

**National Capacity Self Assessment for
Global Environmental Management
(NCSA) - Jordan**

Ministry of Environment
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Foreword

It has been almost 15 years since the global community raised to the level of responsibilities attached with the protection of the integrity of the global environment. The global environmental governance system that resulted from the Environment and Development Earth Summit, Agenda 21 and the Rio Declaration in 1992 is still the compass of environmental management and activism all over the world.

In the Rio Declaration, the global community reiterated the basic principles of equitable partnerships for protecting the Earth and its natural resources. The main principles included the “common but differentiated responsibility”, the “polluter pays principle” and the “precautionary principle”. These overarching values have always been the integrating factors between the north and the south in forging effective partnerships for sustainable development.

At the heart of the global environmental governance system lie the three Rio Conventions on Biodiversity (CBD), Climate Change (UNFCCC) and Combating Desertification (UNCCD) which form an intricate triangle for environmental management that responds to the real challenges facing the global environment.

Developing countries had to work relentlessly to translate the principles of global environmental management into local benefits on the ground. Jordan has signed and ratified the three Conventions in very early stages and committed itself to the success of the global environmental management system.

During the last decade or so, thousands of Jordanians were engaged in hands-on initiatives, policy- dialogues, and enabling activities to meet their obligations and ethical commitments to the Rio Conventions. Remarkable success was achieved in some cases, but some results were below expectations. In a process of trial and error the knowledge and lessons learned do accumulate and result in better approaches.

However, developing countries cannot stand the consequences of not reaping the real benefits from the Rio conventions, and thus a process of national prioritization should be used to place the high emphasis on direct and stressing constraints embedded in the proper implementation of the Rio Conventions.

The National Capacity Self Assessment (NCSA) process was a perfect occasion for re-thinking our priorities and taking a hard and honest assessment of past achievements and options for improvement. The NCSA process was conducted in a participatory way and facilitated a national dialogue that resulted in a robust package of suggested strategic capacity building activities in the form of the NCSA capacity building action plan.

In a strategic planning methodology based on early prioritization of national needs, and relying in a backbone of synergies between the three conventions, the NCSA action plan was designed in the shape of actions responding to the integrated needs of the three conventions with clear local identity of priorities.

The NCSA action plan is composed of 20 suggested projects that are based on six strategic programmes: Knowledge management and networking, technology transfer and technical training, linking research to policy development, sustainable coordination mechanisms, resource mobilization and empowerment of local communities.

The Ministry of Environment is the focal point for the three Rio Conventions and will be committed to the proper implementation of this action plan. However, such implementation should be based on effective partnership with the environmental community in Jordan representing public, civil, private and academic sectors associated with the three Convention. Such an effective national implementation mechanism should be energized by global partnership.

I hope this NCSA action plan will provide a practical guide for the harmonization of the implementation of the three Rio Conventions within the conceptual system of synergies that was developed in the project. This will assist in identifying common priorities between the three Conventions and better utilize the available resources for a more holistic approach in linking global environmental principles with national and local priorities.

HE Khaled Irani
Minister of Environment

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- H.E. Faris Al Junaidi – Secretary General of the Ministry of Environment
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Abbreviations and Acronyms

ASEZA	Aqaba Special Economic Zone Authority
BRDC	Badia Research and Development Center
CBD	Convention on Biological Diversity
CBO	Community Based Organization
CDI	Capacity Development Initiative
CDM	Clean Development Mechanism
CIC	Conventions Implementation Committee
CITES	Convention on International Trade in Endangered Species
COP	Conference of Parties
CST	Committee for Science & Technology
DNA	Designated National Authority
EIA	Environmental Impact Assessment
EU	European Union
EWS	Early Warning System
FAO	(UN) Food and Agriculture Organization
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEF CB 2	GEF Cross-cutting capacity Building Project
GHG	Greenhouse Gases
GIS	Geographical Information System
GM	Global Mechanism
GSP	Global Support Programme
GTI	Global Taxonomy Initiative
HCC	Higher Coordination Committee
HDR	Human Development Report
IBAs	Important Bird Areas
IFAD	International Fund for Agricultural Development
IPCC	Intergovernmental Panel on Climate Change
IUCN	World Conservation Union
JCCP	Jordanian Cleaner Production Programme
JD	Jordanian Dinar
KM	Knowledge Management
LFA	Logical Framework Analysis

