organizational and legislative structures and certification activities, which is a part of permission system on implementing activities in the water sector of Armenia. Developing decrees on improving the system of nature protection permissions and improving the existing system of environmental measures funding.

USAID (DAI) – Water Resources Management in Northern Caucasus - 2003

The goal of the project is to enlarge the dialogue between the three countries of Northern Caucasus: Armenia, Georgia and Azerbaijan, in the framework of water resources management.

USAID-ARD- Project on Strengthening the Water Resources Sustainable Development in Armenia for Improvement the Quality of Environment 2001-2003.

The components of the Action Plan are as follows:

- Improvement of National Framework of Water Resources Integral Management
- Development of Water Resources Monitoring Capacities Contributing Integrated Management of Water Resources
- Enlargement of Local Participation in Integrated Management of Water Resources

An Advisory Committee on Water Resources Sustainable Management was established for project implementation, as well as project technical advisory commission and sub-commissions were formulated in the purpose of assistance to implementation of the project.

River Management Joint Project. TACIS

Monitoring and evaluation of water quality of transboundary rivers (Kura river basin).

The project was funded in the framework of Helsinki Convention for the purpose of developing a guideline for water quality monitoring.

A number of European institutions were established for coordination and solution of water problems:

- Global Water Partnership (GWP),
- EU Water Initiative- Eastern Europe, Caucasus and Central Asia (EECCA) component,
- East, West Environmental Cooperation. (European) Environmental Strategy for Eastern Europe, Caucasus and Central Asia (EECCA) in the first decade of 21st century,
- Eurasia Foundation. Cooperation Project in Northern Caucasus (NC).
- Regional Environmental Center (REC) for Caucasus.

The results of the mentioned projects and the water related European structures do not actually include the water resources vulnerability issues as a climate change consequence, however, the measures envisaged to ensure careful use of water resources and, in general, for management purposes, are indirectly concordant with climate change adaptation issues and technologies.

For water resources management the Republic of Armenia has adopted a number of legal acts, particularly a number of Laws on Nature Protection and Natural Resources Use, Governmental decrees, Codes, by-

laws, directly or indirectly reflecting the issues arising from international conventions (Climate Change, To Combat Desertification, Biodiversity) and are precondition for national capacity strengthening and future development in those fields. More profound and universal is RA Water Code (July 1, 2002).

RA Law on Lake Sevan and some governmental decrees were adopted to improve water resources use, management and preservation issues have taken place institutional changes.

In regard to efficient management the following entities were established:

- State Committee on Water Economy RA Government decree no. 92 (February 9, 2001.),
- Water National Council RA Government decree no. 532 (September 15, 2002),
- Water Resources Management Agency RA Government decree no. 82 (January 30, 2002),
- Expert Commission on Lake Sevan Protection (National Academy of Science),

Although the package of legal documents on water management is not in conflict with the climate change problem, it is insufficient to consider the possible consequences of climate change. At present, it is assigned to increase the level of the lake Sevan by 6 m; however, deciding the target the vulnerability of water resources as a climate change consequence has not been considered.

2.5.3. Energy Sector

The sector comprises the essential part in GHG emissions (for example, in 1990 the emissions from the Energy sector made nearly the 93% of the total CO₂ emissions). As a result of energy shortage the district heat and hot water supply were in difficult situation. As a result the use of fuel, with high contamination of carbon acid and low efficiency, used for heating purposes rose sharply. Energy saving and energy efficiency measures, as well as promotion of renewable energy are highly important for limitation of GHG emissions.

A new strategy on Energy sector development was developed based on the principles of energy safety and independence. The strategy is submitted to RA Government for approval. A Council for Energy Efficiency has been established, which identified the need for legal reforms in the sector of energy policy, formulated in cooperation with governmental, public and private sectors. Currently a draft Law on “Energy Efficiency and Renewable Energy” is under elaboration in concordance with the concepts of the new strategy on energy development.

Starting from 2001 some national projects are being implemented, assisted by USA International Development Agency (USAID), on elaboration of legislative framework and implementation of pilot projects and programs aimed at increasing energy efficiency and development of renewable energy.

A strategy on Municipal Heat Supply was elaborated by the government of RA with the assistance of World Bank, resulted in the “Support to of multi apartment buildings management bodies and heat supply” project, in the framework of which a wide range of pilot projects on heating is envisaged.

“Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply” PDF-B project has been implemented in 1999-2000 by assistance of GEF and UNDP developed in correspondence to the National Strategy on limitation of GHG emissions. The studies, and pilot projects implemented during PDF phase revealed that the commercialization of the sector and tenants self-organization are the most important ones in the range of components constraining energy efficiency and environmentally favorable heat supply development. For that reason the next phase of the project envisaged a wide range of activities on increasing the energy efficiency of municipal heat and hot water supply, anticipating creation of capacity, (strengthening of the role of condominiums and corresponding legal framework for heat supply organization, strengthening management capacities of centralized and private heat supply enterprises, developing investment projects, implementation of model project on GHG emissions monitoring, etc).

The above listed and number of other projects implemented in the sector of heat supply also contributes to the energy efficiency in residential sector, facilitating limitation of GHG emissions. According to the evaluations, projects implemented by UNDP/GEF, USAIDA, WB and the governments of the Netherlands jointly can accumulate 9.6 mln tones of CO₂.

The advantages of investments envisaged by the Convention provisions and application of the cooperation mechanisms are gradually conceived by the governmental structures and industry (commercial) sector. A good example is endorsement of PDF-B phase of the above mentioned “Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply” UNDP/GEF project and the environmental grant of the Japanese government for the reconstruction of Yerevan thermal power plant, the favourable tariff policy approved by the Natural Monopoles Regulating Committee aimed at development of renewable energy.

2.5.4. Transport Sector

Limitation of GHG emissions in the transport sector in Armenia, as well as all over the world is the most complicated issue still remaining unsolved. The emissions from the transport sector are continually increasing.

Although, Armenia does not have “binding” commitments on limitation of GHG emissions, there is willingness to participate in the frames of Cooperation Mechanisms of the Convention. Considering that GHG emissions limitation technologies will result in the reduction of hazardous substances emissions and though solving the atmosphere pollution problem.

The supporting legislative framework is insufficient in Armenia. A number of legal acts, enabling reduction of hazardous substances emission from transport and consequently GHG emissions do exist, such as RA Law “On Protection of Atmospheric Air”(November 11, 1994), “On Nature Protection and Nature Use Fees” (December 30, 1998), “On the Rates of Nature Protection Fees” (April 29, 2000).

The last two laws establish the nature protection fees for the harmful impact of motor transport on environment. However, the mechanism does not encourage the limitation of emissions, as the fees are fixed and their rates are calculated according to the engine capacity and don't consider the amount of emissions.

Besides that, the assembled fees are not directed to the improvement of the environmental state of the motor transport and, therefore, have turned into some kind of tax.

The fuel prices formulated in the inner market of Armenia during 1995-1996 have created favorable conditions to turn from liquid fuel to natural gas in concordance to the provisions of Convention. Currently elaborating and adoption of a law is planned to facilitate switch to natural gas in the motor transport sector.

2.5.5. Municipal wastes

In regard to Convention on Climate Change the municipal wastes are of the interest as a GHG (CO₂ and methane) emissions source and promising sector for attracting investments targeted at limitation of those emissions. However, the legislative framework is not fully worked out. A Law “On Wastes” has not been adopted yet.

Armenia has ratified a number of Conventions related to wastes management (*See Annex 4*).

However, the issue of municipal wastes management is not regulated by those international documents, more over, from the viewpoint of climate change problems. The problem of municipal wastes is not mentioned also in National Assessment Report on Sustainable Development (Rio + 10) and other documents.

2.5.6. Agriculture

“The Strategy on Sustainable Agricultural Development” is developed in 2002. In the line of measures stated by strategy a very superficial reference is made to the traditional aspects of environmental issues, such as natural resources conservation, protection of pastures from degradation, etc. The climate change issues are not implied, although the more negative consequences of climate change are foreseen in particular in the agricultural sector. Even, in the hint brought under the chapter “Ways of farming and mitigation of draught consequences” the issue of draught frequency is not mentioned in connection with climate change.

The study of climate change consequences on agriculture shows that the vulnerability level of the sector is very high and considering FAO classification, Armenia is stated as a country with high agricultural risk, there is a necessity to investigate the issue profoundly, discussing the development issues in long-term perspective.

2.6. Institutional frameworks of implementation

The responsible management body for implementation of the UNFCCC is Ministry of Nature Protection of RA. The co-executing bodies and their responsibilities are assigned by the RA Government decree no. 115 (February 25, 1998). The climate change issues are not included in the regulatins of these entities. The same is in the marz and local management levels because of lack of both capacity and information.

On the level of government the climate change issues are covered only by the RA Ministry of Nature Protection. Coordination of UNFCCC lay on the Atmosphere Protection Department and the UNFCCC focal

point is the head of the division. The responsibility for climate change investigations and systematic observations lays on the “Hayhydromet” SNCO.

Hydrometeorological observations and analysis, as well as climate change monitoring is implemented by “Haypethydromet” SNCO. The data is widely applied for planning purposes and in different sectors of national economy.

Observations currently include 45 stations (80 by 1990th), 3 climate observation stations, 50 meteorological, 98 river and 7 lake observation posts. In 1948-1990 snow cover and avalanches observations were conducted.

Observations are chaotic and superficial; the network is morally and physically outdated. The hydrological, actinometrical, radiation, ozone measuring data base do exist only documentarily and is in extremely unfavourable state.

Armenia is a member to WMO since 1992. National Hydrometeorological Service significantly contributed by WMO and in the framework of bilateral cooperation. “Meteo France” provided Armenia with the “Retim - Aeromet” network, which allows to obtain satellite meteorological data and maps. Another network – CLICOM is applied to manage the data.

34 hydrometeorological stations are located in the regional network, including 3 stations (Yerevan, Gumri, Sevan) are involved into the global network on information exchange.

The most severe hydrometeorological threat for republic is caused by draught, hail, freezing, rainfall, snowfall, snowstorm, spring floods.

For quantitative assessment of mudflow a mudflow bank is established in the RA Department of Emergency Situations (DES), where the parameters are listed for all the mudflows occurred in 1946-2001. Software on drought assessment and forecast is developed by Climate study Center, which is currently failed to be operational, on the matter of insufficient data.

Some positive changes happen to include the climate change principles in the educational system. Some guidelines and curricula have been developed.

- Developing methodological base for involving the climate change issues in the curricula of “basic ecology” and “economics of ecology” in the higher education
- Developing methodological base for involving the climate change issues in the curricula of “basic ecology” in the higher education (humanitarian profile)
- Involvement of climate change issues in the curricula of secondary education.
- Economic assessment of climate change mitigation measures and implementation analysis base on three thematic assessments¹,
- Involvement of UNFCCC provisions and implementation mechanisms in the curricula of the “Nature Use Economics” department of the Yerevan State Institute of Economy.
- Methodological base for involving the climate change issues in the curricula of “basic ecology” in Yerevan State University

Over 80 environmental NGOs do exist in Armenia. Although some NGOs refer to climate change issues, however, there is not any organisation solely involved in climate change issues. The institute of NGOs, despite their great number, can not be considered as fully established, as first of all they have no sustainable and independent financial resources and the activities are tailored by donors. The next important reason is that the public activities culture is not formulated yet in newly emerging market economy. Actually some 10-15 NGOs are most active and comprise a limited number of employees.

2.7. Information compiling, analysis, maintenance, application and accessibility

To meet the Convention provisions a great deal of data is required, actually in all the sectors of environmental and human activity.

First of all the GHG inventory requires a great number of data, as it is stated in the Guidelines of IPCC. This is one of the commitments of the country and requires an ongoing process. Within the MoNP the responsibility lays on the Atmosphere Protection Department and is included in the RA Government decree no. 115 (RA State Statistical Service, Ministry of Energy, Ministry of Trade and Economy, Ministry of Communication and Transport). However issue is not reflected in their workplans.

Currently a new guidelines for preparing the national reports for non-Annex I countries is developed and approved by COP 8. The requirements for GHG inventory significantly differ from the previous ones.

Particularly it is required to use UNFCCC Revised Guidelines on GHG inventory (1996) and Guidelines of Best Practices on GHG Inventory.

The main sources, as well as emissions of HFCs, PFCs, SF6, CO, NOx, NMVOCs, SOx are to be assessed. The Second National Communication should involve the data on GHG inventory of 2000.

In this regard the needs should be listed as follows:

- The GHG inventory was made based on the UNFCCC guidelines of 1995. Currently new guidelines are developed and experts should be trained to use the new guidelines,
- Currently we have lack of experts in the fields of solvents use, agriculture, land use change and forestry,
- Experts are not aware on software package on GHG inventory,
- Some input data is absent,
- Institutional cooperation for GHG inventory development, data archivation and updating is not developed yet,
- GHG inventory process is not done on continuous base,
- Data collection and management is incomplete.

To meet the above mentioned requirements a long-term national project should be developed.

Currently the MoNP has initiated revision of RA Government decree no. 115. It is anticipated to prepare a legal act, regulating responsibilities and coordinating activities of different actors in the sector.

Armenia is also involved in the UNDP/GEF «Capacity Building for Improving the GHG Inventory» regional project (Europe and CIS), started in 2003 and is envisaged for three years. The project should initiate programmatic approach to capacity building, aimed at reduction of inaccuracy in the GHG inventory data. Factors for some emissions should be identified, regional experts data base and web page created to facilitate information exchange.

A great deal of data is required to assess ecosystems vulnerability as a consequence of climate change and develop adaptive measures.

Till now the data was assembled and maintained in the state statistical service. Currently the process is transferred to the state governing bodies - ministries.

The data assembling network do not meet the requirements of the Convention. This is related as to the environmental data so to the data in all the spheres of the national economy. A separate project should be developed on data assembling, analysis, maintenance, application and accessibility.

2.8. Reports and publications

To implement commitments towards Convention “Armenia – Country Study on Climate Change” project is being implemented in Armenia since 1996. The First National Communication on Climate Change is submitted to the COP 4 (1998 Buenos Aires). Phase II of the project is devoted to assessment of technological needs to mitigate consequences of climate change and capacity developing for technology transfer. As a result report on “Capacity Building in the RA for Technology Needs Assessment and Technology Transfer for Addressing Climate Change” was submitted.

As the heat supply sector has biggest potential for energy saving and mitigation of CO₂ emissions, the “Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply” PDF-B project is being implemented since 1999 resulted in the following reports:

- “Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply”,
- “Analysis of Heat Supply Rehabilitation Availability in One Selected District of Yerevan”.

2.9. Decision making process in the framework of convention implementation and international cooperation

Armenia joined the climate change process in 1992 after signing the Convention in Rio. The contacts to Convention Secretariat are established in accordance to requirements of Convention.

The First National Communication on Climate Change is submitted to Convention Secretariat and placed on the web site of Secretariat. Armenia has participated in the sessions of COP and Subsidiary Bodies and different events organized by Secretariat.

Secretariat has supported Armenia to held negotiations to Convention Parties and other non official organizations. A negotiation group CACAM (Central Asia, Caucasus, Moldova), as well as a number of negotiations with delegations of different countries and and Convention Bureau officials were held thanks to assistance of UNFCCC Secretariat.

Due to the content and peculiarities the UNFCCC is contiguous to almost all the environmental and partially with non environmental Conventions. The linkages are conditioned not only with the logical framework of the Convention, but also are stated in decisions of COPs of relevant Conventions.

Box 2.4. Relation of Climate Change Convention to the Other Agreements.

UNCBD

- Biodiversity vulnerability as a consequence of climate change,
- Vegetation as a GHG absorber and sink.

UNCCD

- Activation of desertification process (land vulnerability) as a consequence of climate change,
- Feedback of desertification to climate change,
- Reduction of the carbon level in the soil as a consequence of desertification.

Convention for the Ozone Layer Protection

- Perfluorcarbones as GHGs,
- Ozon as GHG and the quantitative fluctuations, impact of its distribution in atmosphere on the radiation and heat balance of the earth.

Ramsar Convention

- Climate change impact of the wetlands,
- Wetlands as a GHG absorber and carbon sink.

Convention on Long-Range Transboundary Air Pollution

- Negative impact of pollutants on the vegetation, particularly on the forests as the carbon sinks,
- Euthrophication of the water basins, facilitating intensification of methan diffusion,
- The substances regulated by the Convention are precursors for GHGs (SO₂, NO_x, etc).

UNFCCC has huge potential for bilateral and multilateral cooperation:

- CACAM negotiating group is established aimed at efficient application of opportunities stated by the Convention
- Regional projects, e.g. «GHG Inventory Improvement», initiated during the regional conference, passed in Yerevan.

Main donor for implementation of the commitments towards the Convention is the GEF and the implementing agency is UNDP.

Currently a TACIS regional project on assisting the countries to develop capacity for implementation of CDM projects is initiated.

An agreement with UNDP is attained to initiate the technology transfer process aimed at solving climate change issues. It is envisaged in the framework of public private partnership, where the initiating parties are Ministry of Nature Protection, UNDP, private sector. Some negotiations are held with UNIDO aimed at joining the process.

2.10. Conclusions

The current regulating system is rather restricted and insufficient for the implementation of the Convention.

Main constraints for the implementation of the convention in the country:

- Lack of awareness and relevant education in all levels,
- Lack of awareness on all the levels of state and local government, including turnover of staff,
- Insufficient level of specialized staff in the governmental system and lack of managerial skills,

- Low level of “response” monitoring and assessment system for convention implementation, including technology transfer,
- Dominating socio-psychological state in the country (uncertainty, despair),
- Lack of specialists (staff problem),
- Methodological disadvantages in the system of education in all levels (preschool, school, vocational and higher education). Due to this constraint many young specialists/graduates of higher educational establishments are not competent in organization and implementation of relevant activities,
- Lack of a sustainable financial mechanism.

The overall goal of the recommendations is to promote establishment of a sustainable platform for implementation of the Convention in the country. They should be sound, realistic, and operational and be targeted on the benefits of stakeholders and follow the ideology and logic that nature protection and climate change related measures are not divergent from each other but, in contrary, closely related and interconnected.

Recommendations

1. Conduct versatile and comprehensive research on climate change, as well as improve systematic observation system using regional cooperation mechanisms;
2. Establish a joint system for sectoral and ecosystem monitoring, including state, departmental, research institutes and public monitoring system advantages and expertise of different organizations. The system has to ensure the realistic assessment of the state of natural and anthropogenic environment. It should comprise an operating inventory system with proper reporting format for evaluation of natural resource elements, indicators and their characteristics.
3. Systematically conduct data collection and updating of inventory in regards to the country commitments and national priorities, continuously manage the greenhouse gas inventory.
4. In regard to climate change adaptation:
 - a) Ecosystem adaptation activities should base on the ideology of achieving the specified goal for each sector. Particularly, the strategic goals should be defined for optimal state of biosphere, water-sphere and land. They should be accessible for inventory, measurement and assessment, as well as be coherent with the issues of Convention on Climate Change, to meet the requirements of other conventions and contribute the sustainable development of the country. For example, for forest sector development take into consideration the optimal forested territory of the country, ensuring protection of biodiversity, land, wetlands, natural and cultural monuments.
 - b) In the sphere of economical development specify norms on nature use and environmental impact, ensuring replication of the ecosystems and natural resources. Apply advanced technologies in agriculture, energy, industry and communal sectors. Discuss the perspectives for agricultural development taking into consideration food security, climate change and other environmental issues.
 - c) For water sector protection and adaptation, develop economical, rational and revolving water use cycle. While defining the norms and environmental principles for water use and water disposal, take into account the vulnerability of water resources affected by climate change, as well as study and define upper limits for water use and discharge, which are save for environment.
 - d) In addressing the issue of Lake Sevan the target should be the restoration of the natural level of the lake. Thus, it is recommended to develop a project on:
 - Limiting water use from lake water basin, achieving the level of uptake e in the range of natural outflow of Hrazdan River (50-60 mln cub.m);
 - To address the problem of cleaning the waste water of rivers and settlements running into the lake through advanced, modern, economically cost effective technologies;
5. Develop an advanced and business oriented system for promoting technology transfer and implementation, based on the experience of other countries and the cooperation mechanism defined by the Convention and Kyoto Protocol. To establish an institutional mechanism for technology transfer in line with the legislative and regulative framework of the country. This institute should promote the private and public sector in organizing the technology transfer process in a sustainable and continuous manner.

6. Through legislative improvements to establish a sustainable financial mechanism to promote development of environmental (climate change adaptation) measures. To improve the system of environmental and nature use fees. To develop and introduce “environmental insurance”, as well as “environmental damage” compensation system. On account of these means, to establish an annually growing environmental revolving fund
 Develop national capacity for applying for soft loans and environmental credits with low interest rates for environmentally sound technologies, especially in the energy sphere. In cooperation with relevant interested parties to develop “external debt- nature swap” system, aimed at implementing environmental measures of local and global importance (such as forest restoration, forestation, restoration of wetlands and other ecosystems), which are not feasible by business as usual approach or other financial mechanisms.
7. Through legislative improvements and increasing the awareness campaigns to integrate communities in the above mentioned procedures. To put into practice the establishment of community forests and community managed specially protected areas, first of all, reservations. Integrate renewable energy activities (biogas, solar water heaters, small HPPs, wind farms, waste processing, etc.) in the measures aimed at community development.

To apply the following approaches for implementation of the mentioned recommendations:

- Increase public awareness on climate change issues to a relevant level through achieving practical, tangible, visible and assessable outcomes. Meanwhile, critically review the education and professional training system;
- Establish a sustainable mechanism for transfer and introduction of advanced environmental technologies convenient to current practices in both domestic and international markets. Involve public sector through provision of awareness and encouragement;
- Continuously and systematically inform all the levels of the government and responsible authorities in economical, environmental, social sectors on the opportunities in the frames of cooperation under the Convention;
- Pay a special attention to community initiatives. Establish favorable environment introduction of successful pilot projects. Progressively and carefully head the “decentralization” process;
- In the state management system introduce encouragement methods in addition to the administrative principles for promoting the establishment of cooperation among stakeholders.
- Develop long-term and medium-term projects on adaptation to climate change for gradual restoration of ecosystems, including natural resources, and achieve sustainable and balanced development of economy considering the rational use of nature.

3. CAPACITY NEEDS ASSESSMENT FOR IMPLEMENTATION OF UNCCD

3.1. Commitments of the Government of the Republic of Armenia towards convention objectives

Compliant with Article 2 of the UN Convention to Combat Desertification, the goal of the Convention is to combat desertification and mitigate the drought impacts, thus contributing to the increase of soil fertility, as well as restoration, protection and sustainable use of land and water resources.

To this end, Armenia has assumed the following responsibilities:

- Organizing the process of combating desertification through complex approaches,
- Establishing a favorable international-economic environment for achieving the sustainable development goals,
- Integrating poverty reduction oriented strategies,
- Supporting the collaboration between environmental, particularly land and water resources protection sectors,
- Promoting and strengthening sub-regional, regional and international cooperation,
- Cooperating with intergovernmental organizations,

/as an affected country/;

- Considering combating desertification, as well as mitigation of drought effects as priority issues,
- Developing strategies and approving priorities in the framework of sustainable development projects and strategies,
- Discussing issues on eradication of desertification originating causes and paying a special attention to socio-economic factors contributing to combating desertification,
- Promoting public awareness increase, as well as public (especially women and children) participation in procedures focused on combating desertification, through non governmental organizations,
- Establishing a favorable environment through developing new laws and long term policy and an action plan.

To ensure the implementation of these commitments the Government of Armenia as a party to the Convention, should develop, publicize and implement the National Action Plan on combating desertification in Armenia compliant with Articles 5, 9, 10, 11, 12 and Provisions of Articles 3 and 4 of Annex V of the Convention.

3.2. Convention Implementation Issues in Armenia

From the viewpoint of sustainable development, the National Action Plan on combating desertification should comprise a great number of measures targeted on the effective use of natural resources.

Regional and sub-regional cooperation should base on the principle of strengthening the environmental safety in structural, information, transboundary natural resources management levels.

Recognizing the importance of the issue, Armenia has actively participated in works of Convention Negotiating Committee in 1993 aimed at developing the UN Convention to Combat Desertification and on October 14, 1994, the country signed it in Paris, being the first country in the region. RA ratified the Convention on July 2, 1997.

3.3. Convention issues relevance in regard to ongoing processes in the country

Combating desertification is distinguished in PRSP as a special issue. Many rural households do not fully utilize the significant part of hay-fields due to lack of inventions, equipments, fertilizers and other facilities. As a result the hay-fields are exposed to erosion, the quality decreased and the hay-fields step by step turn to pastures. Non proper use of cultivation measurements on its turn results degradation of hay-fields. The hay-fields are overexploited due to poverty, and the low fertility of overexploited hay-fields deepens the poverty on its turn. Pastures are also subject to frustration. The poor in rural regions can mainly use the neighboring pastures during summer period, which results in overexploitation of pastures.

The introduction and application of natural and weather insurance systems co-financed by the government and rural households should be prioritized for support of poverty reduction.

Enlargement of small communities through land consolidation and reduction of community numbers, as well as solution of small communities problems by establishment of intercommunity associations are considered as vital issues for support of poverty reduction.

Identification of communities' administrative-territorial peculiarities is of a high significance for developing differentiated state policy on communities.

According to Article 4 of UN Convention to Combat Desertification one of the important commitments of parties in achieving objectives of Convention is fighting poverty by integration of strategies. Convention can serve as an important tool for poverty reduction. Importance of poverty reduction is stated on high level meeting of World Summit on Sustainable Development in 2002.

Combating desertification is presented in the National Assessment report (WSSD, Johannesburg, 2003) as a national priority and identified as a large-scale action aimed at rational use of natural resources.

Analyzing the state of environment and changes of its separate components, the Sustainable Development Concept highlights activation of the degradation process of the land resources.

Pursuant to Articles 5 and 10 of UN Convention to Combat Desertification the Parties committed to include activation of desertification issues into the frameworks of sustainable development strategies.

Situation analysis of MDG report identifies land degradation as a severe threat to desertification. According to the National Action Plan to Combat Desertification in Armenia some 81,9% of land is a subject to desertification. However, combating desertification is not identified as a separate issue, which must be a hot spot for a country with land shortage. A segment on the land protection is likely to be incorporated into the report. Also the forest degradation is advisable to revise in the context of land degradation.

3.4. Official Steps After Convention Ratification

After ratification of the Convention the Government decision no. 124 (02.03.1998) was taken. According to the decision the Ministry of Nature Protection was identified as a responsible agency to implement commitments upon the Convention. The same time the MNP, in line with stakeholder Ministries and agencies, has to provide recommendations on necessary measures to meet the country's commitments.

The Decree no. 44 of the Minister of Nature Protection was accepted on 08.04.1998 and the distinguished commission has developed a list of required measures. The list was adopted by government decision no. 620 (07.10.1998). According to the decision and Minister's decree no. 193 a National Coordinating Board (NCB) were established.

A National Focal Point for UNCCD was appointed on 10.08.2001 by Decree no.30 of the Minister of Nature Protection.

The regulation for NCB is approved by Minister's decree no. 31 on 25.03.1999. According to the regulation the Board acts as an advisory body, organizes and coordinates development and implementation of projects, resulted from Conventions.

Activities of the National Coordinating Board are under direct supervision of Minister of Nature Protection.

In 1993 Ministry of Nature Protection on behalf of RA participated in the working session of inter-governmental committee of the UN Convention to Combat Desertification.

Since 1997 Armenia has participated in the COPs.

- COP 1 – Rome 1997 /Italy/, the representative of Armenia was appointed as a deputy chair, member of Bureau,
- COP2 – 1998 Dakar /Senegal/ the representative of Armenia was appointed as a speaker, member of Bureau,
- COP3 – 1999 Resifi /Brazil/,
- COP4 – 2001 Bonn /Germany/,
- COP5 - 2002 Geneva /Switzerland/, Armenia's representative was appointed as a deputy chair, member of Bureau, 2003 – Havana /Cuba/ 3 representatives from Armenia participated,
- COP6 will take place in Havana, Cuba (August 25 – September 5, 2003).

Minister of Nature Protection of RA (Convention Focal Point) has participated in the parliamentary discussion.

Any special allocations aimed at Convention implementation haven't been made. Pursuant to Government decision no. 620 (07.10.1998) "On approving the list of measures to meet RA commitments upon UN Convention to Combat Desertification" the financing of the aforementioned measures is proposed in the annual budgets of ministries and institutions.

The National Action Plan to Combat Desertification is approved by RA Government decision no. 13 (28.03.2002). Financial recourses for implementation are foreseen in the state budget, community's budgets, as well as by agreements with donor countries and international organizations.

The first National report "Implementation of UN Convention to Combat Desertification in Armenia" has been developed in 2000 and the second one in 2002.

The first National Report was developed according to the Guiding document on national reports /ICCD/ COP (3) INF.3, 23.07.1999, and the second - according to revised and amended version of the above mentioned document /30.10.2001/

The reports are submitted to the UN CCD Secretariat in proposed deadline. The First and Second National reports have been prepared thanks to methodological and financial support of Convention Secretariat. A number of national experts, members of coordinating committee were involved in preparation of National Reports. The responsible person for National reports is RA Ministry of Nature Protection

3.5. Brief Summary of Projects Implemented in the Framework of Convention

Two memorandums of understanding were signed between MNP and UNEP in 1999. The subject of the first memorandum was developing the National Action Plan to Combat Desertification in Armenia. The second refers to monitoring and mapping of the degraded lands of Armenia. Data is incorporated into the NAP.

In 2000 a financial assistance from the UNCCD Secretariat was granted to Armenia, aimed at strengthening the Convention implementation in Armenia, particularly assessment of socio- economic factors affecting desertification and awareness rising. The project was completed in 2003.

Two priority local ongoing projects "Recovery of Lands Subject to Desertification in the Garni Community in the Marz of Kotayk of the Republic of Armenia" and Project for Engineering and Geological Survey of the Site of Makaravank Memorial Complex in the Tavush Marz of the Republic of Armenia" are being implemented in the framework of UNCCD. They were developed under the first national action plan and financed thanks to negotiations between MNP and Convention Secretariat. /January 2003 / .

3.6. Current Legislative and Regulating Framework for Implementation of Convention

Changes and amendments in existing RA legislation are conditioned by compatibility of public relations in the field of environmental protection and use of natural resources. It should be aimed at reflection of environmental provisions regulating all the sectors of economy in the country and comprehensive approach. In this regard the following is should be significant:

- Identification of liabilities for territorial administration and self-governance bodies,
- Definition of rights and obligations of authorities, supervising enforcement of environmental law,
- Definition of rights and obligations of authorities, dealing with natural resources protection,
- Economic incentives for natural resources protection and use,
- Identification of rights and obligations of natural resource users,
- Identification of implementing mechanisms for state management and monitoring of natural resources,
- Definition of criteria and legal regime for natural calamities and areas subject to desertification, as well as mechanisms for introduction of compensation system and privileges for local population.

Adoption of the following laws of priority significance could essentially support prevention or mitigation of impact of desertification:

- On environmental protection,
- On wastes,
- On chemicals,
- On environmental expertise,
- On environmental impact assessment,

- On territorial administration,
- On environmental monitoring,
- On monitoring upon land use and land protection
- New forest code,
- RA new land balance, identified by categories and land forms,
- On compensation of damages caused to population by natural calamities and other disasters.

Of particular attention is adopting of by-laws related to:

- Maintaining natural resources inventories,
- Organization and implementing monitoring of natural resources,
- State environmental inspection,
- Sanitary-protective zones,
- Approximation of RA legislation with international agreements.

Adopting the abovementioned by-laws is very urgent task and to develop them a rigorous justification is required, based on international criteria and considering local peculiarities.

Box 3.1. RA Government Decrees on land protection

- “On approving the procedure of developing and approving the land zoning and land use schemes” RA Government Decree no. 625-N (02.05.2003)
- “On approving the procedure of developing, assessment, fitting, approving and amending the urban and rural master plans” RA Government Decree no. 609-N (02.05.2003)
- “On changes and amendments of the RA Government Decree no. 286 (12,04,2001)” RA Government Decree no. 714-N (08.05.2003)
- “On approving the procedure of land allocation and urban construction on the territories of specially protected areas and forest fond lands” RA Government Decree no. 613-N (08.05.2003)
- “On approving the RA migration Master plan” RA Government Decree no. 610-N (10.04.2003)
- “On approving the procedure of free assignation of state ownership land to the community ownership” RA Government Decree no. 93 (02.02.2002)
- “On establishing authorities for land resources state management” RA Government Decree no. 26 (14.01.2002)
- “On limitation of dwelling, public, industrial building on the private lands of agricultural significance lands” RA Government Decree no. 498 (11.05.2002)
- “On approving the procedure of the fertile lands” RA Government Decree no. 1622-N (19.09.2002)
- “On approving the procedure of developing the land use schemes” RA Government Decree no. 30 (17.01.2001)
- “On approving the procedure of assignation of state and community ownership lands” RA Government Decree no. 286 (12.04.2001)
- “On approving the procedure of land balance development” RA Government Decree (23.10.2000)
- “On anti-flood measures in 2001” RA Government Decree no. 501 (09.06.2001)
- “On approving the inventory of non-irrigated lands of RA and results of their irrigation systems inventory” RA Government Decree no. 31 (20.01.1999)
- “On approving the procedure of urban construction in the absence of program documents” RA Government Decree no. 479 (30.07.1998)
- RA President Decrees “On state management in Yerevan” and “On state management in the RA marzes” (06.05.1997)

3.7. Convention Implementation Issues in the Context of Sustainable Development

Establishing democratic and free economic relations will significantly contribute sustainable development in regard to long-term perspectives. A good basis for combating desertification in the context of sustainable development of RA could serve the following:

- Prevention of land degradation,
- Forest protection and rehabilitation,
- Improvement of irrigation system,
- Rehabilitation of Sevan lake ecological balance,
- Fighting poverty,
- Natural resources management and poverty reduction,

- Support to rural households,
- Spatial development,
- Migration,
- Land consolidation, mainly of agricultural use,
- Energy sector development strategy.

The National Assessment Report underlines some issues (e.g. Lake Sevan problem, biodiversity and forest conservation, and combating desertification) as urgent national tasks. Amongst the newly emerged issues the poverty level is emphasized, which can still be overcome. Education, training, public awareness are considered as global priorities.

In this regard significant efforts are made, although the globalization and integration processes oblige to permanently focus on the issue.

3.7.1. Land management

Currently the land resources management is being implemented on the levels of national administration, territorial administration and local self-governance.

The land management is becoming more decentralized and a need to combine liabilities between the management authorities is arisen. In the terms of new land ownership (community ownership) and changing land relations, the new relations are uprising both in regard to the land resources protection and their use. Currently, the nature protection divisions act within the structures of territorial administrations, while in the local self-governance they are not involved yet. Successful management system is conditioned by implementation of unified strategy in the environmental sector. (See Fig.3.1)

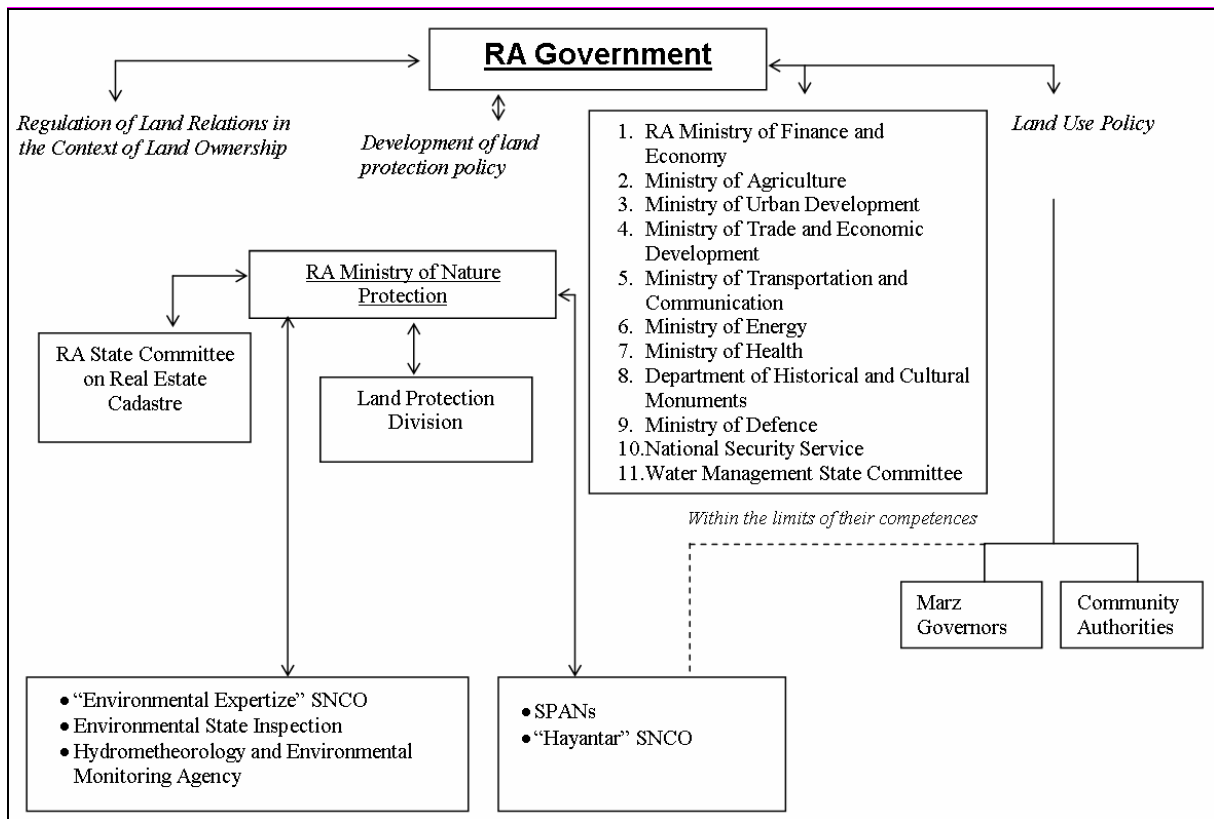


Figure 3.1. Land management scheme in RA

Box 3.2. National development plans on land management

- “Armenia – National Action Plan to Combat Desertification”, RA Government decision no. 13 (28.03.200),
- “Interim Strategy for Poverty Reduction”, RA Government decision no. 207 (20.03.2001),
- “Strategic Plan to Combat Desertification” 2003,
- “National report on sustainable development of settlements” (02.01.2001),
- “National Assessment Report”, submitted by RA Government to World Summit on Sustainable Development, Johannesburg, 2002,
- “General Migration Plan”, RA Government decision no. 615-N (8.05.2003),
- “Adopting the Annual Comprehensive Action Plan on Lake Sevan Ecosystems Rehabilitation, Conservation, Recreation and Use” (14.12. 2001),
- “On Development of Measurements on Agricultural Melioration in the Republic of Armenia”, RA Government decision no. 709 (06.09.2001),
- “Irrigation Systems Development Programm” envisaged for 2001-2005,
- “On Approving Action Plan on Priority Measurements Preventing Mudflow”, RA Government decision no. 1074 (7.11.2001),
- “Forest Sector Development Policy”, approved by RA Minister of Nature Protection in 1996,
- “Environment for Europe” National Report, 2003.

Some pilot projects in the field of land use are being implemented by state committee of real estate cadastre as follows:

- Land plots consolidation,
- Mapping of RA territories,
- Land balance scheduling for primary land inventory,
- Identification and description of administrative borders of RA communities,
- Free transfer of state owned lands within community boundaries to community ownership,
- Cooperation with real estate cadastre and licensing.

Legal framework

Land management in the RA is regulated by RA Constitution, Civil Code, Land Code, Forest Code, RA Laws “On Local Self-governance”, “On Entrails”, “On Concessions”, “On Administrative Transgressions”.

Adoption of new Laws, presented in 3.1, will definitely contribute to the improvement of the land resources management system. Land resources management is regulated by articles 28-35 of RA Land Code.

Land is considered as a natural resource, real estate, basic mean of production and a good basis for economics. An urgent task by the moment is development of regulations for rehabilitation of degraded lands and land allocation during mineral resources utilization.

Besides the Laws, land management is also regulated by government decisions and resolutions.

3.7.2. Agriculture

National development plans

“Sustainable Agricultural Development Strategy” and “Issues of Agrarian System and Development Strategy” are important for developing an investment policy and a banking system of agriculture. The projects are being completed.

Investment policy in rural settlements faces serious constrains and it is not realistic yet to overcome them.

Agricultural Cooperative Bank of Armenia (ACBA) is the single cooperative commercial bank, aimed at agricultural sector, centralized and specialized to funding small rural households. ACBA facilitates agricultural development of the country, rural poverty mitigation, poverty reduction, and is of great significance for involving villagers into the market economy.

RA Ministry of Agriculture has developed the “RA Agricultural and Melioration Development Action Plan for the Period of 2002-2005”. The project output is to improve sustainable harvesting for agricultural crops cultivated on irrigated lands. This will be the important step to ensure food safety in the country.

Loan projects, implemented in RA during 1993-2003 are aimed at environmental measures, rehabilitation of rural households, treating facilities, irrigation systems, improving the soil melioration, poverty reduc-

tion, and solving other social issues.

Currently an agricultural services project is being implemented in Armenia (IFAD loan project), aimed at improving public welfare, facilitating industry and revenue, as well as enhancing food safety.

Legal framework for regulating agricultural land use

Agricultural land use is regulated by Articles 9,30,31,36, 91-96 of RA Land Code and Laws given in the Annex 2.

RA Law “On Administrative- Territorial Division” requires changes and amendments, as it has emerged solid constraints and social hardships for rural population. Changes and amendments are required for RA Laws «On Local Self-governance», “On Land Tax”, “On Property Tax”, RA Civil Code, RA Land Code, as well as a number of laws and by-laws, related to regulation of land use and land resources management.

National policy on water resources management.

Improving economic mechanisms for conservation and sustainable use of water resources is of key importance in the process of combating desertification, thus the national policy of RA on water resources management is aimed at mitigation of water economy balance tension, prevention of huge water losses, as well as comprehensive actions to identify and minimize pollution sources, prevent pollution processes, rehabilitation of lake Sevan ecological balance, etc.

For regulating water resources management some projects have been developed recently

- «Water Resources Comprehensive Management Plan», developed in 1999-2001 by World Bank support.
- «Annual and Complex Action Plans on Lake Sevan Ecosystem Rehabilitation, Conservation, Recreation and Use», adopted by National Assembly on 14.12. 2001),
- “Irrigation Systems Development Plan” envisaged for 2001-2005.

Currently a draft Law on principles of national water policy is being developed. (RA Water Code, Article 121. p. 4):

3.7.3. Nature Protection

National action plan to combat desertification

RA Ministry of Nature Protection has developed the first national environmental action plan and environmental management procedures (National Environmental Action Plan) in 1995-1998.

The priority issue of the Action Plan is to develop a comprehensive strategy for complex environmental management.

Considering the fact, that the national action plan for environmental protection was developed in 1996-1998 and that the economy of Armenia is in a transition period, there is a need to revise the action plan, as some new legal acts have been adopted and National Action plan to combat desertification is developed.

With ratification of UN Convention to Combat Desertification Armenia has undertaken a number of commitments, thus, developing a national action plan on combating desertification in Armenia is one of the priority issues. The approval of the Action plan by RA Government in 28.03.2002 is an evidence of strategic importance of the document. Developing the Action plan will encourage efficient implementation of environmental measures in different areas.

Although, to implement the strategic issues highlighted in the project, it is important to identify the responsible executors and co-executors, calculate and evaluate activities according to timetable.

Environmental Impact Assessment (EIA) is among the responsibilities of MNP aimed at ensuring the implementation of environmental and land legislation requirements, which is currently under the responsibility of Environmental State Expertise under MNP. However, neither the normative basis of the structure is developed, nor its responsibilities are identified, particularly its role in decision making on licensing and development of projects/programs. Mechanisms for public involvement in implementation of environmental impact assessment are also lacking.

The execution of the RA Land Code is being regulated by the Environmental State Inspectorate under MNP and Land State Inspectorate of the Ministry of Agriculture. However, there are no cooperation mechanisms between the mentioned structures and monitoring institutions.

The insufficient land monitoring and non clear separation of state authorities cause constraints for

Convention implementation (*See also Chapter I, section 3.7.1.*).

Legal framework of regulating the land protection

Land protection is carried out in accordance to republican and territorial plans.

Several commitments aimed at land protection lay under responsibility of land owners/users.

The regulating framework for land conservation is given in Points 3.1 and 3.2 of the document and Articles 36-38 of Land Code of RA.

A special chapter in the Land Code of RA is devoted to land conservation, where the responsibilities of the land users are clearly defined. Necessary measures on land protection are carried out by land owners and land users on their own account. Land protection on state level is implemented in compliance with national and territorial projects and is being financed from the state (community) budget.

National policy on forest sector development

Compliant to RA legislation currently forests are exclusive domain of state and are entitled for use only (to juridical and natural persons).

The policy is entirely based on the ideology of state ownership on forests.

Although the state is the single and sole land owner, it doesn't take care of the expenses on the conservation of its asset.

Given the role and destination of the forests in Armenia, they formerly were protected, protected and recovered based on the allocations from the state budget.

Currently the role of the state interference in the forest sector is not clearly identified. Annual funds allocated from state budget will not meet the minimal expenses on conservation and recreation of even the 1/3 of the existing forests.

"Strategy for Development of Forest Sector in Armenia", adopted in 1996 by Minister of Nature Protection of RA needs to be revised and amended, taking into consideration the fact that Armenia is in transition period.

Forest sector development policy is not only environmental issue, but also serious economic one and a state policy is required to regulate the land use.

Given the aforementioned the forest code is to be revised and amended or a new Forest Code should be developed. Under the "Natural Resources Management and Poverty Reduction" project a new forest policy development is currently scheduled.

The current policy is to be focused on rehabilitation of degraded forests and enlarging forested territories. Cooperation with international organizations is required to achieve this, taking into consideration that Armenia is a country with limited forests and must be paid special attention.

3.8. Institutional framework of implementation

3.8.1. Responsible Authorities

A three leveled system of land management is operational in Armenia according to RA constitution.

- State Centralized
- State territorial
- Local self-governance (communities)

As a result of recent reforms the structure of the ministries and institutions is identified, they were unified into a joint structure, the structural subdivisions were globalized and the activities and objectives clarified.

The responsible authorities of the state centralized management are as follows - RA Ministries and state committees under RA Government. The Ministries and state committees coordinate establishing the norms for land use and limitations in the scope of their competency (*see Table 3.1*).

Table 3.1. State responsables for land use related to implementation of UN Convention to Combat Desertification

Responsible institution	Functioning	Activity	Strengths	Weaknesses	Priority issues
1	2	3	4	5	6
1.RA Ministry of Agriculture	Policy making on agricultural land and agricultural production efficiency, establishing norms and restrictions for agricultural land use	Fighting agricultural crop diseases, cattle epidemiological measurements, quarantine limitations Agricultural monitoring on enhancing fertility and efficient use of agricultural land Cadastral on land ameliorative status Coordination of intereconomic network, Developing norms and regimes for agricultural crops melioration Developing irrigation policy Agricultural assessment	Existence of professional capacity - scientific research institutes of National Academy of Sciences - soil science, geology, etc, Agricultural Academy Scientific educational capacity Supervision of agricultural significance lands sustainable use by regional agrarian inspections	Small sizes of land plots, lack of important means, Automation of land cultivation Insufficient seed production Failure of plants protection state system due to lack of financing Permanent lack of accessible credit aimed at fulfilling assets of rural households, lack of crop rotation, small number of land protective forest belts	Improving status of pastures and grasslands, application of anti-erosion, meadow-meliorative measurements, norming of grazing, stone gathering, fertilisation, road repair, creating and rehabilitation of land protective forest belts, permanent rehabilitation of drainage system, improving of irrigation system
2.RA Ministry of Urban Development	Policy making on settlements land use, establishing norms and limitations for lands under construction,	Coordinating of activities on rehabilitation of disaster zone Maintenance of RA state cadastral Developing of urban developing data base Developing of RA territorial mapping and settlement plans Implementation of commitments of entities dealing with urban development based on by-laws, normative technical documents as well as ensuring environmental safety during construction and exploitation of buildings. State inspection of urban construction in the way stated by RA legislation	Existence of professional capacity Scientific educational capacity Supervision of agricultural significance lands sustainable use by regional agrarian inspections Cooperation to relevant local structures	An application is made to the local authority and to the regional administration where the land is located. The local organs of various ministries coordinate their points of view on the application and produce their conclusions. The application has to be approved by the ministries concerned (Ministry of Urban Development, Ministry of Agriculture, Ministry of Nature Protection). All documents, accompanied by maps, are presented to the	Applying environmental restrictions Sustainable land use Prevention of external geological processes, enlarging and conservation of green zones in the settlements

				government, which takes a decision and allots the land.	
3.RA Ministry of Trade and Economic Development	Policy on restrictions and norms for land use in industrial agricultural storage (within responsibilities)	<p>Developing and implementation of economical policy on nature use</p> <p>Participation in development and implementation of projects aimed at safe exploration of mines, preventing natural and anthropogenic calamities</p> <p>Development and implementation of local and regional projects aimed at prevention of natural and anthropogenic calamities</p> <p>Participation in developing measurements to support state mining activities</p> <p>Competitions and auctions on the right for mining activities (except of land plots)</p> <p>Establishing norms and limitations (in the scope of responsibilities) for land under industry, agriculture, storages</p>	Trends to modernization of industrial technologies	<p>Application of more efficient, environmentally safe methods of mining operations</p> <p>Inventory and comprehensive use of the state and dislocation of reserves of mineral resources, their losses and deterioration, as well as crude ore and empty areas,</p> <p>Extraction of useful components associated to crude ore,</p> <p>Improvement of mechanism of entrails use,</p> <p>Developing mechanisms for rehabilitation (recultivation) of damaged lands</p> <p>Gradual increase of environmental fees specified by the RoA legislation for of mineral resources use (extraction, discharge) up to approaching their estimated or real economic value,</p> <p>Formulation and introduction of accounts for rehabilitation (recultivation) of damaged lands</p> <p>Introduction of new eco-</p>	<p>Development of national environmental safety concept,</p> <p>Development of environmental impact assessment methods,</p> <p>Reprocessing and safe disposal of industrial and domestic waste,</p> <p>Introduction of low-wasted and clean industrial technologies,</p> <p>Regular operation of wastewater treatment facilities.</p>

				conomic mechanisms for en-trails use.	
4.RA Minis-try of Nature Protection	Development of state policy and strategy in the field of biodiversity, establishing principles and approaches to strategies; Management liabilities on community lands are given to local self-governance bodies, with MoP inspectio upon the nature protective and nature use norms.	Development of state policy and strategy in the field of biodiversity, establishing principles and approaches to strategies; Initiating development of important legal documents (laws, orders, instructions) for conservation, use and rehabilitation of biodiversity, including state forestry resources and specially protected areas; Implementing monitoring of flora and fauna, species, habitats, migration routes; Issuing permits for the use, import and export of wild animals and plants; Managing biotechnologies and their introduction, ensuring biosafety; In-situ and ex-situ conservation of rare, endemic, relic species of flora and fauna; Implementing and coordinating activities related to valuable biodiversity and landscapes, and unique, ornamental, scientific and ecological viewpoints. This includes the direct management of many specially protected areas. Ensures development of normative acts on biodiversity conservation,replication, sustainable use Ensures organisation and implementation of research of the plant and animal biversity Ensures implementation of measurements on animal and plant biodiversity conservation,replication, sustainable use Implements inventory, monitoring, data base cadastre maintenance of animal and plant resources biodiversity Participates in ecosystems assessment,	Existance of professional capacity - scientific research institutes of National Academy of Sciences - soil science, geology, etc, Agricultural Academy Scientific educational capacity Supervision of agricultural significance lands sustainable use by regional agrarian inspections Cooperation top relevant structures International cooperation Existcance of coordinating board, national action plan	<ul style="list-style-type: none"> • Impact on economic productivity and efficiency • Impact on human health and well-being • Impact on ecosystems • Scale of the problem • Urgency of the problem • Fines can be imposed for violations of the environmental legislation, together with confiscation of the tool or project with which the violation was carried out (based on the legislation on administrative infringements) • Compensation can be required for harm caused to nature, for excess consumption of natural resources, as well as for emissions into the environment (based on the environmental legislation) • Penalties can be charged after appropriate judicial procedures. 	Enhancing effective use of natural resources Restrictions of Natural resources restoration Reducing the environmental impact Inventory of natural resources and assessment and improvement of economic tools International cooperation in the field of natural resources conservation Ensuring developing the network of specially protected areas, rich with rare natural resources

		scientific justification and prognosis formulation Developes proposals on ecosystems and bioresources use and replication			
5.RA Ministry of Energy	Policy making on energy sector and establishing norms and limitations for land use safety	Development and establishing the norms of land use for energy objects and surrounding green belts Environmental measurements in the sphere of energy	Trends for new HPPs construction Professional capacity	Low level of environmental protection in the area of electrical substations	<ul style="list-style-type: none"> • To strengthen the regulatory capacity of the Energy Commission • To adopt a financial rehabilitation plan for the power sector To adopt a sector privatization strategy. • Energy planning should evaluate the options for including renewable energy in the energy system (in particular wind and thermal solar energy), and options for the combustion or gasification of biomass in combined heat and power units to replace heat-only boilers in both district heating plants and industry.
6.RA Ministry of Transport and Communication	Policy making on transport and communication and establishing norms and limitations for land use safety	Licensing of common use, non state and non common use transport ways construction and exploitation and Projects on developing, construction, repair and exploitation of common use transport ways network, Classification and inventory of transport ways Measurements on protection of the common use transport ways,	Policy-making for road network development and improvement and ensure its implementation, Undertake construction, reconstruction and maintenance of automobile roads of general use, ensure technical level and enhancing exploring quality, Conduct integrated technical policy for automobile road construction and maintenance,	Saline materials used for road winter maintenance are penetrating into the soil and cause soil and flora degradation, Implementation of road-building works should be in compliance with the landscape and crust characteristics of the site , in order to prevent contribution to further development of landslide processes, Road projects contain environmental measures, provided by the legislation.	Implementation of a joint policy in the sphere of road construction and exploitation Develop and introduce norms and standards

			<p>Develop and introduce norms and standards related to the sector, Create data bank of automobile roads of general use.</p> <p>Development and promotion of the automobile road network in Armenia are closely related to environmental issues.</p>		
7.RA Ministry of Healthcare	Policy making and establishing norms and limitations for safety of land use for sanitary and healthcare purposes	<ul style="list-style-type: none"> • Development and approval of sanitary norms • The monitoring of food safety, public hygiene (sources of nuisance such as noise, vibration, air pollution, electromagnetic fields, open water reservoirs, stock breeding and poultry farms, etc.), occupational health and the health of children and adolescents. • The surveillance and inspection (including through sampling and analyses) of relevant "objects", such as food industries and places where food is sold/served to the public; residential and recreational buildings in urban and rural areas, public buildings (including hotels, hostels, hospitals, pharmacies, schools, pre-school institutions) and workplaces. • The methodological management of the sanitary and epidemiological safety of the population • The conduct of investigations and surveys to clarify environmental health impacts • The organization of sanitation, hygiene and 	Space, sufficient number of laboratories Professional capacity	<p>Successful environmental health management requires reliable environmental data, the dissemination of sufficiently trustworthy information on related health risks, and the enforcement of information-dependent measures. The current severe economic depression in Armenia has led to substantial deficiencies in this regard. The most serious are:</p> <ul style="list-style-type: none"> • Neither the number of sites affected by soil contamination (especially heavy metals and oil products), nor the seriousness of soil pollution is known. Standards establishing 	<p>Developing anti-epidemiological measurements</p> <p>Strengthening control upon the exporting drugs</p>

		<p>epidemiological measures to prevent communicable and non-communicable diseases, including food poisoning and food-borne diseases</p> <ul style="list-style-type: none"> • The organization of public information and health education campaigns 		<p>concentration thresholds for soil contamination by some pesticides (e.g. DDT, DDE) exist, but are not enforced.</p> <ul style="list-style-type: none"> • No information on poisoning by pesticides or other chemicals used in agriculture is available. Health experts believe that rural doctors are not well prepared to deal with the clinical aspects of such poisoning, leading to incorrect diagnoses and under-reporting. • Particulates and lead appear to be the priority air pollutants of health concern, especially in urban areas. WHO considers as "black spots" Areas in Yerevan seem to fall into this category, but the quality and precision of the respective monitoring data are unclear. Reliable data would be needed to assess health risks. In addition to TSP, respirable particles, such as PM10, should be monitored. 	
8.RA State Committee on Water Resources	Policy making and establishing norms and limitations for safety of	Conservation of water resources and improvement of economic mechanisms of their efficient use has a critical significance in the process to combat desertification on the territory of the country. From this point, Armenia's water balance, including public	Priority actions contributing to reduction of tension of water balance should be aimed at prevention of large-bulk losses of	Rehabilitation of reservoirs, exploration of collection-and-drainage systems, turning gravity wells to gated regime,	Ensure maintenance of irrigation systems, hydrotechnical facilities, pumping stations, deep wells, Introduction of contemporary sewage treatment technologies, Implementation of actions planned by

	Wetlands and their safety zones	water supply issue, is extremely tense. It is caused by gradual applying of new adopted comprehensive concept for water resources use, as well as low level of rates for environmental fees and nature user's charges.	water resources, including:		the Lake Sevan Ecological Rehabilitation Project, Meeting sanitary norms of water springs, Limitation of mineral fertilizers use, Water resources regular monitoring, Expansion of sanitary zones network and provision of adequate regular services
9.RA State Committee of the Real Estate Cadastre	Regulation of land relations, maintenance of real estate cadastre, Inspection of property rights and restrictions, use and cost of information on real estate,	Mapping of real estate, digital mapping State systematic observation of real estate Developing of target projects on land construction and land consolidation Information on real estate for multipurpose cadastre maintenance Establishing and management of state mapping fund, based on the materials and schemes of RA geoinformation maps Establishment and permanent updating of the state geo network Implementation of photometrical activities Developing land policy, principles of land resources management, state monitoring of the land use(in the scope of responsibilities) Trainings for information topographic and cadastre mappers, realtors, real estate assessors Providing information on real estate for developing project documents on urban construction, Providing conclusion on completed projects and technical specifications of master plans in the case stated by RA legislation	Great amount of mapping materials Sufficient modern technologies Data base on real estate Professional training Real estate monitoring Implementation of pilot projects on land consolidation Cadastre assessment of land Existence of modern geodesic equipment	Qualified specialists with relevant degree High tariffs for information provision Hardships in information of rural settlements real estate	Reducing tariffs of information providing and maintenance Developing a concept on land use Improvement of methodology for land assessment and establishing of land prices Developing a law on land fertility

Local self-governance	Urban development, land use, transport, agricultural, natural, environmental and other activities	Provide maximum supervisory, regulatory responsibilities to marz governors by expanding and clarification of local boards responsibilities and activities. The major task should be implementation of normative legal acts of the RA laws, RA President, Cabinet, Prime Minister and ministries and agencies. In order to perform this task the marz institution should be also empowered with the responsibility to implement local monitoring on the territory of marz, retaining the national level to the ministries and agencies. Regulation of implementation mechanisms of delegated responsibilities by the state and specification of their funding is given a special importance.	Enhancement of the rights of local self-governance authorities in the field of socio-economic development, use of raw materials, natural, labour resources and environmental protection would support restructuring of inter-provincial and inner-provincial relations management, including improvement of inter-relations between local self-governance and territorial administration authorities.	plans and zoning schemes of community lands is outdated Large dumps. Illegal land use Low level of land protection Deterioration of community roads Lack of sanitary norms on the community territories Lack of qualified professionals	Capacities of efficient use of natural resources, which define trends for perspective development integrated with the issues of environmental protection; Level of consuming capability of different urban development and economic zones for improvement of preferable economic forms, transport and engineering infrastructure of settlement network, and further regime for use of these zones ; Estimation of demographic capacity determining the maximum amount of population, , without violating the environmental balance. Establishing of multi-functional urban or rural centres in under-developed zones; Rehabilitation of formerly abandoned or liquidated settlements.
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Box 3.3. Projects implemented by State Committee on Cadastre

Identification and description of community administrative borders

Land privatization caused sufficient changes in administrative borders of the republic: new communities were established. According to the Article 3 of the RA Law on Spatial Separations in the Republic of Armenia communities were recognized as local administration bodies and the description of their borders should become an annex to the Law. The State Committee on Cadastre has identified the borders of 324 communities in 6 marzes in 2002. The borders of the rest of the communities in the republic will be identified in 2003.

Implementation of land consolidation

The State Committee on Cadastre has implemented a pilot project on consolidation of agricultural lands in Ararat, Armavir and Kotayk communities of the Republic; however, the current financial, time and professional capacities have not allowed achieving desirable outcomes. Such a project is envisaged to be implemented in two communities of the republic by support of donor countries in 2003.

Mapping

Mapping activities in the territory of the Republic of Armenia have started to be implemented since 1998. Until 01.01.2003 mapping activities have been completed in 789 communities of the republic. The activities for the rest of the communities will be completed in 2004. As to the thematic mapping, activities on development of an "Armenian National Atlas" have started. A professional committee has been established, the structure of the Atlas, as well as work estimations and timeframes have been approved.

Staff training

The State Committee on Cadastre trains and provides licenses to specialists of real estate market: realtors, market evaluators and cadastre mappers, provide support to establishment of public associations for them, ensures their integration to international organizations. Totally 404 licenses have been provided, of which 237 for topographic and cadastre mapping, 67- real estate assessment and 90 – realtor activities

Authorized state authorities develop schemes for the land use and land zoning within the communities and marzes and the lands outside the administrative borders of the community. The schemes are further approved by Government.

National authorities are liable to conduct inspections of relevant structural divisions, organizations and marz organizations in the marzes (municipality - in Yerevan) in statute-established way.

The strengths are - existing the strategies and projects, adopted and approved by RA Government, different patterns of land ownership, continued decentralization of land management, professional capacity, mapping, clear definition of operations of different management entities, real estate monitoring, land cadastre evaluation, pilot projects on land consolidation, developing of environmental pilot projects.

Weaknesses are - lack of community land use schemes, slow temp of land mapping, shortage of office equipment, computers, communication means (including internet) rapid structural changes, need to clarify responsibilities of different management entities, land monitoring, low information and awareness level of management.

The priority actions are - to regulate enhancement of efficiency of natural resources use, natural resources inventory and economic assessment, developing land balance, improvement of land monitoring, amelioration of pastures and hay lands, application of anti-erosion, meadow-improving measures, enlarging the irrigated lands, construction of irrigation systems, enlarging drainage network, developing land cultivation concept, improvement of land assessment and establishing the land cost, methodological improvement of land monitoring, information distribution.

The territorial system of state management (marz governors) - the responsibilities of marz governors in the sphere of the land resources management are established by RA Laws, RA president resolutions and RA Government decisions.

Responsible authority of marz management is marz administration, the activities are as follows: land use, land and environment protection, environmental measures, developing temporary land schemes, management of lands of state ownership, monitoring of targeted use of available land, ensuring ecosystem balance, rehabilitation of degraded lands, and sustainable use of natural resources. Marz structures are rather weak in the terms of specialists and technical equipment.

Box 3.4. Marz governor responsibilities for land management

- *Manages and utilizes the lands of state ownership within the marz territory and outside of the community administrative borders, in statute-established way*
- *Submitted the schemes of land use and land zoning of the marz to the government approval, in statute-established way*
- *Controls the land use and land protection on the territory of the marz in statute-established way, avoids the illegal land use.*
- *Controls activities of the community authorities in the sphere of land relations.*

Strengths are – existence of temporary schemes of land use in about 300 communities, possessing land resources by administrative order, existence of state ownership lands, legal framework, implementation of projects on sustainable development, management of irrigation system, social support and loan projects, application of assessed tax, water charge and land tax.

Weaknesses are - defective cooperation with communities, failure of proper support to environmental measures and community development projects, lack of regional environmental projects.

Priority actions are as follows – strengthening monitoring of land use, efficient use of state owned remote lands, developing projects on sustainable development in the communities, overall control.

The competencies of local self-governance are established by RA Laws. Community owns and uses the lands under state ownership within the community administrative borders in statute-established way.

Local self-governance in land management

- Land use,
- Land and environmental protection,
- Ensuring implementation of commitments of land users to land legislation.

Community strengths are – ownership and management of community driven lands within the administrative borders of the community, free transfer of state ownership lands to the communities, assembling and owning of the assessed tax, water wage and land tax, implementing of projects on sustainable development, social support and loan projects, development of cattle breeding.

Weaknesses are - short taxation, inadequate means of community budget, weak control, reduction social settings, lack of crediting, not cultivated lands, weak intercommunity linkages and lack of environmental measures.

Priority actions are:

Creation of middle size farming facilities, review of operating laws on land tax, assessed tax, water tax, taxation policy, ensuring loans and investments for natural resources effective use, establishing small enterprises on agricultural goods treatment, tax exemption for population of high mountainous and bordering settlements, participation in and implementation of environmental pilot projects.

According to the RA Government Decree no. 620, 07.10.1998, “On List of measures to meet the RA commitments to UN Convention to Combat Desertification”, the responsible implementors and co-implementors of the convention are state governing bodies. However, the validity of the decree expired in 2002 and there is a need of developing a new governmental decree.

3.8.2. Other organisations

The list of desertification issues related scientific-research and educational institutions and specialized organizations and relevant data are provided in *Table 3.2.*

Table 3.2. Desertification issues related scientific-research and educational institutions and specialized organizations

Organization	Activities (in the framework of Convention)
RA Agricultural support committee Agricultural support regional committees	Methodological and advisory support to agricultural manufactureres, coordination of soil protective measurements aimed at sustainable land use and protection on republican and regional levels, monitoring of targeted land use, prevention of soil contamination, application of anti-erosion measurements
Republican Center on Monitoring	Analysis, assessment and observation of current state of environment, determination of pollution level for air, water and soil, assessment of ecosystems and human health status
Scientific Center on Soil science, Agrochemistry and melioration	Research of anti-erosion, meliorative works in the field of soil protection and sustainable use. Developing of methodologies for soil fertility enhancing, rehabilitation, soil protective technologies.
RA Ministry of Agriculture Scientific Center on Agriculture and plant protection	Developing of methodologies for sustainable agriculture, soil protective measurements, plant protection.
RA Ministry of Agriculture Scientific Center on Cattle Breeding and veterinary	Developing new grades (including drought consistent) of melons.
RA Ministry of Agriculture Scientific Center on Melons	Investigation of wine production and grape cultivation issues.
Scientific research institute on water problems	Investigation of water resources, water balance, water distribution, etc in Armenia.
Armenian Agricultural Academy	Preparing professionals in the field of agriculture
Yerevan State University, Faculty of ecology	Preparing professionals in the field of ecology (in the line with other specialists)
State Committee on water resources	Coordination of structures, responsible for water (drinking/sewage).
Hayj8nakhagits Institute	Planning of water structure of ameliorative significance.
“Arable lands monitoring Center” SJCS	Establishing of collector-drenaige system, monitoring (including supervision of underground water level), investigation of water balance, assessment of irrigating land quality and drainage system
Hydrometeorology and Monitoring State Service of Armenia	Forecast of dangerous climate instances
Office for water economy development and reforms projects implementation	Implementing of projects in the field of irrigating agriculture development
Office for Agricultural reforms support projects implementation	Implementing of agricultural development projects
International fund for agricultural development	Funding for agricultural projects, mainly on irrigating agriculture development in the marzes of Armenia
Haypethoghshinnakhagits Institute	Assessment, cadastre, mapping, planning, developing state and regional projects on enhancing soil fertility, involvement of new land plots, state inventory, soil inventory and mapping, identification of land under and out of use, targeted and non-targeted land use.

At present, totally 34 desertification issues related scientific themes are begin implemented in the systems of NAS, Higher Educational Establishments and several ministries (MNP and Ministry of Agriculture).

Desertification issues related scientific themes include:

- Desertification issues in Armenia- YSU,
- Forecast of landscape changes in Shirak and Lori marzes - YSU,
- The ecological state of lands and waters polluted by technogen substances – YSU,
- The engineering- geological description of marzes of Armenia and development of anti land slide measures – Institute of Geology, NAS,
- The agroproductive grouping of land cover of the Republic of Armenia – Institute of Soil Science and Agrochemistry, Ministry of Agriculture,

- Scientific principles of complex use of water resources-Institute of Water Issues, NAS
- Technologies of fast rehabilitation of beech groves in sparse forest regions of Armenia – Armenian Academy of Agriculture,
- Flora and vegetation of Armenia – Institute of Botany, NAS

The system of desertification sphere specialists training in the Republic of Armenia

The main educational establishment for agricultural, especially soil science studies, is the Armenian Academy of Agriculture. The Faculty of Agriculture within the Academy trains soil specialists, meliorators and other related specialists (providing annually approximately 100 graduates).

The Cathedra of Ecology within the YSU trains ecologist - soil specialists as well. Vocational trainings are also provided in 11 agricultural colleges within the system of the Ministry of Agriculture and 5 basic institutions under the NAS, attended by over 4000 students.

Approximately 10 post graduates annually enter the system of the Armenian Academy of Agriculture, of which 4-3 implement soil science and irrigation issues related themes.

The Faculty of Geography within the Yerevan State University provides subjects on “Desertification Issues” and other aspects of environmental degradation. However, the curricula of higher educational establishments need to be accomplished with desertification issues related subjects, as well as relevant literature needs to be developed and provided.

Non Governmental Organizations

The list of environmental NGOs in RA is presented in Annex 7.

Thanks to the efforts of representatives of the government, non-governmental organizations and scientific institutions an appropriate information sharing is now available for the broad public.

The International day to Combat Desertification – June 17, is always celebrated by participation of mass-media.

Public hearings have been organized in the framework of National Action plan.

NGOs have implemented measures for information dissemination and public awareness raising on combating desertification.

Box 3.5. Regional Cooperation

In 1999 «Tapan» eco-club undertook a regional project “Information and Awareness Rising in Local Communities”. In 2001 the RA Ministry of Nature Protection announced a competition for implementation of a social project in the framework of National Action Plan. The winner was «Ecological survival» NGO. In the framework of the project sociological surveys have been conducted in 10 marzes of Armenia with an aim to identify the causes of desertification.

GO representatives have participated in a number of seminars and presentations.

A good platform for ensuring public participations in combating desertification has been established. Public participation envisages cooperation with state authorities. However, the international network of desertification issues related NGOs should be strengthened in the republic.

3.9. Information Compiling, Analysis, Maintenance, Application and Accessibility

Land state inventory is an important state action, aimed at identification of actual administrative territories of marzes and communities, based on land ownership forms, targeted and actual significance and land forms, sustainable use of lands.

The recent land balance is adopted by RA National Assembly in 1997, further the new land balance haven't been adopted.

On 23 October 2000 RA Government approved decision no. 656 on “Approving the Order of RA Land Balance Arrangements”.

Land balance is arranged according to administrative and territorial division – community, marz, republic, in conformity to cadastral division into cadastre territory, sub territory, RA territory. Newly assembled and approved data on analysis of land status do not exist. Adopting a new balance is required urgently.

3.10. Reports and Publications

Information on both National reports is presented in *point 2.4*.

The First National Report of Armenia has been discussed in Bonn (Germany) in April, 2001 by Spe-

cial Working Group pursuant to decision of COP-4.

Second National Report has been discussed in July 2002 in Geneva on regional meeting of Northern Mediterranean, Central and Western Europe and other affected countries. According to decision of COP-5 Armenia reported to the first session of «Convention Implementation Committee» in Italy (November, 2002) on behalf of Northern Mediterranean, Central and Western Europe and other affected countries. The report was entitled «Measures on Rehabilitation of Degraded Land» and was highly appreciated.

3.11. International Cooperation

Cooperation with the Secretariat

According to National Action Plan to Combat Desertification in Armenia a special attention in the framework of Convention implementation is paid to cooperation with the secretariats of environmental conventions.

RA Ministry of Nature Protection is permanently communicating with secretariat of UN Convention to Combat Desertification.

Cooperation with other conventions and agreements

Currently Armenia is participating in a number of Conventions and amongst them the ones most relevant to desertification issues, such as UN CBD, UNFCCC, etc. The joint projects in the framework of Conventions should be aimed at implementing comprehensive environmental actions. The correlation of biodiversity, desertification and climate change could be proved by application of alternative energy sources and land investigation on biodiversity matter aimed at prevention of forest cutting, protection of carbon absorbers and sinks.

Protection and expansion of forest area in Armenia has a great importance and it is harmonic with another commitment assumed by Climate Change Convention – reduction of ecosystem vulnerability conditioned by climate change and increase of adaptation ability. To this end the following measures are recommended:

- establishment of field protecting forest layers
- establishment of fast growing tree species plantations
- development and introduction of water-saving irrigation methods
- establishment of snow preservation structures
- renovation of hydrotechnical structural and establishment of new ones.

Bilateral and multilateral cooperation

Activities to combat desertification are impossible without bilateral and multilateral cooperation. The focus must be pollard to regional and sub-regional cooperation, which is the main precondition for effective implementation of measures and environmental safety. Cooperation must cover structural, informational, managerial issues.

Cooperation with donors

The Republic of Armenia has an extensive experience of international cooperation in the field of environmental protection, resulted from harmonious and efficient cooperation with Conventions Secretariats, UN structures (UNEP, UNDP, GEF, FAO, UNSO) and the World Bank. In this regard a number of strategically important projects have been elaborated.

Currently cooperation with Convention Global Mechanism (GM) is envisaged.

The issue of GEF participation in the Convention implementation will finally be discussed on COP6 session in September, 2003. Armenia is supposed to cooperate to GEF, as the GEF priorities are set as follows:

- Land degradation,
- Combating a forestation.

Box 3.6. Regional cooperation

The second conference of Caucasus Regional Environmental Center was held in July 12-13, 2002 in Tbilisi, Georgia, which devoted to desertification and drought issues. The Conference was attended by around 100 representatives of state structures, international organizations, scientists and non governmental organizations from Caucasus region (Armenia, Georgia, Azerbaijan) and other countries. Armenia presented 11 reports from executive, legislative, scientific, educational and public sectors.

3.12. Conclusions and recommendations

The Ministry of Nature Protection is responsible for implementation of Convention. A Coordination Committee on Combating Desertification is set up under the MNP. A responsible for the implementation of the Convention (national focal point) is appointed by the decision of Minister of Nature Protection.

To implement the provisions of the Convention is recommended:

1. Development of a new list of measures for implementation of RA commitments, in regard to the UN Convention to Combat Desertification, taking into account the already developed recommendations for the RA National Action Plan to Combat Desertification with mentioned timeframes and persons/parties responsible for the implementation,
2. Systematic development of new legislative act drafts,
3. Provision of tax licenses to the residents of highland and boundary settlements,
4. Clarification of inspection framework between different governmental bodies and strengthening of monitoring for land use,
5. Expansion of cooperation level between regional administration and local self governing bodies,
6. Development of land use schemes for communities, and acceleration of procedures focused on transmission of state lands in community administrative borders to communities with free standing right,
7. Support to the procedure of land consolidation,
8. Development of a land monitoring system,
9. Development of a new land balance,
10. Strengthening international cooperation with the Global Mechanism (GM) and GEF, including development and implementation of transboundary joint projects in the framework of the Convention,
11. To reflect the cross cutting issues of UN Conventions on Biodiversity, Climate Change and To Combat Desertification through joint projects for promoting the development of carbon natural sinks and absorption in lands, use of alternative energy sources for prevention of forest cuttings, as well as biodiversity in the soil,
12. Focusing the attention of the society on the issues of forest protection, as well as integration of private sector in forest restoration activities;
13. Improvement of the access to the communication means and computer technologies within state governmental structures;
14. Inventory, economical assessment of natural resources, as well as increase of efficiency of their use;
15. Expansion of irrigated lands and development of drainage system;
16. Improvement of information provision level and increase of public awareness;
17. Development and implementation of projects targeted on environmental activities for regional administrative bodies;
18. Development and implementation of pipeline projects, and preparation of local project proposals;
19. Implementation of credit and investment projects in agricultural sphere;
20. Regular update and development of national reports on the state of environment in Armenia;
21. Integration of desertification related issues into educational subjects of higher educational establishments, development and preparation of relevant materials on the mentioned issues;
22. Strengthening of the RIOD network in the republic.

CHAPTER II
NATIONAL CAPACITY NEEDS ASSESSMENT IN
CROSS-CUTTING AREAS

1. ENVIRONMENTAL POLICY: LEGAL BASIS, REGULATION AND APPLICATION

According to the legislation of the Republic of Armenia, international agreements have supreme judicial force. International treaties, ratified by RA are a constituent part of the legal system of the republic. If norms are provided in these treaties other than those provided by laws, then the norms provided in the treaty shall prevail.

Norms provided in international treaties are directly applicable in the Republic of Armenia. Not every international treaty, or not every norm provided therein, requires the adoption of a national act in order to apply the norms provided in the international treaty. The overall practice of applying international legal norms in a consistent and effective manner, however, has not yet been established in Armenia.

The following norm related to environmental issues appears in nearly all international treaties. "... States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction...". This statement enables countries to implement their commitments under environmental conventions based on the legislation formed within the framework of their national policies, i.e. based on their specific national and regional circumstances.

The same principle is expressed in Article 3 of the Convention on Biological Diversity (CBD), paragraph 8 of the "Parties to the Convention" section of the Framework Convention on Climate Change (FCCC) and in paragraph 15 of the "Parties to the Convention" section of the Convention to Combat Desertification.

Since there are many issues which are addressed by global environmental conventions that relate to several conventions simultaneously and therefore "cut across" those conventions such common norms provide synergies when considered in national legislation. They will allow implementation of requirements and achievement of objectives concerning all three conventions.

Such articles which are common to the three conventions and might entail synergies with respect to their requirements are presented in Box 2.1. They include norms which involve changes to national legislation in one or another form.

Environmental legislation is considered to be the most important basis for environmental policy, which regulates relationships pertinent to environmental protection and the use of natural resources.

In recent years, Armenia has adopted numerous legal acts relating to environmental protection, which take into account the priorities identified by NEAP (1998). At the same time, a significant part of the environmental legislation currently in force creates the necessary conditions for the implementation of Armenia's commitments under the three international conventions.

Armenia's environmental legislation covers a fairly wide basis and includes the regulation of the following main areas:

Box 1.1. Articles and norms relating to the legal regulation of similar issues of conventions

<i>Content of synergistic articles or norms of the conventions</i>		<i>UNCBD</i>	<i>UNFCCC</i>	<i>UNCCD</i>
1.	States' right to exploit their own resources pursuant to their own environmental policies	A. 3	Paragraph 8 of "Parties to the Convention" section	Paragraph 15 of "Parties to the Convention" section
2.	Sustainable development, sustainable management, sustainable use/preservation	A. 8(j) A.8 (c), (g), (i), A.10(a),(b),(c), A.12(c)	A. 3(4)	A. 10(2a), (4)
3.	Legislation, standards, methodologies, norms	A. 8(b), (k), (j), A.15 (1), (7), A.16 (3), (4), (5), A.18(4), A.19 (1),	A.4	A. 5 (e), A.10(4), A.16 (a i), (g) A. 17 (1 c) , A.18 (1) (2)
4.	Technology transfer, exchange and application	A.16 (3), (4), (5), 15 (1)(7), A.18(4), A.19 (1) A.1, A.19 (2), (3)	A. 4(1c), (1g)	A.18(1),(2) A.6 (e), A.10(2e), A.18 (1e), (2b)
5.	Monitoring, evaluation and identification	A. 8 (b) A. 7	A. 5 (a), (b), (c),	A.16, A.17(1c) A.17(1d)
6.	Information collection, exchange and dissemination	A.18(4) A. 17(2),	A. 12 (1a), (1b),	A.16(ai),(g) A.10(2e), A.19(2b)
7.	Programmes, activities, strategy, policy	A. 6 (a), A.18(2)	A.3(3),(4), A.4 (1b), (1e), (2a)	A. 10(4) A.9(1),(3)
8.	Communications	A. 26	A. 12	A. 26

- Protection of main environmental components
- Protection of ecosystems
- Regulation of the use of natural resources
- Environmental impact assessment and environmental expertise
- Regulation of compensation for damages to environment (including economic and administrative areas)
- Regulation of the right to ownership of natural resources
- Environmental education and public awareness.

Current Codes and laws relating to environmental protection activities in Armenia are presented in Box 1.2.

Box 1.2. Environmental laws of RA

	Law	In Force
1.	Constitution of RA (Article 10)	1995
2.	“Principles of Legislation on Nature Protection in RA”	July 29, 1991
3.	RA Law on Specially Protected Areas	December 18, 1991
4.	RA Land Code (a first code with this name was adopted in 1991)	May 2, 2001
5.	RA Water Code (a first code with this name was adopted in 1992)	June 4, 2002
6.	RA Code on Entrails	March 19, 1992
7.	RA Forest Code	November 1, 1994
8.	RA Law on Atmospheric Air Protection (Last amendment- on April 28, 2001)	November 1, 1994
9.	RA Law on Environmental Impact Expertise (Last amendment- on April 3, 2000)	November 20, 1995
10.	RA Law on Nature Protection and Nature Use Fees (Last amendment- on May 15, 2001)	December 30, 1998
11.	RA Law on Rates of Nature Protection Fees (Last amendment- on December 5, 2000)	April 29, 2000
12.	RA Law on Purposeful Use of Nature Protection Fees Paid by Organizations (Last amendment- on December 14, 2001)	June 11, 2001
13.	RA Law on Flora	December 22, 1999
14.	RA Law on Fauna	May 3, 2000
15.	RA Law on Protection and Quarantine of Plants	2000
16.	RA Law on Hydro-meteorological Service (Last amendment- on April 26, 2002)	March 9, 2001
17.	RA Law on Lake Sevan	June 14, 2001
18.	RA Law on Annual Program of Lake Sevan Ecosystem Restoration, Conservation, Reproduction and Use	December 27, 2001
19.	RA Law on Complex Program of Lake Sevan Ecosystem Restoration, Conservation, Reproduction and Use	December 27, 2001
20.	RA Law on Environmental Education	December 17, 2001
21.	RA Law on Seismic Protection	July 06, 2002
22.	RA Law on Securing Sanitary Epidemiological Security of the Population	November 16, 1992
23.	RA Law on Amending the Code on Administrative Violations	December 11, 2002
24.	RA Law on Protection of Population in Emergency Cases	December 2, 1998
25.	RA Law on Safe Use of Nuclear Power for Peaceful Purposes	February 1, 1998
26.	RA Law on Use of Air Space	April 16, 1997
27.	RA Law on Protection of Selection Achievements	November 23, 1999
28.	RA Law on Energy	June 9, 1997
29.	RA Law on Food Security	December 8, 1999
30.	RA Law on Fire Security	April 18, 2001
31.	RA Law on Activities of State Agricultural Inspections	May 15, 1996
32.	RA Law on Protection and Use of Historic and Cultural Monuments and Historic Environment	November 11, 1998

Norms of international conventions require, however, quite often further detailed regulation in national legislation. The synergistic potential of similar issues across international conventions has not yet been exploited as a guideline or assistance in the process of developing and adopting environmental legal acts. In other words, this insight has not yet entered the process of drafting laws. This neglect, from the viewpoint of legal regulation of the overall environmental policy framework, is one of the main deficiencies in the current legislation.

1.1. Assessment of Armenia’s current environmental legislation, its application and recommendations for improvement

Recommendations for improvement of the main environmental laws and their application in practice are developed based on the in depth analysis. The recommendations pursue the objective to ensure consideration of synergistic possibilities in the legislative regulation concerning the implementation of conventions' requirements. The environmental codes and laws, which are directly linked to the implementation of conventions, are analyzed and the following recommendations developed:

Recommendations for improving the environmental legislation

RA Land Code

Based on the requirements for the implementation of the Convention to Combat Desertification, for the prevention and mitigation of land degradation, it is necessary to stipulate a temporary protection regime for such lands: defining them as protected areas and manage them in accordance with the approved protection regime, with the inclusion of economic incentives for the re-cultivation of such lands.

The Land Code should also include articles and provisions for acquiring, transferring, developing and applying ecologically clean, economically viable and socially acceptable technologies, as well as collection, analysis and exchange of information, with the objective of combating desertification and/or mitigating consequences of droughts.

RA Forest Code

The Forest Code of the RA should be amended (or a new Code should be adopted), so that it clearly stipulates the strategic directions for the use and protection of forests based on the requirement of the three global conventions.

In view of the synergies derived from the three conventions the following items need to be considered in activities for improving forest related legislation of the Republic of Armenia: Improvement of forest monitoring and control systems; establishment of a forest information system; expansion and clarification of the rights of forest-users (expansion of time frame for forest use); introduction of economic incentives for the protection and use of forests; participatory management of forests; expansion of the jurisdictions of forest management to the regional governance and local governance bodies; clarification of the jurisdictions of state bodies responsible for forest management supervision, control, monitoring, etc.; definition of the principle of community and private ownership of forests.

Widening the set of issues included in the Forest Code of the RA, the following should also be included:

a) Ensuring the adaptability of the forest sector to the projected climate change; b) Adoption of a long-term strategy for ensuring an optimal forest area for the country and for the forest sector in general; c) In forest use policy consider forests to be sequesters and accumulators of greenhouse gases and improve their relevant qualities continuously.

The legislation of the RA relating to the forests needs to consider that forests are not only a reserve of economic values, but they also have numerous environmental-aesthetic functions and exceptional significance for mankind.

Acknowledging the economic value of forests, their environmental significance for the population and the economy should, nevertheless, be prioritized.

The legislation regulating forest protection should be directed toward their targeted and effective use.

Economic incentives for forest-users are necessary for the sustainable use and protection of forests, and it is also necessary to change the timetables for forest-use rights by defining periods for long-term forest use and exercising control over the proper implementation of forest management plans.

RA Law on Natural Protected Areas

The Law needs to define:

- Requirement and criteria for drafting a protection policy and strategy
- Requirement for conducting monitoring and its mechanisms, as well as principles for identifying monitoring indicators
- Mechanisms for managing the cadastre
- Requirements and principles of inventorying and identification documents and indicators for their implementation
- Principles for applying clean and adaptive technologies for protection purposes
- Requirements for following standards, norms and methodologies
- Principles for collecting and disseminating information, supervision and control
- Comprehensive/all-encompassing definition of the types/statuses of protected

areas. Statuses of protected areas are not fully in line with the international classification (IUCN), some categories which are currently used at the international level, such as biospheric reserves, natural parks, gardens and dendroparks, are not distinguished as individual protected areas

Since, taking into account the shortcomings of the current Law, it needs to be amended or replaced by a new one, it is appropriate to harmonize the network of natural protected areas with international treaties, standards and criteria.

The new law should stipulate the following provisions for natural protected areas:

- Notion of management plans
- Provisions for ensuring public and local community participation in management
- Protection regimes for new categories of protected areas, such as dendroparks, gardens and biosphere reserves, and lists of sanctioned and banned activities in those areas.

The law should also define the jurisdictions of and relationships between the Government of Armenia, state bodies authorized by the Government, regional governments and local self-governing bodies, in issues relating to the protection and use of natural protected areas; the rights and obligations of officials responsible for natural protected areas; the limits of buffer zones around protected areas and their protection regimes; and the law should clearly define indicators for zoning of protected areas.

RA Law on Flora and RA Law on Fauna

The laws should define:

- Requirement and criteria for drafting protection policy and strategy
- Mechanisms and criteria for conducting monitoring and managing the cadastre
- Requirements and principles of inventorying and identification documents and indicators for their implementation
- Requirements for following standards, norms and methodologies
- Principles for collecting and disseminating information

The law should clearly define procedures, i.e. mechanisms for monitoring and state inventory, as well as the principles for identifying indicators.