LMOs	Living Modified Organisms
MAB	Man and Biosphere
MDGs	Millennium Development Goals
MoEnv	Ministry of Environment
MoPIC	Ministry of Planning and International Cooperation
NAP	National Action Programme to Combat Desertification
NBSAP	National Biodiversity Strategy and Action Plan
NCARTT	National Center for Agriculture Research and Technology Transfer
NCCC	National Committee on Climate Change
NCSA	National Capacity Self Assessment for Global Environmental Management
NEAP	National Environmental Action Plan
NERC	National Energy Research Center
NES	National Environmental Strategy
NGO	Non-Governmental Organization
PDD	Project Design Document
PES	Payments for Environmental Services
RFA	Resource Allocation Framework
RSCN	Royal Society for the Conservation of Nature
SAC	Scientific Advisory Committee
SEA	Strategic Environmental Assessment
SCCF	Special Climate Change Fund
SGP	(GEF) Small Grants Programme
SLM	Sustainable Land Management
SNC	Second National Communication
SPS	Sanitary and Phytosanitary Measures
SPSS	Statistical Package for Social Sciences
SRAP	Sub-Regional Action Programme
TCC	Thematic Coordination Committee
ToR	Terms of Reference
TRIPS	Trade-related Aspects of Intellectual Property Rights
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
WTO	World Trade Organization

Executive Summary

The National Capacity Self Assessment for Global Environmental Management (NCSA) final report and action plan document aims at providing analysis of the priority capacity constraints facing Jordan while it strives to implement the three Rio Conventions on Biodiversity, Climate Change and Desertification.

The NCSA action plan provides a roadmap for national capacity development initiatives that would, if implemented properly, raise the national capacity for the required level of implementing the conventions and gaining national environmental benefits responding to national priorities while doing so. The NCSA final report and action plan describes in details the process of the NCSA project that was implemented by the Ministry of Environment between 2004-2006 and funded by the GEF/UNDP. The NCSA final report and action plan document is divided into four main sections.

Section One presents a summarized overview of the national environmental and socio-economic conditions affecting the environmental management system in Jordan with links to the Millennium Development Goals.

Section Two provides a summary of the stocktaking exercise conducted by the NCSA in 2005 to identify the main capacity constraints facing the country in its implementation of the global environment conventions as well as the cross-cutting strategic capacity constraints common to all the conventions. The stocktaking has revealed a set of 35 thematic capacity constraints for the three conventions and 6 strategic capacity constraints. A total of 13 capacity constraints were identified for biodiversity, 10 for desertification and 12 for climate change. The second section presents also an overview of the concept of capacity development as used in the NCSA and the three levels for capacity development: individual, organizational and systemic.

Section Three puts the 35 thematic capacity constraints under in-depth analysis based on logical framework analysis that was conducted in the NCSA process. The analysis developed a package of actions to respond to the 35 capacity constraints. A total of proposed 43 actions were derived for biodiversity, 41 proposed actions for desertification and 41 proposed actions for climate change. This section provides a summary of the organizational capacity assessment exercise conducted by the NCSA and revolving around the strategic cross-cutting capacity constraints.

Section Four provides a suggested practical action plan for national capacity building in response to the identified capacity constraints that is based on synergies between similar actions and common constraints. The NCSA action plan is composed of six programmes representing the six cross-cutting strategic capacity constraints:

1. Programme One: Knowledge Management, Outreach and Networking
2. Programme Two: Technical Training and Technology Transfer
3. Programme Three: Developing and Maintaining a National Coordination Mechanism.
4. Program Four: Using Research for Policy Making
5. Programme five: Resource Mobilization
6. Programme six: Local Community Empowerment

A total of 20 suggested projects described by implementation mechanism, objectives, activities and outcomes are developed within the six programmes. An NCSA action plan implementation mechanism is also described in this section.

Objectives of NCSA Action Plan

The Ministry of Environment has been implementing the National Capacity Self Assessment for Global Environmental project (NCSA) funded by the Global Environmental Facility (GEF) and administered by the United Nations Development Programme (UNDP) country office in Jordan.

The NCSA is a GEF initiative that aims at assessing the capacity constraints and potentials for implementing the three global environmental conventions on biodiversity, climate change and desertification through the preparation of a capacity development action plan based on synergies and national priorities identified by the NCSA process.

The three Rio Conventions endorsed by the international community within the United Nations (UN) system between 1992 and 1994 represent the backbone of global environmental management. If implemented effectively, these conventions will contribute significantly to achieving the goals of sustainable development and conservation of the planet's natural resources for future generations. Despite their good will and efforts in implementation, many parties, especially developing countries, have limited capacity for full implementation.

In the late 1990s, the GEF Council, recognizing the increasing importance of assisting developing countries to increase their capacity to participate in global environmental management, launched the Capacity Development Initiative (CDI). The goal of this partnership between the GEF Secretariat and the UNDP was to assess common capacity needs among countries and design a strategy to meet them. The CDI involved extensive consultations with partner countries, GEF and its implementing agencies; secretariats of the conventions on biological diversity, climate change, and desertification; other multi and bilateral organizations; and non-governmental organizations.

As a first step in implementing the CDI recommendations, the GEF Council approved funding for countries wishing to undertake "national self-assessments of capacity building needs". The purpose was to support a country-driven consultative process of analysis and planning that will determine national priorities and needs for capacity development to protect the global environment. The resulting designed project NCSA was implemented in many developing countries and countries in transition around the world as an initial baseline step to specify national requirements for synergistic and effective capacity development programmes.

The NCSA process represents the only nationally focused, global initiative explicitly designed to examine potential synergies between the Rio Conventions. In addition, they can be used by countries to mainstream the global environment into broader national sustainable development processes.

The objectives of this action plan are to:

1. Identify national capacity constraints limiting the proper implementation of the three Rio Conventions;
2. Identify potential synergies between the three Conventions at the national level;
3. Provide a practical framework to enhance the national capacity for synergistic implementation of the three Rio Conventions; and
4. Streamlining the commitments and obligations entailed in the global environmental management system into national policies.

Methodology Used

The NCSA process was launched at the Ministry of Environment in January 2005 and the project was composed of various inter-connected stages for capacity assessment that resulted in the formulation of the national action plan for capacity development in the three conventions themes and cross-cutting issues. The three sequential steps were

1. Stocktaking and developing thematic profiles
2. In-depth analysis of priority areas
3. Developing and endorsing the final NCSA report and action plan.

Stocktaking

The stocktaking phase started by an inception workshop that aimed at raising awareness about the project components and objectives and identifying main national partners and stakeholders. In this phase, a technical steering committee that represents main stakeholders and focal points of the three Conventions was created as an advisory body to the project.

During the stocktaking phase, a group of consultants representing public, civil, academic and private sectors were recruited to develop three stocktaking reports that aimed at identifying the conceptual frameworks for capacity development under each Convention and identifying previous and current initiatives at the national level that were/are conducted in the aim of implementing the Conventions. The three stocktaking reports identified suggested national priority capacity constraints that limit the proper implementation of the Conventions.

A fourth stocktaking report was prepared which focused on cross-cutting issues between the three Conventions. The aim of this report was to develop the conceptual framework for cross-cutting issues in the early phase of stocktaking to assist in the streamlining of the strategic planning process that will follow.

A fifth stocktaking report focused on conceptual frameworks of capacity development as developed and implemented by the GEF/UNDP system and the three conventions. This report helped in the formulation of the priorities in capacity development as related to the existing global conceptual framework.

The stocktaking reports were discussed in a national workshop held in September 2005 and resulted in the development and finalization of the priority capacity constraints under each convention. A further package of 6 cross-cutting priorities were identified by the cross-cutting stocktaking report to act as the “conceptual”

backbone of the in-depth analysis and keep synergies and cross-cutting priorities embedded within the strategic planning process.

The national capacity constraints were the focus of the subsequent phases of in-depth analysis and development of the NCSA action plan.

In-depth Analysis

After the identification of the national priority constraints in the stocktaking phases for the three conventions, a set of Logical Framework Analysis (LFA) exercises was developed based on the priority constraints (problem statements) in each theme. This has resulted in specific root causes, outcomes and outputs that constituted the main elements of the NCSA Action Plan.