RA Law on Atmospheric Air Protection

The following amendments should be made to the law:

- Stipulate provisions for atmospheric air protection policy and strategy
- Stipulate the requirement and mechanisms for monitoring
- Clearly define the requirement and mechanism for information collection and dissemination, as well as principles for public awareness and information provision
- Clearly define mechanisms for approving comprehensive programmes of atmospheric air protection measures and for instructions on atmospheric air protection, and for implementation of programmes consisting of measures for prevention and reduction of atmospheric air pollution and other causes of negative impacts, as well as improvement of atmospheric air
- Introduce provisions relating to procedures for submitting reports and data on emissions of greenhouse gases into the atmospheric air

*RA Law on Lake Sevan**

The law should define the following in relation to Lake Sevan and its ecosystem:

- Principles for determining mechanisms and criteria for conducting monitoring and managing the cadastre
- Mechanisms, requirements and principles of inventorying and conducting state registry and indicators for their implementation
- Principles for applying clean and adaptive technologies for protection purposes
- Principles for collecting and disseminating information

* RA Law on Lake Sevan is the continuation of the RA Law on Approving Annual and Comprehensive Programmes of Actions for Restoration, Preservation, Regeneration and Use of Lake Sevan Ecosystems, which defines the specific measures for restoration, normal development and use of Lake Sevan Ecosystems and their timetables.

- Clarify and precisely define procedures for managing identification documents, as well as requirements of applying standards, norms and methodologies
- Strengthen the links between the sustainable use and sustainable management of Lake Sevan and its ecosystems with the requirements of the three conventions.

Functions ensuring the application of conventions' synergistic points and their legal regulation

Functions ensuring the implementation of conventions' general provisions include those aimed at the implementation of commitments relating to environmental impact assessment and environmental expert assessment. They include control functions for the implementation of the requirements of the legislation of the Republic of Armenia adopted in relevant fields and the legal regulation of the discharge of the mentioned functions.

All three conventions include cross-cutting provisions on environmental expert assessment and environmental impact assessment.

Points 1(a) and (c) of Article 14 of the Convention on Biodiversity directly state the need for Parties to introduce appropriate procedures requiring environmental impact assessment in cases where there is a risk of significant adverse effects on biological diversity with a view to notifying, avoiding or minimizing such effects.

Point 3 of Article 3 and point 1(f) of Article 4 of the Convention on Climate Change define the need to introduce requirements for taking measures on reducing, mitigating, avoiding and notifying impacts on climate change.

Provisions stated in Articles 4 and 5 and point 3 of Article 10 of the Convention to Combat Desertification unequivocally refer to the need for conducting environmental expert assessment and environmental impact assessment within the context of combating desertification and implementing measures to mitigate drought consequences.

Weakness of the RA Law on Environmental Impact Expertise.

Processes of environmental expert assessment and environmental impact assessment are regulated by RA Law on Environmental Impact Expertise.

The Law stipulates the mandatory requirement that planned activities and drafted concept papers should be submitted for state expert assessment, and also defines the legal basis for conducting expert assessments.

The state body authorized by the Law to conduct expert assessment is the Ministry of Nature Protection. "Environmental Expertise" state non-commercial organization of the Ministry is the structure responsible for organizing environmental expert assessment activities and drafting expert assessment conclusions.

The act is in force since 1995. A number of shortcomings, gaps and ambiguities were identified as a result of the analysis of the provisions of the Law and the experience in its practical application, and their elimination will contribute to the improvement of the legal basis relating to environment at both national and global levels.

- The subject regulated by the Law is not properly defined, and as a result the process of environmental impact assessment is left outside the sphere of activities regulated by the Law which hinder its effective enforcement.
- There are numerous contradictory articles and provisions in the Law (state some examples!)
- Lack of clarity and proper definitions regarding principles, issues (both content-wise and with regard to the structure of the document) and concepts hinder the appropriate application of the Law. The requirement for "permissible limits" of planned activities subject to expert assessment as such is incorrectly defined in the Law and does not promote the process of expert assessment. Numerous types of small and medium sized activities, currently characteristic for Armenia, are basically, both by category and by scale, left outside the framework of environmental expert assessment, which is in contradiction with the presumption that any activity has potential ecological risks. The cause, in addition to the existing shortcomings of the Law, is also the fact that it was drafted in the spirit and on the basis of the Convention on Environmental Impact Assessment in the Trans-boundary Context. This may lead to irreversible processes in view of the scarcity of land and water, and to the continuous decline in the diversity of flora and fauna species and instability and sensitivity of ecosystems in the country.

- Norms and criteria for following the corresponding requirements are not defined, none of the principle requirements and articles relating to environmental impact assessment has been defined properly
- The concept of the Law is mainly based on the involvement of the wide public in assessment processes through conducting public hearings, while the corresponding procedural provisions make that participation practically impossible
- The Law is not sufficiently clear about the jurisdictions and responsibilities of the Government of Armenia and other state agencies, as well as implementers of activities, in the process of environmental expert assessment, while the jurisdictions of the authorized state body and regional and local authorities are not defined properly.
- The absence of or shortcomings in bylaws and normative-technical acts regulating the processes of the environmental expertise and environmental impact assessment, the absence of sanctions for violating the requirements of the Law and lack of incentive mechanisms, as well as other factors, allow for the arbitrary implementation of the expert assessment process. Contradictions within the Law and inadequate incorporation of requirements stemming from international conventions have also had a negative impact on practically conducting expert assessments and their quality.

The mentioned shortcomings of the Law have a direct impact on the implementation of the requirements of the three global environmental conventions and the opportunities to exploit synergies with respect to their issues of concern.

Recommendations

- Considering the significant shortcomings in the RA Law on Environmental Impact Assessment a new law is currently being drafted.
- Conduct institutional reforms for increasing the effectiveness of management in areas pertinent to conventions and integrating and strengthening relevant capacities:
- Establish a unit in the Ministry of Nature Protection, which will be responsible for ensuring the implementation of policies relating to environmental impact assessment and environmental expert assessment, and the main functions of which will also include development of relevant policies, including the incorporation of climate change, biodiversity and land protection issues in the process of drafting new legislation in relevant fields.
- Training, re-training of personnel/specialists (project designers, researchers, experts, monitors, inspectors, supervisors, etc.) involved in various stages of the process of environmental impact assessment.

1.1.1. Availability of normative-methodological and normative-technical acts for enforcing environmental legislation

Both the implementation of the requirements of international conventions and the enforcing of national legislation are possible through relevant measures and tools. Normative-methodological and normative-technical acts are among the measures and tools used for enforcing international and national legislations.

Normative-methodological and normative-technical requirements are stipulated in conventions.

Cross-cutting articles and provisions of the three conventions identified as a result of the analysis of the three conventions as presented in Box 2.1, i.e. “Sustainable development, sustainable management, sustainable use”, “Legislation, standards, methodologies, norms”, “Technology transfer, exchange and application” and “Monitoring, studies and identification”, both directly and indirectly incorporate normative-methodological and normative-technical requirements. This means that each requirement stated in conventions is mandatory at the national level and should be implemented through the application of national laws, bylaws, norms, methodologies and standards.

The system of normative-methodological and normative-technical acts in the Republic of Armenian includes the following legal acts:

Normative-methodological acts

- Norms
- Methodologies
- Guidelines
- Directives

Normative-technical acts:

- Technical regulations: legal acts
- Standards or other normative documents

Box 1.3. The legal basis and approval procedure of normative-methodological and normative-technical acts in the Republic of Armenia

The legal bases for developing and approving normative-technical acts of the RA, i.e. standards and technical regulations, are stipulated in the mentioned environmental laws, as well as the following sectoral laws and Orders of the Government of the RA:

- RA Law on Standardization
- RA Law on Measurements Unification
- RA Law on Products and Services and Normative Requirements Conformity Approval
- RA Government Decree No. 9 dated 11 January 2000 on Regulations for Development, Adoption and Application of Technical Regulations.

Requirements for adopting environmental normative-methodological and normative-technical acts can be defined by environmental codes, laws, Government Decrees and of the Prime Minister of the RA, as well as legislative acts regulating other spheres of activity.

Shortcomings of the system of normative-methodological and normative-technical acts

Shortcomings of the system of environmental normative-methodological and normative-technical acts of the RA have a much deeper nature, which hampers the implementation of environmental requirements, including those of the conventions.

This is predicated upon:

- Absence of a framework law (for example Environmental and Natural Resources Protection Law) ensuring comprehensive and harmonized approaches to the development or approval of environmental normative-methodological and normative-technical acts
- Standards, norms, methodologies, guidelines and directive currently used in Armenia are mainly adopted from those of former USSR, and many of them do not correspond to the requirements of the legislation of the Republic of Armenia
- There is no unified policy for developing the corresponding technical regulations, which could be remedied by passing the RA Bill on Amendments and Changes to the Standardization Law of the Republic of Armenia
- There are no conceptual and development programs for improving environmental normative-methodological and normative-technical acts
- There are no specialized structures/systems responsible for developing environmental normative-methodological and normative-technical acts and the lack of the needed funding hampers the possibilities of the state for commissioning the development of the mentioned acts to existing research institutes. Many normative-methodological and normative-technical acts developed by governmental agencies are flawed due to the absence of scientific justifications. The country does not have adequate experience in defining main indicators of ecological characteristics.
- There is no data bank on environmental normative-methodological and normative-technical acts.
- Inadequate material-technical provisions of the relevant department of the Ministry developing drafts of normative-methodological and normative-technical acts, or providing opinion on those drafts, and
- Language barriers in applying international and European standards, methodologies, directives and other normative acts exist.

Improvement of the normative-methodological and normative-technical system of the environmental legislation of Armenia should be based on eliminating the mentioned shortcomings, which, in parallel, will contribute to the implementation of the requirements of the three international conventions.

1.1.2. The process of control and supervision over the implementation of the requirements of the environmental legislation and its legal regulation

The three environmental conventions, in some form or another, incorporate cross-cutting issues for the control over the implementation of the requirements of environmental legislation.

All three conventions directly and indirectly incorporate control requirements. For example, points (g) and (h) of Article 8, points (a) and (b) of Article 10, and 1(c) and (d) of Article 14 of the Convention on Biodiversity, points (3) and (4) of Article 3 of the Climate Change Convention, point (4) of Article 10 of Con-

vention to Combat Desertification. This requirement is stipulated in nearly all legislative acts, particularly laws. They do not provide, however, the regulations for control and supervision.

National issues of environmental protection practically coincide with the requirements of global conventions. The effective control over the enforcement of the national environmental legislation at the same time contributes to the implementation of the requirements of the three conventions.

Control over the enforcement of the requirements of the environmental legislation in the Republic of Armenia is the responsibility of the State Environmental Inspectorate with its 10 regional inspectorates, which constitutes a separate department of the Ministry of Nature protection.

In accordance with jurisdictions stated in the statute of the Inspectorate, inspections are conducted in relation to atmospheric air and ozone layer protection, protection and effective use of water resources, protection and effective use of lands, protection and effective use of bio-resources, including forest and natural protected areas, protection of the environment from genetically modified organisms, compliance with requirements defined in relevant laws, including permits and certificate of conclusion issued by state environmental assessment bodies, limits, norms and rules. The Inspectorate has other functions as well. It conducts inspections within the framework of its jurisdictions stated in its statute, which is approved by the Government of the RA, in accordance with the RA Law on Organizing and Conducting Inspections in the Republic of Armenia.

In accordance with the current legislation, an environmental state inspector can apply sanctions if he or she discovers violations of the environmental legislation, such as banning, or halting, or terminating activities of violators, conduct examination of the case, apply administrative sanctions, as well as take measures in order to compensate the damage done to the environment.

While conducting inspection relating to compliance with the requirement of the environmental legislation, inspectors are also guided by: The RA Civil Code, the RA Criminal Code, the RA Administrative Code, other laws, bylaws and agency regulations of the RA.

With regard to control functions, including proper and effective inspection of compliance with the requirements of the three conventions and relevant national legislation, both the main environmental laws and RA Law on Organizing and Conducting Inspections in the Republic of Armenia are inadequate and incomplete. Other than legislative regulation, inspections are hindered by a number of other factors:

- The majority of the main environmental laws are not clearly formulated. For example, legal definitions for control and supervision mechanisms over forest preservation, protection, use and regeneration would allow for a more effective protection of biodiversity, i.e. fauna and flora, as well as land protection and lower levels of desertification, as well as better control over carbon sequestration from atmospheric air and measures for mitigating climate change consequences
- Articles referring to control/supervision over the defined norms, rules and measures are mainly of a declarative nature, control/supervision mechanisms are not defined, norms and rules are not clearly defined, control and supervision are not distinguished and the responsible bodies are not clearly identified, the type of measures to be taken for compensating the damage caused and their underlying principles, or the norms used for assessing the damage are not clearly defined, rules of control and supervision are not defined and the requirement for defining them is not incorporated in other legal acts, especially considering that the RA Law on Legal Acts, (section 4 of Article 9), stipulates that control is conducted only in accordance with the rules and in cases defined by the law.
- There is no legal basis and acquaintance with methodology for calculating the damage to the environment as well as corresponding national specialists in that field.
- Inadequacies, or absence of bylaws and normative (standards, methodologies, guidelines, etc.) agency acts ensuring the enforcement of requirements of the law
- The RA Law on Organizing and Conducting Inspections in the Republic of Armenia does not cover the process of control over compliance with contractual agreements made between governmental agencies and economic entities. A significant number of requirements with regard to biodiversity and land protection are defined through contractual obligations.
- Control functions relating to the enforcement of the current environmental legislation are not only ascribed to the body authorized by the Government of the RA, i.e. the Ministry of Nature Protection, but also to regional and local authorities within the scope of jurisdictions delegated to them by central authorities. Control functions will become more effective, if they are conducted by one body.

Other than the legal regulation, activities of the state environmental inspectorate are hampered by the following factors:

- Environmental issues are underestimated within the context of the national priorities in need of urgent solutions, or environmental problems are put aside until better times, or in other words a "residual" approach is applied to the solution of environmental issues.
- Inadequate volumes and inadequate provisions of material-technical possibilities for effective operations
- Inadequate volumes of internal sources, due to the limited state budget of the country, low salaries and absence of a means for rewarding employees, which have created preconditions for corruption and violations of the law by inspectors.
- Low level of professional skills among inspectors and absence of a systematic training system
- Absence of special training courses conducted after the adoption and changes of relevant laws and other legal acts
- Absence of methodological guidelines containing interpretations and explanations of laws and other legal acts
- Absence of an information network between the inspectorate system and its regional and sectoral departments
- Lack of possibilities for exchanging international experience and international cooperation, and in particular the absence of participation of the inspectorate system in processes on international cooperation relating to the three global environmental conventions and
- Inadequate volumes of international technical assistance.

Recommendations

In order to conduct harmonized and comprehensive control and supervision to conform to the requirements of the three conventions it is necessary to implement legislative, structural and administrative reforms in order to improve inspection, as well as the control system.

Principles, requirements, norms and rules defined by the law should be clear, to the point and should not have a declarative nature, so that compliance with those requirements would be possible not only for economic entities, but also bodies responsible for control and supervision over those entities. Legal acts are central factors, upon which the effective and lawful implementation of qualitative characteristics of the environment, and consequently the constitutional right of people to live in a favourable environment are dependent. Even in case of the most perfect legislation, however, there is a need for tools, which could ensure the enforcement of norms defined in legal acts, as well as conduct control and supervision over their enforcement.

Given the specificities of the environmental sector, it is necessary to proceed in the following way:

- Based on the concept of the Law on Environmental State Inspection endorsed by the Government of Armenia in its Decree No. 34 dated 28 August 2003 a draft Law on Environmental Inspection was developed and submitted to National Assembly.
- Based on the previous shortcomings and gaps, legal acts relating to inspections have to be amended and missing legal acts developed.
- Structural or administrative reforms must be conducted, for which strategies need to be developed and an action plan for a comprehensive improvement of the system of supervision to comply with the requirements of environmental legislation established.

1.2. Problems of environmental lawmaking activities in the Republic of Armenia

The system of legal acts necessary for conducting environmental lawmaking activities is available, but nevertheless, despite the availability of the legal framework, lawmaking activities, particularly in the area of environment, are not always conducted in an uninterrupted and smooth manner due to a number of objective and subjective problems.

Objective problems of lawmaking activities in the Republic of Armenia are divided into two categories: legislative, and Institutional problems.

Legislative problems

- Incoherence and contradictions in the environmental legal framework hampers relevant lawmaking activities, obstructing, in particular, the application of an integrated approach.
- Lawmaking activities, particularly in the environmental sector, require significant scientific justifications, which are not currently available. Availability of scientific justification for a given legal act will ensure its future proper and effective enforcement process.

- The provision included in the RA Law on Legal Acts and the RA President Decree No. 1064 dated 2002 defining an unrealistically short deadline of 5 days for obtaining the agreement of stakeholders on drafts of legal acts, often causes time constraints which do not allow for a comprehensive study and full evaluation of the presented draft. The deadline defined does not take into account the necessity for allocating additional time to ministries and agencies, other than the Ministry of Justice, in case of important and voluminous legal acts. While in other cases the period of the deadline is sufficient. As a result, incomplete legal acts with numerous shortcomings and contradictions are drafted in their elaboration phase, which doubles the complications of further work on the document. Consequently, the majority of yet non-enforced normative legal acts are subjected to changes and amendments.
- The RA Law on Legal Acts requires the development of concept papers for particularly important legal acts, but this norm does not extend in particular to lawmaking activities as a mandatory requirement. As a result, during the circulation of the draft law many fundamental contradictions emerge and the adoption of the legal act becomes meaningless.
- There is no mandatory requirement for phased implementation of lawmaking activities: study of legislation, including international and individual countries' experience and legal acts, then the development and adoption of the concept paper, followed by drafting of the law. For this case also realistic timetables should be set. This approach can be introduced in the environmental sector also at the level of the Ministry of Nature Protection through a set of instructions by the Minister. At this level, however, the approach might fail if superior legal acts mandate unrealistically short deadlines.
- Inadequacies, and sometimes total absence, of normative-methodological and normative-technical acts during lawmaking activities, as well as at the enforcement phase of legal acts. Their absence often hampers the proper investigation and adjudication process by judiciary bodies in cases of environmental violations.
- The absence of a relevant strategy for environmental lawmaking activities in turn makes coordinated lawmaking efforts difficult, and prevents the achievement of synergies contained in the three global environmental conventions.

Lawmaking activities should be conducted by a specialized institution, and this should be a mandatory requirement stipulated by the law.

Institutional problems

- The absence of a specialized institution conducting environmental lawmaking activities.
- Absence of relevant specialists in departments and structures of the Ministry of Nature Protection responsible for lawmaking activities.
- Absence of a training center for specialists involved in environmental lawmaking activities, operating regularly or on a planned basis.
- Not all specialists of the Ministry involved in environmental lawmaking activities are knowledgeable about international legal acts, are involved in international cooperation processes, and the Ministry does not have an established culture of information provision regarding its international cooperation activities. All this results in the fact that legal acts sometimes do not reflect the norms relating to the commitments of the country under the conventions.
- Low level of technical provisions in departments of the Ministry involved in lawmaking activities. The absence of technical means in those departments creates huge difficulties at the development and endorsement phases for legal acts, which are already unrealistically short and take place without proper justifications. Absence of computers, copying machines, internet connections, as well as information network and the corresponding software, including "IRTEK", and the data bank on the system of legal acts have a negative impact on the responsiveness and effectiveness of lawmaking activities.
- There are no mechanisms and possibilities for providing timely information to the population on lawmaking activities. It is necessary to involve the wide public, to the extent possible, at various stages of discussions on drafts of normative legal acts. It is necessary to increase public awareness not only through the mass media, which can only provide information, but also through organizing wide discussions and hearings with stakeholder bodies as well as representatives of the private sector. Inadequate awareness among the population very often results in environmental violations.

In addition to objective reasons, environmental lawmaking activities in the Republic of Armenia are hampered also because of subjective factors. Subjective reasons are also divided into the following two groups: Institutional and professional, and conflict of interests.

Subjective problems at institutional and professional levels

- Absence of experience and skills in selecting personnel within the framework of the newly introduced civil service institution. A significant number of civil servants currently recruited by various departments of the Ministry are not knowledgeable about the environmental legislation.
- Lack of skills in legislative techniques among specialists of structures involved in lawmaking activities, which should be built upon continuous self-learning through studying the relevant legal acts.
- There is almost no ecologist-lawyer institution. In addition to the Ministry of Nature Protection, this approach should be adopted also by other governmental agencies, which continuously deal with environmental legal acts in the phase of their endorsement and approval, as well as during their enforcement. Ecologist-lawyers should be available for the National Assembly of the RA, the Government of the RA, The Ministry of Justice and regional governments, as well as the judiciary system.

Subjective problems related to the conflict of interests

Conflicts of interests are very common during lawmaking activities, and have a negative impact on the formation of the environmental legal framework.

Conflicts of interests occur within the Ministry itself (intra-agency), between agencies (interagency), between the state and the private sector and between various levels of government.

The main causes stem from the fact that environmental protection and the use of natural resources involve numerous limitations and bans, as well as the requirement for excusing the corresponding supervision.

Thus, based on the extent of application of such severe “measures”, sometimes the preference goes to social and economic benefits, and environmental protection and human health become secondary concerns.

It must be noted also that regional and local authorities try to obtain more supervisory functions, rather than contribute to the solution of environmental problems.

Box 1.4. Structures/institutions participating in environmental lawmaking activities

The following main structures/institutions are involved in lawmaking activities in areas relevant to the implementation of environmental requirements, in particular the requirements stemming from conventions, and processes of development and approval of legal acts, including laws, bylaws, methodologies, directives, standards, technical regulations and other normative legal acts:

Ministry of Nature Protection

- Department for environmental protection, which develops legal acts relating to atmosphere, land, bio-resources and water protection. Water Resources Management Agency and Bio-resources Management Agency also participate in the development processes of legal acts in the mentioned areas, as well as the endorsement phase for drafts developed by others,
- Normative-Methodology Department, in particular, in processes relating to endorsement, discussions and submitting for approval of drafts of legal acts,
- Nature Protection and Nature Use Economics Section, in development of economic mechanisms, as well as endorsement of drafts of legal acts relating to the latter;
- State Environmental Inspectorate, mainly at the legal acts’ endorsement phase;
- “State Environmental Expertise” state non-commercial organization, in development of legal acts related to their field of activity, as well as partial endorsement of drafts developed for other areas in view of organization’s specific field of activity.

Ministry of Health

- Develops and in accordance with regulations approves relevant norms for permissible limits of concentrations,

National body for standardization, metrology and certification of the Ministry of Trade and Economic Development

- Develops and in accordance with regulations approves relevant standards, and in accordance with regulations approves standards developed by the Ministry of Nature Protection

National Assembly

- Approves environmental laws, as well as (in some cases) presents legislative initiatives, i.e. develops draft laws

Government

Approves relevant legal acts in the form of Order of the Government of the RA, and in cases authorized by the National Assembly of the RA issues Government Orders considered as Laws of the RA. As necessary, some legal acts are approved by the Instruction of the Prime Minister of the RA.

President

- Approves legal acts with the status of Decree of the President of the RA and Instruction of the President of the RA.

1.3. International cooperation within the framework of environmental lawmaking activities

Numerous legal acts regulating the environmental sector in the country have been adopted in recent years. In this period, the Republic of Armenia has also ratified a number of international conventions and treaties.

The tools for enforcement of environmental legislation (standards, norms, methodologies, guidelines, etc.) currently used mainly consist of normative-methodological and normative-technical acts adopted by the USSR. Presently, relevant technical regulations are practically non-existent.

The environmental legislative framework is almost formed, but it needs to be changed and constantly improved, which in particular depends on:

- Rapid changes of country's economic-legal relationships and the resulting incongruence and contradictions in adopted legislation
- Incompleteness and shortcomings of legal acts relating to the implementation of country's commitments within the framework of international treaties
- Application of outdated tools and mechanisms and in some cases their total absence.

Reforms of environmental legislation are unavoidable and their effective implementation is possible through harmonizing Armenia's legislation with European Union's (EU) directives, an intention of the country stated in official documents produced within the framework of a wide-scale international cooperation. But this needs to be done together with the integration of country's economic and social development, the driving force of which in the last ten years is the overall direction of Armenia's political and economic development toward EU, as the most important commercial and investment counterpart.

Environmental legislation can be harmonized with EU directives through the adoption of new laws, as well as introducing the corresponding changes in existing legislation, and in some cases also through direct application of EU directives.

International cooperation on environmental lawmaking progresses fairly slowly and is not on a large scale.

Currently, international cooperation in lawmaking activities is conducted only with OECD, in particular through the support for environmental inspection system, which is implemented by the Ministry of Nature Protection together with the World Trade Organization for improving standards and technical regulations. This is mainly implemented together with the national body for standardization, metrology and certification.

In 1999, The Ministry of Nature Protection participated in the NIS Environmental Compliance and Enforcement Network created within the framework of the Environmental Action Plan Task Force of OECD, which since 1999 is implementing measures for improving environmental inspection systems in countries of Eastern Europe, Caucasus and Central Asia (EECCA).

1.4. Action plan for implementation of recommendations on improvement of Armenia's environmental legislation

Capacity building needs with regard to national environmental legislation, its enforcement and implementation presented in previous sections are summarized in the action plan with preliminary timetables, responsible parties and possible funding sources (Table 2.1)

Table 1.1. Action plan of measures to improve environmental legislation for the implementation of CBD, FCCC, CCD

N	Title of activity by legal status	Duration of implementation	Co-implementers	Sources of funding
<i>Legal framework improvement component</i>				
1.	Drafting and adoption of the RA Law on Environmental Protection and developing bylaws	The Law: in 2 years Bylaws during 2 years after the adoption of the Law	MNP, other stakeholder gov. bodies International experts	International funding State budget of the RA
2.	Drafting and adoption of the RA Law on Environmental Protection Policy and de-	Within 1 year after the adoption of the	MNP other stakeholder	International funding

	veloping bylaws	RA Law on Environmental Protection Policy Bylaws during 2 years after the adoption of the Law	gov. bodies International experts	State budget of the RA
3.	Improvement of laws regulating areas relevant to the three global environmental conventions and drafting the corresponding bylaws <ul style="list-style-type: none"> • Draft the new Forests Code • Draft the Law on Amendments and Changes to the Land Code of the RA • Draft changes to the Law on Natural Protected Areas or a new law, • Draft the Law on Changes and Amendments to the Law of the RA on Flora • Draft the Law on Changes and Amendments to the Law of the RA on Fauna • Draft the Law on Changes and Amendments to the Law of the RA on Fauna • Draft the Law on Changes and Amendments to the Law of the RA on Protection of Atmospheric Air 	The laws: in 3 years Bylaws during 2 years after the adoption of the Law	MNP, other stakeholder gov. bodies International experts	International funding State budget of the RA
4.	Developing the new Law on Environmental Expertise and the set of drafts for the corresponding bylaws*	The Law: in 1 year Bylaws during 2 years after the adoption of the Law	MNP, other stakeholder gov. bodies and non-governmental organizations	International funding
5.	Developing the Law on Environmental Inspection and the set of drafts for the corresponding bylaws	The Law: in 1 year Bylaws during 1-2 years after the adoption of the Law	MNP	Without funding
6.	Drafting a strategic program for developing the instruments ensuring the application of legislative acts mentioned in point 5 <ul style="list-style-type: none"> • Draft a national action plan for introducing ISO 14000 and 19000 standard systems in order to improve national standards • Draft a national action plan for developing and improving national norms, methodologies and other guiding documents 	in 3 years	MNP, national standardization body, other stakeholder governmental bodies International experts	International funding EU and other international organizations
7.	Establishing a data base on data regarding normative-methodological and normative-technical acts regulating the environmental sphere and improving the information network.	in 5 years and continued	MNP, other stakeholder governmental bodies International experts	International funding
<i>Institutional improvement component</i>				
8.	Develop and adopt a program, with the status of legal act, for improving the technical provision of Ministry departments involved in lawmaking activities	in 1-2 years		International funding
9.	Through developing the corresponding legal acts establish a specialized body for	Up to 3 years	Government of the RA, MNP	International funding, state budget

	environmental lawmaking activities			of the RA
10	Establish a continuously operational center for training of environmental specialists, with training courses on environmental legal acts	in 1-2 years	MNP, other stakeholder governmental bodies International experts	International funding State budget of the RA
11	Develop a concept paper for involving ecology-law specialists in the National Assembly of the RA, the Government of the RA, the Ministry of Justice of the RA and regional governing bodies, as well as the judiciary system.	Up to 5 years	Stakeholder governmental bodies	State budget of the RA International funding
12	Develop and implement a program for improvement of the inspectorate system	in 1-2 years	MNP	State budget of the RA within the framework of international cooperation

* The new draft of the RA Law on Environmental Impact Assessment is currently being developed.

** The RA Law on Environmental Inspection has been drafted and submitted to the Government of the RA.

2. INSTITUTIONAL MANAGEMENT, INCLUDING NATIONAL, REGIONAL AND LOCAL LINKS

The needs assessment with regard to the improvement of the institutional framework for overall environmental management and the implementation of Armenia's commitments under the three international environmental conventions was conducted within the context of the current three-tier governance system in Armenia, i.e. central, regional and local (community) governments (Box 2.1).

At present, a system relating to the implementation of conventions' provisions has been formed in Armenia, which is currently on the way to become fully operational. The system develops within the framework of the state policies currently being elaborated and implemented and under the management of the government and is predominantly based on governmental structures. In this system, the local self-governing authorities have the smallest role, which results in a weakly manifested link and interrelationships between central and local governments.

This fact can be explained by the low level of development of local self-government system, and the existing problems and constraints at systemic, institutional and individual levels. On the other hand, within the context of legal, political and socio-economic conditions already formed in the country, local self-governance has some possibilities for development and enhancing its role and significance.

2.1. Assessment of existing institutional capacities

2.1.1. Central governance

The state policy on environmental protection and the use of natural resources in the Republic of Armenia is developed and implemented by the Ministry of Nature Protection. Development of policies, strategies and action plans for the implementation of issues stemming from conventions are also part of Ministry's objectives and functions.

Box 2.1. Armenia's system of governance

The Republic of Armenia has a three-tier governance system. Central governance is implemented at central and regional (marz) levels. Marz governors are appointed by the central government; they represent central authorities in their region and implements central government's policies. This mid-level governance institution is a relatively weak body with regard to activities for solving environmental problems in particular.

Mayors and the representational body, i.e. community council, at the lower level of authority, i.e. community authorities, are elected by residents through direct elections. Although, the RA law on Local Self-Government adopted in 1996, and even more so, its new edition adopted in 2002, generally meet the requirement of the European Charter of Local Self-Government, nevertheless the system does not operate properly.

Public administration reforms were conducted in the following directions:

- a) structural and functional reforms of the central government system,
- b) introduction of civil service,
- c) reforms of financial management.

Reforms in central government system

Due to reforms conducted in the central government system in recent years, progress was recorded in the direction of rationalization and unification of central governmental bodies. Governmental bodies are restructured, their structural units are amalgamated and their responsibilities and functions are clarified for rationalization purposes. Unification was a necessary step toward the formation of a unified government system. It allowed for the elimination of units with most wide-ranging titles and number of staff and the establishment of sub-units based on unified requirements.

Numerous organizations and state closed joint stock companies operating under the overall supervision of the ministries of the RA and the Government of the RA have been restructured into state non-commercial organizations in accordance with their functions. Public administrative functions were removed from the list of their responsibilities and ascribed to the corresponding governmental body.

Introduction of the system of civil service and financial management reforms

In 2001, the RA law on Civil Service was adopted, which became the basis for the establishment of the institution of civil service. In 2002, the RA law on Civil Servants Remuneration was adopted entered into force on 1 January 2003.

The Act defines the main principles for remuneration of civil servants, regulates relationships relating to the provision of their remuneration, additional benefits and monetary assistance. The Law defined the basic wage, coefficients, scale of salaries, main salary, and normal increase in salary, bonus and other concepts.

The structure of the Ministry of Nature Protection is presented in Fig. 3.1. The structure of the Ministry is based on the principle of complementarity, i.e. Ministry units continue their operations and complement one another. However, in practice, in accordance with statutes, this is not true for all units, since some of them duplicate others by the virtue of their statutory functions.

National and global environmental protection issues coincide in practice, and consequently sound and effective management and operations of the Ministry of Nature Protection are preconditions for ensuring the institutional framework needed for the implementation of the three conventions in view of their synergistic possibilities. Common and cross-cutting issues of conventions include:

- Legislation
- National inventory
- National and regional action plans
- Identification and monitoring
- Development of protected areas
- Environmental impact assessment (EIA)
- Data collection and dissemination
- Information exchange
- Public participation
- Research
- Public education and awareness
- Training
- Preparing reports

Table 2.1 presents the assessment of the functions of Ministry's units in view of the implementation of conventions' provisions, and indicates cases of function duplication.

Projects implemented under the supervision of the Ministry, including the projects within the framework of conventions' implementation, are coordinated in accordance with the defined rules and regulations, i.e. the Ministry of Nature Protection is guided by the RA Government Order No. 32 dated 16 January 2004 which regulates the processes of registration and preparation and publicizing of reports relating to state grants, and each project proposal in the filed needs to be endorsed by the corresponding structures, in addition, certain procedures have been developed during numerous national and regional projects implemented by various organizations through the support of a number of foreign countries and international organizations:

- Regular joint meetings with international organizations
- Emerging issues are presented to and discussed with the Minister of Nature Protection and Deputy Ministers
- Meetings and consultations at international and national levels with the participation of national and international experts are organized with the framework of projects
- Project Steering Committees are formed.

Some responsibilities and functions relating to environment and the conventions are also implemented by the ministries of Agriculture, Finance and Economy, Trade and Economic Development, Urban Development, Energy, Education and Science, Health, Justice, state committees for Water systems and Real-Estate Cadastre, the National Statistical Service.

Figure 2.1. Structure of the Ministry of Nature Protection

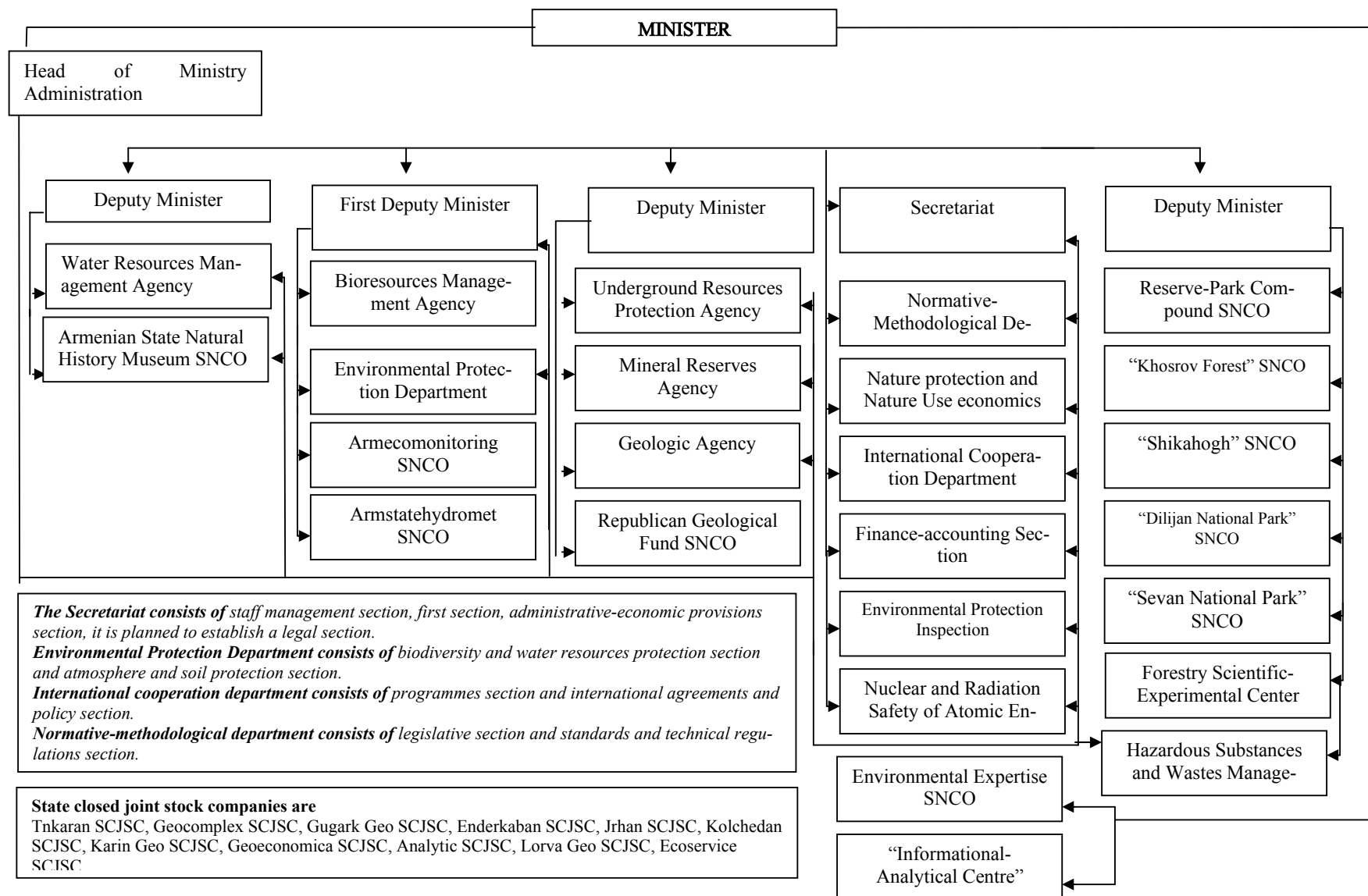


Table 2.1. Duplicated and complementary statutory functions of the units of the Ministry of Nature Protection in view of the general issues relating to the implementation of Conventions on Biodiversity, Climate Change and Combating Desertification

Title of unit	RESPONSIBILITIES*													
	National Inventory	National and regional action plans	Identification-monitoring	Development of protected areas	Legislation	EIA	Data collection and dissemination	Public participation	Information exchange	Research	Public education and awareness	Training	Preparing reports	Total (affirmative)
Bioresources Management Agency	+	-	+	-	+	+	+	-	-	+	-	-	-	6
Biodiversity Protection Section	+	-	-	+	+	-	-	-	-	-	+	+	+	7
Water Resources Management Agency	+	-	+	+	+/-	+/-	-	-	-	-	-	-	-	5
Water Resources Protection Section	-	+/-	+	+	+	-	-	-	+	-	+/-	-	+	7
Geologic Agency	-	-	-	+	+	-	+	-	+	+	+	-	+	7
Minerals Agency	+	-	-	-	-	+/-	-	-	-	+	-	-	-	3
Underground Resources Protection Section	-	-	-	+	+	+	-	-	-	+	-	-	+	5
Republican Geological Fund SNCO	-	-	-	-	-	-	+	-	+	+	-	-	-	3
Soil Protection Section	-	-	-	+/-	+	+/-	-	-	-	-	-	-	+	4
Environmental Impact Monitoring Centre SNCO	+	+	+	+	+	-	+	-	+	+	+	+	+	10
Hydro-Meteorological and Environmental Monitoring Agency	-	+	+	-	-	+	-	-	+	+	-	-	+	6
State Hydro-Meteorological and Monitoring Service SNCO	-	-	+	-	+	+	+	-	+	+	+	-	-	7
Atmosphere Protection Section	+	-	+/-	-	+	-	-	-	+	+	-	-	+	6
Environmental Expertise SNCO	-	-	-	-	-	+	+	+	+	+	+	-	+	7
Nuclear and Radiation Safety of Atomic Energy Inspectorate	+	+/-	-	-	+	+	-	-	+	+	-	+	+	8
Hazardous Substances and Waste Management Section	+	-	-	-	+	+	-	-	+	+	+	-	-	6
“Armforest” SNCO	-	-	-	+	-	-	-	-	-	+	+	+	-	4
Forest Research Centre SNCO	-	-	-	+	-	+P	-	-	+	+	+P	+	-	6
“Informational-Analytical Centre” SNCO	-	-	-	-	-	-	+	-	+	-	+	+P	+	5
International Cooperation Department	-	-	-	-	+	-	-	-	+	-	-	+	+	4
Normative-Methodological Department	+	-	-	-	+	-	-	-	-	+/-	-	-	+	4
“Sevan” National Park SNCO	+	-	+	+	-	-	-	-	+	+	+	-	-	6
“Dilijan” National Park SNCO	+	-	+	+	-	-	-	-	+	+	+	-	-	6
Reserve-Park Compound SNCO	+	-	+	+	-	-	-	-	+	+	+	-	-	6
“Shikahogh” SNCO	+	-	+	+	-	-	-	-	+	+	+	-	-	6
“Khosrov Forest” SNCO	+	-	+	+	-	-	-	-	+	+	+	-	-	6

* (+) - adequate

(-) - inadequate,

(+/-) - participation with other units

(P) - provide paid services

2.1.2. Regional governance

According to the RA President Decree on "Governance in RA marzes", the marz governor implements Government's regional policy in the marz. In particular, the marz governor has the following functions with regard to nature and environmental protection:

- Participated in the development of state programmes for nature and environmental protection and ensures their implementation in the marz within the limits of his jurisdiction;
- Supervises the implementation of environmental legislation in the marz and notifies relevant authorities on violations;
- Supports the protection and use of reserves, reservations, protected areas, and measures against poaching, illegal fishing and logging;
- Cooperates with environmental NGOs, as well as individual citizens involved in environmental issues.

As presented, the marz governor has serious and wide-scale environmental functions to perform. (Box 2.2).

Marz governments have agriculture and environment departments. Data presented in Box 3.2 reveal that the numbers of civil servants in these departments are very small. It must be noted that only in Gegharkunik marz government the mentioned department has recently been divided into two separate agriculture and environment departments. The existing number of civil servants, however, is not adequate for the territory of Gegharkunik marz and its problems, especially problems of Lake Sevan.

Table 2.2. Numbers of civil servants in marz governments dealing with environmental issues

Marz governments	Departments		
	Agriculture and Environment	Environment	Agriculture
Lori	9	2	7
Aragatsotn	8	2	6
Armavir, Kotayk, Shirak and Syunik	7 each	1	6
Vayots Dzor	5	1	4
Ararat and Tavush	4 each	1	3
Gegharkunik	14	7	7

Marz governments have agriculture and environment departments. Data presented in Box 3.2 reveal that the numbers of civil servants in these departments are very small. It must be noted that only in Gegharkunik marz government the mentioned department has recently been divided into two separate agriculture and environment departments. The existing number of civil servants, however, is not adequate for the territory of Gegharkunik marz and its problems, especially problems of Lake Sevan.

Box 2.2. Problems of institutional management in Lori marz

Is the existing capacity adequate for solving the delegated environmental issues? We put this question to Lori marz governor. Compared to other marzes, the number of civil servants working in the Agriculture and Environment Department in Lori marz is the largest. It turned out that only two of the civil servants in the Department deal with environmental issues. At the same time, the marz has large-scale environmental issues. Among them: regional environmental projects for Debed and Khrami rivers; forest protection, Alaverdi copper production facilities, possibly very soon also Vanadzor chemical factory, etc. Naturally, it is not realistic to expect that two civil servants will be able to effectively address the mentioned issues in their entirety.

The marz governor also expressed his opinion that it would be appropriate to have special training for the mentioned two, as well as another 5 civil servants dealing with land use issues. The marz also faces financial difficulties in solving its problems. Two funds have been established in the marz in an attempt to overcome those problems (one of them for eradicating consequences of emergency situations). The funds have been established successfully and are operating already for two years. Activities are currently under way to expand the sources of financial investments and to find interested stakeholders.

The TACIS project on Lori marz development has supported the establishment of marz-community, community-community, community-NGOs links and the progress is already notable. Marz-marz links, however, are practically non-existent. In fact, many environmental problems in Lori marz could have been solved more effectively through marz-marz cooperation. Lori and Tavush marzes use the same Debed River. Sources of water are mainly in Lori marz and they subsequently flow to Tavush marz. State Water Committee is dealing with the issue, but neighboring marzes have not yet discussed or addressed the matter jointly. Thus, water resources of Lori and Tavush, and Shirak

marz as well are interconnected and consequently the cooperation between the corresponding marz governments would only be beneficial to the solution of water related environmental issues. Forests located in Lori and Tavush marzes and Noyemberyan, Ijevan and Tumanyan regions are, in effect, one large forest divided only by the corresponding administrative boundaries. Thus, it would be much more appropriate if marz governments of Lori, Tavush, as well as Kotayk marz cooperated with each other on addressing environmental issues relating to forests. Lori is not particularly special with regard to its environmental and institutional issues, and other marzes have similar difficulties of the same magnitude to deal with.