In this phase, two further exercises were conducted:

1. A detailed policy gap analysis based on the capacity constraints to identify existing gaps in policies with direct relation to the specific capacity constraints; and
2. A comprehensive organizational capacity assessment for key stakeholders involved in the implementation of the Conventions. The organizational capacity assessment was based on the cross-cutting priorities identified in the stocktaking phase.

Development of the NCSA Action Plan

The in-depth analysis (logical frameworks), policy analysis and organizational capacity assessment all fed into the development of the NCSA Action Plan.

The NCSA Action Plan was based on six programmes that represent the six cross-cutting priority constraints and a package of proposed project concepts was developed under each of the six programme areas. The selected project concepts were designed in a way to ensure synergies and to address the cumulative needs of the three Rio Conventions together wherever feasible. In some particular areas, the projects were theme-specific and responded to certain challenges and priorities imposed by one of the Conventions.

How the methodology differs from the traditional NCSA planning guidelines?

The methodology used by NCSA Jordan differs slightly from the traditional four-step process designed by the NCSA Global Support Programme (GSP) and outlined in the NCSA Resource Kit published in 2005.

The NCSA Resource Kit provides an overall process design framework but still leaves a considerable amount of flexibility for national NCSAs to design their processes in accordance with national needs and circumstances.

The traditional NCSA process consists of four steps:

1. Stocktaking.
2. Thematic Assessments.
3. Cross-Cutting Analysis
4. NCSA Report and Action Plan.

In the NCSA Jordan process, the following modifications were done with the associated rationale:

1. The Stocktaking phase was merged with the thematic assessment phase to link the analysis of previous/on-going activities in the three themes at the national level with the conceptual framework of the global conventions. However, the main aim of this merge was to help in identifying priority capacity constraints as early as the stocktaking phase and help a more focused in-depth analysis phase. The resulting priority constraints (including cross-cutting constraints) shaped the NCSA report and action plan from an early stage and allowed more in-depth focus on priority areas as well as allowing NCSA Jordan to pursue and design a CB 2 proposed project even before the end of the NCSA process.
2. The cross-cutting analysis was not performed as a separate step but always linked to the stocktaking and in-depth analysis to keep the fabric of the synergy dimension intact while working on the parallel analysis of the three themes. This has been very helpful in keeping the thematic analyses positioned in a close integration with the cross-cutting analysis.
3. The results of the in-depth analysis phase were directly linked to the development of the action plan and final report by selecting a united consultation team working in a unified consultation process where the in-depth analysis consultants delivered the results in close association with the action plan designers to ensure compatibility in thinking mode.

The process included high level of participation and transparency where the stocktaking priority constraints, in-depth analysis, logical frameworks and the draft action plan were all extensively reviewed in national workshops and through individual consultation meetings with key stakeholders.

Elements of the NCSA process

- **NCSA integration in the Ministry of Environment:**

The NCSA project was implemented by the Ministry of Environment (MoEnv) and from the initiation phase, the NCSA did not work in isolation from the main activities of the Ministry. During the project period, the NCSA has contributed to many activities in the Ministry including: finalization of the National Action programme to combat desertification, preparations of the 3rd national report for the Convention on Biological Diversity (CBD), development of the strategic objectives of the Ministry of Environment, review and finalization of the environmental sustainability component of the National Agenda, preparation

of a comparative study for environmental policies in Jordan and contributing to the preparations of project proposals for the Ministry.

This integration helped the NCSA to station some of its findings and recommendations resulting from the stocktaking phase into the strategic objectives of the MoEnv and other national policies including National Action Plan to Combat Desertification (NAP) and National Agenda as well as contributing to the capacity development process that was conducted in the MoEnv from 2005-2006.

- **NCSA Outreach Plan:**

The project has developed and implemented an outreach plan made up of several components. The plan included developing a website that includes all the NCSA products and participating in various workshops and developing an electronic newsletter. The NCSA website <http://ncsa.moenv.gov.jo> was launched in March 2006 and has been uploaded with all reports resulting from the NCSA. The NCSA project has developed a communication kit that was distributed to a wide range of institutions and individuals and contained all NCSA reports and media outcomes. It included a special CD that contained all the stocktaking phase reports. The outreach plan was linked to a knowledge management system provided by the NCSA in which all project products and components were considered as open access products available for all interested stakeholders.