2.1.3. Local self-governing bodies

As a result of the territorial-administrative policy adopted in 1995, around 930 communities without real capacities and possibilities were formed. The real capacities of communities for effective operations, in conditions of developing and rapidly changing economic and socio-cultural realities, are weakly reflected in the current legal framework and state policy. In the meanwhile, it is difficult to overestimate the role and significance of community and local self-government institution within the context of environmental issues. From this point of view communities have dual role. The majority of Armenia’s communities are rural, i.e. they are direct and main users of nature, and consequently, parallel to regular economic activities have an anthropogenic impact on the environment. Secondly, rural communities, being directly dependent on natural resources, immediately feel the impacts of environmental issues on both their incomes and public health conditions.

In the newly formed socio-economic and legal conditions, ignoring the issue of ensuring specific jurisdictions and possibilities for local self-governing bodies might become one of the causes for continuous development of environmental degradation processes. The current legislation provides limited jurisdictions and rights to LSGBs and those provisioned are mostly of a declarative nature, since LSGBs do not have the financial means matching their responsibilities and stable funding sources, and in addition, as a rule, do not have the relevant capacity with regard to skilled professionals. Moreover, the issue becomes more complicated due to the fact that the majority of LSG bodies do not fully comprehend the ecological aspects of existing problems. The community has a complicated composition, social relationships and pattern of information circulation. A simplified version is presented in Fig. 2.2.

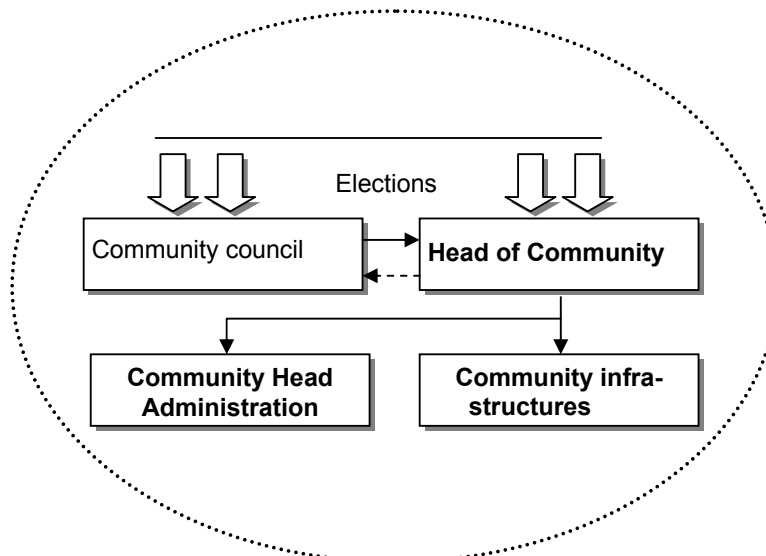


Figure 2.2. Institutional structure of local self-government in Armenia.

Box 2.3. The results of interviews conducted with the local self-governing bodies

Studies conducted in Around 50 communities of Gegharkunik and Ararat marz revealed that small rural communities (up to 1000 residents) the administration of the head of community is only composed of a financial unit. The administration of heads of rural communities with up to 2500-3000 residents, as a rule, includes one more unit, namely a specialist is agriculture or land amelioration. Community administration and units of rural or urban communities with 4000 and more residents have an expanded structure based on their jurisdictions and functions. Administrations of heads of nearly all the studied communities (except urban communities) do not have units dealing with nature or environmental protection issues. And it is difficult to justify this fact by the absence of environmental issues in a given marz or community.

LSGBs can have a significant environmental role, presently, however, they are more than passive with regard to environmental issues, due to the low and even absence of capacity for solving the related problems. The level of environmental information provision and ecological education is very low in communities, i.e. LSGBs do not have the general and technical-economic knowledge needed for solving environmental problems. Results of interviews with 13 heads of communities in Vedi region of Ararat marz 96 in Armavir and 67 in Kotayk marzes also confirm the mentioned fact.

Interviews revealed that 71 percent of heads of communities do not have specialized knowledge on environment and nature use, nevertheless, only 30 percent have mentioned that their environmental knowledge is not adequate; they basically do not know about UN environmental conventions ratified by Armenia, do not have and are not acquainted with the environmental legislation and normative documents currently in force in Armenia (except the Mayor of Vedi town), the majority of community administration do not have environment specialists on their staffs. The majority of respondents (70 percent) indicated that environmental projects have not been developed and implemented in the community. While 30 percent of respondents mentioned that environmental projects have been developed and implemented in previous years:

- Tree plantation and green zone creation activities
- Drainage cleaning
- Food for Work and Food for Training projects.

Despite the existing environmental problems, some heads of communities are totally unaware of the most important environmental problems in need of urgent solutions in their community, possible sources of funding for environmental projects, etc.

This situation is prevalent almost everywhere, and is particularly characteristic to rural communities. In these conditions, for the solution of environmental issues in communities, it is very important that, through education, LSGBs officials develop an understanding of environmental issues in their corresponding communities and acquire the knowledge necessary for overcoming those problems.

According to the results of the mentioned survey, LSGBs have a relatively more active disposition particularly toward targeted use of land and amelioration of private land plots. Heads of communities, based on the interest of the community, are largely interested in protected areas within the territory of their community. Environmental processes in these communities will benefit from LSGBs receiving the corresponding jurisdictions and participating in the management of protected areas.

There is still no organized system in place for training staffs of local self-governing bodies, although some work in that direction has been done, particularly by international organizations, social investments fund, NGOs and Public School of Administration. Training programmes mainly included courses for heads and finance officers of communities. Subjects of those trainings were mainly community budget and three-year programme development. Small-scale training courses were organized also for community council members, for example community councils of Yerevan districts. These training courses were funded by international organizations, individual funds, and partially from the state budget.

Box 2.4. Draft RA law on Municipal Service

The draft RA law on Municipal Service currently being discussed requires mandatory training for every municipal servant at least once every three years. The Draft requires funds to be allocated from the administrative section of annual community budgets for training municipal servants and these allocations should not be smaller than 5 percent of the annual salary fund for municipal servants. As necessary, subsidies would be provided from the state budget to community budgets for training of municipal servants of the community. Other sources of funding not banned by RA legislation can also be used for training of community municipal servants. Training for community municipal servants will be conducted on a bidding basis by selected organizations. Based on requests received from heads of communities, the bidding will be conducted by inter-community unions, or marz government in case of communities not included in inter-community unions.

The draft ascribes the jurisdiction for selecting the training organization and defining the regulations for community municipal servants' training to the body authorized by the RA Government.

Opportunities and needs of institutionalization of conventions' issues within the framework of local self-government system are presented below:

Community objectives

- “Ecologization” of community strategic development programmes, activities, and decisions taken at community level.
- Introduction of sustainable economic management methods, development of environmental and nature protection projects, organizing and implementing measures.
- Rationalization of the management of financial means and resources.
- Participation in the development and implementation of state policies and programmes on environmental and nature protection.
- Inventorying community's existing resources, establishing a data bank, organizing cadastre management and monitoring.
- Development of mechanisms for participation of specialized and non-governmental community residents and nature users in decision-making processes, introduction of social cooperation mechanisms, ensuring the use of the public's potential.
- Publicizing drafts of strategies, development programmes and budget, organizing public discussions.
- Ensuring the transparency of activities, prepare and publicize reports.
- Developing cooperation mechanisms with centres for research and data processing, promoting research.
- Developing and implementing projects together with non-governmental and specialized organizations. Involving the public's potential in the search for funding sources.
- Participating in local and international educational and training programmes, seminars, conferences. Developing and implementing joint programmes together with educational institutions
- Developing, organizing and implementing international, national and inter-community cooperation (including financial) mechanisms, projects and measures.

Community capacities

- Legislative stipulation of the development and adoption of three-year programmes by communities and jurisdictions of LSG bodies.
- Legislative stipulation of the general jurisdictions of communities with regard to issues of local significance.
- Legislative basis for possibilities for specialized, expert and public participation in the elaboration of draft decisions.
- Availability of regulations for obtaining the endorsement of bodies authorized by the Government with regard to proposals and financial proportions of environmental projects proposed by LSGBs.
- Initiation of the decentralization process of state authority in the area of environmental legislation reforms.
- Legislative stipulation and implementation of the process of transferring the ownership rights to state owned land and property in the administrative territory of communities to the latter.
- Legislative stipulation of the principle of transferring central authority jurisdictions to communities, with mandatory provision of the funds needed for implementing those jurisdictions.
- Availability of specialized and non-governmental organizations in RA marzes dealing with ecological issues.
- Availability of LSGBs training centres in some marzes of Armenia.
- Availability of a separate block for training of LSGBs' staffs in the state training programmes.
- Legislative stipulation of the principle of availability of funds for implementation of community jurisdictions.
- Legislative stipulation of the right of communities to manage their property and budgets independently and with their own responsibility.
- Legislative stipulation of community property and sources of budget revenues.
- Legislative stipulation of the right of communities to form inter-community unions in order to solve common issues and increase cost-effectiveness.

Barriers to community's institutional development

- Slow pace of legislative reforms.

- RA law on Municipal Service not being adopted yet.
- RA law on Inter-Community Unions not being adopted yet.
- Absence of normative legal acts regulating the implementation of mandatory jurisdictions of heads of communities.
- Unclear stipulation of the jurisdictions and rights of LSGBs in RA legislation and ignorance for the environmental role of LSGBs.
- Absence of regulations for involving temporary or permanent committees in community decision-making processes.
- Slow pace of the process of transferring the ownership rights to state owned land and property in the administrative territory of communities to the latter.
- Existing social and structural issues in the process of ensuring community budget revenues. Absence of stability and predictability of community budget sources. Limited funding from budgets and other sources.
- Absence of guidelines for developing ecologic strategies. Absence of regulations for obtaining environmental information. Absence of resource inventory and data base. “Exclusive” right of the state to environmental monitoring. Absence of public participation mechanisms, regulations for preparing and submitting reports.
- Absence of ecological units and professional staff members in the majority of administrations of heads of communities, as well as absence of public relations units.
- Low level of motivation among the public to participate in local self-government.
- Absence of modern technical and communications means in the majority of communities.
- Low level of motivation in the civil society sector to cooperate with LSG bodies.
- Absence of information provision and sources of information on activities in the country and outside its borders.

2.1.4. National coordinating structures and international cooperation

A specialized coordinating mechanism for the three thematic areas, i.e. biodiversity protection, climate change and combating desertification, as represented by national coordinators, operates in the country; the National Council of Sustainable Development headed by the RA Prime Minister has been established.

The involvement of specialists from various fields of science and economic sectors in projects implemented within the framework of the conventions has contributed to the successful implementation of projects and personnel capacity building. After the end of projects and discontinuation of funding, however, thematic groups composed of experts are dissolved, the cooperation established with stakeholders and operations of the latter wind down. Despite the commonality of issues and synergistic possibilities of the three environmental conventions, activities are conducted in isolation from each other.

Active international cooperation is conducted within the framework of all the three conventions, i.e. participation in Parties conferences, international and regional seminars, etc. Methodologies and guidelines developed by conventions’ secretariats, as well as materials provided by the UNDP and UNEP are used during the activities. Websites are created, numerous materials have been translated and published, an information centre on climate change has been established, the library on the three thematic areas is expanding.

The analysis of the effectiveness of projects for implementing the provisions and capacity building with regard to the three global conventions is based on the following priority criteria: fully achieving project goals, ensuring the sustainability of the project and human and institutional capacity building.

Assessing the effectiveness of projects based on the mentioned criteria, it can be concluded that projects' resources were mainly used in a targeted manner and favorable preconditions for institutional transformations and human capacity building have been established during the last 5 years. However, shortcomings conditioned by the absence of a coordinated mechanism, inadequate transparency and limited internal resources, lack of access to information and its free exchange at various levels, absence of coordinated and targeted efforts by the governance system and other issues still jeopardize the smooth implementation of projects. It must be noted that the capacity building process should be implemented at local, national and global levels, through the interaction of individuals and/or institutions, the entire system, as well as various levels.

2.2. Recommendations for improving and developing the institutional framework for the implementation of conventions

Public administration reforms are being conducted in Armenia and positive results are already notable, nevertheless the system is still in the process of being fully established. Large efforts are needed in order to bring the system in line with modern challenges, as well as eliminate the gaps and shortcomings identified during the already implemented reforms. The process of the institutional improvement of the system has two levels: strengthening and realizing capabilities of current capacities, and the further reforms of the public administration system, in particular its relatively weaker structures, i.e. the systems of regional government and local self-government.

A fully established public administration system, undoubtedly, will support the implementation of the principles and issues of environmental conventions.

Based on the analysis of the existing institutional capacities, the following recommendations for their improvement and development are elaborated:

- Develop a unified concept paper on the implementation of conventions, taking into account their common provisions and synergistic possibilities.
- Considering that the structure of the Ministry of Nature Protection practically includes the entire range of environmental protection issues, at both national and global levels, it is necessary to strengthen the coordinating role of the Ministry and make the corresponding amendments to the functions of its structural units, aimed to solve issues addressed in conventions in accordance with the unified implementation concept.
- Parallel to the vertical links between governmental bodies, it is also necessary to develop and actively use their horizontal links, which will emphatically enhance the effectiveness of their operations.
- Prepare a draft of RA Government Order on approving the action programme of 2004-2009 for ensuring the further progress toward the implementation of commitments of RA stemming from international conventions.
- Develop mechanisms for cooperation between the focal points for the three conventions and the National Council for Sustainable Development.
- Develop a mechanism for interconnection and integration, and information exchange between sectoral development programmes, international environmental projects and projects implemented by NGOs, which can facilitate the receiving of comprehensive information for the governmental body regarding all the projects being implemented in the sector and thus avoid duplication and ensure maximum use of capacities formed in the country.
- In order to improve the current system of state regulation of foreign assistance in the country, it is necessary to unify reports currently having various forms and being of various natures and simplify procedures both inside the country and on the side of the donor community.
- Develop a continuously operational system of training and re-training in the country, within the frame of national, as well as international cooperation. Special attention should be paid to the improvement of foreign languages and computer skills, learning of operational and administrative methods used by international organizations, ensuring successiveness of institutional structures and personnel, through the establishment of a personnel training system.

Considering the special role of local self-governing bodies in environmental protection, the following measures should be implemented for their institutional development:

- Based on the diverse forms of economic activities having been formed in the country, the overall socio-economic conditions and the experience gained in local self-government, it is necessary to adopt a differentiated development policy for the system divided into specific measures for development of urban, and small and large rural communities, it is also necessary to develop separate approaches considering the differences in their institutional issues.
- Expand the existing legal framework in order to solve the issues relating to the formation of inter-community unions and development of public relations related to their operations. Provide targeted and multidimensional support to the formation of inter-community unions and through them to the formation of the culture of local self-government.

- Develop a new policy for the more rational use of resources and capabilities through unions of small communities.
- Considering that communities are the direct users of nature and their activities result in considerable anthropogenic impact on the environment, it is necessary to encourage communities and give them the possibility to participate, for example in the management processes of protected areas, forests, waters, and involve them in environmental and nature protection and the corresponding monitoring and supervision activities, through the legislation and by clearly defining their jurisdictions and functions.
- Clarify the framework of jurisdictions and functions of central governance and local self-governing bodies in the area of control and supervision of environmental and nature protection. Provide proper leverages and means to local self-governing bodies, in particular for implementing supervision over land use.
- Actively involve communities in projects developed and implemented and events organized in the country relating to conventions, considering the new environmental role ascribed to local self-government and the available government and public potential.
- Expand the participation of LSGBs in solving environmental issues, including through delegated jurisdictions, strengthening at the same time the state supervision over the implementation of those jurisdictions.
- Increase the amounts of environmental penalties to the level of damages caused to the environment and channel those amounts not to the state budget, but the corresponding community and marz environmental funds, which will result in their targeted use for compensating damages done to the environment.
- Provision of the corresponding information to communities is important from the viewpoint of environmental institutional capacity building and needs of LSGBs, through establishing stable sources and channels for obtaining and circulating information. In order for the communities to be able to include ecological components in their development strategies, they need to have knowledge on environmental issues and the corresponding data on environmental protection and to be able to incorporate them into the community socio-economic development indicators.
- From the viewpoint of the institutional development of local self-government system and increasing the effectiveness of its operations, especially with regard to the development of cooperation at national and international levels, it is very important to provide communities with modern technologies and means of communication. Within this context and on a competition basis, implement community institutional support projects, which would aim to not only technical provisions for communities, but also staff training.

3. MONITORING AND ACCESS TO INFORMATION

Environmental monitoring and information provision are very important for having a real understanding of the current environmental situation and its dynamics.

Consistent monitoring, research and data analysis form an indispensable basis for developing the corresponding policies and making the relevant decisions. Thus, the issue is important both globally and from the viewpoint of national priorities.

Monitoring requirements are common to all the three conventions. Technical and scientific cooperation assistance, establishment of data bases, collection, analysis and exchange of information, coordinated observation and assessment of processes of change are important for the effective implementation of the three conventions at local, regional, as well as international levels.

The current environmental situation in Armenia is characterized as unfavorable and corresponds neither to national requirements, nor the requirements of the three conventions. The low quality of monitoring information and data, and sometimes even their absence, hinders the formation of a targeted national environmental policy and the implementation of environmental programmes. The absence of proper environmental information provision has been identified as one of the existing constraints to the implementation of Armenia's commitments under the three international conventions.

National capacity needs with regard to establishing a unified and integrated national monitoring system and data base have been assessed and recommendations for improving environmental monitoring and increasing its effectiveness have been developed.

A particular catalyst for capacity building in the mentioned area is the synergistic effect of the conventions. The significant volume of monitoring data commonly used by the three conventions, allows for optimization of the system of data observation, collection and processing, as well as the institutional structure of monitoring, thus preventing duplications, non-rational use of limited resources and ensuring the synergism of activities.

Box 3.1. The significance of information provision for the three conventions

Data required by each convention have their own specificities, there are, however, some data relating to the solution of synergistic and common issues. In particular, data on land use, forests, lands, climate, hydrology, population and settlements, roads and other infrastructures are required by all the three conventions. Thus, there is a clear-cut set of data, which can be used for preparing reports under the three conventions, as well as implementation of policies and decision-making at national and local levels. Using these data, it is possible to prevent the case where conventions' requirements are implemented outside national policies and programmes. Millennium Development Goals (MDG) and Poverty Reduction Strategy Paper (PRSP) processes in Armenia confirm the crucial necessity for such data.

Information contained in administrative records is very often not accessible, and it is, in effect, not used for policy development and decision-making. The private sector also has some information; valuable information is accumulated within the framework of projects implemented through international assistance, as well as in various governmental and non-governmental organizations. Agencies often do not publicize the data they have obtained, considering that they give them a competitive edge. Often even the organization having the information, as well as sources of the information, are not clearly discernible. There are no official regulating mechanisms for data and information exchange. There is no clear mechanism for reporting. Often, there are difficulties even for the Ministry of Nature Protection in accessing data possessed by other agencies and programmes.

The other important issue is that the main stakeholders have neither data bases, nor technical provisions for information exchange. There is neither a system in place for collecting, analyzing, processing and managing data and information in a coordinated manner.

Data collection and analysis of conditions of natural resources for national communications elaborated under the three conventions were based on the existing data, which were not complete and adequate, and were also partially outdated. Their processing is a time-consuming and costly process.

Responsibilities of information management with regard to conditions and use of natural resources are not clearly divided between central governance and local self-governing bodies. This is, of course, a barrier to data collection, processing, transfer and accessibility. In addition, the new requirements of conventions relating to data collection are not yet reflected in the operation of the corresponding organizations.

3.1. Assessment of existing capacities

3.1.1. Organization of environmental monitoring in Armenia

State environmental monitoring in Armenia is implemented by the body authorized by the state, i.e. the Ministry of Nature Protection. The following monitoring units operated within the Ministry of Nature Protection:

Hydro-meteorological and Environmental Monitoring Agency, with the following functions: coordination and supervision of monitoring activities, data collection, preparation of yearbooks and national reports, development of regulations and programmes for observation networks and research activities in objects under monitoring, etc.

Armenian State Hydro-meteorological Service state non-commercial organization (Armstatehydromet SNCO), with jurisdictions to organize and implement hydro-meteorological and environmental monitoring processes.

Environmental Impact Monitoring Centre SNCO (Armecomonitoring), with jurisdictions to organize and implement environmental monitoring processes.

The Ministry of Nature Protection also incorporates:

Bioresources Management Agency, whose statutory functions include establishing and management of flora and fauna registry, inventory, data base and bio-reserves cadastre; ensuring the establishment and operation of the biodiversity monitoring system; assessment of ecosystems' conditions; ensuring scientific justifications and elaboration of forecasts.

Forestry Scientific-Experimental Centre SCJSC, with functions of organizing and implementing forest development and forest reserves record-keeping; establishing data bank on forest reserves, as well as other functions relating to the development and introduction of scientific and applied basis for improving forests and forest covered areas and increasing their productivity.

Sevan and Dilijan national parks, Khosrov, Erebuni and Shikahogh state reserves (SNCOs), according to their statutes are responsible for organizing and conducting ecological monitoring and record-keeping in their corresponding areas.

Central and regional laboratories of State Environmental Inspection, who have jurisdictions for monitoring emissions and discharges from pollution points, and operations of treatment systems.

Underground resources monitoring services of the Geological Agency, which also have the jurisdiction to monitor groundwater resources.

Monitoring activities with regard to conditions of individual environmental components are also conducted by sectoral ministries and agencies.

Units within the Ministry of Agriculture and under its management also implement monitoring functions necessary for the implementation of the three conventions.

Soil Monitoring and Amelioration Department, implements partial observations of indicators of land use and ameliorative conditions of soils for administrative purposes, and qualitative studies of the conformity of water used for irrigation with the corresponding norms.

Forest Management Agency, is responsible for managing state forest cadastre and monitoring and organizing the state record-keeping of forest reserves.

Armforest SNCO, monitoring of forest resources is among its functions.

State Committee for Real-Estate Cadastre of the Government of Armenia, administers land cadastre (land areas by categories).

Emergency Situations Department of the Government of Armenia, the national seismic protection service has a geo-chemical and hydro-geodynamic observation network and takes daily measurements of changes in water levels, macro and micro-components of waters, and conducts chemical analyses of heavy metal contents. The Department also monitors emergency situations, which allows for having data bases on industrial accidents, industrial and natural disasters (including emergency situations resulting from dangerous meteorological and agro-meteorological phenomena), as well as dynamics of emergency situations in cases of epidemics, occurrences of epizootic and epiphytotic phenomena and/or their threats. This information is necessary for those developing and implementing policies for prevention of the causes of emergency situations and eradication of their consequences. From the viewpoint of environmental protection, this is necessary for assessing damages already caused (or to be caused) to the environment and their consequences, as well as developing and implementing measures for mitigating their impacts.

State Hygiene and Anti-epidemiological Inspection of the Ministry of Health organizes socio-sanitary investigations (monitoring) of the public health impacts of environmental factors, collects information on transmissible and professional diseases, drinking water, food safety, radiation, living and working conditions.

State Water Resources Committee of the Government of Armenia and State Hygiene and Anti-epidemiological Inspection of the Ministry of Health regularly monitor a number of water quality indicators (organic compounds, biogenic elements, etc.) defined by sanitary norms.

Table 3.1. Overview of regulatory development and monitoring activities of various structures by environmental sub-sectors

Sub-sector	Organization	Implementation status	Reason behind not being implemented	Regulating norms	Technical provisions	Human resources	Format of provided information	Consumers
Land resources	Management aspect							
	Ministry of Nature Protection	Not implemented	Absence of bylaws and financial means	Exist, but are outdated	Are practically non-existent	Not adequate	Brochures for administrative purposes, bulletins	Governmental bodies
	Ministry of Agriculture	Implemented partially						
	Industrial aspect							
	State Committee for Real-Estate Cadastre of RA Government	Land by categories		Exist	Adequate	Adequate	Brochures for administrative purposes	Governmental bodies
Ministry of Nature Protection	Not implemented	Absence of bylaws and financial means	Exist, but are outdated	Are practically non-existent	Need to be completed			
Water resources	Management aspect							
	Ministry of Nature Protection	Implemented not entirely	Absence of bylaws and financial means	Exist, but not complete	Inadequate	Need to be completed	Information certificates, reports	Governmental bodies
	State Water Resources Committee of RA Government	Implemented not entirely	Absence of bylaws and financial means	Exist, but not complete	Inadequate	Need to be trained	Information certificates, reports	Governmental bodies
	Emergency Situations Department of RA Government	Only groundwater resources are monitored	Exist	Exist	Adequate	Adequate	Administrative information certificates, reports	Governmental bodies
	Industrial aspect							
	Ministry of Nature Protection	Implemented not entirely	Absence of bylaws and financial means	Exist, but not complete	Inadequate	Need to be completed	Certificates, reports	Governmental bodies
	State Water Resources Committee of RA Government	Implemented not entirely	Absence of bylaws and financial means	Exist, but not complete	Inadequate	Need to be trained	Certificates, reports	Governmental bodies
Emergency Situations Department of RA Government	Only quantitative		Exist	Adequate	Adequate	Administrative	Governmental	

		and qualitative monitoring of underground waters	Adequate				certificates, reports	bodies
Flora, fauna, protected areas, forests	Management aspect							
	Ministry of Nature Protection	Implemented partially	Absence of bylaws and financial means	Not complete	Need to be completed	Need to be completed	Certificates, reports	Governmental bodies
	Scientific organizations (in particular Hydroecology and ichthyology institute of NAS)	Not entirely	Absence of financial means	Adequate (administratively)	Adequate	Adequate	Certificates, reports	Administrative bodies, scientific circles
	Industrial aspect							
	Ministry of Nature Protection	Not implemented	Absence of bylaws and financial means	Not complete	Need to be completed	Needs training		
Atmospheric air	Management aspect							
	Ministry of Nature Protection	Not entirely	Absence of bylaws and financial means	Not complete	Need to be completed	Needs training	Certificates, reports	Governmental bodies, the public
	Industrial aspect							
	Ministry of Nature Protection	Not entirely	Absence of bylaws and financial means	Not complete	Need to be completed	Needs training	Certificates, reports	Governmental bodies, the public
Wastes	Management aspect							
	Ministry of Nature Protection	Not implemented	Not instructed to		Practically non-existent	Need to be completed		
	Governance and local self-governing bodies	Implemented partially	Absence of financial means	Exist, but are outdated	Needs to be completed		Certificates, reports	Governmental bodies
	Industrial aspect							
	Ministry of Nature Protection	Implemented not entirely	Absence of bylaws and financial means	Exist, but are incomplete	Practically non-existent	Need to be completed	Certificates, reports	Governmental bodies
	Governance and local self-governing bodies							

Table 3.2. Legal basis for monitoring

Legislative act	Definition of monitoring activities	Characterization of monitoring activities	Aims (objectives) of monitoring activities	Bodies conducting monitoring activities	Timetable of monitoring activities
1	2	3	4	5	6
RA Legislative Basis of Environmental Protection (9 July 2001)	Study and assessment of environment (A. 13)	Comprehensive and accurate information on environmental conditions (A. 11), Study and assessment of natural environment (A. 13)	RA Legislative Basis of Environmental Protection (9 July 2001)	Study and assessment of environment (A. 13)	Governmental environmental protection bodies (A. 13)
RA law on Hydrometeorological Activities (7 February 2001)	Monitoring hydro-meteorological phenomena: system for continuous observation, assessment and forecasting of hydro-meteorological phenomena (A.2), Observations of hydro-meteorological phenomena: instrumental measurements and visual observations of hydro-meteorological phenomena: qualitative and quantitative hydro-meteorological, climatic, aerological, hydrological, geophysical, agro-meteorological, actinometrical, ozonometrical, and (including radioactive) atmosphere, soil, waters, snow-cover physical, chemical characteristics (A.2)	Comprehensive and accurate information provision on the environment and hydro-meteorological phenomena through the observations network	1) RA law on Hydro-meteorological Activities	Monitoring hydro-meteorological phenomena: system for continuous observation, assessment and forecasting of hydrometeorological phenomena (A.2), Observations of hydrometeorological phenomena: instrumental measurements and visual observations of hydro-meteorological phenomena: qualitative and quantitative hydro-meteorological, climatic, aerological, hydrological, geophysical, agro-meteorological, actinometrical, ozonometrical, and (including radioactive) atmosphere, soil, waters, snow-cover physical, chemical characteristics (A.2)	Governmental bodies authorized for hydro-meteorological activities.
RA Water Code	Monitoring water resources: regulated (and subject to expansion) observation system for hydrological, hydrogeological, hydrophysical and hydrochemical indicators, which ensures their collection and processing (A.1), State Water Cadastre is a continuously operational system, which records comprehensive data on qualita-	Comprehensive and accurate information provision on water resources and their use (A. 19).	RA Water Code	Monitoring water resources: regulated (and subject to expansion) observation system for hydrological, hydrogeological, hydrophysical and hydrochemical indicators, which ensures their collection and processing (A.1), State Water Cadastre is a continuously operational system, which records comprehensive data on qualita-	Authorized governmental bodies State Committee of Real-Estate Cadastre of the RA Government Ministry of Agriculture Local self-governing bodies.

	tive and quantitative indicators of water resources, water basins, and materials extracted from water basin beds and banks, composition and quantities of bioresources, water users, water use permits and water system use permits (A. 1).			tive and quantitative indicators of water resources, water basins, and materials extracted from water basin beds and banks, composition and quantities of bioresources, water users, water use permits and water system use permits (A. 1).	
RA Land Code	Land monitoring is the system of observations, studies and exploration of land conditions and prices. It also includes the monitoring of property attached to the land (A.32, p.1).	Based on the objectives and indicators of observations, land monitoring can be nationwide and regional (A. 32, p. 4).	RA Land Code	Land monitoring is the system of observations, studies and exploration of land conditions and prices. It also includes the monitoring of property attached to the land (A.32, p.1).	According to A. 6, RA Government, Ministry of Agriculture, Ministry of Nature Protection, Armforest.
RA Forest Code	Forest monitoring is the system of observation and study, assessment and forecasting of conditions of forests and their development dynamics (A. 56).	Forestry and forest development.	RA Forest Code	Forest monitoring is the system of observation and study, assessment and forecasting of conditions of forests and their development dynamics (A. 56).	Ministry of Nature Protection
RA law on Natural Protected Areas	Study of natural phenomena and observations of natural environment (A.4).	Biodiversity protection.	RA law on Natural Protected Areas	Study of natural phenomena and observations of natural environment (A.4).	RA Government (organizing monitoring) (A. 5). Relevant governmental services (implementation) (A.37).
RA law on Atmospheric Air Protection	Observations and improvement of the quality of atmospheric air.	Surveillance of atmospheric air by chemical, physical and biological indicators (A. 37).	RA law on Atmospheric Air Protection	Observations and improvement of the quality of atmospheric air.	Authorized governmental body (A. 6).
RA law on Fauna	Study of wild fauna ecosystem.	State monitoring is one of the components of fauna studies (A.9) State monitoring of fauna contributes to defining fauna diversity and sustainable use norms (A.12).	RA law on Fauna	Study of wild fauna ecosystem.	Authorized governmental bodies, State Committee of Real-Estate Cadastre of the RA Government, Ministry of Agriculture, Local self-governing bodies.

3.1.2. The legal framework for environmental monitoring

Nearly all the current laws in Armenia relating to environmental protection and nature use incorporate provisions on monitoring and information provision with regard to environmental components and conditions of natural resources.

The available legal framework for environmental monitoring is summarized in Table 4.2.

A number of gaps were identified as a result of the analysis of the legal framework:

- The key legislative document on monitoring, i.e. RA law on RA Legislative Basis for Environmental Protection, does not include a general and comprehensive characterization of the concept of "monitoring", and as a result there is a significant discrepancy among interpretations of that process in all other laws, as well as differing understandings of characterizations and issues. Definitions of monitoring are more or less similar in Armenia's Land Code and Forest Code, but they are very vaguely formulated, lack specificity, and the nature and principles of the monitoring process are not addressed. These are fully formulated in the RA law on Hydro-meteorological Activities, in particular RA Government Order No. 411 dated 3 April 2003 provides
- very declarative characteristics for monitoring elements and activities, they are incomplete, and give the impression of notes just jotted down, aims and objectives are formulated in a general manner, do not fully reflect the areas for which monitoring data bases should be established and their specificities
- In some cases, the mentioned laws do not clearly define the main functions of monitoring bodies, which makes their further addressing in bylaws difficult, creating duplications and gaps. For example, the Water Code defines that the body responsible for water resources management and preservation supports monitoring activities, while the RA Government Order ascribes monitoring functions to the same body. Statutes of the Ministry of Nature Protection and the Hydro-meteorological and Environmental Monitoring Agency define the same monitoring functions ascribed to State Hydro-meteorological and Monitoring Centre SNCO and Environmental Impact Monitoring Centre SNCO.
- In general, the coordination and summarization of environmental monitoring activities are not regulated by Armenia's legislation. Although the Ministry of Nature Protection is responsible for state environmental monitoring, nevertheless the activities of various agencies, and today also numerous state non-commercial organizations, are either directly or indirectly linked to information collection on the environment and its components, natural resources, conditions of natural and artificial ecosystems, and natural and anthropogenic impacts on the latter and their consequences; thus it is obviously necessary to establish a unified system for environmental information collection and provision, as well as institutions responsible for the maintaining this unified system.
- In order to eliminate the existing gaps in environmental monitoring legislation and during the formation of the comprehensive legislative package, requirements of environmental conventions ratified by Armenia and their synergistic possibilities should be taken into account. It is also necessary to clarify the framework of monitoring activities, which are, or should be, conducted by ministries of Nature Protection, Agriculture, Urban Development, the State Committee of Real Estate Cadastre of RA Government and regional governance bodies, and legislatively regulate issues of coordination, information and data collected and processing with regard to the monitoring system.

3.1.3. Financing of monitoring system

State (budgetary) funding of environmental monitoring is extremely limited. In 2001-2003, expenditures on monitoring amounted to 0.3-0.8 percent of public expenditures (US\$2-3 million) on environmental measures. Low level of funding does not allow for modernization and expansion of the monitoring network and overall improvement of the effectiveness of monitoring activities.

With the limited resources allocated to monitoring, improvement of the institutional structure and establishment of a unified monitoring system can have an important role in increasing its effectiveness, due to more rational use of financial and human resources and will prevent the duplication of functions of various agencies.

3.1.4. Difficulties, barriers and overall assessment of effective monitoring

Analysis of Armenia's current situation of environmental monitoring, monitoring institutions and availability of monitoring data and information allows for revealing weaknesses and barriers, the overcoming

of which will contribute to the effective application of monitoring, including the implementation of country's commitments under the three international environmental conventions. The following are among the main difficulties and weaknesses:

- Low level of technical provisions of the surveillance network and information processing and transfer
- Low quality data (significant uncertainties, incomplete data), their insufficient analysis and processing, which is not adequate for developing well-founded policies and implementing programmes. Flora and fauna, including forests, are not monitored at all.
- Absence of a unified and integrated monitoring system and interagency fragmentation of monitoring institutions. There is no unified system of data collection, even within the Ministry of Nature Protection, although it is the governmental body authorized for monitoring and is the only governmental structure responsible for the implementation of the three conventions. Even Armstatehydromet, the Geological Agency, the Bioresources Management Agency and the Radiological Monitoring Center, which are within the Nature Protection Ministry's structure, operate independent from the Environmental Impact Monitoring Center. Laboratories and facilities belong to various agencies (Monitoring Center, Inspections, Geological Agency). The Monitoring Center does not collect and analyze the environmental data obtained by other organizations. The establishment of the Informational-Analytical center should have contributed to this process. The existing institutional system should be reinforced and cost-effective and sustainable mechanisms should be developed.
- Reports submitted are not complete, and often do not correspond to the requirements of the conventions or international treaties, the provided information is outdated, which is partially explained by the absence of financial and technical resources. In a border context, the reason is the absence of the corresponding legal and institutional system, which would have contributed to the accessibility of information for decision-makers. Conventions' focal points have also underlined the fact that the ecosystem approach is not taken into account during data collection. There are no adopted criteria for assessing ecosystems. Unclear division of responsibilities between various agencies and incomplete data create additional difficulties for the country in implementing its commitments. Monitoring and data collection of main environmental components often does not include the above-mentioned concepts, which are very important for global environmental management and compliance with conventions' requirements. For example, information on conditions of land resources is very limited and does not reflect the carbon content of the land and issues of land degradation. The reorganization of the process of data collection should also include measures for improving the collection of the mentioned data.
- Low quality or absence of monitoring and environmental effectiveness assessment programmes.
- Absence of willingness to provide information to the public and clearly defined relevant procedures.
- Low level of discipline in enforcing environmental laws which define the necessity for monitoring and information collection and absence of consistent control over their enforcement.
- Inadequate financial resources allocated to the monitoring system, information processing and exchange, and the non-rational use of limited resources allocated to monitoring, as well as duplication of functions between various agencies.

3.2. Dissemination of and access to monitoring information

There are very few disseminations of the already limited monitoring information in Armenia. They are mainly used for administrative purposes, and are provided only to some governmental bodies in the form of a very short summary. As a rule, it is provided only in response to an official request, and only for the indicators specified in the request.

Only analyses based on monitoring information, but not monitoring data, are adequately publicized. Being of a strictly specialized and/or scientific nature, they do not meet the needs of the wide public; publications are mainly on paper and in limited copies.

Low level of accessibility of information is also explained by the lack of awareness on the existence of such information (even more so in case of targeted information) among the public. There are also plenty of cases, where requests for information by consumers have not been answered or the response has been formulated in a way that has avoided the issue altogether. And sometimes the information received has been useless.

Environmental monitoring, and generally environmental protection issues, are covered by the mass media on a case by case basis. The only regular publication is, arguably, the "Nature" periodical published by the Ministry of Nature Protection.

Presently, the National Statistical Service is the organization publishing comprehensive information. These are annual statistical-analytical bulletins, i.e. yearbooks. The information is also available at the NSS website www.armstat.am.

It would be more effective to publicize the information through the Informational-Analytical Centre SNCO of the Ministry of Nature Protection, which is authorized by the RA Government to collect information, accept, analyze and publicize reports, provide information as defined by regulations, and maintain the intranet and the official website of the Ministry at www.mnpiac.am.

Based on the phases of monitoring activities and consumer demands, dissemination of the results of monitoring activities (as regards the information subject to dissemination) may contain information at the following levels:

- Measurements, observations, calculations
- Preliminary data processing and sectoral analysis
- Summary data and multi-functional analysis.

The form and content of dissemination mainly depends on consumer demand and aim of the dissemination. In particular, coordinated data bases have higher demand in scientific-educational circles. There are significant possibilities for data dissemination and coordinated data collection, as well as enhancing the effectiveness of data analysis. The first positive step for coordinating information dissemination is data collection, storage and establishment of information provision systems. In many areas, environmental planning benefits from the development of the corresponding data system. In this regard, joint financing mechanisms for such data system by various governmental, non-governmental and private sources should be discussed.

Table 3.3. Priority action plan for establishing a national monitoring system

Activities	Implementation timetable
Develop and approve an environmental monitoring concept paper	2004-2005
Form a coordinating body for environmental monitoring	2004-2005
Develop a targeted environmental monitoring programme	2005
Adopt a national environmental monitoring programme	2005

4. FINANCIAL TOOLS AND MECHANISMS

Economic and financial mechanisms for implementation of UNFCCC, UNCBD and UNCCD may have a synergistic effect, if their drafting, application and supervision mechanisms are elaborated jointly, since the above-mentioned conventions are interrelated in a number of fields and in many cases they supplement each other.

The research has been carried out in one package with consideration of objectives and goals of the conventions in environmental and nature use context of the Republic, as well as the priorities of current development stage of the country. Such an approach is required to establish principles of sustainable development and to meet international requirements in this respect.

To ensure the reduction of negative environmental impact and sustainable and efficient use of natural resources, as well as fulfilling environmental inputs, replenishing the state budget and ensuring financial resources generation, a certain system of economic and financial mechanisms has been introduced thanks to the adoption of RA Law on Nature Protection and Nature Use Fees and sub-legislative acts regulating the implementation of the Law, which bases on nature protection and nature use fees. Thanks to this system state budget income has sufficiently increased.

4.1. Analysis of applicable financial tools and mechanisms

The necessary funding for addressing the current environmental protection issues is provided from RA state budget and donor sources.

Environmental and nature use fees are charged for water, mineral- and bio-resources use, hazardous emissions to the environment, industrial and domestic wastes disposal into the environment, and obtaining and importing of goods damaging the environment (Fig. 4.1)

The budgetary flow (environmental fees) is presented in Fig. 4.2. Currently, all the environmental and nature use fees flow into the RA state budget according to the law and governmental decrees provided in the above scheme.

The dynamics of environmental and nature use fees (1996-2000) is presented in Fig. 4.3. It shows an increase of the flow of funds into the RA budget (more than 3 times compared with 1998). This increase is mainly conditioned by the growth of charges because of:

- Increase of mining and constructing industry
- Increase of international prices of precious and non ferrous metals
- Growth of nature use tariffs for several mineral resources (mineral water, salt)
- Increase of efficiency of environmental inspection activities.

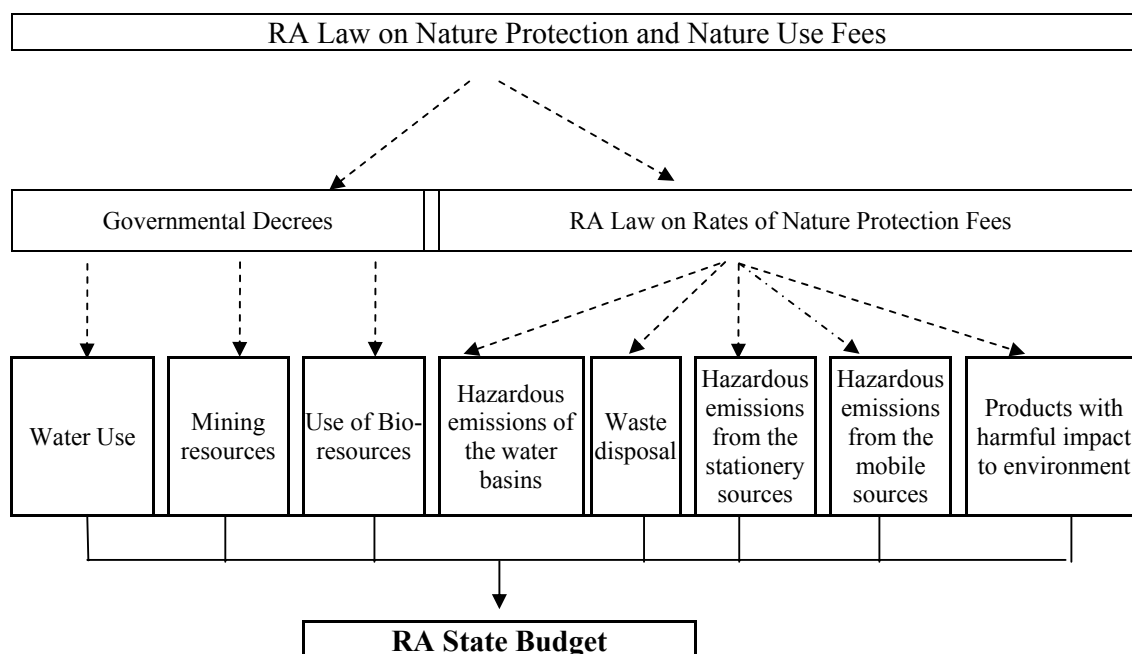


Figure 4.1. Flows of environmental and nature use fees

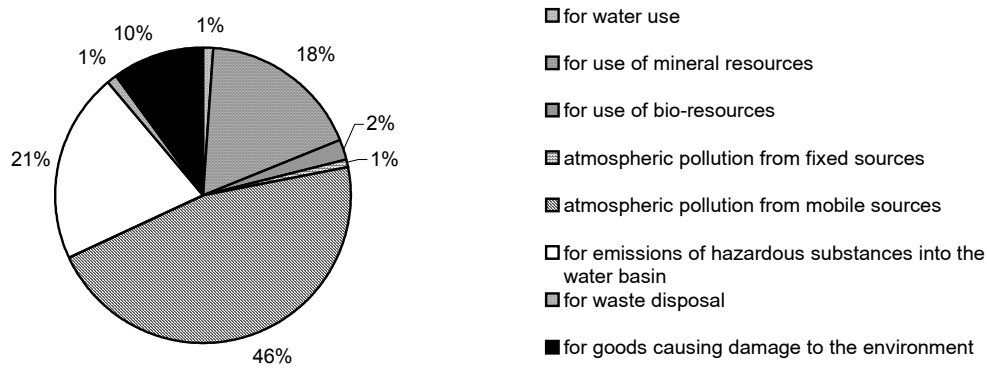


Figure 4.2. Environmental and nature use fee structure, 2003

There is a substantial increase in environmental fee flows (more than 15 times compared with 1998). This is conditioned by the increase of environmental fees for emissions of hazardous substances into the atmosphere on the account of fees for emissions from mobile sources. The charges for emissions of hazardous substances from cars and other mobile mechanisms registered in RA are taken based on the motor power.