- **Choice of National Consultants:**

The choice of national consultants was based on a transparent recruitment process that aimed at widening the range of expertise and backgrounds of national consultants. For the purpose of ensuring a wide representation of national sectors and stakeholders in the stocktaking phase, the national consultants for the 5 main stocktaking reports (Biodiversity, Desertification, Climate Change, Synergies and Capacity Development) were selected in a way that included experts from public sector, academia, NGOs, private sector and the Ministry of Environment working on each report.

- **NCSA Sustainability:**

As the NCSA is an assessment and strategic planning project, the sustainability will be a function of the implementation of the action plan itself. The project has been faced with the dilemma of ensuring sustainability after the end of the project life span. The sustainability requires high level support, a resource mobilization strategy and a practical action plan with clear and practical objectives. A sustainable coordination system should also be developed and functional.

One of the main elements of the sustainability of the NCSA project is the expected implementation of a Cross Cutting Capacity Building GEF project (CB2) that was agreed and technically cleared by GEF in 2006. The

project is entitled “Developing policy-relevant capacity for implementation of the Global Environmental Conventions in Jordan”. The CB 2 project is expected to keep the momentum of the NCSA process by focusing on some of the main priorities that were identified in the stocktaking phase and were used to design the CB 2 project especially the operational and technical linkages between scientific research and policy making in relation to the three Conventions’ themes.

Regarding the NCSA action plan, the implementation and sustainability aspects have been taken into deep consideration while designing the action plan as well as a proper and effective management and follow-up tools in the Ministry of Environment and other institutions related to implementing the NCSA action plan. The follow-up implementation strategy is suggested and discussed in section 3.

- **Focusing on Synergies:**

The NCSA project has introduced the new concepts of synergies between the three themes of Biodiversity, Climate Change and Desertification. The traditional trend is to work with each issue in separation and the NCSA task was to develop an action plan based on synergies that require the detailed analysis of cross-cutting issues. This process is both time and resources consuming, and that was the reason for the NCSA Jordan project to identify priorities at an early stage.

The NCSA action plan was designed while keeping the synergy aspect as a main contributor. The six programmes of action were based on six synergies identified in the stocktaking phase while the individual suggested projects under each programme were designed to meet the requirements of the three conventions together unless theme-specific priorities and actions were identified.

- **NCSA Linkages with National Development Policies:**

The NCSA has been designed as a process to consolidate environmental capacity development in relation to the three Rio themes with direct linkages to global environmental requirements. This places a challenge on the NCSA staff and advisors to establish a direct link between the NCSA objectives in capacity development and national development needs and priorities stipulated mainly in socio-economic issues. This linkage is vital for maintaining the interest in the NCSA and streamlining the NCSA capacity development action plan as another tool in obtaining the country’s socio-economic needs.

During the in-depth analysis phase, a special study was conducted for policy analysis of priority areas in capacity development in the three themes to identify gaps in policies and link the NCSA action plan to current policies so that it will not be contradictory or redundant and focus on issues missed and absent from current policy settings.

Section I

Introduction and Country Perspective

Section I. Introduction and Country Perspective

1.1 Introduction

The Stocktaking/ thematic assessment phase was conducted between March-October 2005 and was based on a desk survey and review of existing documents and some interviews to determine the conceptual frameworks, guidelines and obligations contained in the three Convention, synergies and capacity development concepts. In addition, the stocktaking phase included a detailed inventory of organizations, projects, initiatives and networks that were/are operating in relation to the three themes.

The stocktaking phase resulted in the production of 5 main stocktaking reports on CBD, UNCCD, UNFCCC, Synergies and cross-cutting issues and capacity development. The following section presents summarized content of the stocktaking exercise with special focus on the selected priorities. The complete package of stocktaking reports can be retrieved from the NCSA Jordan website <http://nca.moenv.gov.jo>

1.2 An Overview of Environmental and Development Conditions in Jordan 2007

Jordan is a relatively small country with limited natural resources and semi-arid climate. Its strategic position connecting Asia, Africa and Europe has played a major role in shaping its history and development status.

Jordan is classified as a lower – middle income country whose economy is constrained by limited arable land and scarce water mineral and energy resources. The 2006 budget does not exceed 3.45 billion JDs (43.7% of GDP) with a deficit of 480 million JDs. The deficit is a result of the escalating oil bill, growing debt service payment, diminishing foreign aid and an anticipated lower GDP growth.

Table 1.1 shows a selection of development indicators for Jordan from the UNDP Human Development Reports (HDRs) 2004-2006

Table 1.1: Selected Development Indicators for Jordan from the UNDP HDRs 2004-2006:

No.	Item	Indicator 2004	Indicator 2005	Indicator 2006
1	HDR Ranking	90	90	86
2	Human Development Index	0.750	0.753	0.760
3	Population (million)	5.3	5.4	5.6
4	Annual population growth rate (%)	2.1	2.1	2.0
5	Population with sustained access to improved sanitation (%)	99	93	93
6	Per capita GDP (US\$)	4,220	4,320	4,688
7	Life expectancy (years)	70.9	71.2	71.6
8	Infant mortality rate (per 1,000 births)	27.0	23.4	23.0
9	Health expenditure per capita (US\$/annum)	412	418	440
10	Gender related development index	0.734	0.740	0.747
11	Military expenditure (% of GDP)	8.4	8.9	8.2
12	Public Expenditure on education (% of GDP)	4.6	-	-
13	Public Expenditure on health (% of GDP)	4.5	4.3	4.2
14	Adult literacy rate (%)	90.9	89.9	89.9
15	Internet users (per 1000)	57.7	81	110
16	Cellular subscriber (per 1000)	229	242	293
17	Population with less than 2.0 US \$/ day (%)	7.4	7.4	7.0
18	ODA received as % of GDP	5.7	12.5	5.4

The government has liberalized the trade regime sufficiently to secure Jordan's membership in the World Trade Organization (WTO) in 2000, a free trade accord with the United States (US) in 2000, and an association agreement with the European Union (EU) in 2001. These measures have helped improve productivity and have put Jordan on the foreign investment map.

However, the war in Iraq in 2003 dealt an economic blow to Jordan, which was dependent on Iraq for discounted oil (worth \$300-\$600 million a year). Several Gulf nations have provided temporary aid to compensate for the loss of this oil; when this foreign aid expires, the Jordanian government has pledged to raise retail petroleum product prices and the sales tax base. During 2005 and 2006, significant increases in oil prices occurred within the range of 10-33% in various oil derivatives due to the increase in global oil prices, and hence, Jordan's strategic option was to reduce and then gradually remove oil subsidies.

Millennium Development Goals (MDGs) in Jordan:

The Jordan annual MDG report of 2004 has documented the progress towards meeting the MDGs in Jordan. Table 1.2 illustrates the level of achievement as stated in the Jordan MDGs report.

Table 1.2: National progress table in achieving the MDGs:

Goals	Targets	State of Achievement
1-Eradicate extreme poverty and hunger	1- Halve, between 1990 and 2015 the proportion of people whose income is less than one dollar a day	On Track
	2- Halve, between 1990 and 2015 the proportion of people who suffer from hunger	On Track
2- Achieve Universal Primary Education	3- Ensure that by 2015 children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	On Track
3- Promote Gender equality and empowerment of women	4- Eliminate gender disparity in primary and secondary education preferably by 2005 and in all levels of education no later than 2015	On track except for proportion of seats held by women in parliament
4- Eradicate Child mortality	5- Reduce by two-thirds, between 1990 and 2015 the under five mortality rate	On track, except tuberculosis
5- Improve maternal health	6- Reduce by three-quarters, between 1990 and 2015, the maternal mortality ration	On track, except for maternal mortality per 100,000 live births.
6- Combat HIV/ AIDS, Malaria and other diseases	7- Have halted by 2015 and begun to reverse the spread of HIV/ AIDS	Strong
	8- Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases	Strong
7- Ensure environmental sustainability	9- Integrate the principles of sustainable development into country policies and programs	Potentially
	10- Halve by 2015, the proportion of people without sustainable access to safe drinking water	Achieved
	11- Have achieved by 2020 a significant improvement in the lives of at least 100 million slum dwellers	Potentially
8- Developing a global partnership for development	Jordan is facing the challenge of Goal 8 by working both on external relations and internal policies. Government's commitment is strong on the modernization of the economic and legal frameworks and the tax system. Yet, more efforts have to be made in order to achieve more effective roles and functions of all the stakeholders within the development process.	