The rise of charges is conditioned by:

- increase of international transportation;
- increase of environmental fee rates of 1999
- increase of efficiency in customs and environmental inspection

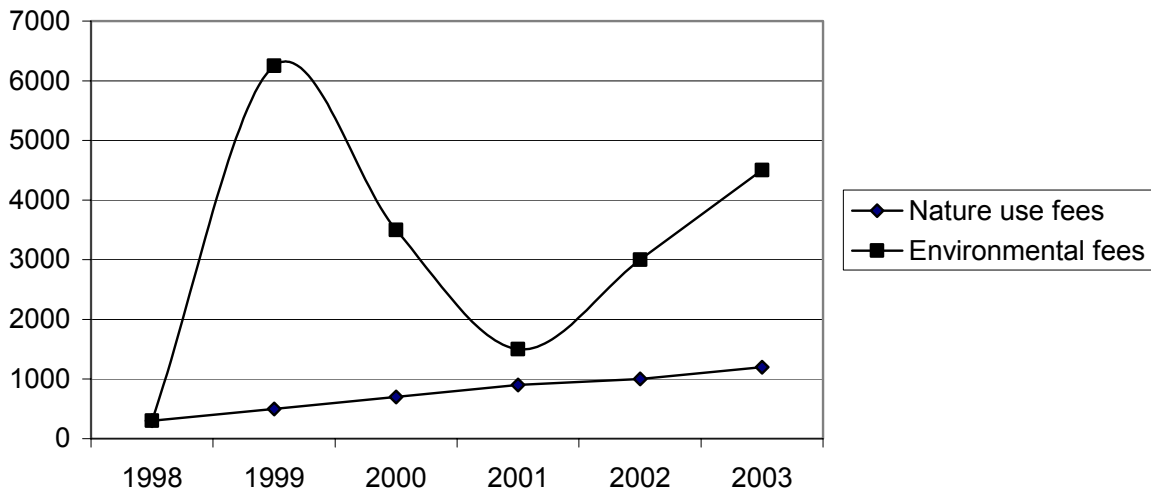


Figure 4.3. The Dynamics of Environmental and Nature Use Fees in 1998-2003

Environmental activities in Armenia are financed from the state budget and internal donors (Fig. 4.4)

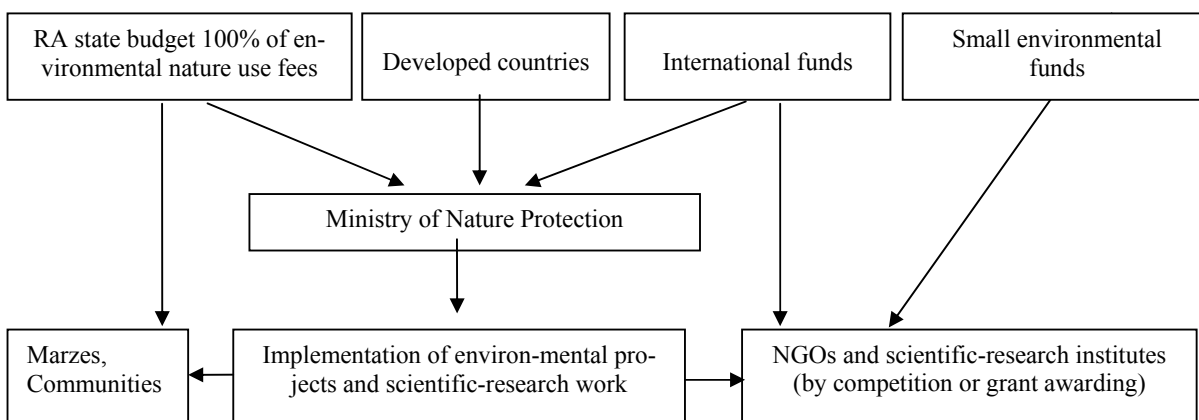


Figure 4.4. Financial flows for environmental activities

Budget Funding

The allocations from the RA state budget for environmental protection include capital and running expenditures (including administrative and current natural resources management expenditures).

The budget expenditures for environmental activities in 1995-2003 and their ratio to GDP are given in Table 4.1 and Fig. 4.5.

Table 4.1. Expenditures from RA state budget for environmental protection

	1996	1997	1998	1999	2000	2001	2002	2003
GDP- mln AMD	661,2	804,3	955,4	987,1	1031,3	1175,5	1321,9	1434,9
Environmental protection - mln AMD	605,1	1465,1	1505,2	2783,6	3387,6	2176,9	2301,5	3627,6
General expenditures as % of GDP	0,09	0,18	0,16	0,28	0,33	0,19	0,17	0,25
Capital expenditures	365,7	1093,6	994,4	2284,8	2816,8	1612,5	1612,5	2394,1
Current expenditures	239,4	371,5	510,8	498,8	570,8	564,4	930,6	1233,5

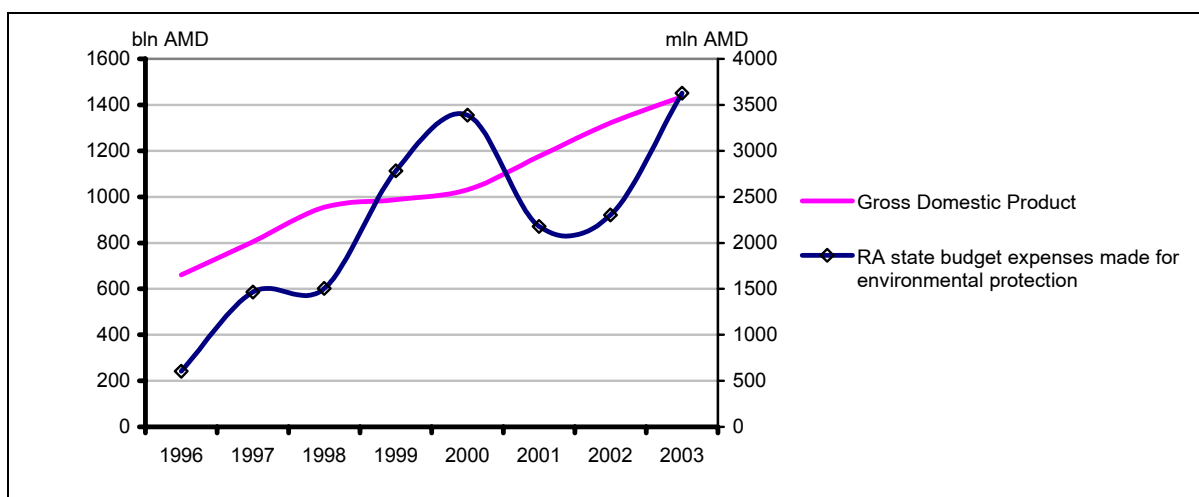


Figure 4.5. Budget expenses for environmental protection and the GDP dynamics.

Given the above set data it is obvious that the general allocations from the RA state budget for environmental protection against GDP are very low –from 0.09% to 0.33%. Moreover, while the GDP has a tendency of steady growth, the expenses for environmental protection are strongly fluctuating; they may sharply increase or decrease. The allocations made in 2003 with 0.25% of GDP are among the highest recorded with

0.28% in 1999 and 0.33% in 2000. However, even such ratios are not sufficient for any environmental protection.

The analysis of the structure of budget allocations (Fig. 4.6) shows that the major part of capital expenditures goes into those needed for water resources (99%), the current expenditures largely are spent for water resources (55%) and on administration (26%). The share of current expenditures on land protection, monitoring, environmental education and public awareness does not exceed 3.5%. There are absolutely no allocations for atmosphere protection, whereas, the major part of environmental fees (47%) is charged for atmosphere pollution.

The share of expenditures for natural resources management in the allocations of state budget for environmental protection was 3.4% in 2003. Most of allocations for natural resources management go to conservation of forest resources and their economic use, which in 2003 covered 9.2% of all current expenses of the RA state budget for environmental protection. However, these allocations cannot ensure rehabilitation of forest resources affected badly in the result of the economic and energy crisis of the last decade. They will neither ensure conservation and economic management of these resources under current social and economic conditions of the country.

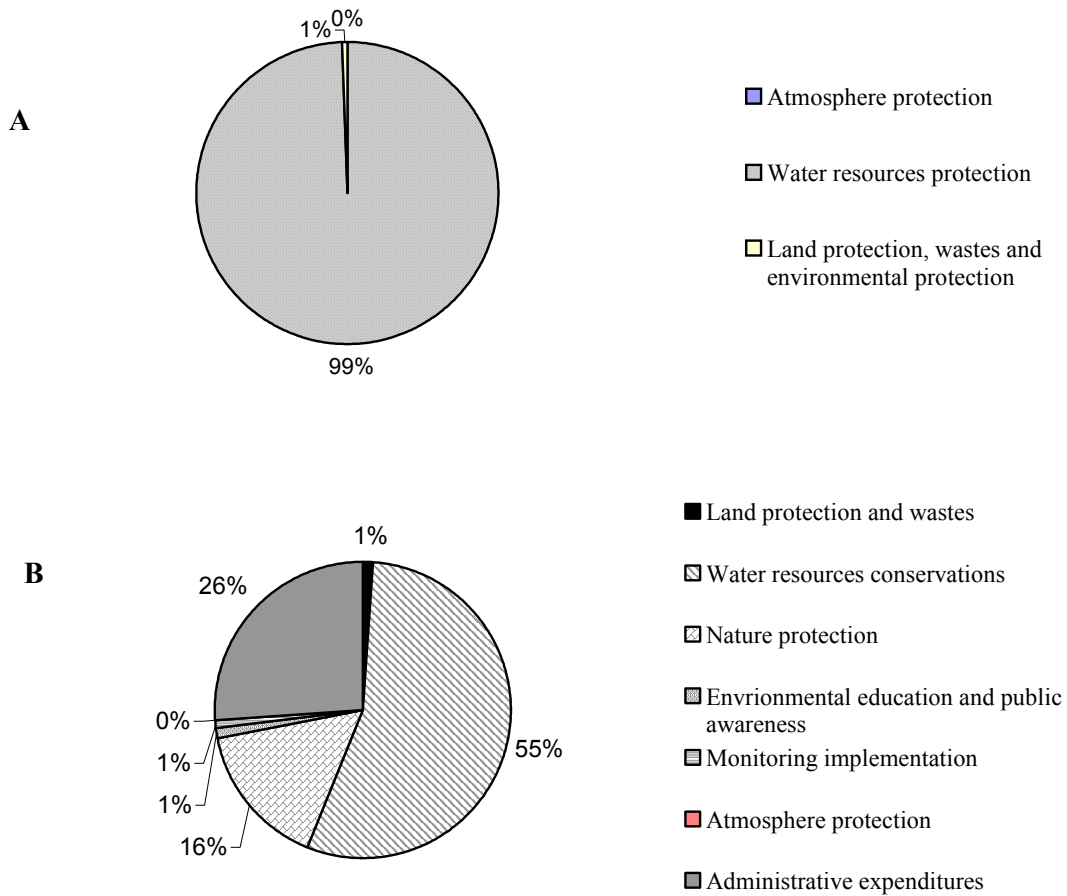


Figure 4.6. Structure of budget expenditures for environmental protection: A) capital and B) current, 2003

Comparison of environmental and nature use flows shows the budget expenditures on environmental activities is rather less than inflows (Fig.4.7).

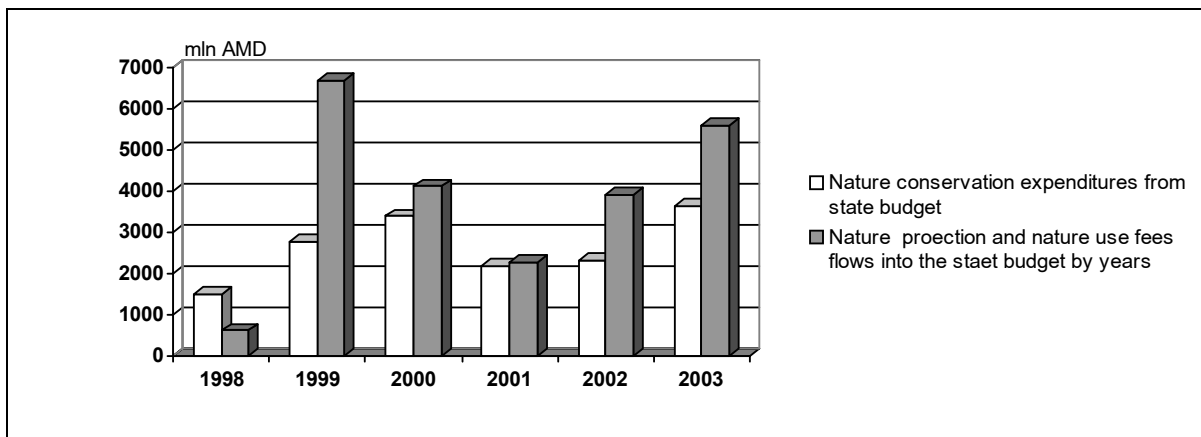


Figure 4.7. The ratio between the inflows for nature use and nature protection and expenditures for nature protection.

The incremental funding for environmental activities in Armenia is mainly implemented by international funding organizations (USAID/WB, GEF, UNDP, UNEP, TACIS etc) and donor countries. Thanks to their financial assistance, projects have previously been and are currently being developed in the country, that have strategic importance for environmental protection both on national and regional levels, and are harmonic with convention goals.

The analysis of environmental activities and applicable financial mechanisms lead to the following conclusions:

- Allocations from the state budget for environmental measures, including activities on the implementation of RA commitments towards the three international conventions, are very limited (25% of the GDP in 2003) despite the trend of growing budget inflows due to environmental and nature use fees;
- Budget income from environmental and nature use fees evidently exceeds the expenditures allotted to environmental activities and the difference is not used purposefully (the recently adopted RA Law on Purposeful Use of Nature Protection Fees Paid by Organizations will contribute to increase the efficiency of purposeful use of financial resources, Box 4.1);
- Environmental and nature use fees have administrative, fiscal character. This type of financial mechanism does not ensure an appropriate feedback, neither it supports the environmental activities of polluters and reflects the real damage to the environment;
- Environmental protection mechanisms that are efficient in a market economy are practically not applied in Armenia; there are no tax incentives for organizations and private sector implementing environmental activities, including the implementation of commitments under the three global conventions and application of ecologically safe technologies.

Box 4.1. RA Law on Targeted Use of Environmental Fees Paid by Organizations

Allocations from the environmental fees of some enterprises listed in the Law are made to the budgets of those communities, where the activities of enterprises have negative impact. The allocations are approved by the Law on State Budget for the given year and are made from the budget as a share. The shares flowing to community administrative budget from environmental fees are targeted means and are used only for implementation of environmental projects in the given community. Despite the complicated mechanism of enforcement of the Law, it is significant for addressing environmental issues in communities.

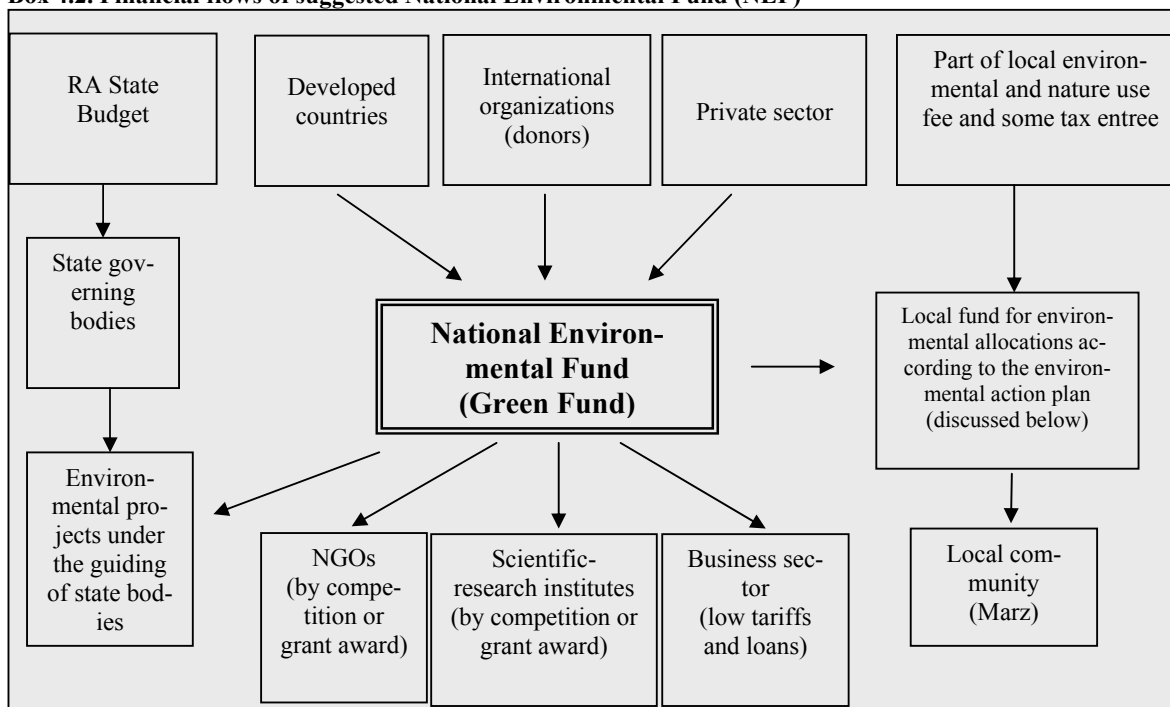
4.2. Recommendations for improvement of financial and economic tools

Application of economic tools is of vital importance for developing economically efficient strategies to address key issues of environmental protection, including implementation of the three environmental conventions. Economic tools contribute to integration of environmental policy into the policies of other areas, more effective distribution of resources, encouragement of financial investments for environmental protection, as well as support the introduction of ecologically safe and cost-effective technologies.

Considering the above-mentioned financial situation, the outcomes of analysis and assessment of application of economic tools and funding environmental activities, the following recommendations are made to improve the situation:

- Targeted accumulation of means in the state budget for investment financing, derived from the account of fees charged for the environmental protection;
- Establishment of system for national and local environmental funds (*Box 4.2*);
- Review the rates of environmental fees and the amount accumulated to establish a proper relation to the real economic damage done to the environment
- Shift the taxation structure by increasing pressure to pollution causing activities and at the same time reducing social taxes (for instance on salaries and social insurance funds). In this manner additional sources for investments in environmental protection can be generated without increase of tax structure for pollution causing enterprises.
- Application of subsidy and tax privileges for enterprises implementing activities to prevent environmental pollution and degradation (e.g. waste treatment and recycling, use of renewable sources of energy etc);
- Establishment of insurance funds for restoration of natural resources and prevention or reduction of consequences of possible natural disasters. An efficient mechanism might be considered establishment of a special insurance fund, which could be funded by enterprises exploiting natural resources, in the same logic as the Environmental Protection Fund envisaged by the RA Law on Concession. This insurance fund should direct the accumulated means to the restoration of natural resources, elimination of consequences of natural and environmental disasters, as well as should be managed jointly by the state and society;
- Establishment of infrastructures and development of projects for implementation of Clean Development Mechanisms of Kyoto Protocol. The Kyoto Protocol, adopted in the framework of Climate Change Convention, has a synergistic impact. Thus, implementation of activities on the expansion of forest cover as GHG sink is in harmony with the goals of UNCBD and UNCCD.
- Cooperation with GEF for effective use of financial mechanisms of the three conventions in the country, especially in small grants projects.

Box 4.2. Financial flows of suggested National Environmental Fund (NEF)



5. INTER-SECTORAL, INTEGRATED AND COMPREHENSIVE PLANNING OF THE USE OF NATURAL RESOURCES

Natural resources (NR) discussed here are land (including underground), biological and water resources. Rights with regard to NR are based on the RA Constitution and the RA Civil Code. Relationships regarding NR use in the RA are regulated by Land, Forest, Water, Underground Resources Codes, as well as a number of laws and bylaws.

The main functions of the Ministry of Nature Protection include ensuring NR protection, rational use and regeneration, as well as conducting a unified environmental policy, and supervising the use of NR and environmental conditions.

Ensuring ecologically sustainable and rational use of NR is one of the basic preconditions for implementing commitments undertaken by Armenia under the three international conventions.

The interrelationships between the three conventions and their common synergistic possibilities contribute to the application of a comprehensive and integrated approach to general environmental protection activities and the planning of the sustainable use of NR.

The situational analysis of the implementation of Armenia's commitments under the conventions revealed that there is a lack of coordination and agreement between general environmental protection activities and the planning of the sustainable use of NR, within the framework of both the implementation of conventions and elaboration of national development and planning programmes, which are mainly based on a more sectoral approach.

The most effective measures for more efficient management of general environmental protection and sustainable use of NR are the use of a comprehensive, coordinated and harmonized approach for planning the synergistic effects and cross-cutting activities of the conventions, and the integration of conventions' issues into the existing national programmes.

The objective of the assessment is to identify the national capacity building needs for comprehensive, inter-sectoral and integrated planning of NR use for the implementation of the issues of the three conventions.

Representative form governmental bodies, as well as specialists in regional planning and nature use were included in the Working Group.

The following sources of information were utilized:

- Results of situational analyses in biodiversity, combating desertification and climate change thematic areas
- Statistical data on the situation of NR
- Sectoral programmes and plans on NR use
- Information on activities of governmental bodies and private companies, which use NR and are responsible for their preservation
- Information on the activities of specialized research and design centres.

5.1. Analysis of synergistic possibilities of conventions and, based on that, formulation of a comprehensive and integrated plan for the use of natural resources

The analysis of assessments conducted in biodiversity, climate change and desertification thematic areas revealed a number of coinciding, interrelated and mutually complementary activities related to NR use.

Characteristics of Armenia's NR, as well as causes and consequences of their non-rational use, are summarized in Box 5.1. Analysis of the causal relationships reveals the links between the nature of NR use, environmental conditions, socio-economic conditions and issues of conventions and contributed to the application of a comprehensive and integrated approach to the use and management of NR.

Table 5.1 presents the main forms of activities directed toward the implementation of conventions' requirements, which are directly linked to NR use, as well as the synergistic links between the conventions.

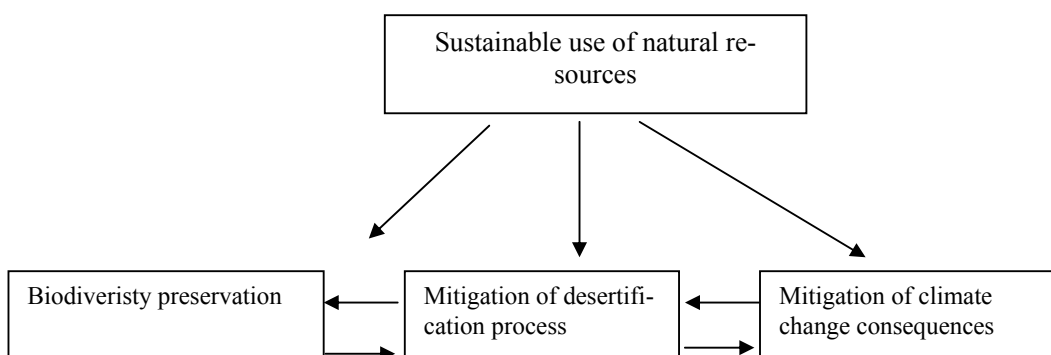


Figure 5.1. Link between sustainable use of NR and conventions' issues

Measures for sustainable use of NR in each thematic area practically coincide. Common and cross-cutting issues allow for applying a comprehensive, integrated and synergistic approach to the planning of NR use strategy.

This approach excludes the necessity for planning NR use separately for protection of biodiversity, climate change and combating desertification and allows for developing a comprehensive, integrated and packaged plan of NR use, which can be incorporated as a component in action plans for the implementation of each convention, which, in its turn, will be the basis for the master plan, taking into account also the provisions of conventions (Fig. 5.2).

Table 5.1 presents the main forms of activities directed toward the implementation of conventions' requirements, which are directly linked to NR use, as well as the synergistic links between the conventions.

Thus, rational and sustainable use of NR is an important condition for implementing conventions and can be presented through the scheme in Fig. 5.1.

Table 5.1. The situation of Armenia's natural resource and the consequences of their non-rational use

Natural resources	Impact factors/conditions of resources	Main causes	Consequences
Land re-sources	<ul style="list-style-type: none"> ▪ Strengthened natural factors (landslides, floods, soil erosion and salinity) ▪ Around 30 percent of arable land not cultivated ▪ Lower land fertility ▪ Large areas of degraded lands 	<ul style="list-style-type: none"> ▪ Decrease in the volume of protective measures due to lack of funding ▪ Weak small farms and absence of state support ▪ Not using crops rotation and decrease in fertilizer use by 3 times ▪ 40 percent decrease in irrigated land areas ▪ Overexploitation of mineral resources and lack of restoration of degraded lands ▪ Low effectiveness of environmental supervision system 	<ul style="list-style-type: none"> ▪ Intensification of desertification processes ▪ Impoverishment of biodiversity ▪ Lower yields from agricultural crops ▪ Economic losses
Biological resources	<ul style="list-style-type: none"> ▪ Large-scale reduction in forest resources and degradation of forest ecosystems ▪ Increase in forest desiccation and pests ▪ Degradation of natural grazing lands (pastures and grasslands) ▪ Reduction in flora and fauna species used for commercial purposes ▪ Reduction in the number of species in natural protected areas ▪ Decrease in the areas of agricultural perennial crops 	<ul style="list-style-type: none"> ▪ Energy crisis, decline of heating and gas supply systems ▪ Absence of measures for combating pest insects ▪ Weakness of small farms ▪ Wide-scale and uncontrolled use of bioresources and poaching due to population's poverty ▪ Activation of the eutrophication process in Lake Sevan ▪ Disruptions in the protection regime of natural protected areas ▪ Low effectiveness of the environmental control system 	<ul style="list-style-type: none"> ▪ Impoverishment of biodiversity ▪ Activation of external processes and desertification processes ▪ Reduction in carbon sequestration and accumulation by vegetation ▪ Economic losses
Water re-sources	<ul style="list-style-type: none"> ▪ Huge water losses (50 percent) in the irrigation system ▪ Huge water losses (65 percent) in the water supply system ▪ Drop of water level in Lake Sevan by 19.8m, decrease in water volume by 43 percent ▪ Pollution of Lake Sevan and rivers with wastewaters 	<ul style="list-style-type: none"> ▪ Worn-out irrigation and water supply systems and their poor technical conditions ▪ Absence of proper water consumption recording ▪ Long-time use of Lake Sevan waters for irrigation-energy purposes ▪ Use of outdated irrigation technologies ▪ Halt in operations of all wastewater treatment stations ▪ Low effectiveness of environmental supervision system 	<ul style="list-style-type: none"> ▪ Land flooding, swamping and secondary salinization, intensification of desertification processes ▪ Irregular water supply to the population ▪ Disruption of Lake Sevan's ecological balance and activation of eutrophication process ▪ Loss of biodiversity in Lake Sevan basin ▪ Economic losses

Table 5.2. Activities in Armenia for the implementation of common requirements of international conventions related to the use of natural resources

Convention	Activity, related to implementation of conventions	Link with conventions
Convention on Biodiversity	<ul style="list-style-type: none"> Restoration and sustainable use of forest resources Restoration and sustainable use of natural grazing lands Protection of natural landscapes and ecosystems Protection of water ecosystems, including Lake Sevan ecosystem Expansion of protected areas, creation of buffer zones and ecological corridors, paths for animal migration Reduction of anthropogenic impact on the environment 	FCCC, CCD
		FCCC, CCD
		FCCC, CCD
		FCCC, CCDCCD
Convention to Combat Desertification	<ul style="list-style-type: none"> Expansion of irrigated land areas Amelioration of agricultural lands and protection of areas from external processes Restoration and sustainable use of forest resources Optimization of spatial planning in marzes and communities 	CBD, FCCC
		CBD, FCCC
		FCCC, CCD
		CBD, FCCC
Convention on Climate Change*	<ul style="list-style-type: none"> Economical and rational use of water Supplement Lake Sevan water reserves Increase volumes of accumulation of river flows Use of modern water-saving technologies Optimization of land use, amelioration of agricultural lands Use of technologies which maintain humidity in soil Restoration and sustainable use of forests, expansion of forest covered areas Protection of natural ecosystems, including water ecosystems 	CCD
		CCD, CBD
		CCD
		CCD
		CCD, CBD
		CCD
		CBD, CCD
CBD, CCD		

* Response measures for mitigating climate change consequences

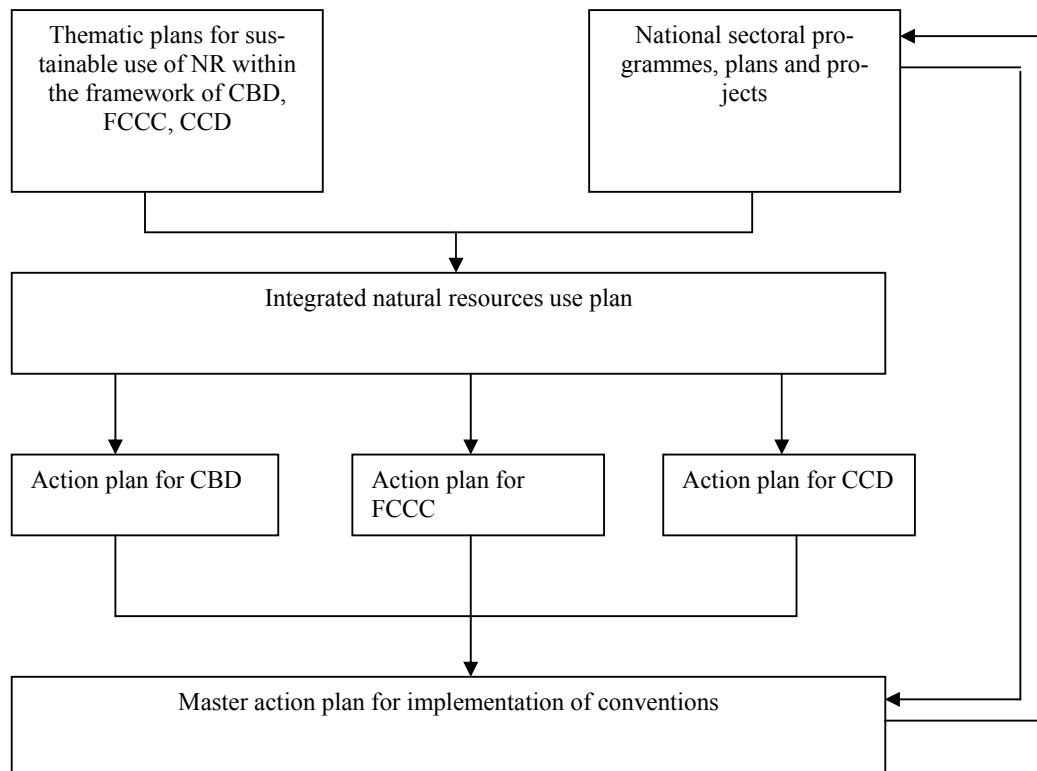


Figure 5.2. Scheme for integration of conventions implementation and framework plan

Box 5.1. National programmes and plans regarding NR protection and use, which can be integrated in the planning system

- National Environmental Action Plan, 1998
- Natural Resources Management and Poverty Reduction (is being developed)
- Armenia's Forest Resources Assessment project, (with Swedish International Development Agency), 1998
- National Policy for Development of Forestry Sector (is being developed)
- Forest Management component (is being developed)
- Project for Development of Natural Protected Areas in Armenia, 2002
- Restoration of Lake Sevan Ecological Balance project, 1998
- Annual and comprehensive action plans for restoration, protection, regeneration and use of Lake Sevan ecosystems, 2001
- Integrated Water Resources Management Programme, 2001
- Project for Strengthening Sustainable Management of Water Resources in order to Improve the Environmental Quality of in Armenia, 2001-2003
- Armenia's Irrigation Systems Restoration programme, 1994-2001
- Armenia's Irrigation Systems Development programme, 2001-2007
- Municipal Water Supply and Wastewater Disposal programme, 2000-2004
- National Report on Sustainable Development of Armenia's Settlements, 1999
- Concept Paper for 2001-2005 Measures for Development of Agricultural Amelioration in Armenia
- Armenia's Master Plan for Resettlement, 2003
- Programme for Priority Anti-Landslide Measures in Armenia, 2001-2005
- Armenia's Sustainable Agricultural Development Strategy, 2004
- Spatial Planning and Landscapes (jointly with EU; is being developed)
- Armenia's Master Plan for Mining Development (jointly with Japanese Mizui Ltd.Co), 2003

A large number of environmental and rational NR use projects and plans have been developed in recent years in Armenia with the financial support of international organizations and donor countries (see Box 5.2). During their development, however, coordination and harmonization were not ensured in practice. At the same time, integration of planning within the framework of conventions and national programmes and plans and visa versa increases the effectiveness of the planning system.

5.2. Assessment of capacities and needs for their development

Assessment of factors hindering the development of existing capacity for inter-sectoral comprehensive planning of NR use and capacity building needs were conducted based on a holistic approach, which takes issues into account at three interrelated levels: systemic, institutions and individual, considering the synergistic effect of the three conventions.

5.2.1. Assessment of the existing capacity

The following contribute to inter-sectoral, comprehensive and integrated planning of NR use:

- Fairly developed legal framework for NR use
- State authorized body for implementation of conventions, i.e. the Ministry of Environment, which includes also infrastructures for protection of natural resources
- Governmental bodies, which use NR and are responsible for their preservation
- Conventions coordination mechanisms of GEF and UNDP and experience in international cooperation
- National programmes and plans for NR use
- Wide network of research and design organizations
- National specialists with experience in implementing international programmes.

5.2.2. Factors constraining capacity building

Based on the analysis of the situation, the following factors constraining capacity development were identified:

- Difficult socio-economic conditions in the country, due to transition to new social-economic relationships
- Limited financial resources, low level of budgetary funding for environmental activities
- Low level of enforcement of laws and performance discipline
- Absence of an innovative policy

- Weak interagency coordination and absence of cooperation and information exchange hindering a holistic approach to the development of a unified environmental protection action plan
- Inadequate planning, information provision and normative-methodological basis, absence of a centralized data base
- Inadequacies of economic mechanisms for NR use
- Sectoral programmes and plans developed in the area of NR use are not interrelated
- Unstable specialized expert groups, which are dissolved after the end of projects
- Absence of a stable system of training and retraining for strategic and ecological planning capacities and specialists
- Limited possibilities for material incentives.

5.2.3. Priority capacity building needs

Priority capacity building needs for inter-sectoral, comprehensive and integrated planning of NR use are a component part of the overall action plan for implementation of conventions.

Considering the synergy effect of conventions and general possibilities for capacity development, as well as the need for maintaining the existing capacity, it is necessary to establish a unified coordination structure (centre), which will include the planning group. The structure should also include national coordinators for the three conventions, and also leading experts, who have headed specialized expert groups in projects implemented within the framework of the three conventions, as well as a technical staff. The objective of this structure should be the development of the overall strategy and action plan for the implementation of Armenia's commitments under the three conventions.

The following capacity building needs are identified for integrated planning of NR use:

- Establishment of a unified coordination structure (with the planning group)
- Single out persons responsible for coordination and information provision in relevant units of governmental bodies
- Organize interaction and involvement of stakeholders in the planning process
- Develop TORs and select implementers (organizations) for ensuring planning, information provision and normative-methodological basis
- Organize planning personnel training
- Develop economic and ecological indicators system for planning
- Analysis of sectoral development programmes and plans and their integration into the comprehensive plan
- Develop the general master plan of actions for implementation of conventions.

6. ENVIRONMENTAL EDUCATION AND PUBLIC AWARENESS

Public awareness and participation in decision-making processes are among the most important commitments of the Republic of Armenia under international conventions. These commitments are stipulated in the corresponding articles of conventions relating to education, personnel training and public awareness:

- Article 6 of the FCCC
- Article 13 of the CBD
- Article 19 of the CCD

National capacity building has been conducted in the following 4 directions:

- Analysis of the process of implementation of the RA Law on Environmental Education Analysis of the use of museums' capacity
- Analysis of capacities and operations of mass media
- Analysis of capacities of environmental NGOs

The following methodologies were applied to the studies:

- *Semi-standardized interviews* – 31 experts selected from among the employees of the Ministry of Education and Science and the Ministry of Nature Protection were interviewed.
- *Official requests for information* - sent to 16 universities and 56 secondary vocational institutions, as well as the National Education Institute.
- *Interviews and questionnaires* – 37 museum employees selected through representational sampling from among 95 museums (natural history museums, as well as others) operating in Armenia were interviewed.
- *Questionnaires* – 40 journalists were interviewed. 27.5 percent (11 journalists) representing newspapers, 40 percent (16) TV companies, 20 percent (8) radio stations and 12.5 percent (6) news agencies. All respondent journalists were, to some extent, involved in covering environmental issues. All the newspapers included in the survey are national; are published in Yerevan and disseminated nationwide. As for TV companies, other than Yerevan, 6 journalists from five regional TV companies were also included (Noyemberyan, Alaverdi, Vanadzor, Gyumri and Gavar). Respondent radio reporters were from Yerevan, Gyumri and Vanadzor radio stations.
- *E-mail* – environmental NGOs were interviewed using e-mails. Questionnaires were sent to all NGOs having e-mail connections, 82 organizations in total.
- *Analysis of documents* – laws, bylaws and various other official and non-official documents were analyzed.
- *Analysis* – operations of the Ministry of Nature Protection relating to public information and funds allocated for that purpose were also analyzed.

6.1. Assessment of existing capacities

6.1.1. Legal framework of the relating to ecological education

Citizens' right to education is stipulated in the Constitution of the RA. Article 35 states that every citizen is entitled to education, and Ecological Education is a component of overall education.

The following education-related Laws were passed by the National Assembly of the RA:

- RA Law on Education passed on 14 April 1999
- RA Law on Environmental Education passed on 20 November 2001

A number of bylaws and normative document relating to the enforcement of various provisions of the RA Law on Education were also adopted.

In addition to the above-mentioned:

- The Higher and Post-Graduate Education Law of the RA has passed the first reading at the National Assembly

The Basic Public Education System Law is currently being discussed.

Objective of the Population's Ecological Education Law of the RA are stipulated in its Article 3. The main objectives of the Law is to “ensure provision of continuous, comprehensive, unified ecological knowledge to individuals and the public” (ecological education) and contribute to “the formation of ecological thinking and culture” (ecological fostering) in every member of society.

There are some obstacles to the enforcement of the Law: 1) provisions are not formulated clearly; 2) the enforcement mechanism is predicated upon solutions to a number of issues, for which no timetable is set;

3) jurisdictions of state authorized body or bodies for ecological education and mechanisms for their cooperation are not clearly defined; 4) monitoring of the process of enforcement is not supervised.

Enforcement mechanisms are mainly stated in Article 8, according to which ecological education in the RA is implemented through a unified state programme, developed by the state authorized body and NGOs, in accordance with the corresponding state criteria. Ecological education criteria, however, are not developed yet, and specialists are not knowledgeable about state ecological criteria, which is a hindrance to the enforcement of the Law. The mandatory minimum for the content of curricula, study-load of students and the required quality of learning are not defined, programmes by levels, which would be the basis for a continuous ecological education through a unified state programme are not developed.

Formulations in the Law do not indicate explicitly whether the mandatory requirement for ecological education means that the subject of ecology should be introduced separately at all levels of education, or it can be incorporated into other curricula subjects.

Jurisdictions of state authorized body or bodies responsible for ecological education are not clearly defined. As a result, mechanisms for amending the Law or supervising its enforcement are not ensured.

Population's Ecological Education Law of the RA stipulates and establishes the legal basis for organizing ecological education. Nevertheless, there are various obstacles to the enforcement of the Law:

Process of reforms of the educational system of the RA

The educational system of the Republic of Armenia is undergoing radical changes. These reforms, however, are not fully effective due to the following causes:

- Only 2.16 percent of the GDP is allocated to education (2003). This indicator is nearly twice lower than the average for OECD countries.²
- Despite the training courses organized for educational system management specialists, there is still a need for highly qualified professionals in this field (such specialists were not prepared in the Soviet Union).
- Market demand for education is not adequately studied, which has a negative impact on motivation for education: young people are more interested in certificates than real knowledge.

Naturally, these issues have their impact also on the development of ecological education as a component of overall education and the enforcement of Environmental Education Law is accompanied by specific problems of the environmental sector in general.

6.1.2. Current situation of ecological education

Ecological concepts are incorporated in "Life skills" subject taught at elementary schools, and "Basics of nature use and nature protection" course (for grade 9) is incorporated in "Geography" subject for upper secondary schools. According to the draft law on Basic Public Educational System (2004), however, the only ecologically oriented subject is "Me and my surrounding world" included in "Nature" study course, and in elementary schools the "Nature" course is a part of the larger "Individual and society" course.

According to official surveys, "Basics of Ecology" subject is taught in 16 public universities, whereas in 5 universities it is mandatory for all faculties. The subject "Basics of Environmental protection" was taught in 49 of the 56 secondary vocational institutions participating in the survey.

Measures supporting teaching of the concepts of environmental conventions

Publications produced within the framework of international conventions ratified by Armenia have a significant contribution to the development of ecological education for the population. National communications, action plans, reports and other published materials create favorable conditions for disseminating ecological knowledge, including on the three global conventions, exchange of experience and wider information provision.

Support materials for teaching the concepts of the three global environmental conventions have been translated into Armenian, adapted and published within the framework of grant projects awarded to Armenia for the implementation of the conventions, as well as specialized chairs of universities. In addition, a number of video films have been shot and a number of other have been translated and provided to stakeholder organizations. Other than the three global environmental conventions, the ratification of Aarhus convention by Armenia also had a positive impact on the ecological education of the population and the overall public awareness.

² Poverty Reduction Strategy Paper, 2003.

A Public Environmental Information Centre was established jointly by the MoNP and OSCE office. The library, video-archive and computerized capacities of the Centre contribute to the dissemination of materials on ecology, in particular on the global environmental conventions, to the wide public. The National Education Institute of the Ministry of Education and Science also has some capacities for provision of ecological knowledge and information. The list of main materials published on the three global environmental conventions in the Armenian language is presented in Annex 3.

6.1.3. Assessment of possibilities for using museums' capacities

Museums can greatly contribute to the development of environmental education of population, especially that of younger generation, as cultural and moral values. To that end, 5 natural science and 32 non-natural science museum capacities have been analyzed.