MDG environmental indicators:

The Jordan annual MDG report of 2004 has documented the progress towards environmental sustainability in Jordan by the indicators developed for the MDG monitoring purposes. Goal 7 of the MDGs is “ensuring environmental sustainability” and it has three specific targets that are assessed as documented in the Jordan national MDG report 2004 in Table 1.3

Table 1.3: Detailed analysis of progress made in environmental sustainability (Goal no. 7) in Jordan:

Target 9: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources				
Indicator (units for each indicator is important)	1990	2002	State of goal achievement	State of supportive environment
Proportion of land area covered by forests	0.44	0.84	Potentially	Weak but improving
Land area protected to maintain biodiversity	0.14	0.44		
GDP per unit of energy use (as proxy for energy efficiency)	0.63	0.56		
Carbon dioxide emission per capita	2.2	2.3		
Target 10: Halve by 2015 the proportion of people without sustainable access to safe drinking water				
Proportion of population with sustainable access to an improved water source	92.8%	97%	Achieved	Well developed
Target 11: Have achieved by 2020 a significant improvement in the lives of at least 100 million slum dwellers				
Proportion of people with access to safe sanitation	48%	60.1%	Potentially	Fair
Proportion of people with access to safe tenure	72%	76.2%		

Cost of environmental degradation:

In a recent study (2005) conducted by the World Bank, the cost of environmental degradation in Jordan was estimated to be 3.1% of GDP annually with a total of 205 million JDs estimated for five environmental sectors.

The most significant negative impacts on health and quality of life was caused by water pollution at an estimated cost of 0.71 – 1.24 percent of GDP. Diarrhea illness and mortality which damage cost is estimated at JD 31 million per year, are caused by lack of access to safe potable water and sanitation, inadequate domestic, personal and food hygiene. Most of those impacted are children.

The damage cost of air pollution associated with mortality and morbidity is estimated at around 0.69% of GDP, while the cost of land degradation comes predominantly from rangeland degradation (0.46% of GDP and soil salinity (0.14% of GDP). The damage cost from inadequate waste collection, associated with reduction in land prices is estimated at 0.11% of GDP. Finally, the coastal degradation in Aqaba is assessed at around 0.09% of GDP.

1.3 An Overview of Environmental Policies in Jordan

Environmental planning and policy formulation in Jordan prior to the 1990s was based on a sector-specific approach with little consideration of environmental concerns. It can be said that environmental planning and policy formulation came to age in 1991 when the National Environmental Strategy (NES) was formulated by a national consultation process led by the Ministry of Municipal, Rural Affairs and the Environment with technical assistance from IUCN and financial assistance from USAID.

The NES was the first environmental strategy in Jordan, and indeed in the Arab world. It has responded in content and recommendations to a large extent to the famous “World Conservation Strategy” of 1980 formulated by IUCN, UNEP and WWF.

Based on the NES, Jordan was in a good political and strategic position to sign and then ratify the Convention on Biological Diversity (CBD) and the UN Framework Convention on Climate Change (UNFCCC) in 1992 during the Earth Summit. Two years later Jordan signed and then ratified the UN Convention to Combat Desertification (UNCCD).

Completing most of its international obligations and on the foundations of the NES, Jordan opted to develop a practical environmental action plan in 1995. The National Environmental Action Plan (NEAP) was prepared in a national consultation process coordinated by the Ministry of Planning and it included a prioritized action plan based on results.

The NEAP remained to be the environmental guidebook in Jordan, with most of its proposed projects either implemented or started to implement. In 2000, Jordan launched its multi sectoral National Strategy for Sustainable Development which was called “National Agenda 21” with technical and financial support from UNDP. The National Agenda 21 involved the participation of numerous organizations and individuals and was the most important participatory and learning-by-doing policy formulation effort in Jordan to date.

Between 1998 and 2005, an array of sectoral policies, strategies and action plans were developed and paved the ground for a solid policy framework. A total of 12 environmental related policies and action plans were developed between 1998 and 2005 covering water, poverty, agriculture, tourism, biodiversity, energy, youth, socio-economic development, childhood and desertification.

The National Biodiversity Strategy and Action Plan (NBSAP) was launched in 2003 while the National

Action Programme (NAP) to combat desertification was launched in 2006. Until now, no national policy for climate change was prepared.

Section II.