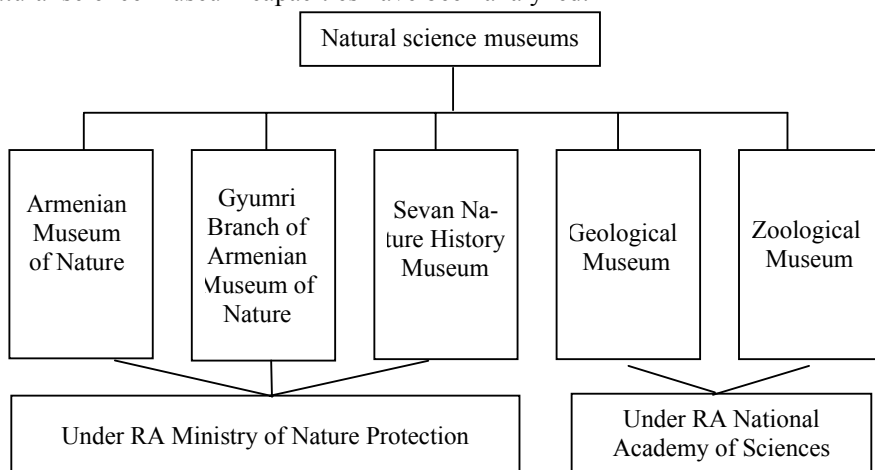


Figure 6.1. Institutional affiliation of the natural science museums

Currently 5 natural-science museums do exist in Armenia (see Fig.7.1). The museums undertake concrete activities aimed at increasing public awareness on environmental issues and improvement of environmental education of younger generation. Actually, conducting environmental classes at museums is rather effective, since it is being combined with demonstration of materials. Furthermore, educational, recognition and other events are being organized at natural science museums, such as exhibitions, excursions, classes, discussions, environmental games that encourage students' keen interest in existing environmental issues and promote deepening of knowledge gained at school on nature, flora and fauna.

The cooperation ways between museums and educational establishments is presented in Fig. 6.2.

Box 6.1. Natural science museums of RA

The State Museum of Nature under RA Ministry of Nature Protection was dispossessed in 1991 and since then it has not been operational because of the lack of minimal living conditions. The director and the staff did their best to conserve the exposition, thus, approximately 2000 sample items have been eliminated. At present, the museum possesses 5.600 exhibits.

The museum was amongst eight museums in the former USSR possessing similar collections and the unique one in Transcaucasus and was considered as one of the main centres of environmental education in Armenia. The museum has been a hosting place for young geologists' "Obsidian", bird-lovers' "Krunk", dog-lovers' "Aralez", cat-lovers' "Vana Katu", aquarium-fans' "Sevan" and cactus-lovers' amatory clubs. Thanks to these clubs the museum has implemented various measures aimed at environmental education and awareness provision. Moreover, the museum has initiated and implemented city, national and all-union exhibitions, competitions, trips, etc. Special tours have been organized for young geologists' club of the museum to 33 cities of former USSR, as well as Hungary, Cuba and Finland*.

The Yerevan planetarium was a branch of the museum and was closed in 1990s. The planetarium equipment was carelessly damaged. Whereas, the planetarium was a centre for environmental education and its rehabilitation would be good basis for ensuring progress in environmental education. Due to the lack of housing conditions and in safety purposes the museum had to conserve the main exhibits and, thus, temporary exhibitions were disabled.

The Gyumri branch of the museum does exist since 1991. It is the only natural science museum in the Marz. In 2003 the museum has had 4000 visitors.

* All the documents on clubs and their activities are kept in museum archives.

The current building (total 420m²) was provided Museum of Nature in 2002. The building has been renovated and equipped thanks to financial support of a benefactor from Teheran, Levon Aharonyan. The renovation of the first exhibition hall is now completed and ready for demonstrations. It provides general information on the geography of Armenia: climate, flora and fauna, land resources etc. Reopening of the museum in autumn 2004 will enable to turn back traditions and become one of the important centres for environmental education in the republic. However, the new building still does not provide room for temporary exhibitions, conducting lectures, as well as fully store the exhibition fund. The museum is not sufficiently technically equipped.

The Geological Museum under the Institute of Geology of RA National Academy of Sciences (NAS) was established in 1937. The housing conditions are rather sensitive and not any renovation has been conducted since its establishment. Despite the fact that many museums were renovated by Lincy funded Project, however, no any natural science museum was involved.

Both the director of the museum and the staff has professional education and they provide lectures and trainings based on the museum capacity.

The museum has a rich collection of exhibits on Armenian landscapes, archaeology, maps, minerals, fossil fauna and flora – approx. 12.000 samples. 360m² area of the museum is allotted for stand exhibitions; however, it needs to be renovated. The demonstration facilities, including the frames, stands, as well as auxiliary materials, including diagrams, photos, models etc have gone out of fashion. The building conditions of the museum do not meet the modern requirements. Organization of exhibitions outside the museum is hindered by the lack of relevant frames, stands for exhibits, as well as financial means.

Approximately 4000 visitors annually attend the museum, of which 90% are schoolchildren and students.

The Sevan Museum of History of Nature under RA Ministry of Nature Protection was established in 1996. Both the director and the staff of the museum have professional background. The museum is provided professional support by the Sevan water-biological station scientists and lecturers of Biology Faculty of Yerevan State University. The museum possesses a rich collection on flora, fauna and history of Sevan water basin - approx. 2.800 samples. The museum has a regular exhibition on 175 m² area and has been capitally renovated in 2001 by the support of “Save the Children” Organization. The museum often holds temporary exhibitions on Sevan environmental problem solution. It also organizes exhibitions at Marz schools. In 2003 the museum organized an exhibition of young naturalists’ works on “Flora and Fauna of Lake Sevan” at # 4 and #7 Schools of Sevan.

In 2003 the museum organized a session devoted to the problems of wetland flora and fauna.

The Museum of Zoology under RA NAS Zoology Institute was established in 1970. Both the director and the staff of the museum have professional background.

360 m² of the museum area is allotted for regular exhibitions. Close to this exhibition hall there is a room for conducting lectures and organizing temporary exhibitions. The museum has approximately 2.500 exhibits representing the fauna of Armenia and about 7.000 samples of scientific collection of the Institute. Since 2003 the exhibition on “The birds of Armenia in photos” of the head of the museum (M. Adamyan) has been on demonstration. The museum implements education and cognitive measures both for students and general public aimed at environmental education and awareness. Since 2003 the museum jointly with the “Bird-lovers’ Centre” NGO has been implementing the “Environmental Education on the example of bird study and conservation” grant programme awarded by the REC CAUCASUS and SDS international organizations. The museum organizes discussions, film watching and lectures, as well as photo exhibitions and children’s art-craft on environmental topics for different student age groups and their parents. The museum has set up bird-lovers’ clubs also in Kajaran and Lernadzore schools. Many bird watching trips have been organized to different regions of Armenia. Since 2000 the museum has been celebrating the Day of Bird Protection on March 17. On the basis of the Museum of Zoology, a project on establishing environmental educational centre is being developed.

Hence, all of the five natural science museums have specialists with relevant background, professional experience and skills to provide public awareness on three environmental global conventions. However, they are rather passively involved in public awareness campaign projects undertaken by state or private organizations on environmental convention provisions.

Due to the lack of modern technologies - computers, internet etc, four of the five natural science museums have appeared in a situation of information vacuum. In the past the museums used to receive methodical, scientific literature and journals from Moscow, however, at present the museum is deprived even from this opportunity because of the lack of financial means.

In contrast to natural science museums, the capacities of non-natural science museums are not used for addressing environmental issues and supporting environmental education provision, whereas, museums of all types and profiles can significantly contribute increasing public awareness on environmental education and ecological culture, as well as environmental issues in general.

Thus, it can be inferred that the awareness of non profile museum staff on the three environmental conventions is insufficient. None of the respondents has noted any NGO as a source of information on the conventions.

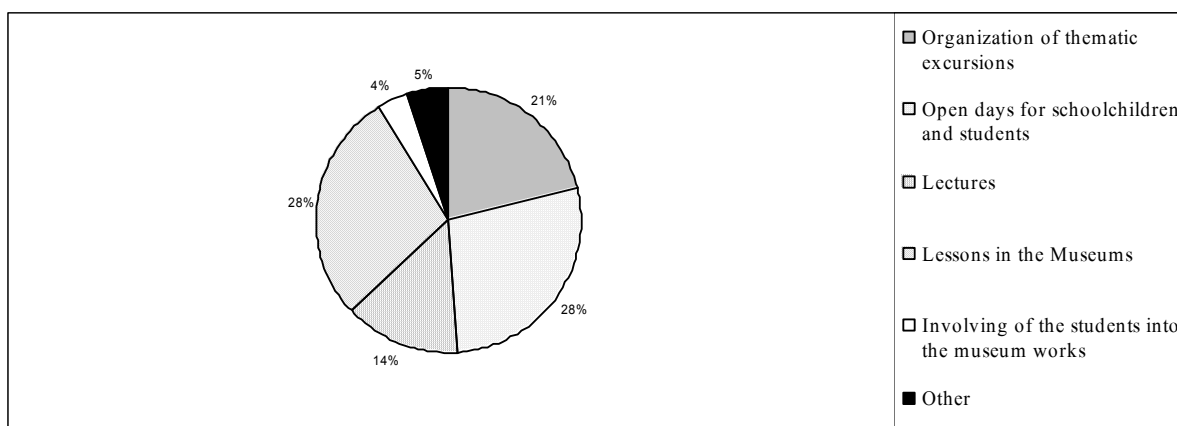


Figure 6.2. Cooperation between museums and educational establishments

Generally, the collaboration between museums and educational establishments is on sufficient level. However, a matter of concern is that still no cooperation is established between preschools and museums. It is worth mentioning that despite the existing constraints, the environmental education providing activities for schoolchildren can still be evaluated as satisfactory, whereas, the same cannot be said for that of adults. It is also obvious that the cooperation with environmental NGOs is still remaining very weak.

6.1.4. Analysis of mass media capacities

Becoming a Party to the UN Conventions, Armenia has made certain commitments among which are the issues of public awareness and public participation in decision making.

Box 6.2. Selection of interviewee for survey on mass media

40 environmental journalists from the following agencies were interviewed:

- 16- from TV companies (40%)
- 11- from newspapers (27.5 %)
- 8- from radio (20%)
- 5- from news agencies (12.5%).

All the newspapers are national published in Yerevan and are disseminated in the marzes in different amounts. As to the TV companies, 6 from five TV marz agencies (Noyemberyan, Alaverdi, Vanadzor, Gyumri and Gavar) have been considered besides the ones in Yerevan. As to radio- journalists, Yerevan, Vanadzor and Gyumri cities have been included.

The specialization of journalists for the coverage of environmental topics is emphasised. Environmental themes makes more than one third of the entire work for 60% of respondents and for 7.5% - more than a half

Environmental education and specialized trainings for journalists is not organized in the republic on a regular basis. More than 53% of the journalists (22 people) have not participated in any courses due to lack of such trainings, however all interviewed expressed willingness to have them. Only 13 press people have had the opportunity of partaking in environmental training courses and only 6 of them in some extent have got environmental education in the university course, from which 1 attended a special course for environmental journalists.

Thus, most of the journalists covering environmental issues and events are “self-educated” and there is a real need for improvement of their qualification. Several journalists took related courses at “Internews” Agency and one has been trained in Germany.

An obvious fact is that very few journalists are involved in environmental trainings. From the list of participants attended the training courses, it can be inferred that at least one fifth of them has not continued working in the sphere of environment.

Among the measures organized for journalists in 2003 were the two prize-awarding events – the first one was organized by the “Association for TV and Radio Development” under the funding of German Embassy in Armenia for e-journalists. The competition was summed up in September. The second one was or-

ganized by OSCE Yerevan office and implemented by “Ecosurvival” NGO. Prizes were awarded in three nominations (three prizes per nomination): TV, radio and press journalists.

The information provision on three UN Environmental Conventions amongst journalists is satisfactory. Most of them are authors to different materials.

The major source of information for journalists, on UN conventions is books, brochures and booklets provided by international organizations and NGOs. The second main source is the professional experience information gained during press conferences and interviews.

Moreover, from the above-mentioned 13 journalists only 7 took training courses during last year. This also proves the fact that there is a lack for relevant trainings for journalists.

Table 6.1. Trainings held (2003)

	Organizers	Number of participants from Armenia	Place
1.	Water Resources Department	10 journalists	Tsakhkadzor (February)
2.	“Association for TV and Radio Development”, German Embassy in Armenia	20 journalists	Three-day seminar for TV and radio journalists, entitled “School of Eco-journalism” (May)
3.	European Environmental Summit	5 journalists	Kiev, school for journalists (May)
4.	TACIS (in the framework of action plan on Aarhus convention support)	1 participant	Likanj, Georgia (September)
		3 participants	Tsakhkadzor
5.	Central Asia, South Caucasus and Western CIS Environmental Initiation/ UNDP, UNEP and OSCE	2 journalists	Tbilisi (November)

77% of interviewed journalists constantly follow the activities of environmental NGOs and the identified actively working environmental NGOs.

In 2003 journalists developed more than 870 materials on environmental issues in Armenia, of which 177 reflect the topics related to the UN Conventions. Number of publications greatly differs among journalists depending on their activities and work character. Major part of publications is developed by news agencies (the top one is the correspondent of “Armenpress” state agency – author of about 200 articles, whereas, the correspondents of certain newspapers and TV companies produce only 4-6 materials annually, although, they perhaps might be of more significance and get higher public feedback.

Of the 177 articles mentioned above, only 50-60 were specially developed on the UN conventions. Certainly, such a volume of information is not sufficient for providing public with relevant awareness on the conventions; moreover not all of these programs and articles have been disseminated to the population with large audience holding media – TV and radio.

Neither public nor private TV channels have specially designed environmental programmes, except for the “H2” channel, which has a weekly broadcast program on environmental issues known as “Country-Paradise”. This program is developed and launched with the efforts and financial means of a single non governmental organization - “Foundation for Preservation of Wildlife and Cultural Assets in the Nature Reserves of RA” (www.fpwc.org). In some extent the certain films of foreign origin can also be considered as a source of environmental awareness provision through TV although with less efficiency. Among these programmes is Sunday “Human being and nature” programme - broadcast through Public TV on weekly basis. The rest ones refer to environmental issues among general news. All the correspondents dealing with environmental issues are involved only in news services.

The analysis of interviews shows that marz TV companies are in more or less better situation. For instance, recently, comprehensive environmental programs have been produced at Alaverdi “Ankyun+3”, Noyemberyan “Kamut” and Gavar “Qyavar” TV studios. The first one, on pollution of the Debed River, has been awarded by OSCE prize, recently a joint film has been shot on the current situation in Lori forests.

In fact, capacities of marz TV companies, as well as their audience, are more limited than those of national ones, especially those broadcasted for all republic (Public TV, “H2” TV station, “Armenia” and partially “ALM” broadcasts in meter range). The Yerevan office of “MIR” International TV Company has broadcast several programs on the environment of Armenia. However, the language of the program is Russian and that is why the audience is limited.

Local TV stations have been supported by different foreign donors in producing environmental programs. The donors included “Internews” organization, one of the goals of which is to support marz radio and TV companies. The “Ditak” program developed by this organization is broadcast by 21 marz stations through “Shant” TV channel. This program often covers the environmental issues (one third of broadcast), so it can be considered as a program with rather broad audience.

Newspapers are more seriously committed to cover environmental issues and relatively seldom reflect everyday events. *However the small number of the editions, 3000-4000 at most decreases the efficiency of newspapers.*

The number of environmental publications in 2003 is presented in Table 6.2. (data are taken from evaluations of journalists).

Table 6.2. *Number of environmental publications in 2003*

Newspapers	Number of Articles	
	General environmental	Covering topics on UN Conventions
“Hayastani Hanrapetutiu”	30	6
“Hayots Ashxarh”	40	5
“AZG”	50	15
“Aravot”	20	5
“Iravunk”	8	3
“Respublika Armenia”	14	7
“Golos Armenii”	35	4
“Novoe Vremya”	20	2

Environmental issues coverage in the newspapers fluctuate essentially, based first of all on policy of the newspaper. The state newspapers, such as “Hayastani Hanrapetutiu” and “Respublika Armenia”, pay relevantly less attention to elucidation of environmental issues.

Most of existing radio stations pay very little attention to elucidation of environmental issues, referring to them only in the section of news, except for the Public Radio and “Aniv” radio-program (“Internews”), which have specially designed environmental programs and are awarded by OSCE prizes. However, at the end of January, 2004, the “We and the nature” program was closed down.

The efficiency of environmental news provision is evaluated as follows:

- Mass media are covering environmental issues sufficiently, if refers to hot news;
- There is a lack for practical steps on improvement of environmental campaigns and environmental awareness of population;
- State news agencies (particularly the Public TV) are not much active in environmental news provision and practically are not conducting any environmental campaign;
- Insufficient attention is paid to intergovernmental and regional environmental issues.

Information provision by the Ministry of Nature Protection

Information provision operations of the Ministry of Nature Protection are stipulated in its statute:

- Conduct public and mass media relations
- Publish informational and scientific-educational materials on environment
- Provide methodological advice on environment related issues.

Box 6.3. Organization of information provision by the Ministry of Nature Protection

Press Secretary of the Minister

- Provides mass media with information received from Ministry departments on current or planned activities. Prior to providing information the Press Secretary receives the corresponding endorsement from heads of relevant departments
- Presents issues of interest to mass media to heads of the corresponding departments of the Ministry. Heads of departments should respond to questions presented no later than within two days, in writing or orally as required by the journalist. Oral responses are provided in the presence of the Press Secretary and put on record.

- In the event of urgent issues covered by mass media, heads of Ministry departments provide the necessary information to the Press Secretary in the shortest possible time.

Press Secretary of the Minister, with the support of the Informational-Analytical Center, regularly publishes Ministry's press bulletin in 150-200 copies.

“Informational-Analytical Center” state non-commercial organization

The Center is established for collecting information, creating data bases, collecting, analyzing and publicizing reports from Ministry departments, with the overall objective of information dissemination. The IAC provides state bodies, NGOs and the public with information available in the mentioned data bases. The IAC publishes ecological brochures and bulletins. In 2003, the IAC prepared a state report on "Environmental Situation in Armenia". The Informational-Analytical Center of the Ministry provides Minister's Press Secretary with reports (monthly, quarterly, mid-year, nine-month and annual) of Ministry's departments. Information is provided on Ministry's website, by other electronic means and through informational booklets.

Press Secretary for Hydrometeorological and Environmental Monitoring Agency provides information on weather forecasts and environmental monitoring.

Public Center for Environmental Information

The Center was established in 2003 for effective public awareness and information provision operations, with the support of the Ministry of Nature Protection, OSCE representation in Armenia, as well as a number of European embassies. Informational-Analytical Center state non-commercial organization and Minister's Press Secretary provide the necessary information to the Center, which can further be used by NGOs, as well as individuals. The Center provides it office space to NGOs for various events; visitors can use electronic means of communication, computers, free photocopying services, etc. The Center is facing serious problems since 2003, due to moving of the Ministry of Nature Protection to a new building.

6.1.5. Analysis of capacities of environmental NGOs

National NGOs can have a significant contribution in the implementation of provisions of international environmental conventions.

An e-survey was conducted in order to assess the capacities and methods of operation of NGOs, as well as the effectiveness of their activities in the implementation of conventions. The majority of 90 environmental NGOs currently operating in the country are located in Yerevan. Responses were received from 45 NGOs, or 55 percent of those invited. Possible causes might be the lower level of activity among some NGOs, lack of interest in the subject, limited access to e-mail and changes in addresses and phone numbers.

Based on the experience regarding cooperation with NGOs, it can be concluded that responses were received from the more active ones.

This is also indicated by NGOs' self-assessment, conducted by the "Association for sustainable human development" in July 2003 within the framework of the seminar "Armenian environmental NGOs: activities, problems and achievements". All environmental NGOs consider the improvement of the ecological situation as the main priority in their respective missions and evaluate themselves as highly professional organizations with great potential and highly effective operations. Responses to our survey were received from nearly all of the 25 most active participants in the mentioned seminar.

Activities of 42 NGOs (93 percent) are directly or partially related to the issues of the three global environmental conventions, while only 16 NGOs (35.6 percent) have implemented projects related to conventions' issues, and only 4 NGOs have been invited to participate in projects implemented under the auspices of the Ministry of Nature Protection (EPAC, Tapan, Eco-stability and Khazer).

According to responses, 18 NGOs have implemented educational projects, however during further interviews it turned out that educational projects were mainly of an environmental protection nature and, at best, the three conventions were just mentioned during the courses. Within the framework of educational projects, NGOs have published the "Environment" booklet for schoolchildren (Byurakn), textbook for universities "Concept of sustainable development" (Association for Sustainable Human Development), where conventions and issues they regulate is mentioned.

Awareness projects implemented by some NGOs were in effect designed around conventions (Eco-stability (CBD, CCD), Tapan (CCD), Armenian Botanical Association (CBD, CCD), Khazer (FCCC, CCD), etc.), and Association for Sustainable Human Development, Eco-Team, Byurakn NGOs have touched upon the conventions in their awareness projects.

It must be noted that in the evaluation of the majority of NGOs public awareness in Armenia regarding the issues of global conventions and activities for their implementation in the country is inadequate. None

of the organizations, however, has conducted special studies on the issue and has not developed an appropriate coordinated approach or relevant indicators.

Numerous and most effective projects related to conventions and implemented by NGOs aimed to enhance the level of public awareness.

Awareness building projects were mainly implemented through seminars, round-tables, radio and TV programs, ecological awareness campaigns, informational publications and colourful brochures especially designed for children. E-subscriptions and e-bulletins have an important role in the dissemination of ecological information; they are used for provision of information at regional level by international organizations, such as CENN and Armenian Environmental Protection Forum, as well as local organizations. The Association for Sustainable Human Development conducts active information provision operations; in November 2001 it has established the Regional Information Centre on Sustainable Development, whose subscribers are NGOs from the three South Caucasian countries; it has also published 5 issues of the Ecological Bulletin, where materials of national, as well as international conferences were presented.

Support for NGO activities in Caucasus region is the main mission of the Regional Environmental Centre (REC) with headquarters in Tbilisi, Georgia. REC was established in September 1999 by an inter-governmental agreement. REC is actively operating at the regional level, contributing to the institutional development of NGOs, enhanced public awareness regarding environmental issues, as well as strengthened cooperation between stakeholders at national and regional levels. In 2002-2003, Armenian NGOs received grants for 7 regional and 6 small local projects. In addition, REC conducts information provision operations: e-news dissemination, publication of a journal and various brochures and managing its website.

Various awareness building projects were implemented in all regions of Armenia; beneficiaries included residents in various communities, schoolchildren and teachers.

NGOs had an overall positive evaluation of the willingness of the Ministry of Nature Protection to cooperate with NGOs in provision of environmental information, including information on global conventions. 60 percent of NGOs are of the opinion that cooperation is in effect initiated by NGOs.

According to responses, 38 NGOs participate in various associations, which is conducive to the strengthening of NGOs and their more effective operations. According to interviews, participation in associations contributes to the exchange of experience and knowledge, in associations experience in joint activities is gained and forms of cooperation are developed, and they also bring together the capacities and technical means of organizations. Healthy associations combine and strengthen each others capacities.

6.2. Recommendations for capacity building

6.2.1. Improving ecological education

Through improvements in ecological education, in general, it is possible to ensure also the presence of the components of global environmental conventions at all levels of education. Consequently, all proposals, which can improve the effectiveness of ecological education, will also more or less contribute to the addressing of issues relating to global environmental conventions at all levels of education.

In order to elaborate the strategic ecological education programme of the RA Law on Environmental Education, the following is recommended:

- Elaborate the draft of the strategic ecological education programme based on the comparative analysis of the drafts for the programme, the law on basic public education system and law on higher and post-graduate education.
- Develop a comprehensive state programme, which will include the list and timetables of measures to be taken in the area of ecological education.
- In order to contribute to a more effective enforcement of the law, responsible state authorized bodies (Ministry of Education and Science, Ministry of Nature Protection) and their jurisdictions should be clearly defined.
- Develop bylaws and normative documents, in particular:
 - Regulations for defining and approving state criteria for ecological education
 - Regulations for interagency cooperation in organizing and implementing ecological education
 - Regulations for publicizing information on the implementation process of the state programme on ecological education
- Establish ecological education centres on the basis of natural science museums, provide museums with modern technical means and publications

- Organize training courses for scientific and administrative staffs of natural history museums on the following subjects: new interactive teaching methods, computer and internet skills, grant project proposal writing skills, issues of conventions ratified by Armenia
- Propose to the Ministry of Education and Science to include lessons at natural history museums in school curricula.
- Contribute to the cooperation between environmental NGOs and museums.
- Use collections, buildings, staffs of museums other than natural history ones for increasing environmental awareness among the public.
- Based on rich collections of natural history museums, create a virtual museum of Armenia's nature and underground resources, which could also be used by regional schools connected to the internet.

6.2.2. Improving environmental information provision

- Environmental issues should be included in the priority list of state policies. Nature protection and public attitude towards it should be considered as important as the "traditional" issues of country's national security, i.e. the state should create an atmosphere, where the public would perceive environmental issues to be as important as issues relating to country's defence. This means that the state should have its "environmental awareness campaign".
- The state should have a strategy for environmental awareness campaign. The strategy can be based on the intergovernmental and international commitments undertaken by the country, in particular Aarhus Convention and global environmental conventions of the UN. The transboundary nature of environmental issues and the need for regional cooperation in resolving them should form an important component of that strategy.
- Organize events commemorating international days of UN environmental conventions.
- State mass media should be important tools in environmental awareness campaigns. Environmental theme should be distinguished by a separate budget line in budgetary allocations by the state to state mass media. In our opinion, the RA Law on TV and Radio should be amended and environmental awareness campaigns should be added to the list of the function of the Public Radio-TV Company (in Article 28). It is also necessary to introduce a detailed provision in the RA Law on Environmental Education regarding the participation of state mass media in the corresponding processes.
- The state should also have a separate approach for improving and developing the coverage and awareness campaigns relating to environmental issues in non-public mass media.
- Organize periodical training courses on environmental issues for journalists.
- The following is recommended for the effective implementation of public awareness building and information provision functions of the Ministry of Nature Protection, stipulated in its statute:
 - Re-establish the public relations department within the Ministry
 - Improve and modernize the technical provisions of structures responsible for information dissemination and organize personnel trainings
 - Make the publication of "Nature" newspaper regular and periodical
 - Establish a "green" phone line.

6.2.3. Strengthening environmental NGOs

- Contribute to the formation of NGO coalitions aimed to solve specific environmental problems
- Strengthen the link between the Ministry of Nature Protection and NGOs by creating an environmental council within the Ministry, where NGO representatives would also participate
- Contribute to the cooperation between the mass media and NGOs for effective dissemination of environmental information
- Support NGOs operating in communities and regions, contribute to the opening of regional branches of active NGOs
- Contribute to the cooperation between NGOs and museums in the area of environmental education and awareness building
- Contribute to further development of cooperation between the Ministry of Science and Education and NGOs for coordinating and recording educational projects implemented by NGOs.

7. SCIENTIFIC INFORMATION PROVISION, APPLIED RESEARCH AND TECHNOLOGIES

The Republic of Armenia joining the Framework Convention on Climate Change, Convention on Biodiversity and Convention to Combat Desertification has taken on a number of commitments, including those related to scientific information provision, applied research and the use and exchange of technologies. The mentioned area is one of the most important mechanisms for the implementation of the three conventions, and the effective implementation of commitments will create favorable conditions for progress and sustainable development in the country.

Against this background, national capacity needs assessment with regard to scientific and applied research and development of available technologies and exchange of information within the framework of the three environmental conventions becomes a priority.

Assessment of the existing capacities and capacity building needs in areas of scientific information provision, applied research and technologies was conducted in cooperation with a wide range of stakeholders and was based on the analysis of information received through the survey.

Stakeholders participated in the assessment in accordance with the current management system in the country for scientific research and information exchange directly linked to the implementation of the three international conventions (Fig. 7.1, Box 7.1). Results of the assessment and analysis were grouped into three levels: systemic, institutional and individual.

Box 7.1. Stakeholder involvement

A survey of stakeholders was conducted in order to assess capacity building needs in scientific information provision, applied research and technologies; specific objectives of the survey were as follows:

- Identify priority needs and capacities of stakeholders with regard to scientific information provision, applied research and development and transfer of technologies
- Identify synergistic capacity building opportunities of the three conventions
- Analyze scientific information flows at various levels
- Identify stakeholders' weaknesses and strengths at various levels.

Three different questionnaires for the corresponding groups of stakeholders were developed:

- Scientific and applied research
- Information provision and technologies
- GIS.

Each questionnaire had three sections:

- Test section, which was used to determine the level of knowledge on conventions, level of involvement in convention related processes, current and planned activities, funding sources and information flows, level of information on modern technologies
- Quantitative assessment section, which was used to determine the forms of cooperation between various structures, level of information in organizations on each others activities, it was also suggested to assess organization's weaknesses and strengths
- Open end questions section, where stakeholders were able to mention their needs, obstacles to their activities and present acceptable solutions and recommendations.

Questions were formulated with consideration for the necessity to assess the synergism between the three environmental conventions. In total 31 questionnaires were completed by 24 stakeholder organizations.

7.1. Assessment of current capacities

7.1.1. Applied research and scientific information provision

Scientific-technical policy in Armenia is conducted by three structures:

- Ministry of Education and Science, which coordinated scientific-technical activities of universities and research organizations under its jurisdiction
- National Academy of Sciences of the RA is the ultimate scientific center, which unifies research organizations of its system and coordinated fundamental research activities in the country, including universities.
- Line ministries coordinate the scientific-technical activities of research institutions of their systems.

Armenia has a wide network of research institutes and centers, as well as universities, whose activities can contribute to the solution of environmental protection problems at national and global levels. However, due to the difficult socio-economic condition and limited public funding in the country, research activities are currently in a crisis situation. The funding for science amounts to 0.2 percent of the GDP.

Information on the legal framework and funding of science in Armenia is presented in Box 7.2.

Box 7.2. Legal framework and funding of science in Armenia

Scientific research in Armenia is regulated by Scientific and Scientific-Technical Activities Act of the RA (2000), which has a number of bylaws approved by the government, the most important of which are as follows:

- Concept paper on development of science in the Republic of Armenia – Government Order dated 19 April 2001
- Regulations for basic funding, contractual (thematic) funding and targeted programme funding for public programmes of scientific and scientific technical activities – Government Orders No. 1121, No. 1122, No. 1123 dated 17 November 2001
- Regulations for operation of boards of experts responsible for assessing scientific themes to be funded from the state budget of the RA - Instruction of the Ministry of Education and Science No. 526-M Dated 24 December 2001.

On 15 August 2002, the Government of the RA issued an Order on Development Priorities of Science and Technology in Armenia, which included 8 priorities, of which the following 4 can contribute to capacity building for the three environmental conventions:

- Information technologies
- Advanced technologies (biotechnologies, nanotechnologies)
- New sources of energy
- Risk factors and human health

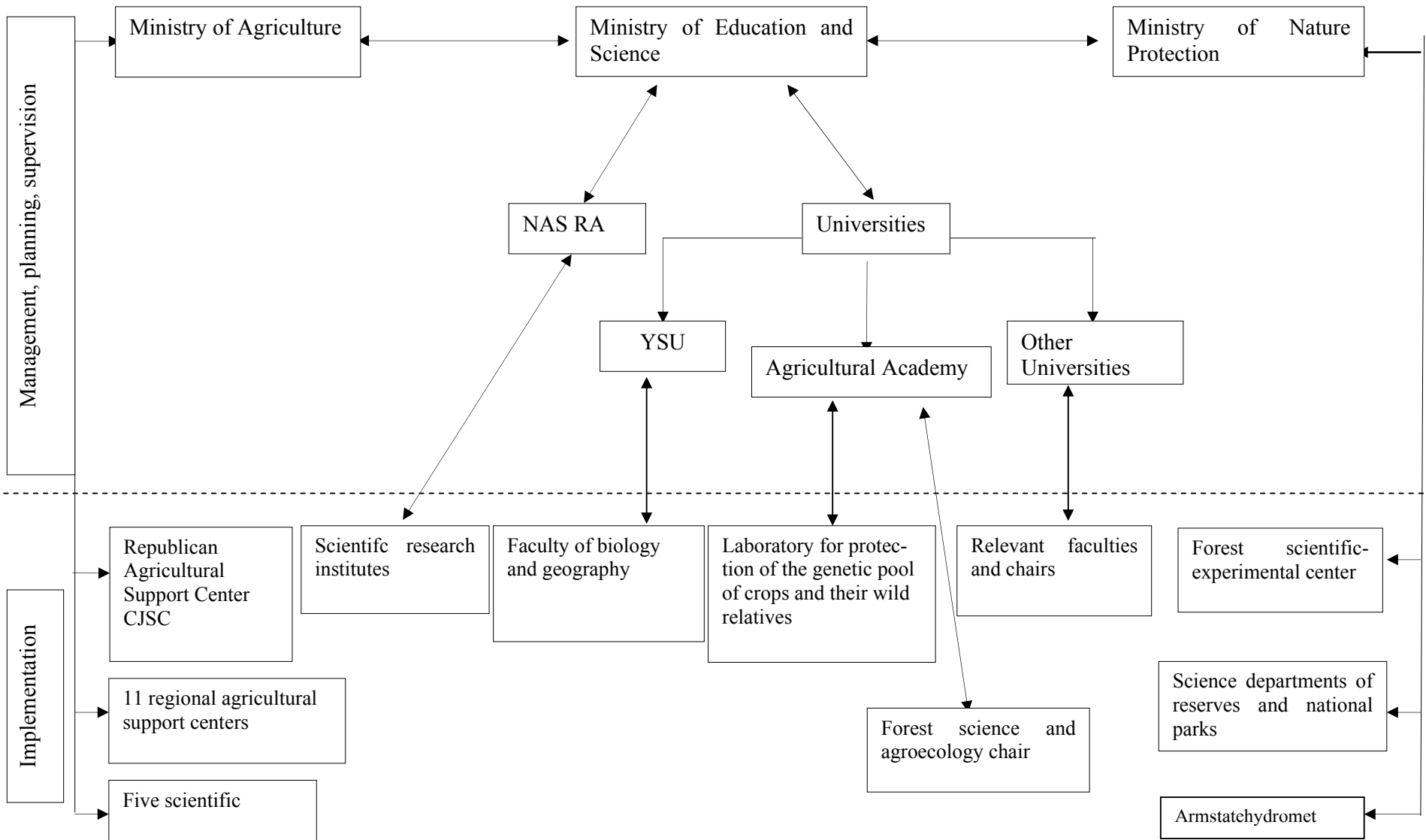


Figure 7.1. Stakeholder involvement

The current legal framework has created particularly favorable conditions for the corresponding reforms in science, as well as the implementation of country's commitments under the three conventions. The public funding system of scientific research incorporated three forms of funding: thematic, basic and targeted. Thematic funding is awarded on a competition basis. Thematic scientific research funded through the thematic funding mechanism is conducted in 120 research organizations and universities (the comparative picture of planned funding is presented in Annex 8).

Nearly 114 scientific themes have already been funded within the framework of the three conventions. 70 themes are related to the CBD, 25 to CCD and 5 to FCCC issues. Themes referring to two or three conventions are considered as priorities; their numbers are respectively 10 and 2. The volume of amounts invested from non-budgetary funding sources is a number of times larger than funding from the budget.

Table 7.1. Level of Financing for Science. mln drams

Expenditures on science	2003	2004	2005	2006
Total	2 961,4	3 261,4	3 561,4	3861,4
Thematic	2 045 (69%)	2 045 (63%)	2 045 (57%)	2 045 (53%)
Basic	648,7 (22%)	880,6 (27%)	1 175 (33%)	1 429 (37%)
Targeted	267,7 (9%)	326,1 (10%)	356,1 (10%)	386,1(10%)

Information on possibilities of funding of scientific and applied research from external sources are fully accessible through the internet. Internet sources adapted to Armenia's conditions can be found, for example at www.sci.am of the NAS of the RA, as well as www.bioecomed.am of the Bioecomed NGO. Useful information for all CIS countries can be found for example at www.ecoline.ru/funds. All funds operating in Armenia have their own websites. In addition, information directly related to various fields can be obtained from the corresponding agencies. The main obstacles to access to information are as follows:

- Shortage of computers or their absence in the majority of research institutes of the NAS of the RA
- High costs of internet connection for budgetary institutes
- Low quality of internet connections
- Inadequate skills among the personnel, in both foreign languages and computer use.

The most prominent sources of funding (WB, GEF, WWF, IUCN, etc.) operate only through governmental structures. Both information provision about project and allocation of funds are conducted by the administrative apparatus, often based on personal, or at best agency interests. rovision about projton o

Based on the analysis of the existing capacity for applied research and scientific studies by levels, its weaknesses and strengths, as well as factors hindering its development were revealed.

Strengths

- Certain foundation for scientific activities
- Availability of some public funding
- Governmental bodies, which manage a wide network of research organizations able to conduct applied research within the framework of the three conventions
- Scientific potential preserved to some extent
- Large number of previous and ongoing research work, which in case of relevant coordination can be updated in view of conventions' objectives.

Weaknesses (constraints)

- Low level of public funding for scientific research
- Absence of innovative systems
- Inadequacies of the legal framework, in particular with regard to author's right and intellectual property
- Interagency disagreements, weak coordination of scientific research
- Absence of linkages between scientific programmes and environmental policy
- Absence of concept papers related to the implementation of conventions (monitoring, scientific information provision, technology transfer and introduction)

- Lack of proper formulation of needed studies, generalization, integration of results, and overall coordination
- Absence of proposals and requests for the needed urgent applied research work related to conventions, and as a result their exclusion from targeted public funding
- Absence of electronically stored research results and electronic information provision, low level of access to the existing information
- Inadequate material-technical provisions of research institutes
- Sharp drop in the number of researchers, aging of scientific personnel, disruption in change of generation
- Inadequate level of knowledge in urgently needed fields, shortage of qualified personnel
- Absence of material motivations for improving professional skills
- Weak personal initiative.

The Republic of Armenia has extensive experience in environment related international cooperation, which is a result of harmonized and effective activities conducted jointly with secretariats of conventions, UN structures and the WB. Provisions of articles of the three conventions are implemented through a number of national and international projects. Mainly environmental projects, in many cases, include scientific-technical and applied research components. Scientific-technical projects with huge significance for the country may develop within the framework of this cooperation.

Other than projects for national capacity development with regard to science and public awareness, there are a large number of projects related to the Convention on Biodiversity. A number of small projects are implemented through funding from various international organizations and grants. Due to small grants and fellowships, a number of young scientists receive training in prominent scientific centers abroad, or scientific projects relating to the issues of environmental conventions are implemented in Armenia.

Science in Armenia needs to participate actively in international scientific life and become integrated in international scientific projects. In effect, scientists receiving thematic public funding are also involved in projects funded from extra-budgetary sources (grants, investments received as a result of international cooperation). Thus, there is a need to establish a governmental structure (fund) within the management system for environmental sciences, which will coordinate the co-financing of scientific research and work. This principle would become an additional motivation corresponding to modern requirements, since the proposed projects should be highly attractive for various sources of funding, since the Government of Armenia, being the co-financing partner for those projects, undertakes certain commitments.

Full implementation of the provisions of conventions requires a developed system of informational links, both horizontal (at each level) and vertical (between levels). In practice, horizontal exchange takes place between central governmental agencies and to some extent NGOs, but there is no direct exchange of information between research institutes and producers. Vertical exchanges take place between central structures and bodies managed by them, as well as between research institutes. As a rule, information exchange is limited to the exchange of requests, instructions and reports. Exchange between public and private structure either is non-existent, or is done through personal acquaintances. Table 7.1 presents the detailed assessment of those institutional structures, whose activities are directly linked to scientific information provision on activities for the implementation of the three conventions.

Table 7.2. Strengths and weaknesses of scientific information provision

Structure	Strengths	Weaknesses
Ministry of Nature Protection and its subordinate structures	<ul style="list-style-type: none"> • Availability of material-technical provisions and qualified personnel in the central apparatus • Availability of information center • Preliminary information on environmental situation and established data bases • Monitoring center • Scientific departments in natural protected areas 	<ul style="list-style-type: none"> • Inadequate material-technical provisions and qualified personnel in subordinate structures, especially protected arrears and forestry units, as a result insufficient initial information • Absence of structures within the Ministry responsible for coordinating and programming research activities • Absence of a concept paper on monitoring.
Ministry of Agriculture and its subordinate structures	<ul style="list-style-type: none"> • Availability of material-technical provisions and more or less qualified personnel in the central apparatus • Units responsible for information provision to farmers at regional and local levels (extension services) • Scientific centers 	<ul style="list-style-type: none"> • Inadequate material-technical provisions in subordinate structures • Absence of data bases • Absence of disposition with regard to the relevant conventions • Inadequate coordination of information provision activities
Ministry of Education and Science	<ul style="list-style-type: none"> • Availability of material-technical provisions and qualified personnel in the central apparatus • Data from all fields of science • Reports from thematic research activities • Possibility to influence research themes through allocation of budgetary funds 	<ul style="list-style-type: none"> • Absence of coordination and inventorying of existing data • Accumulated scientific information only in hard copy • Not taking into account conventions' provisions in decisions on scientific research themes
State Real-Estate Committee of the Government of the RA	<ul style="list-style-type: none"> • Availability of qualified personnel • Data bases • Availability of modern geodesic equipment 	<ul style="list-style-type: none"> • Inadequate methodological basis (normative documents from Soviet times) • "Privatization" of cartographic and geodesic information
State Water Systems Committee of the Government of the RA	<ul style="list-style-type: none"> • Availability of qualified personnel • Availability of data bases • Availability of computers 	<ul style="list-style-type: none"> • Inadequate volumes of data
National Academy of Sciences	<ul style="list-style-type: none"> • Numerous research institutes with their personnel and material-technical provisions • Availability of data reported for many years 	<ul style="list-style-type: none"> • Inadequate coordination of scientific research work • Inadequate accessibility of existing information • Sharp decline in and aging the number of staff in research institutes, inadequate volume of equipment

Hydrometeorology and Environmental Monitoring Agency	<ul style="list-style-type: none"> • Availability of applied science research center 	<ul style="list-style-type: none"> • Inadequate funding • Low technical provisions for observations and irregular operations • Absence of dynamic regional models • Shortage of computers • Shortage of young highly qualified specialists • Difficulties in receiving reliable data from regions • Difficulties in integrating with relevant prominent scientific institutions and projects, due to inadequacies of the policy conducted by the Ministry of Nature Protection • Absence of a data base on dangerous hydrometeorological phenomena • Halting of wind and solar energy reserves microclimate studies • Need for establishing hydrological data base, agro-climatic data base, revising and improving methodologies for improving the agro-climatic observation network
Scientific centres of the Ministry of Agriculture - farming and plant protection - horticulture and cash crops - grape and wine production - livestock production and breeding - pedology, agro-chemistry and melioration	<ul style="list-style-type: none"> • Cooperation with international organizations • Availability of highly qualified personnel • Availability of structures dealing with agrobiodiversity • Possibility for introducing new technologies in farms • Availability of experimental centers and the corresponding laboratories • Possibilities for organizing scientific conferences • Possibilities for personal initiatives • Participation in national and international seminars • Possibilities for training 	<ul style="list-style-type: none"> • Limited public funding for thematic, basic and targeted scientific research • Low salaries, absence of mechanisms for ensuring stable funding • Low level of technical provision • Inadequate information dissemination • Need for importing modern technologies • Difficulties in obtaining licenses and author's right for the results of scientific research, absence of any form of motivation building measures

Although the majority of governmental bodies have their information centers, nonetheless there is no interagency, including scientific, information exchange system necessary for addressing conventions' issues.

The main role in environmental information exchange belongs to the Informational-Analytical Center of the Ministry of Nature Protection (Box 8.3). The major constraint for the IAC to be able to operate on a wider scale is the scarcity of financial means. Due to lack of funding, the Center is not able to update the website regularly. Inadequate technical provision is also a constraint. It must be noted, however, that the most urgent need is the coordination of information flows, since a significant number of environmental and sectoral projects involving convention's issues are implemented in the country by various environmental organizations and international organizations, which basically are not coordinated and the result is duplication of activities and their low effectiveness.

Box 7.3. The use of GIS in Armenia

GIS is already being introduced in some governmental bodies. At present, the most advanced organization in this regard is the State Real-Estate Committee, where GIS is widely used and there is an information center for digitalization of mapping data. Absence of qualified GIS specialists must be noted among shortcomings.

Serious investments for the development of GIS are made in the MNP. Within the framework of Natural Resources Management and Poverty Reduction project, with the use of GIS technology, an assessment of changes in forest masses of Gegharkunik and Tavush regions is being conducted and a programme for management of forest reserves is being developed jointly with "Georisk" Research Company. It is planned to obtain the latest pictures taken from the space, modern computers, as well as licensed packages of GIS. Six specialists will be trained in GIS technology in general and its use in forest management in particular.

GIS is also used by State Water Systems Committee of the Government of the RA. The Committee has developed an environmental management plan for Armenia's municipal water supply and wastewater disposal, one of the components of which is the use of GIS. The National Seismic Safety Service has obtained licensed GIS and 2 young specialists have been trained in Tbilisi within the framework of Science for Peace programme of NATO. GIS is not used in other ministries and agencies.

Regional and local authorities also have adequate funding and material-technical provisions for using GIS, as well as wide possibilities for using the information. At the same time, the absence of qualified personnel is a problem. Community governments, which are the basic providers of information, are practically deprived from the possibility to introduce GIS. Yerevan and Gyumri city governments have their own special GIS departments. In Yerevan, its is the Information Systems and GIS Technology Center, where the collection of existing digital data has already started, a project for Yerevan city GIS is being developed and funding sources for the project are sought. Having capable computer programmers, the Center is trying to adapt free GISs in order to develop its own software in the Armenian language, which will enhance the possibilities of using the software in community governing bodies. In Gyumri, with the support of the USAID, within the framework of the project for community government development, eight specialists from Seismic Protection National Service, "Stability and Development" NGO and city government, were trained in Moscow and Dubna and consequently established the Gyumri GIS Center, which is currently developing a project for elaborating Gyumri city GIS.

Individual research institutes and universities are also trying to introduce the use of the GIS. In this regard, "Arm-geodesia" state non-commercial organization should be mentioned, which is the main provider of informational-geodesic, cartographic and aero-photographic information. Recently, the Organization has started working on digitalized electronic maps. They have powerful material-technical provisions: modern fieldwork equipment, computers and software. These capacities are not fully utilized due to the absence of qualified specialists. The importance and possibilities of GIS technology is not fully understood.

The Geology Institute and the Ecological -Noosphere Research Center of the NAS of the RA also conduct activities for introducing GIS. Here they have equipment, software and qualified staff. The main obstacle is the lack of funding. Significant GIS related activities are conducted by the American University of Armenia, short-term training courses are organized. An important activity is planned by the European Regional Academy in Caucasus, where a geo-ecology faculty will be established, which will develop and implement courses on GIS technologies with the support of Armenian and foreign specialists. GIS is not used in other universities of the country, including Geography and Geology Faculty of Yerevan State University, and ecology faculties of other universities, due to shortage of funds and specialists, as well as lack of understanding in the Ministry of Education and Science regarding the importance of the issue. Private commercial organizations are more flexible and have much broader possibilities.

Two private companies, which use GIS technologies in their operations, can be mentioned in particular.

"Geocom" private company works in the field of geology and has a digital data base on the territory of Armenian and Yerevan city. It is currently developing its own GIS on the basis of ArcView.

"Georisk" Research Company is specialized in risk assessment in the fields of geology, ecology, mineral and water resources and GIS. It is the only organization in Armenia operating in the field of tele-monitoring. It uses GIS in all its research activities. Have a large number of modern equipment, and a large digital data base. The company has a highly qualified staff. The main obstacles are, on the one hand, limitations they have in receiving initial data, and on the other hand the commercial nature of information accumulated in these companies.

Information provision mechanisms of conventions' secretariats can have a significant role in obtaining the needed information, but at present they are not adequately used in Armenia (Box 8.5).

Box 7.4. Information provision mechanisms of conventions' secretariats

CHM. The establishment of structures for Clearing-House Mechanism in the country and the introduction of Armenia's Biodiversity website (www.biodiv.am) in 2002 were important steps from the viewpoint of access to and exchange of data and information on biodiversity. Activities in this field are currently halted, since they are not stated among the statutory functions of the Ministry of Nature Protection and the corresponding departments of other structures. In this regard, awareness building measures on CHM at various levels are among the priority needs. At the institutional level, there is an urgent need to ensure the uninterrupted operations of the CHM structure and its periodical monitoring. The following can be mentioned as further measures:

- Regular updating of the website
- Development of the network of focal points of stakeholder organizations in the area of biodiversity
- Data entry into Armenia's biodiversity data base in a unified electronic format by the mentioned focal points
- Further upload of the data base into the CHM website
- Establishing a search system.

RIOD. RIOD is a global network of non-governmental and local organizations involved in desertification and drought issues, as well as combating desertification. The network is a decentralized support structure, which operates at national and regional levels through national coordinators.

The process of Armenia's participation in the RIOD network started in 1998. In 1999, a number of organizations, established Armenia's RIOD network by signing the corresponding agreement. This process was organized by the Central and Eastern European Coordinator of RIOD, i.e. "Tapan" eco-club NGO. The elected coordinator of RIOD network in Armenia refused to perform its function after one year. New elections have not yet been organized and the network, as such, is not operational.

Thus, for effective use of the network in Armenia, it is necessary to:

- Unify and reorganize the national RIOD network
 - Involve all possible stakeholders in the process
 - Become integrated, as quickly as possible, in the activities of Global RIOD Network
 - Develop and adopt RIOD network strategy and action plan
 - Establish a structure, through which information flows will be improved.
- **CTI.** Climate Technologies Initiative is a mechanism established within the framework of the FCCC, and its mission is to promote international cooperation in the development and exchange of climate friendly and ecologically clean technologies. Countries participating in the CTI conduct numerous joint activities in order establish cooperation with developed countries and international organizations. CTI provided technical assistance to countries to conduct technological needs assessments. Technological assessment methodologies and relevant information are also developed and disseminated. CTI also supports the establishment of cooperation on technology development and dissemination at various levels, convention secretariat has also established the TT-CLEAR mechanism, which is a comprehensive data base of climatic technologies.

7.1.2. Technologies

The following activities are recommended for organizing technology transfer processes in Armenia:

- Increase awareness on technology transfer issues among various institutions
- Ensure access to and dissemination of information on technologies, equipment, materials, best practices and projects
- Develop and implement programmes and projects for introducing sustainable ecological-economic criteria in sustainable development processes.

Analysis of information related relationships in Armenia identified the fragmentation of the information system as the most important problem. The process of scientific information exchanges has obvious shortcomings at all levels:

- Initial information is either outdated, or non-existent or unreliable
- Collection of the major part of information is conducted with no coordination, mainly in hard copy which is difficult to access

- There is no meta data, i.e. data on locations and sources of information, (for example information at the NAS of the RA and the Ministry of Education and Science on NAS reports accumulated for a large number of years)
- GIS, which is one of the most efficient information systems, practically is not used
- There is no horizontal information exchange between governmental structures and scientific organizations
- Economic, environmental and social indicators systems, necessary for the implementation of conventions' provisions from the point of view of their synergism, are non-existent
- There are no concept papers and sustainable mechanisms for information exchange.

The interrelationships between the three conventions and their synergistic opportunities allows for more rational, effective and economical use of ecologically clean technologies, for example adaptation technologies for mitigation of climate change impacts are, in effect, fully identical with the technologies used for biodiversity preservation and combating desertification.

A number of technologies have been developed in Armenia, the application of which in agricultural, energy, forest and water sectors, considering the specificities of natural conditions in the country, would contribute to environmental protection and the implementation of conventions' provisions. As a result of a number of objective causes, however, mainly of financial-economic nature, the introduction of new technologies is an extremely slow process.

There are significant achievements in Armenia in the area of renewable energy sources. A number of farms and poultry production facilities use biogas equipment. Production of solar water heaters has been organized with the financial support of international financial organization and donor countries. It is planned to operate the first wind power plant in the country with 40 Mw capacities. 35 small hydro-power stations operate in the country.

Box 7.5. Local technologies which can be used for the implementation of conventions' provisions³

Organization	Technology
National Agricultural Support Centre	<ul style="list-style-type: none"> • Development of new norms for pesticide use • Enriching collections of the genetic pool
Yerevan State Engineering University	<ul style="list-style-type: none"> • Wastewater treatment technology: technology for removing heavy metals from waters (nickel, chrome, some organic substances) • Exhausted gas treatment technology
“Energy Research Institute” CJSC	<ul style="list-style-type: none"> • Wind energy
Institute of Geology of the NAS of the RA	<ul style="list-style-type: none"> • Has produced a special polymer substance which can contribute to enforcement of slopes prone to landslides, reduction of water quantity needed for irrigation, reduce water losses in water reservoirs
Ecological- Noosphere Research Centre of the NAS of the RA	<ul style="list-style-type: none"> • GIS application technologies, mapping, expert assessment of areas • Geochemical methods for mineral search and assessment - identification of blind bodies
Armenian Agricultural Academy	<ul style="list-style-type: none"> • Establishment of laboratory for materials of animal origin • Determination of the needed fertilizers for crops with short rotation cycle • Local measures for achieving planned yields: use of dacite tuffs and ceolyths for ensuring maximum fertility
PIU for Natural Resources Management and Poverty Reduction	GIS development and application. Development of technologies for natural resources management.
Emergency Situations Department of the RA	Plans to establish a comprehensive monitoring centre for the territory of the country, the operation of which will solve numerous relevant issues

Armenia needs the following technologies in order to implement conventions' objectives:

- Energy efficient technologies for electricity and heat production
- Renewable energy technologies

³ According to the survey

- Modern technologies for processing solid municipal waste with energy production
- Municipal wastewater treatment technologies with organic compost production
- Forest sector technologies for development of seed and seedling production, protection against pests and diseases and sustainable forest use
- Water-saving irrigation technologies
- Technologies for restoring natural pastures and their sustainable use
- Modern methodologies and equipment for environmental assessment and monitoring
- Ecosystem methodologies for spatial planning

A number of economic, financial, institutional organizations, legal, informational and human resources obstacles hinder technology transfers and implementation of priority projects. The main obstacles in Armenia are the weak financial sector and absence of the needed capital, high cost of operations, low affordability of potential consumers and low demand for ecologically clean technologies, shortcomings of the institutional framework, low level of awareness among stakeholders, etc.

The summarized main barriers are presented below:

- Lack of public resources
- Lack of state support for attracting foreign investors and receiving grants and concessional loans
- Lack of participation on the side on national banks in technology transfer processes, high interest rates
- Absence of a legal framework for technology transfer
- Lack of coordination in technological needs assessment and technology transfer
- Lack of information among investors on country's technology market
- Inadequate information on modern technologies and low level of awareness among stakeholders
- Lack of information among governmental structures, private companies and the public on conventions and their financial mechanisms
- Inadequate number of commissioned development work for needed technologies and personnel for the introduction and operation of technologies.

7.2. Recommendations for capacity building

Based on the assessment of current capacities and factors hindering its strengthening, the main needs with regard to scientific information provision, applied research and technological capacity improvement and strengthening were identified, with consideration for the synergistic links between the three international environmental conventions.

Capacity building needs are presented in the form of action plan, with and approximate timetable (Table 7.2).

1. Establish a coordinating center for conventions based on structures responsible for national coordination of CBD, FCCC and CCD
2. Develop the data base management system using modern technologies. Incorporate collection of information on environmental research activities and projects implemented in the country in the functions of the Informational-Analytical Center of the Ministry of Nature Protection
3. Targeted budgetary funding of applied research works targeted at ensuring synergistic effect
4. Establish a separate coordination group for scientific information provision, applied research and technologies within the coordinating center
5. Improve the existing monitoring system. Technical provisioning of the observation system with equipment and meteorological stations corresponding to international standards. Improve meteorological forecasts using digital methods and computerized models
6. Coordinate the collection, processing, storage and dissemination of data received through means of telecommunication, GIS application
7. Organize a targeted system for training and enhancing qualifications of young specialists for solving issues related to conventions

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CHAPTER III

FRAMEWORK ACTION PLAN ON CAPACITY BUILDING IN CROSS-CUTTING AREAS OF RIO CONVENTIONS

FRAMEWORK ACTION PLAN

N	Action	Primary Responsible Party	Co-implementers/ partners	Implementation timeframe 2005-2008	Funding Sources
1.	Establish a formal coordination mechanism to promote synergistic implementation of the Rio conventions	Ministry of Nature Protection		Short Term	With current resources, International assistance ²
2.	Establish a formal advisory group to support the development of projects related to the Rio Conventions and ensure their conformity with national sustainable development priorities	Ministry of Nature Protection	Ministry of Agriculture Ministry of Finance and Economy	Medium Term	Budget allocation, International assistance
3.	Promote the development and more effective enforcement of environmental laws and regulations that supports Convention implementation	Ministry of Nature Protection	Ministry of Justice	Long Term	Budget allocation
4.	Develop official policy to ensure that capacity development projects and activities focused on a particular convention also include synergies with other global and regional conventions whenever possible and appropriate	Ministry of Nature Protection		Long Term	International assistance
5.	Revise and strengthen the official decision-making system that determines how to channel public funding for basic and applied scientific research on environmental issues	Ministry of Nature Protection Ministry of Education and Science	National Academy of Sciences Agricultural Academy	Medium Term	With current resources
6.	Formulation of a system for the transfer, development, and improvement of technologies that support convention implementation	Ministry of Nature Protection National Academy of Sciences	Ministry of Trade and Economic Development Agricultural Academy	Short Term	Budget allocation International assistance

		Ministry of Education and Science			
7.	Develop innovative financial mechanisms and instruments to support implementation of the conventions including user fee systems, low-interest loans, private sector sponsorship, and environmental trust funds	Ministry of Nature Protection Ministry of Finance and Economy	Ministry of Justice Ministry of Foreign Affairs	Long Term	Budget allocation International assistance
8.	Establishing and strengthening mechanisms focused on facilitating regional cooperation related to convention implementation	Ministry of Nature Protection	Ministry of Foreign Affairs NGOs	Medium Term	With current resources International assistance
9.	Ensure that sustainable forestry management system currently under development adequately incorporates global environmental considerations with particular emphasis on: (1) determining optimal forest coverage for Armenia, (2) developing an inventory of forest biodiversity and wood resources, (3) identifying carbon sequestration funding for reforestation and afforestation activities, (4) and using forest plantations to buffer natural ecosystems	Ministry of Nature Protection Ministry of Agriculture	Natural Resources Management and Poverty Reduction Project Implementation Unit Agricultural Academy National Academy of Sciences	Long Term	Budget allocation International assistance
10.	Development management system for sustainable use of natural pastures including: (1) developing baseline assessment and inventory, (2) elaborating of site-specific management plans, (3) establish a system of indicators for assessing the productivity and biodiversity values of specific sites	Ministry of Agriculture Marz administrations Communities	Ministry of Nature Protection Natural Resources Management and Poverty Reduction Project Implementation Unit	Long Term	Budget allocation International Assistance
11.	Develop policy and guidelines on environmental restoration, amelioration, and reclamation	Ministry of Nature Protection	National Academy of Science Agricultural Academy	Long Term	Budget allocation International Assistance

			Ministry of Education and Science		
12.	Further analyze the ecological, economic and social consequences of Lake Sevan water level raise in the context of the three Conventions	Ministry of Nature Protection	Ministry of Agriculture National Academy of Science Ministry of Urban Development National Academy of Science Gegharkunik marz Administration	Short Term	
13.	Develop a strategic approach for the management and rehabilitation of watershed ecosystems	Ministry of Nature Protection	National Academy of Science	Medium Term	
14.	Establish a legal framework for the preservation and use of traditional knowledge and practices related to the Rio Conventions	Ministry of Agriculture Ministry of Education and Science	Ministry of Justice	Long Term	Budget allocation International assistance
15.	Develop strategic approach for identifying and acting upon synergies between the conventions using techniques such as: GIS technology, multilayer mapping, cross-cutting selection and prioritization criteria	Ministry of Nature Protection	National Academy of Science	Short Term	International assistance
16.	Incorporation of convention related indices into the environmental impact monitoring system including: (1) GHG emissions, (2) condition of GHG sinks, (3) ecosystem vulnerability, (4) impact on biodiversity, (5) land degradation and desertification impacts, and (6) land use changes	Ministry of Nature Protection	State Statistical Service National Academy of Science	Medium Term	With current resources
17.	Revise and strengthen the existing system for monitoring the application of sustainable land use policies and practices	Ministry of Nature Protection Ministry of Agriculture	State Statistical Service	Medium Term	With current resources
18.	Develop a viable methodological approach for the economic valuation of Armenia's natural resource base that adequately incorporates environmental externalities to elaborate appropriate economic instruments such as user fee systems, criminal and civil penalties for damage and overuse, and compen-	Ministry of Nature Protection Ministry of Finance and Economy	National Academy of Science	Long Term	With current resources International assistance

	sation regimes				
19.	Prepare inventory of abandoned mines and other areas degraded by resource extraction activities to support existing decision-making and priority-setting processes	Ministry of Nature Protection	Ministry of Trade and Economic Development State Cadastre of Real Estate	Medium Term	Budget allocation International assistance
20.	Formulate strategic approach for determining public sector human resources needs and professional development requirements related to effective implementation of the Conventions that includes needs assessments, staff re-profiling, and short-term training	Ministry of Nature Protection Ministry of Education and Science	National Academy of Sciences Agricultural Academy	Long Term	Budget allocation International assistance
21.	Develop continuing educational programs and public awareness activities focused on rural communities related to the methods and techniques of the sustainable use of natural resources	Ministry of Nature Protection Ministry of Territorial Administration	Ministry of Agriculture NGOs	Long Term	With current resources International assistance
22.	Amend Armenia's existing environmental education action plan to better incorporate global environmental concerns	Ministry of Nature Protection Ministry of Education and Science	NGOs	Medium Term	With current resources
23.	Develop comprehensive public awareness campaigns on a select number of cross-cutting issues including the role and importance of forests, sustainable land use practices, and the role of local communities in global environmental stewardship	Ministry of Nature Protection Media NGOs	Ministry of Agriculture	Long Term	Budget allocation International assistance

ANNEXES

1. List of events organized, supported or attended by NCSA project
2. Cooperation established during the NCSA project implementation
3. List of materials published in the frames of NCSA project implementation
4. Materials published in the framework of the three global environmental conventions
5. Projects implemented in Armenia in the framework of conventions
6. Surveys conducted during NCSA project implementation
7. Environmental non governmental organizations
8. Project proposals
9. NCSA project web site

ANNEX 1

LIST OF EVENTS ORGANIZED, SUPPORTED OR ATTENDED BY NCSA PROJECT

N	Title, Date and Place	Description
SEMINARS AND WORKSHOPS ORGANIZED BY NCSA		
1.	Inception Workshop on “National Capacity Self-Assessment” 13.02.2003, Congress Hotel, Yerevan	<p>Participants: 70 representatives from different ministries, agencies, academia, NGOs and the national media (Moderated by Mr. Arturo Garsia Costas- UNDP/GEF Chief Technical Adviser).</p> <p>Goal: Wide presentation of NSCA objectives, project benchmarks, emphasis on importance of country ownership to the process and importance of developing comprehensive and realistic Action Plan for addressing capacity development in synergistic areas.</p>
2.	Project Steering Committee Meeting (N1) 11.04.2003, Ministry of Nature Protection, Yerevan (MNP)	<p>Participants: 17 representatives (out of 20 SC members 14 were present) from stakeholder ministries, international organizations/donors, Convention focal points, NAS and NGOs.</p> <p>Goal: Discuss project progress from February 1, 2003, Steering Committee TOR and the project work plan.</p> <p>Output: Steering Committee list, TOR, Project Workplan and inception report approved.</p>
3.	Round Table “Agricultural Sector Policy And Country’s Commitments Under Global Environmental Conventions” 14.05.2003, Ministry of Agriculture, Yerevan	<p>Participants: 14 participants from Ministry of Nature Protection, Ministry of Agriculture and UNDP.</p> <p>Goal: Discuss coordination and cooperation issues between UNDP implemented projects and executive ministries, identify the inter-linkages between agricultural sector and environmental conventions</p> <p>Output: Certain recommendations were developed on improving the institutional cooperation.</p>
4.	Round Table “Integration of Global Environmental Convention Issues into the Educational System of the Republic of Armenia” 26.06.2003, Writers Union Conference Hall, Yerevan	<p>Participants: 44 participants from stakeholder ministries, educational establishments, National Institute of Education, National Academy of Sciences, International organizations and NGOs.</p> <p>Goal: Discuss with key stakeholders the integration of global environmental convention issues into the educational system of Armenia.</p> <p>Output: Certain recommendations were developed and submitted to the Ministry of Education and Science and Ministry of Nature Protection.</p>
5.	Round Table “Information Exchange on Scientific and Applied Research and Technology Envisaged by Global Environmental Conventions” 02.09.2003, UN Conference Hall, Yerevan	<p>Participants: 61 participants from stakeholder ministries, scientific organizations and private sector, including CHM trainers.</p> <p>Goal: Present technology transfer needs under conventions, particularly, the CHM mechanism.</p> <p>Output: Certain recommendations were developed.</p>
6.	Project Steering Committee Meeting (N2) 14.10.2003, Ministry of Nature Protection, Yerevan	<p>Participants: 14 representatives (out of 21) from stakeholder ministries, international organizations/donors, Convention focal points, NAS and NGOs.</p> <p>Goal: To discuss project progress and related issues.</p>
7.	Seminar “Developing Methodologies for C-cutting Assessment on	<p>Participants: 32 representatives from ministries, State National Service on Statistics, higher educational establish-</p>

	National Capacity”. <i>24.10.2003, UN Conference Hall, Yerevan</i>	ments, science and research institutes, NGOs, UNDP/GEF NCSA Project and media. Goal: Provide technical advice to the team leaders at the initial stage of the cross-cutting assessment.
8.	Round Table “Current state of Environmental Education in Armenia and Development Trends” <i>26.01.2004, Ministry of Nature Protection Conference Hall, Yerevan</i>	Participants: 45 representatives from ministries, National Assembly, educational establishments, NGOs, international organizations and media. Goal: Discuss the current state of environmental education in Armenia, constraints for convention issues integration into educational system and identify possible development trends. Output: Certain recommendations were developed and submitted to the Ministry of Education and Science, Ministry of Nature Protection, National Institute of Education and UNDP office.
9.	Seminar “Issues of Monitoring and Access to Information in the Framework of Three Global Environmental UN Conventions” <i>07.02.2004, Ministry of Nature Protection, Yerevan</i>	Participants: 38 representatives from ministries, National Service on Statistics, State Committee of Real Cadastre under the Government, State Committee of Water Resources under the Government, Department of Emergency Situations under the Government, National Academy of Sciences, scientific and project organizations and UNDP. Goal: Hold a dialogue between specialists and stakeholders/interested parties on issues of monitoring and access to information and provide relevant recommendations. Output: Certain recommendations were developed.
10.	Seminar “Financial Tools and Mechanisms” <i>20.03. 2004, Tekeyan Centre, Yerevan</i>	Participants: 25 representatives from stakeholder ministries, State National Service on Statistics, scientific institutions, NGOs, international organizations and private sector-“Ameria” consulting agency. Goal: Discuss and make recommendations on financial tools and mechanisms necessary for implementation of the three global environmental conventions in the country. Output: Certain recommendations were developed.
11.	Round Table “On Sustainable Land Management Proposal for Operational Program 15 (OP15)” <i>06.05.2004, Ministry of Nature Protection, Yerevan</i>	Participants: 12 representatives from stakeholder ministries, State Committee of Real Cadastre under the Government, Soil Science Institute and Yerevan project attended the meeting. Goal: Discuss the issues of planning and steps to be undertaken for developing project proposals in the light of the newly opened GEF window OP 15 for sustainable land management. Output: Development of relevant proposals.
12.	Project Steering Committee Meeting (N3) <i>09.07.2004, Ministry of Nature Protection, Yerevan</i>	Participants: 13 out of 21 members of SC were present from Ministries of Nature Protection, Education and Science, Finance and Economy, Energy, Department of Urban Development and Natural Resources of the Administration of the Government, “Association for Sustainable Human Development” NGO and UNDP. Goal: Presentation of project interim outcomes, on-going activities and future steps. Output: A resolution was developed.
13.	Discussion of Project Proposals Developed in the Framework of NCSA Project <i>27.08.2004, Ministry of Nature Protection</i>	Participants: 21 representatives from UNDP, Ministry of Nature Protection, “Armforest” SNCO under Ministry of Agriculture, Armenian Agricultural Academy and other report makers. Goal: To discuss with stakeholders the project proposals de-

		<p>veloped in the framework of NCSA project as a strategic outcome and make necessary amendments in the proposals for submitting later to the donor community.</p> <p>Output: Proposals amended, institutional arrangements made, relevant support provided for proceeding with the process of proposal finalization to be submitted to donors.</p>
14.	<p>NCSA Project Final Workshop 13.09.2004, Congress Hotel, Yerevan</p>	<p>Participants: 67 representatives from Project Steering Committee, Ministries of Nature Protection, Agriculture, Education and Science, Energy and Urban Development, National Service on Statistics, State Committee of Real Cadastre under the Government, National Academy of Sciences, scientific and project organizations, NGOs, international organizations, private sector and other stakeholders.</p> <p>Goal: To present the outcomes of NCSA Project and discuss the Action Plan on Capacity Building for Cross Cutting Implementation of Rio Conventions.</p>
15.	<p>Stakeholders' Awareness Increase on Project Proposals Developed in the Framework of NCSA Project 02.10.2004, Gavar State University</p>	<p>Participants: 45 representatives from Ministry of Nature Protection, Gavar State University, "Khazer" NGO and Institute of Hydroecology and Ichthyology of National Academy of Sciences.</p> <p>Goal: To present the final outcomes of NCSA Project in Gavar State University and, particularly, discuss relevant project proposals developed as a strategic outcome of NCSA Project.</p>
<p>SEMINARS AND WORKSHOPS ORGANIZED IN PARTNERSHIP WITH OTHER STAKEHOLDERS</p>		
16. 3	<p>"Renewable Energy in Armenia: Reality and Perspectives" 27.06.2003, Hotel Hrazdan, Yerevan</p> <p><i>Organized in partnership with International Research and Exchange Board (IREX), USAID Advanced Engineering Associates International and UNDP/GEF "Armenia Country Study on Climate Change Phase 2" project.</i></p>	<p>Participants: 74 representatives from stakeholder ministries, Public Services Regulation Committee, NGOs, foreign technical assistance programs, scientific institutions, representatives from embassies of Russia, Belarus, Iran and Germany, specialists from Georgia and USA, and media.</p> <p>Goal: Present the state of the art with renewable energy development in Armenia, foster information exchange between different field actors, initiate an open professional discussion between field actors and public authorities concerning the regulatory and legislative framework and introduce new technologies.</p> <p>Output: Awareness of stakeholders on current legislation and technology transfer barriers and opportunities was increased. Conference materials published and distributed (158 pages, totally 250 issues, of which 140 were distributed)- (Feb. 20, 2004, UN Conference Hall, Yerevan).</p>
17.	<p>Seminar "Sustainable Management of Oak Forests Production" 16-17. 07.2003, UN Conference Hall, Yerevan</p> <p><i>Organized in partnership with the Ministry of Nature Protection of RA, FAO and UNDP office in Armenia.</i></p>	<p>Participants: 25 (July 16) and 23 (July 17) representatives from stakeholder ministries, NGOs, International organizations and scientific institutions.</p> <p>Goal: Preparation of technical Cooperation Program (TCP) by integration of the three UN global environmental convention issues. Participatory decision making ensured.</p> <p>Output: TCP layout was developed.</p>
18.	<p>Round Table "Development of Armenian Mass Reforestation Plan" 28.07.2003, UN Conference Hall, Yerevan</p>	<p>Participants: 18 representatives from key ministries, NGOs and international projects.</p> <p>Goal: Develop an Armenian mass reforestation plan.</p> <p>Output: A questionnaire-based analysis was carried out based on the responses of participants.</p>

	<p><i>Organized in partnership with UNDP “National Capacity Self Assessment for Global Environmental Management” and “Partnership for Community Development” Projects and “Armenian Forests” NGO</i></p>	
19.	<p>Caucasus Environmental NGO Network: Current Activities and Perspectives for Armenian NGO Community 3.10.2003, UN Conference Hall, Yerevan</p>	<p>Participants: 40 participants from international organizations, NGOs and media. Goal: Increase the awareness of Armenian NGO community on CENN activities and benefits from working networks. Output: Cooperation between environmental NGOs and CENN was enhanced.</p>
20.	<p>Biocomed-Workshop “Towards the International Scientific Cooperation” 24-26.11. 2003, YSU, Yerevan</p> <p><i>Organized by British Council, DAAD Germany, IREX, Yerevan State Medical University, Yerevan Physics Institute, TACIS/TEMPUS, US Embassy/Armenia; financed by NCSA and MeTex CJSO</i></p>	<p>Participants: More than 70 young scientists from different S&T and educational institutions of Armenia and media. Goal: Familiarize stakeholders with the projects of organizations that foster international scientific cooperation with a special focus on integration of young scientists in the cooperation. Output: Manuals were developed and distributed for capacity building on fundraising for scientific studies. A promotional award was honoured to a young environmentalist by NCSA Project.</p>
21.	<p>Regional Seminar -“Education for Sustainable Development” 22-23.12.2003, UN Conference Hall, Yerevan</p> <p><i>Organized in partnership with OSCE and “Association for Sustainable Human Development” NGO.</i></p>	<p>Participants: 65 representatives from NGOs and educational institutions from Georgia, Azerbaijan, Armenia and Russian Federation/ Pan-European Eco-Forum. Goal: Introduce participants the documents adopted during the World Summit on Sustainable Development and Kiev Ministerial Conference on “Education for Sustainable Development”, experience exchange in formal and non-formal education by different organizations; develop an action plan for the upcoming “Decade of Education for Sustainable Development”. Output: A resolution was developed and submitted to the national authorities and the donor community.</p>
22.	<p>Round Table “Integration of Environmental Issues in Community Development Projects” 23.01. 2004, Vedi</p> <p><i>Organized in partnership with the “Community Financiers Union” NGO</i></p>	<p>Participants: 20 representatives from Vedi communities. Goal: Identify the environmental issues and constraints for addressing those issues in Vedi communities, conduct interview with community heads to assess community capacities for addressing the environmental issues. Output: Community heads awareness on environmental issues and responsibilities of local self governing bodies increased.</p>
23.	<p>“Training for Local Authorities” Lectures and Survey 19-20.04.2004, Hrazdan, Abovyan and Lusakert towns, Kotayk Marz</p> <p><i>Organized in partnership with the International Center for Human Development (ICHD).</i></p>	<p>Participants: Representatives from 61 communities. Goal: Provide theoretical and practical support to community leaders and administrative staff in developing three-year development projects and annual budget with consideration of environmental component among the other issues. It was also aimed at identifying the environmental knowledge of local governing bodies, their awareness on environmental process in the country, implemented activities, cooperation between communities, state authorities and NGOs through a developed questionnaire. Output: Cooperation was enhanced. A questionnaire-based</p>

		analysis was carried out.
24.	<p>Seminar “Access to Information and Knowledge as an Effective Way of the Sustainable Development”. 18-19.05.2004, Conference Hall of the Institute of History of RA NAS, Yerevan</p> <p><i>Organized in partnership with Bio-ecomed NGO, British Council/Armenia, Organization on Security and Cooperation in Europe (OSCE), United Nations Educational, Scientific and Cultural Organization - Regional Bureau for Science in Europe (UNESCO-ROSTE).</i></p>	<p>Participants: 40 participants, of which 38 trainees (including scientists, university staff, librarians and information personnel from Universities and scientific and technical institutions of Armenia and Georgia), as well as representatives from National Assembly, local and international organizations providing scientific and technical support in the region.</p> <p>Goal: Raise awareness of the regional academic communities on the World Wide Web information resources and underline the importance of science for ensuring the development of the country.</p> <p>Output: Knowledge sharing, information dissemination; and access to international information sources, number of electronic libraries increased.</p>
25.	<p>“Training for Local Authorities“ Lectures and Survey 24.05.2004, 21-23.06.2004, Echmiadzin and Armavir towns, Armavir Marz</p> <p><i>Organized in partnership with International Centre for Human Development (ICHD).</i></p>	<p>Participants: Representatives from 96 communities (community leaders and financiers).</p> <p>Goal: Provide theoretical and practical support to community leaders and administrative staff in developing three-year development projects and annual budget with consideration of environmental component among the other issues. It was also aimed at identifying the environmental knowledge of local governing bodies, their awareness on environmental process in the country, implemented activities, cooperation between communities, state authorities and NGOs through a developed questionnaire.</p> <p>Output: Awareness of community leaders on environmental issues and self- administration responsibilities was raised. A questionnaire based analysis was carried out.</p>
26.	<p>Presentation of Educational Posters on Renewable Energy and a Methodical Guidebook for teachers 04. 06. 2004, UN Conference Hall, Yerevan</p> <p>Developed by NCSA Project, Solar En LLC, ATP, Alliance to Save Energy and Ministry of Education and Sciences.</p>	<p>Participants: Representatives from the Ministry of Nature Protection, environmental NGOs and scientific institutions.</p> <p>Goal: To present the educational posters on renewable energy and its methodical guidebook in the framework of the Environmental Week announced by UNDP and UNDPI for June 4 - June 17, 2004 aimed at awareness increase of stakeholders on environmental issues and ongoing environmental projects.</p> <p>Output: Poster distributed to all secondary schools (1350) and vocational educational establishments/colleges (50) in the republic. Demonstrative lessons are being envisaged to be organized at schools in September.</p>
27.	<p>Round Table “Environmental Issues in Alaverdi and in Neighboring Communities” 05. 06. 2004, Alaverdi town, Lori Marz</p> <p><i>Organized by Ministry of Nature Protection (with NCSA support) in the framework of the “Joint Action Plan” signed between the RA Ministry of Nature Protection and the Lori Marz.</i></p>	<p>Participants: 28 representatives from UNDP, Ministry of Nature Protection, Alaverdi municipality, Lori marz administration, local NGOs and ACP Company.</p> <p>Goal: Contribute the environmental activities in communities and discuss the urgent environmental issues to be addressed in the communities.</p> <p>Output: Cooperation between Alaverdi Municipality and Ministry of Nature Protection was enhanced.</p>
28.	<p>Round Table “Environmental Issues in Shirak Marz”</p>	<p>Participants: 36 representatives from Ministry of Nature Protection, Armenian Geographical Union, YSU, Guymri Peda-</p>

	18. 06. 2004, Gyumri town, Shirak Marz <i>Organized in partnership with Ministry of Nature Protection and Armenian Geographical Association.</i>	gological Institute, Gyumri municipality and Shirak Marz Administration. Goal: Identify the environmental knowledge of the local governing bodies, their awareness on environmental process in the country, implemented activities, and cooperation between communities, state authorities and NGOs. Output: Cooperation with community based organizations was improved, and development of relevant proposals was fostered.
29.	Round Table “The Role of Museums in Provision of Environmental Education” 25.06.2004, State Museum of Nature of Armenia, Yerevan. <i>Organized in partnership with the State Museum of Nature under RA Ministry of Nature Protection and the “Association of Museum Workers and Friends” NGO.</i>	Participants: Representatives from Ministries of Education and Science and Ministry of Nature Protection, National Assembly, museums, scientific institutions and higher educational establishments, local and international NGOs and media. Goal: Support the environmental education in the republic by enhancing the role of natural-scientific profile museums. Output: Awareness of stakeholders was increased, cooperation was enhanced, 2 proposals were developed and submitted to the Manchester University and Soros Foundation.
30.	Round Table “Concept and Practice of Sustainable Development: International Experience and Issues of Armenia” 29.10.2004, National Assembly of the Republic of Armenia	Participants: 43 representatives, including deputies from the National Assembly, executing authorities, representatives from international organizations and NGOs. Goal: To introduce the deputies of the Third Session of the National Assembly the general principles of Sustainable Development, particularly the “Environment and Security” and Aarhus procedures, discuss the international experience on Sustainable Development process, the existing issues in the country from this viewpoint, Armenia’s outputs and steps to be undertaken. Output: Awareness increase. Identification of issues, which will later be considered during decision making by legislative bodies.
INTERNATIONAL CONFERENCES AND SEMINARS ATTENDED		
31.	“Regional Technical Workshop on NCSA Implementation for Eastern Europe and the Central Asian Republics” 28-30.05.2003, Bratislava, Slovakia	Representatives from Armenia: Ms. Anahit Simonyan, UNDP Program Officer and Ms. Diana Harutyunyan, UNDP/GEF NCSA Project Coordinator. Goal: Provide targeted technical support to Eastern Europe and the Central Asian Republics for implementation of NCSA. Output: Experience exchange, knowledge sharing, presentation of NCSA guidance for practitioners and recommendations for key planning.
32.	“Climate Technology and Energy Efficiency –Challenges and Chances for Climate Technology” CTI Capacity Building Seminar 20-24. 09. 2003, Tutzing, Germany	Representatives from Armenia: Ms. Diana Harutyunyan, UNDP/GEF NCSA Project Coordinator and Ms. Svetlana Ganjulyan, TACIS Energy Strategy Centre. Goal: Exchange of best practice experience with both energy efficiency projects and policies and measures with regard to climate protection in CEE and FSU countries. Output: Experience exchange, information dissemination, capacity building exercises and knowledge sharing on Kyoto mechanism implementation policies.
33.	“Joint Seminar on Technology Diffusion in Eastern Europe and Central Asia, organized by Cli-	Representatives from Armenia: Mr. Aram Gabrielyan, “Armenia-Country Study on Climate Change” Phase II Project Coordinator, UNFCCC Focal Point in Armenia and Ms.

	<p>mate Technology Initiative (CTI) and UN Industrial Development Organization (UNIDO)” 28-29.10.2003, Vienna, Austria</p>	<p>Diana Harutyunyan, NCSA Project Coordinator. Goal: Increase participants’ awareness on climate change and technology transfer issues, review experiences in Central and Eastern Europe and in Central Asia, and promote the development of environmentally-sound projects by encouraging collaboration between policymakers, technology transfer specialists, financial institutions and the private sector. Output: Experience exchange, knowledge sharing on Kyoto mechanism implementation policies. Presentation was made by UNFCCC Focal Point Mr. Aram Gabrielyan and NCSA Project Coordinator Ms. Diana Harutyunyan on technology transfer issues in Armenia under UNFCCC.</p>
34.	<p>Expert Group Meeting on Industrial Energy Efficiency and Carbon Financing, organized by UNIDO and Austrian Ministry for Agriculture, Forestry, Environment and Water Management. 30-31.10.2003, Vienna, Austria</p>	<p>Representatives from Armenia: Mr. A. Gabrielyan, “Armenia-Country Study on Climate Change” Phase II Project Coordinator and Ms. D. Harutyunyan, NCSA Project coordinator. Goal: Identify how carbon financing can accelerate the uptake of energy efficient technologies and systems in the industrial sector using the Kyoto Protocol’s Clean Development Mechanism (CDM) and Joint Implementation (JI). Output: Experience exchange, main barriers for industrial energy efficiency project implementation under Kyoto mechanism identified. A report was made by NCSA Project Coordinator Ms. D. Harutyunyan on Armenia’s capacities for CDM project implementation.</p>
35.	<p>World Climate Change Conference, 29.09.2003-03.10.2003, Moscow, Russia</p>	<p>Representatives from Armenia: Aram Gabrielyan and Michael Vermishev, NCSA Project Expert Goal: Presentation on main developments under Climate change mitigation policies, vulnerability assessment and adaptation measures. Output: Experience exchange. A report was made on Assessment of GHG Emissions Reduction Potential in Armenia (Mr. M. Vermishev, co-author Ms. D. Harutyunyan)</p>
36.	<p>Asian Regional Workshop on Capacity Development for Implementing the CDM 24-26.03. 2004, Kambodia</p>	<p>Representatives from Armenia: Ms. Astghine Pasoyan, NCSA Project Expert and Ms. Rubina Stepanyan, “Armenia-Country Study on Climate Change” Phase II Project Assistant. Goal: Training on development of CDM project design documents (PDDs), baseline development for each type of sectoral CDM projects, CERU types and features, etc. Output: Experience exchange. Discussions were held on establishment of Designated National Authorities (DNAs).</p>
37.	<p>Training - Workshop on Clean Development Mechanism (CDM), Central Asia 13-15.04.2004, Bishkek</p>	<p>Representatives from Armenia: Mr. Michael Vermishev and Mr. Artyom Kharazyan- NCSA Project experts. Goal: Presentation of participant countries’ national policies on Climate Change, particularly CDM projects. Output: Successful methods for solving the above-mentioned problems were identified and several proposals were developed and submitted to organizers. Conclusions and recommendations were worked out.</p>
38.	<p>Summer School - “Environmental Management” 28.06.2004-10.07.2004, Yerevan</p>	<p>Representatives from Armenia: Ms. Naira Aslanyan and Ms. Ruzanna Grigoryan- NCSA Project staff members. Goal: Improvement of young specialists in the sphere of ecology and environment. Output: Experience exchange, cooperation establishment.</p>

39.	Summer School “Environment and Sustainable Development” <i>28.06.2004-11.07.2004, Dubna</i>	Representatives from Armenia: Erik Grigoryan – NCSA Project expert. Goal: Establish an international youth association of scientists, specialists, producers, public figures, who manage the mechanisms of ensuring ecologically safe environment and rational use of natural resources. Output: Experience exchange, cooperation establishment.
40.	South Caucasus: European Integration Perspectives <i>15.07.2004, Yerevan</i>	Representatives from Armenia: Ms. Diana Harutyunyan-NCSA Project Coordinator. Goal: Support the sustainable and peaceful development of South Caucasus regional cooperation and rapprochement to EU. Output: Establishment of cooperation and experience exchange. Presentation made by Ms. Diana Harutyunyan on ongoing regional environmental projects.
41.	English Language Training for Environmental Specialists <i>7-13.08.2004, Losehill, UK</i>	Representatives from Armenia: Ms. Gayane Simonyan, NCSA Project Assistant. Goal: English language improvement and experience exchange on European models of SPANs management, particularly National Parks, development of management plans, implementation of pilot projects. Output: Experience exchange, cooperation establishment.
42.	UNDP/GEF NCSA Regional Workshop for Europe and CIS <i>27-29.09.2009, Bratislava, Slovakia</i>	Representatives from Armenia: Ms. Diana Harutyunyan, NCSA Project Coordinator Goal: Experience exchange, identification of final outcomes and detection of report final formats
43.	Improvement of Agricultural Emissions and Implementation of Good Practice Elements in National Inventories <i>7-8.10.2004, Tashkent, Uzbekistan</i>	Representatives from Armenia: Ms. Diana Harutyunyan, NCSA Project Coordinator, Ms. Astghine Pasoyan and Mr. Martiros Tsarukyan, regional project experts. Goal: Interlinkage of NCSA Process with GHG capacity building objectives of regional project
44.	CTI Capacity Building Seminar for CEE/FSU Countries- “Climate Technology and Energy Efficiency – using the Kyoto Mechanisms” <i>16-20. 10.2004, Leipzig, Germany</i>	Representatives from Armenia: Ms. Diana Harutyunyan, NCSA Project Coordinator. Goal: Share experience with experts from OECD countries on using the Kyoto Mechanisms, particularly on Clean Development Mechanisms.
45.	Workshop – Presentation “Italian Collaboration in South Caucasus Energy Sector: Results and Opportunities” <i>27. 10. 2004, Yerevan</i>	Representatives: Ms. Diana Harutyunyan, NCSA Project Coordinator. Goal: To present the outcomes of activities of a number of Italian environmental and energy companies in Transcaucasus, applied technologies, as well as to discuss the cooperation perspectives. Output: Ms. Diana Harutyunyan made a report on Environmental Issues for Energy Development in Armenia.

ANNEX 2

COOPERATION ESTABLISHED IN THE FRAMEWORK OF NCSA PROJECT

	Parties	Framework and aims
1.	“Natural Resources Management and Poverty Reduction” Project (State Forests Management Component)	On Collaboration for Nature Protection in the republic of Armenia
2.	OSCE/Armenia Office “For Sustainable Human Development Association” NGO	On Establishment of Organizational Committee for “Education for Sustainable Development” Regional Seminar
3.	Energy Strategy Centre, USAID/ AEAI, UNDP/GEF “Armenia-Country Study on Climate Change” Project	On Establishment of Board of Sponsors and Organizational Committee for the "Renewable Energy in Armenia: Actuality and Perspectives" Project
4.	BioEcoMed NGO, British Council/Armenia	On developing joint activities aimed at supporting access to information and knowledge of Armenia's academic community
5.	BioEcoMed NGO, British Council/Armenia, OSCE, UNESCO	On establishment of Organizational Committee for “Access to Information and Knowledge as an Effective Way for Promoting Sustainable Development” Conference
6.	Institute of Zoology, RA National Academy of Sciences	“Study and Conservation of South Caucasus Fauna” Regional Seminar
7.	Meteo-TV	On “Establishment of Emergency Broadcast Systems for Dangerous Hydro-meteorological Phenomena” Project
8.	“International Center for Human Development” NGO	On Cooperation for Capacity Building of the RA Local Self-Governance
9.	Alliance to Save Energy, “SolarEn LLC”LTD, Armenia Tree project, Ministry of Education and Science	Publication of educational posters on renewable energy technologies and benefits renewable energy can offer for all state schools of Armenia
10.	“Protect Our Forests” Coalition	Protection, restoration and responsible use of Armenia’s forests and natural resources for ensure a healthy environment for future generations.
11.	Association for Sustainable Human Development	Theory and Practices on sustainable development International Practice

ANNEX 3

LIST OF MATERIALS PUBLISHED IN THE FRAMEWORK OF NCSA PROJECT

1. Renewable Energy in Armenia: Conference Proceedings, Yerevan, 2003, (Armenian – 159 p., summaries in English and Russian) In partnership with the Institute of Energy, UNDP/GEF “Armenia-Country Study on Climate Change” Project, USAID/AEAI and IREX)
2. “Towards the International Scientific Collaboration” seminar materials, Yerevan, 2003, (Armenian, English) (in partnership with “BioEcoMed” NGO)
3. “Armenia as a Producer of Medicinal Plants: Possibilities and Perspectives” (Russian, English) (in partnership with UNECE – in press),
4. Posters and a methodological booklet for teachers on renewable energy, Yerevan, 2004, (Armenian) (in partnership with Ministry of Education and Science, SolarEn LLC, Armenia Tree Project and Alliance to Save Energy NGO)
5. Second updated edition of the “Specially Protected Areas of Nature in Armenia”, (Armenian - 64p. and English – 67 p.) (in press)
6. Proceedings of the Conference on Invertebrates’ Zoology (in partnership with the Institute of Zoology of National Academy of Sciences), Yerevan, 2004, (Russian -170 p.)
7. GIS Systems as Environmental Management Tools, Yerevan, 2004, (Armenian – 24 p.) (in partnership with Georisk LTD)
8. “Caring for Climate” guide to the climate change convention and the Kyoto protocol, translation, Yerevan, 2004, (Armenian - 50 p.) (in partnership with the UNDP/GEF “Armenia-Country Study on Climate Change” Project)
9. UNCCD Fact sheets (Armenian - 32 p.) (in press)
10. NCSA Project Fact sheets, 2004, Yerevan, (English -12 p.)
11. Analysis of Museum Capacities in Armenia, 2004, Yerevan, (English -12 p.)
12. Analysis of Mass Media Capacities in Armenia, 2004, Yerevan, (English -16 p.)
13. “Theory and Practic of Sustainable Development: the International Experience and Existing Issues of Armenia”; Posters “Earth Charter” and “Sustainable Development” (developed in partnership with the “Association For Sustainable Human Development” NGO and OSCE Armenia office).

ANNEX 4

MATERIALS PUBLISHED IN THE FRAMEWORK OF THE THREE GLOBAL ENVIRONMENTAL CONVENTIONS IN PERIOD OF 1998-2004

1. Biodiversity of Armenia, First National Report, Yerevan, 1999 (Armenian, English)
2. RA Biodiversity Strategy and Action Plan, Yerevan, 1999 (Armenian and Russian)
3. Assessment of Capacity Building Needs for Biodiversity of Armenia, Yerevan 2002 (Armenian - 100p., English - 82 p.)
4. Strategy on Developing Specially Protected Areas of Armenia and National Action Plan, Yerevan 2003 (Armenian-41 p., English- 37 p.)
5. First National Communication of the Republic of Armenia under the United Nations Framework Convention on Climate Change. October 1998, (English- 66p.; Russian -73p.; Armenian- summary- 14 p.)
6. Climate Change Problems, Collected Articles, 1999, Yerevan, I Issue (Armenian -373p., summaries in English and Russian)
7. Climate Change Problems, Collected Articles, 2003, Yerevan, II Issue (Armenian- 354 p., summaries in English and Russian)
8. Climate Change Fact Sheets, 2003, Yerevan, (Armenian-96 p., translated from English)
9. A Guide to the Climate Change Process, 2002, Yerevan (Armenian- 30 p., translated from English)
10. Climate Change Problems- A Methodological Guide, Garoyan H. B., 2002, Yerevan (Armenian- 26 p.)
11. International Cooperation in the Sphere of Environment- A Methodological Guide, Marukhyan R. Z., 2002, Yerevan (Armenian – 34p.)
12. Utilization of Resources of Renewable Energy in Armenia. Review of last 5 Year Practical Activity. – 2002, Yerevan (English, Russian - 26p.)
13. Capacity Building in the Republic of Armenia for Technology Needs Assessment and Technology Transfer for Addressing Climate Change Problems – ‘‘ Armenia-Country Study on Climate Change’’ Project II Phase, 2003, Yerevan (Armenian, English)
14. Caring for Climate, A guidebook on Climate Change Convention and the Kyoto Protocol (Armenian-50p., translated from English)
15. National Action Programme to Combat Desertification in Armenia, 2002, Yerevan (Armenian-181p., English- 196 p., Russian- 178 p.)
16. Second National Report on Implementation of the UN Convention to Combat Desertification, 2002, Yerevan (Russian – 32p.)
17. UN Convention to Combat Desertification and its Implementation Process in Armenia, Guidebook, 2001, Yerevan
18. Flora of Dilijan Reserve, N. Khanjyan, M. Sharbatyan, 1999, Yerevan (Russian)
19. Where is the Small Islet of Sevan, M. Ghukasyan, 1999, Yerevan
20. How we Understand Climate Change, Guidebook, UNEP, WMO, 2001
21. Glossary of Climate Change Acronyms and Jargons, 2002, Yerevan (20p.)
22. Ecological Explanatory Dictionary, Muradyan, Arevshatyan, Hovhannisyan, 2001, Yerevan
23. Usual Miracles, Manual for Teachers, Nalbandyan, 2003
24. Aarhus Convention and the Ecological Rights, Yerevan, EPAC, 2000
25. Be my Companion, Ecological Viability, 2002
26. Comprehensive Program on Preschool Education, RA Ministry of Education and Science, 1998, Yerevan
27. Environmental Education at preschool age, Help for Teacher, G. Martirosyan, 2002, Yerevan
28. Economics of GHG energy and emissions (Current state and forecast), Vermishev M., 1998, Yerevan

ANNEX 5

PROJECTS IMPLEMENTED IN ARMENIA IN THE FRAMEWORK OF CONVENTIONS IN THE PERIOD OF 1994-2004

	<i>Project Name</i>	<i>Duration</i>		<i>Donor</i>	<i>Budget (US \$)</i>
		<i>Start</i>	<i>End</i>		
1.	Forest Sector Development I	01.06.1994	01.04.1996	UN FAO	380 000
2.	Forest Sector Development I	01.11.1996	01.04.1997	UN FAO	62 000
3.	Armenia: Country Study on Climate Change (I Phase)	01.09.1996	30.04.1999	UNDP/GEF	350 000
4.	Strengthening the Management Structure of the Ministry of Nature Protection	15.05.1997	01.06.1999	UNDP/GEF	130 000
5.	Armenia- Lake Sevan Environmental Action Plan (Programme was approved on 14.12.1998 by the decision N 801 of the Government of RA)	01.09.1995	15.05.1998	WB	485 000
6.	National Environmental Action Plan (Programme was approved on 14.12.1998 by the decision N 801 of the Government of RA)	01.06.1997	30.12.1998	WB	200 000
7.	Armenia: Biodiversity Strategy and Action Plan	01.10.1997	31.06.1999	UNDP/GEF	147 800
8.	Preparation of a Full-Size Project for <i>in-situ</i> Conservation and Sustainable Use of Agro-biodiversity in Armenia (PDF B)	15.05.1998	31.08.1999	UNDP/GEF RA Government	97 000 10 000 (in-kind)
9.	Inventory of Armenian Ramsar Sites in Search of Ways for Restoration of the Lost and Rehabilitation of Endangered Water-fowl Habitats	06.04.1998	06.09.1999	Ramsar Convention Small Grants Fund	35 000 (Swiss Frank)
10.	Armenian Forest Resources Assessment	01.06.1998	31.03.1999	SIDA	1 800 000 (Swedish Cron)
11.	Development of Principles for Licensing of Armenia's Forests	2001		"Proforest" Organiza-tion	
12.	Integrated Water Resource Management Project	01.07.1999	01.01.2001	WB	1 000 000 or 1 950 000 Holland Gulden
13.	National Action Programme to Combat Desertification in the Republic of Armenia (Programme was approved by the Government of RA on 28.03.2002)	05.01.1999	30.05.2002	UNEP	70 000
14.	Grant for Implementation of the Obligations of RA to the UN Convention to Combat	12.10.1999	2002	UNCCD Secretariat	35 000

15.	First National Report on Implementation of the Obligations of RA to the UN Convention to Combat Desertification (submitted to the Secretariat on 26.04.2002)	20.02.2000	20.04.2000	UNCCD Secretariat	4 000
16.	Second National Report on Implementation of the Obligations of RA to the UN Convention to Combat Desertification (submitted to the Secretariat on 26.04.2002)	15.03.2002	15.05.2002	UNCCD Secretariat	5 000
17.	Recovery of Lands Subject to Desertification in Garni Community of Kotayk Marz, RA	01.07.2003	(underway)	UNDP/ UNCCD Secretariat	42 500
18.	Engineering and Geological Survey of the Site of Makaravank Memorial Complex in the Tavush Marz of RA	09.08.2003	(underway)	UNDP/ UNCCD Secretariat	28 600
19.	Lake Gili Restoration Plan (PDF A)	01.06.2000	2003	GEF/UNDP Khazer NGO RA Government	20 000 5 000 2 500 800 (in-kind)
		PDF B is expected to be implemented from 2004 up to 2008			
20.	Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply	01.06.1999	30.09.2003	UNDP/GEF RA Government	210 120 95 000 (in-kind)
21.	Second National Report on Biodiversity of Armenia	03.2001	01.2003	UNDP/GEF Government	147 000
22.	Assessment of Priority Capacity Needs for Biological Diversity of Armenia and Establishment of CHM (Clearing House Mechanism) Structures / The Strategy on Developing Specially Protected Areas and National Action Plan, developed in the framework of the Project, was approved by the Government of RA on 29.12.2002/	15.03.2001	15.01.2003	UNDP/GEF	143 130
23.	Armenia Country Study on Climate Change (II Phase)	01.07.2001	29.02.2004	GEF/UNDP	100 000
24.	Development of National Biosafety Framework for Armenia	01.01.2003	01.07.2004	GEF/UNEP RA Government	156 000 79 000 (in-kind)
25.	National Capacity Self-Assessment For Global Environmental Management	01.02.2003	31.10.2004	UNDP/GEF RA Government	197 600
26.	Grants for Preparation of Stage of "Natural Resources Management and Poverty Reduction"	18.05.2000	01.02.2001	WB/IDA Japan Government (GEF/WB)	390 500 210 000
		05.09.2001	30.06.2002		
27.	"Natural Resource Management and Poverty Reduction Project" Preparation Advance	2002		WB	450 000
As a result of the preparation activities on 27.12.2002, the project was declared as effective and the follow-					

ing agreements came into force					
28.	Development Credit Agreement	28.12.2002	31.12.2008	WB/IDA	8 306 700 /6 700 000 SDR/
29.	Global Environment Facility Trust Fund Grant Agreement			WB/GEF/IDA	5 115 100 /4 100 000 SDR/
30.	Contribution of the Government of Armenia			Co-financing of the Government of Armenia	1 512 100, of which only 7 537 113 was transferred
31.	Armenia: Climate Change Enabling Activity (Self-Assessment for the preparation of the proposal on the Second National Communication to the UNFCCC)	01.07.2004	31.09.2004	GEF/UNDP	15 000
32.	Armenia: Improving the Energy Efficiency of the Urban Heating and Hot Water Supply	01.07.2004	01.07.2008	GEF/UNDP	3 160 000, of which 210 000` for PDF

List of National and Regional Projects				
	Project Name	Duration	Donor	Budget /grant means/
Implemented Projects				
1.	River Management Program on Monitoring and Assessment of Water Quality of Transboundary Rivers – Kura Basin	01.05.2002 14.01.2004 /completed, RA MNP applied to EU for continuation/	TACIS	4 mln Euro /general budget/
2.	Support to the Implementation of Environmental Policies and NEAPs in the NIS	01.09.2001 18 months	TACIS	
3.	Environmental Information, Education and Public Awareness in the NIS	17.06.2002 (30 months) 17.12.2004	TACIS	2.75 mln Euro /for 6 countries/
4.	South Caucasus Regional Water Management	April 2000-July 2004	USAID/ DAI	4 mln. \$
5.	Sustainable Water Management for Enhanced Environment Quality in Armenia	Nov.2000 –May 2004	USAID/ ARD	2 mln. \$
6.	In the framework of Caucasian Initiative “Nature and Biodiversity Conservation Program in the Caucasus Region” Elaboration of a Vision of an Ecoregional Conservation Plan	August 2002-May 2003 (9 month study)	German Federal Ministry of Economic Cooperation and Development (BMZ)/KFW	500 000 Euro /Total cost of the study for the

				preparation of a Project/
7.	South Caucasus Rivers Monitoring /Armenia/, Centre of Ecologo-noospheric studies of the NAS RA	01.11.2002 31.10.2005 (3 years)	Implemented under the NATO for Peace Project, received also assistance from OSCE	433 000 \$ /NATO/ 50 000 Euro /OSCE/ /Sweden/
8.	Establishment of a Coordinating Group for South Caucasus Water Resources Management	7.11.2002	OSCE	
9.	Reducing Trans-Boundary Degradation of the Kura-Aras River Basin /PDF A Phase/	2003-2004 (6 months)	GEF/UNDP Co-financed by governments	158 450 \$ /for 4 countries/
10.	Capacity Building for Improving the Quality of Greenhouse Gas Inventories (Europe/CIS region)	2003 (3 years)	GEF/UNDP	2 831 696 \$ /for 2 countries/
11.	In-situ Conservation of Crop Wild Relatives through Enhanced Information Management and Field Application (FSP) (Armenia, Bolivia, Madagascar, Shri Lanka, Uzbekistan)	03.2004 02.2009 (5 years)	GEF/UNDP IPRGI BMZ IUCN Gov-s	12 003 994 /total budget for 5 countries/ 1 130 000 for Armenia
12.	Development of Trans-Boundary Cooperation for Hazard Prevention in the Kura River Basin Regional project	2003-2006 (3 years)	German Federal Ministry of Environment, Nature Conservation and Nuclear Safety	80 000 Euro /for 3 countries/
13.	Reducing Trans-boundary Degradation of the Kura-Aras River Basin /PDF B Phase/	01.06.2004 (18 month)	GEF/UNDP Co-financed by governments	1 462 000 \$ /for 4 countries/
14.	In the Framework of UNEP-UNDP-OSCE "Environment and Security" Initiative for the South Caucasus: Transforming Risks into Cooperation	01.10.2003- 01.09.2006	UNDP, UHEP, OSCE	3 109 000 \$ /3 South Caucasus Countries/
15.	Strategic Environmental Assessment-Promotion and Capacity Building /Armenia, Georgia, Moldova, Belarus, Ukraine/	March 2004-August 2005 (19 months)	UNDP Regional Centre for Europe and CIS in Bratislava/REC	150 000 \$ /for 5 countries/
16.	Biodiversity Conservation in Caucasus Ecoregion	1999-2000	WWF	
17.	Conservation and Rational Use of Forest Genetic Resources in Transcaucasus	2001	IPGRI	
18.	Creating an Ecoregion-wide Strategy for a Long Term Conservation and Sustainable Use of Biological Resources in the Caucasus (Armenia, Azerbaijan, Georgia)	2002-2004 (3 years)	WWF	198 300 \$
19.	Promoting the Sustainable Use of Medici-	2002-2004	WWF	480 000 \$

	nal Plants Resources in Caucasus Ecoregion (Armenia, Azerbaijan and Georgia)	(3 years)		
20.	Conservation of the Leopard in the Caucasus Ecoregion	2002-2004 (3 years)	WWF	95 838 \$
21.	Caucasus Ecoregion: Recovery of Bezoar Goat in its Natural Range	2004 (36 months)	WWF	97 000 CHF
22.	Identifying Priority Territories for the Creation of Biosphere Reserves, Creation of a Database, Development of GIS and Preparation of Project Documents for the Countries of the Southern Caucasus	2003-2004	UNESCO Moscow office (5 000 \$), JFIT (30 000\$), UNESCO Venice office (ROSTE-28 580 \$)	53 850 \$
23.	In the framework of Caucasian Initiative "Nature and Biodiversity Conservation Programme in the Caucasus Region/ Establishment of Protected Areas in Armenia's Javakheti Plateau"	2004	German Federal Ministry of Economic Cooperation and Development (BMZ)/KFW AHT-International	7 mln Euro /for 3 countries: Armenian part is approximately 2.5 mln Euro/
24.	In the framework of the regional project on the cultural and natural heritage in the South Caucasus, "Management of Historic Cities and Institutional Capacity Building /Armenia/" project	2003-2005 (2 years)	Council of Europe (Directorate of Culture and Cultural and Natural Heritage)	/3 countries: Armenia, Georgia, Azerbaijan/
25.	Technical Assistance to Armenia, Azerbaijan, Georgia and Moldova with respect to their global Climate Change commitments	May 2004 (30 months)	EU/ TACIS	1 23 mln Euro /for 4 countries/
26.	Inventory of Armenian Ramsar sites: in search of ways for restoration of the lost and rehabilitation of degraded wetlands, especially as a waterfowl habitat/ <i>Department of Especially Protected Natural Areas</i>	1998-2000	RC SGF	
27.	First National Training Course on Wetland Management	1999	Ramsar Convention's "Evian Programme"	
28.	Second National Training Course on Wetland Management	2000	Swiss Development and Cooperation Agency	
29.	Implementation of the Ramsar Strategic Plan in Management of Wetlands in Sevan National Park	1999-2000	Swiss Development and Cooperation Agency	
30.	Ecological-economical Valuation of Armenian Wetlands: a Step towards the Elaboration of the National Wetland Policy	2000-2002	RC SGF	
31.	Regional Training Course on Wetland	2001	RC SGF	

	Management for Technical Staff of Wetland Conservation and Management Institutions in the New Independent States of the European Region			
32.	Wetland Management and Poverty Reduction in Mountain Regions Difficult of Access: Lake Arpi and Mount Aragats. Mitigating Problems through Public Awareness and Training	2002	RC SGF	
33.	Identification of Ecological and Economical Values and Threats of Armenia's Peatlands: a Framework for Conservation, Restoration and Wise Use	2003	Global Peatland Initiative	
34.	Regional Seminar "Current Issues of Conservation and Wise Use of Wetlands and Wetland Biodiversity in the European New Independent States"/ <i>Ministry of Nature Protection</i>	2003	RC SGF	

ANNEX 6

SURVEYS CONDUCTED IN THE FRAMEWORK OF NCSA PROJECT

№	Workgroup/ expert	Survey Goal	Number of Respondents	
1.	<i>Institutional management, including national-regional-local linkages</i>	Armen Galstyan (<i>through questionnaire</i>)	Assess community capacities of Vedi for addressing environmental issues.	13 communities
			Identify environmental knowledge of local self-governing bodies in Kotayk Marz, their awareness level on ongoing environmental procedures, implemented projects, as well as cooperation between communities, NGOs and state governing bodies.	61 communities
			Identify environmental knowledge of local self-governing bodies in Ar-mavir Marz, their awareness level on ongoing environmental procedures, implemented projects, as well as cooperation between communities, NGOs and state governing bodies.	96 communities
2.	<i>Monitoring and access to information</i>	Nune Asatryan (<i>questionnaire</i>)	Capacity assessment of NGOs implementing environmental monitoring	30 NGO
		Rudolf Torosyan (<i>official interview</i>)	Assessment of monitoring information request according to governmental and institutional bodies	25 Governmental and Institutional Bodies
3.	<i>Public awareness and environmental education</i>	Samvel Pipoyan (<i>official interview</i>)	Integration of Climate Change related issues, among other global environmental issues, into environmental education of RA educational establishments.	16 higher educational and 56 Vocational educational establishments; National Institute of Education
		Samvel Pipoyan (<i>official Interview</i>)	Implementation of RA Law on Environmental Education in Higher educational and vocational establishments.	75 vocational and 16 higher educational establishments
		Harutyun Khachatryan (<i>questionnaire</i>)	Provision of environmental information through media of Armenia Assessment of mass media capacities	40 journalists
		Nazik Khanjyan (<i>semistandard questionnaire</i>)	Analysis of RA Law on Environmental Education	13 – RA MNP 14 – RA Ministry of Education and Science 4 – higher educational establishments
		Gevorg Arakelyan (<i>electronic mail</i>)	Analysis of environmental NGO capacities	45 NGOs
		Marine Haroyan (<i>questionnaire and interview</i>)	Analysis of museum capacities	37 museums, including 5 nature-science museums
4.	Scientific information, applied research and available technologies	Agnessa Sargsyan (<i>questionnaire</i>)	Priority needs of stakeholders in systematic, structural and individual levels.	31 respondents, 24 institutions

ANNEX 7

ENVIRONMENTAL NON GOVERNMENTAL ORGANIZATIONS

Name	Mission
TAPAN Eco-Club	Protect natural environment, preserve and reconstruct cultural-historical monuments.
“Armenian Botanical Society”	To support active development of biology divisions, actual for Armenia, and protection of their fundamental trends. To support the protection of the vegetative cover of Armenia.
Green’s Union of Armenia	Protect the environment and promote ecology; get laws passed to protect environment; promote alternative and safe sources of energy.
“BYURAKN”	Ecological education of all strata of society, particularly children; ecological research; dissemination of environment related information.
Association for Human Sustainable Development	Help introduce and advance the concept of sustainable development in Armenia.
Environmental Public Advocacy Centre (EPAC)	Increase public participation in environmental decision -making in Armenia by representing and advocating the interests of individuals and citizen groups.
Union of Armenian Ecologists	Help to improve Armenia's ecological state through consultancy, dissemination of information and publishing activities.
Union of Young Biologists	To support the ecological science in Armenia, to assist young biologists in developing professional skills. To promote the development of a public health sector in Armenia.
"SHOGHER" Union	To increase public awareness on environmental issues, implement nature protection and tree planting activities.
Union of Landscape and Biodiversity Protection	To promote the protection of biodiversity and landscapes in Armenia, assessment and sustainable use of bio-resources, as well as legislation improvement in that sphere for human sustainable development.
Ecological and Cultural organization “KHAZER”	Preservation of the Armenian Cultural inheritance, increasing the awareness of ecologically relevant issues. Assistance to UNEP ideas expansion in Armenia.
“ARMENIAN FORESTERS' Assosiation	Teach refugees to choose and chop the trees correctly; create a greenhouse, organize a woodworking center (to produce ashtrays, tooth-picks, etc.); pottery.
Computers for Saving the Earth	Create a system of an appropriate use of computers and information technologies to stabilize the Earth's environment.
Ecological Assembly of the Women of Armenia	Increase awareness of ecologically relevant issues; ecological research; elaboration of environmental projects; support of professional women; peace and human rights.
Ecology Fund of Armenia	Scientific evaluation of the ecological situation in RA based on recent research
“ECO-TEAM” of Armenia Non-governmental Organization	Design complex projects based on renewable sources of energy and energy saving technologies
Armenian Branch of International Academy of Ecology	Development of ecological technologies, ecological research at the request of governmental and non-governmental agencies; training courses in ecology; exchange of specialists.
“ECOTSIL” National Charity Association	Addressing the issues of psychological and medical ecology
Youth Ecological Group - YEG	Increase the awareness of the youth of ecological issues; ecological actions against environmental pollution
Armenian Department of Russian ecological Academy	Assist the practical and theoretical solution of current problems in the fields of natural, social and human environment.

The Animal Kingdom Protection Union	Protection of the Armenian animals.
Ecology and Life Protection Sankt-Petersburg Branch of International Academy	Unite prominent scientists and engineers, promote their intellectual growth: elaborate projects directed to the improvement of human health and ecological projects.
Ecotourism Association	Contribute to the development of ecotourism in Armenia, as a means of achieving harmony between the society and nature, rehabilitation of the human being's cultural and natural environment and its preservation.
Social-Ecological Association	Contribute to the preservation of nature and harmonious development of the society through the development of economy which will become the main leverage in protecting the environment.
Armenian Botanical Society	Active development and preservation of fundamental directions of contemporary botanical portions of Armenia; preservation of Armenia's botanical cover
“EDEM” Plant protection Union	Contribute to the preservation of plants in Armenia; explore new species; help to monitor the areas with rare plants; conduct training for public at large on preservation of rare plants.
“AVISH” Charitable Society of Nature Friends	Advocate for environmental policy; disseminate environmental information: contribute to the meaningful use of natural resources; involve public at large in the implementation of environmental projects.
Sustainable World	Contribute to the sustainable development of Armenia's internal and external state through problem solving and preservation of human values.
Environmental Problematiques Center	Contribute to the rational usage and conservation of natural resources; coordinate the work of NGOs focused on the same problems.
Mountaineering Sports Union	Promote mountaineering sports in Armenia; provide ecological education to sportsmen; plant trees mountainous regions in Armenia.
Union of Young Biologists	To advance the ecological science in Armenia; to help develop the professional skills of young biologists; to help develop the public health sector in Armenia.
"ALTAIR" humanitarian Center	To assist common people development, to provide medical service, sufficient living standard, to increase cultural and education standard, create environmental guidelines.
"ARDZAGANK" Organization Charity Center	Sustainable development, to create working sites for vulnerable layers,
"Nature protectors"	To assist in protection against poaching and lumbering; to protect natural areas.
"KHASHTARAK"	To assist environmental development of communities in Armenia.
Environmental Organizations Union of Armenia	Armenian environmental organizations collaboration and coordination.
The Environment Branch of Armenian Women Union	To invite public and authority bodies attention to environmental issues.
"Haioc Dproc" Educational-cultural Union of Nature Protection	Environmental ideology propaganda; to create "art" gardens; to form spiritual-nature-education awareness system.
"Nor Dar" Youth Union	To assist the youth in a wealth environment living, working and generation breeding.
"Flora"	To establish environmental advocacy center, to organize forest plantation, to repair the sewerage, to protect historian monuments.
“Fauna“ Animal Fans Club	Protection of animal rights, promotion of regulatory framework for relationships between human and animals in the cities
Alternative education and cultural Center of Armenia	To increase public awareness in environmental issues; evaluate, organize and implement education programs with alternative measures.

Association of Nature Protection	To promote natural resources maintenance, effective use and their re-production in Armenia, top organize adopted environmental legislation propaganda, to assist the population to be the participant in environmental activities.
Nature rights protection	Joining the efforts of professionals for the promoting nature's rights to continuance, protection of natural ecosystems, and species of plants and animals.
Ecological survival	Biodiversity conservation in Armenia and Transcaucasus region, improvement of water resources quality to meet the interests of wider population by means of scientific research, expertise, public advocacy and publishing activities.
Ecologists-economists youth union	YUEE is a non governmental, non profit, non political organization, which mission is to support the environmental improvement, biodiversity conservation in Armenia and Transcaucasus region, to promote ecological education and public participation in the state environmental policy making.
Armenian Ecological Charity Foundation	The Armenian ecological charitable fund realizes charitable, ecological, social, cultural, educational, spiritual and other important programs. The fund promotes introduction new, high, ecologically of harmless technologies in Armenia.
"Environmental monitoring" non- governmental organization	To implement ecological monitoring of RA, promote development of natural history and education. Promote and contribute to increasing knowledge of community about problems related to ecological monitoring of RA and their popularization.
"The Green Land" non governmental organization	To promote the rehabilitation of the cut down forests, protective green belts and the expansion of green areas in Armenia with the assistance of all Armenians.
Center of Bird lovers non governmental organization	Ecological education, biodiversity, Bird watching
Armenia Tree Project	To provide consultations on Armenia's economic and social development through reforestation. Implementation of environmental projects in deforested areas.
Armenian Forests	To protect and restore Armenia's forests for current and future generations. To achieve sustainable forest management.
Armenian Geographical Association	To mobilize geographers and representatives of related sciences. To promote science development, sharing geographical and geocological knowledge, increase public awareness on geographical issues. To organize scientific conferences on geography and rational use of natural resources and environmental issues on regional levels.
Geophne	Environmental impact assessment/ environmental expertise, field work, monitoring, public involvement in decision making process, information dissemination, cooperation with other NGOs, establishment of units.
Bioecomed	To support scientific and research initiatives, professional rights, social & economic state of the scientists. To develop activities against professional discrimination of woman scientists and young scientists in Armenia. To favor initiatives of individuals, communities, research groups, research organizations, and subdivisions pointed to a solution of major research and technological problems in biology, ecology, and medicine and to innovation. To encourage involvement of Armenia's scientists in the international scientific collaboration. To encourage development of S&T infrastructure and R&D capacity building in the country.

ANNEX 8

PROJECT PROPOSALS

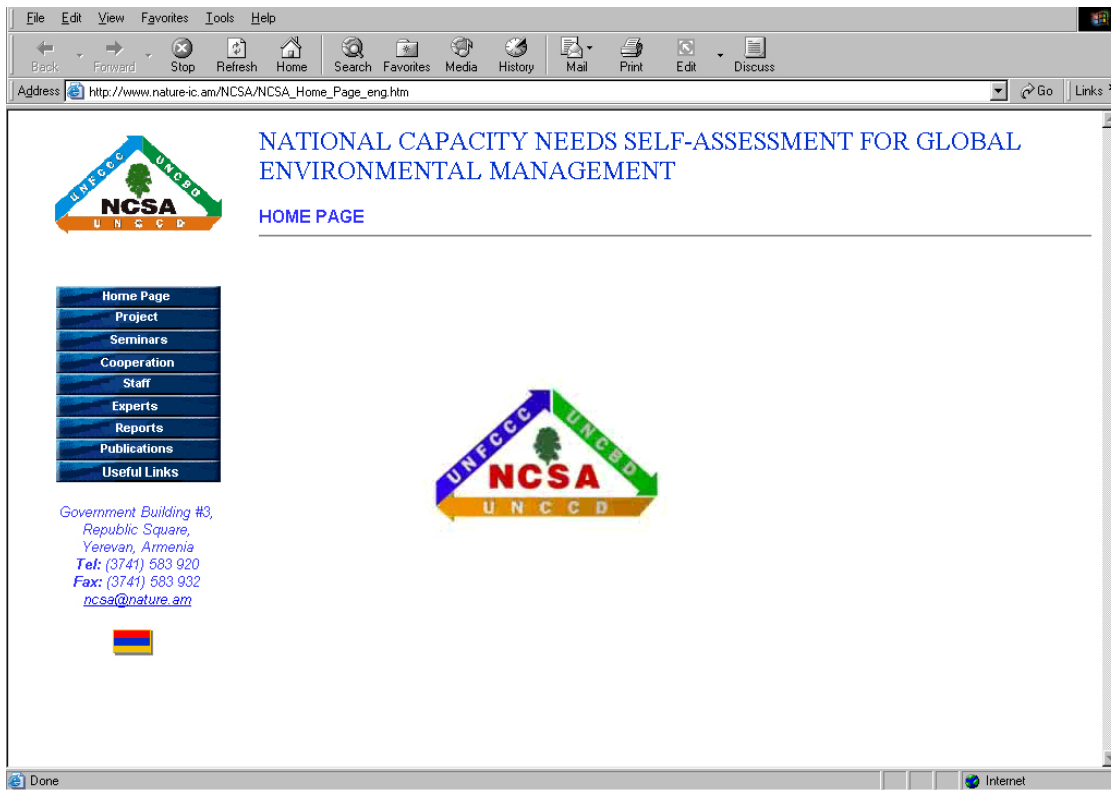
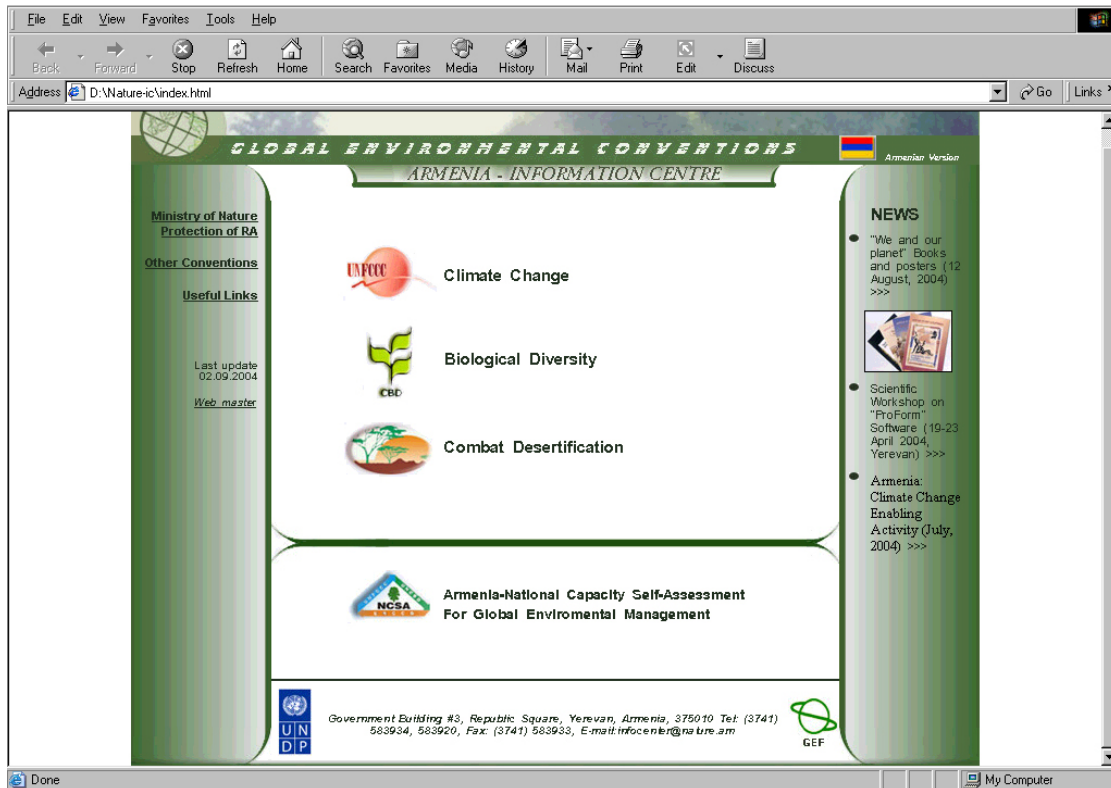
#	PROPOSAL NAME	EXECUTING AGENCY (Submitted by)	BUDGET (USD)	DURATION
1.	Developing Institutional and Legal Capacity to Optimize Information and Monitoring System for Global Environmental Management in Armenia	Ministry of Nature Protection (NCSA Project - <i>D. Harutyunyan</i>)	30 000 (of which 5 000- in-kind GoA)	6 months (PDF/A)
2.	Capacity Building in Economic Valuation of Environmental Damages and Improvements	Ministry of Nature Protection (<i>A. Harutyunyan</i>)	200 000	2 years
3.	Support to Establishment of Marz Public Units and a National Public Centre (National System/ National Net) for Environmental Impact Assessment (EIA) in Armenia	1. "Jinj" Co. LTD (E. Mesropyan) 2. "Sustainable Water Environment" NGO (<i>A. Hovespyan</i>)	196 000	2 years
4.	Creating a Data Base on Environmental Legal Acts	Ministry of Nature Protection (<i>J. Ghlichyan</i>)	50 000	6 months
5.	Afforestation Project for Lori and Gegharkunik Marzes	"Armenian Forests" NGO (<i>J. Tufenkyan</i>)	447 010 (of which 85 000- in-kind contribution)	5 years
6.	Development of Forest Amelioration Measures Based on "Nature Reserves and Park Complex" SNCO of RA MNP	"Nature Reserves and Park Complex " SNCO (<i>M. Kalashyan</i>)	588 000	4 years
7.	Forest Restoration in Shirak Marz	"Geophone" Research NGO (<i>L. Martirosyan,</i> <i>A. Ajamoghlyan</i>)	26 000	1 year
8.	Forest Restoration in Vanadzor Surrounding	"Green Land" NGO (<i>R.. Petrosyan</i>)	1 500 000 (+ in-kind contribution by NGO and project partners)	5 years
9.	Assessment of the State of the Mountainous Pastures and Development of Measures for their Improvement	Agricultural Academy of Armenia (<i>R. Tumanyan;</i> <i>UNCBD Focal Point-</i> <i>T. Danielyan</i>)	600 000	4-5 years
10.	Introduction of New Biotechnologies for Artificial Reproduction of Sevan Trout in Karjaghbyur Village of Gegharkunik Marz	1. "Kharchaghbyur" LTD 2. "Khazer" NGO (<i>H. Rubenyan</i>)	50 000 (+ in-kind contribution)	3 years
11.	Reduction of the Economic Barriers for Fish Breeding through Utilization of Renewable Energy	Sevan Fish-Breeding Factory SCJSC (<i>K. Hayrapetyan</i>)	205 000 (of which 53 385- in-kind contribution)	3 years
12.	Restoration of Ecological State of Lake Ardenis	1. Ardenis community 2. "Khazer" NGO (<i>M. Voskanov</i>)	100 000	2 years

13.	Organization of Efficient Biogas Production in Gegharkunik Marz	1. "Eco-Complex" NGO (<i>P. Tozalakyan</i>) 2. Georisk Scientific and Research Company	52 500	1 year
14.	Inventory of Landfills in RA	Ministry of Urban Development, Ministry of Nature Protection (<i>S. Galoyan</i>)	100 000	1 years
15.	Introduction of Simple Technologies for Waste Water Purification in Baghramyan Town, Armavir Marz, as a Measure to Combat Desertification	JINJ Co. LTD (<i>E. Mesropyan</i>)	49 500	9 months
16.	Establishment of Emergency Broadcast Systems for Dangerous Hydro-Meteorological Phenomena	"Meteo TV" (<i>A. Avetisyan, A. Hovhannesian</i>)	42 820 (of which 8 000- in-kind contribution) (preparation stage) further to be implemented by self-financing	1 year (initially)
17.	Development of Soil Monitoring System in Armenia	Ministry of Nature Protection (<i>A. Vardevanyan; NCSA Project - D.Harutyunyan</i>)	25 000	6 months (PDFA)
18.	Piloting Sustainable Irrigation and Land Management Practices in Proshyan Community of Kotayk Marz	"Sustainable Management of Renewable Natural Resources Association" NGO (<i>H. Hakobyan</i>)	47 980	2 years
19.	Development of a System for Introduction of Soil Protective Technologies	Scientific Centre of Soil Science, Agro-Chemistry and Melioration under the Ministry of Agriculture (<i>N. Manukyan</i>)	500 000	3 years
20.	Environmental Factor in Land Zoning and Cadastre Assessment	Ministry of Nature Protection (<i>A. Vardevanyan, P. Soghomonyan</i>)	48 000	2 years
21.	Raising Awareness of Local Self-Governing Bodies on Environmental Issues and their Solutions	ICHD NGO (<i>A. Galstyan</i>) Bioresources management agency of the Ministry of Nature Protection (<i>S. Muradyan</i>)	90 700 (of which 9 550 – in-kind contribution)	8 months
22.	Establishment of a Virtual Natural-Science Museum	"Association of Museum Workers and Friends" NGO (<i>M. Haroyan</i>)	27 070 (of which 3 400-in kind contribution)	1 year
23.	Natural Science Museums as Learning Resources - Services for Furthering Environmental Education	1. State Museum of Nature (<i>I.Frangyan</i>) 2. "Association of Museum Workers and Friends"		1 year

		NGO (<i>M. Haroyan</i>)		
24.	Organization of Environmental Education for Different Public Groups in the Territories of “Sevan” and “Dilijan” National Parks	National Institute for Education (<i>G. Poghosyan, A. Gasparyan</i>)	62 400	2 years
25.	Establishment of National Net for Environmental Education in the Framework of UN Decade of “Education for Sustainable Development”	Ministry of Nature Protection, (<i>N. Khanjyan</i>)	200 000	3 years
26.	Training for Environmental Impact Assessment Experts	Ministry of Nature Protection (<i>V. Tevosyan</i>)	9 200	3 months

ANNEX 9

NCSA PROJECT WEB SITE



LIST OF EXPERTS

Phase I. Thematic Assessment

UNCBD

Tatyana Danielyan (group leader)
Alvina Avagyan
Jirayr Vardanyan
Susanna Hakobyan
Hasmik Khachatryan
Emil Gevorgyan

UNFCCC

Aram Gabrielyan (group leader)
Astghine Pasoyan
Michael Gyulkhasyan
Vilen Nuridjanyan
Sargis Ghazaryan
Robert Tumanyan
Ruben Petrosyan
Samvel Pipoyan
Raisa Hovhannisyan
Levon Chilingaryan

UNCCD

Ashot Vardevanyan (group leader)
Gagik Hakobyan
Felix Yegoryan
Hunan Ghazaryan
Ashot Khoetsyan
Yuri Suvaryan
Toros Torosyan

Phase II. Cross-Cutting Assessment

***Environmental policy and legal frameworks,
including regulation and enforcement***

Julieta Ghlichyan (group leader)
Haykanush Parsamyan
Boris Ghazaryan
Manik Khachatryan.

***Institutional management, including
national-regional-local linkages***

Khachatur Bezerjyan (group leader)
Armen Danielyan
Ruzanna Davtyan
Sos Gimishyan
Rudik Haroyan
Sevak Lalayan
Armen Galstyan

Monitoring and access to information

*“Union for Biodiversity and landscape
protection” NGO*
Yura Pogosyan
Nune Asatryan
Jirayr Vardanyan
Bardukh Gabrielyan

<i>Financial instruments and mechanisms</i>	<p>“Ameria” CJSC Artak Melkonyan Mikhael Kukulyan Ashot Harutyunyan</p>
<i>Inter-sectoral, integrated and coherent planning of natural resource use</i>	<p>Michael Vermishev (group leader) Petros Soghomonyan Maria Vehuni Siranush Muradyan Edward Mesropyan Karapet Muradyan Artak Manukyan Suren Arakelyan Armenuhi Pahlevanyan</p>
<i>Public awareness and environmental education</i>	<p>Gayane Ghukasyan (group leader) Harutyun Khachatryan Nazik Khanjyan Gevorg Arakelyan Marine Haroyan</p>
<i>Scientific information, applied research and available technologies</i>	<p>Aram Gevorgyan (group leader) Agnessa Sargsyan Valentina Grigoryan Hamlet Melkonyan Gayane Poghosyan Naira Manukyan Levon Gyulkhasyan Suren Arakelyan</p>

International Consultants

<i>Consultation on NCSA Action Plan</i>	Arturo Garcia Costas
<i>Consultation on methodology of cross-cutting assessment, assistance in developing the format for the final Integrated Report</i>	Dr. Bernhard Boehm