Stocktaking and Priority Capacity Constraints for the Three Conventions

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2.1 Convention on Biological Diversity (CBD)

The Convention:

Biological diversity is the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity, between species, ecosystems and genetic resources.

The world's biological diversity is under threat from many human activities and some natural causes. The increasing rate of species extinction, ecosystem degradation and exploitation of living organisms and natural resources has signaled an alarm sign for the world to develop concerted efforts to save and sustainably use biological diversity. The Convention on Biological Diversity (CBD) is the main international framework to conserve biodiversity and ecosystems around the world.

The Convention on Biological Diversity was negotiated between many stakeholders in 1990-1991 and was adopted during the Rio earth Summit in 1992. It has entered into force in December 1993.

The CBD has three main objectives:

1. The Conservation of biological diversity;
2. The sustainable use of its components; and
3. The fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

The CBD has taken, for the first time, a comprehensive rather than a sectoral approach to conservation of biodiversity. Its definition of biological diversity balanced between species diversity, ecosystems diversity and genetic diversity. It takes into account that biodiversity should be conserved based on ethics, economic benefits and human development.

The Convention goes beyond the conservation of biodiversity *per se* and the sustainable use of biological resources, to encompass such issues as access to genetic resources, sharing of benefits from the use of genetic material and access to technology, including biotechnology.

The CBD has stressed the national sovereignty of countries on their own biological resources, while recognizing that the conservation of biological diversity is a common concern of humankind which implies a common responsibility by all countries. The CBD's emphasis on national sovereignty is further balanced by

duties on developing countries, which happen to be richer in biodiversity to adopt sustainable biodiversity management systems to conserve its resources.

The CBD has given particular concern over issues of access to genetic resources, intellectual property rights and conservation and sustainable use as well as traditional knowledge to provide more rights to developing countries and local communities for fair sharing of the benefits from biological diversity.

Box 2-1 CBD obligations and requirements

This is a compilation of the main obligations and requirements from parties signatory to the CBD:

- Development of national strategies and action plans for biodiversity conservation
- Integration of the conservation and sustainable use of biodiversity in national plans.
- Identification and monitoring of components of biodiversity.
- Establishing a system of protected areas.
- Prevention and eradication of alien species.
- Preservation of indigenous knowledge related to biodiversity.
- Adoption of measures for the ex-situ conservation of components of biological diversity.
- Adoption of economically and socially sound incentive measures.
- Establishing programmes for scientific and technical education and training
- Environmental Impact Assessment for proposed projects that affect biodiversity.
- Regulation of access to genetic resources and benefits sharing.
- Facilitation of technology transfer.
- Exchange of information between parties.
- Promoting international technical and scientific cooperation.
- Regulating the handling of Living Modified Organisms (LMOs)

Biodiversity in Jordan:

Despite its relatively small area, Jordan is strategically situated between three global biogeographical regions, acting as a crossroad for species between those regions. Accordingly, the biodiversity of Jordan is both rich and dynamic in terms of species composition, ecosystems and genetic resources. The arid climatic and socio-economic conditions of Jordan has made its biodiversity fragile towards pressures and increased the need for concerted national efforts to conserve it.

Jordan and the CBD:

Jordan was one of the original signatory countries of the CBD in 1992 at the Rio summit, and it ratified the convention in 1993. Jordan has also ratified all other supporting international conventions on biodiversity including Ramsar, the World Heritage Convention, the UNCCD and the Cartagena Protocol on Biosafety. Jordan is also a state member of the IUCN and the UNESCO Man and Biosphere programme (MAB).

Under the CBD, Jordan has produced its national Biodiversity Country Study in 2000 and the National Biodiversity Strategy and Action Plan (NBSAP) in 2003. The NBSAP includes several project proposals within an action plan for biodiversity conservation at the national level. It has been the first country in the region to develop a national framework on biosafety.

Jordan's efforts in Biodiversity Conservation:

Jordan has taken comprehensive steps in conservation of natural resources and biodiversity. Jordan has a network of 7 operating protected areas and another 5 suggested protected areas. The protected areas in Jordan are managed by a national NGO: The Royal Society for the Conservation of Nature (RSCN) according to an agreement with the Ministry of Environment, making it a unique experience in decentralizing protected areas management in the Arab world.

As Biodiversity conservation is being shared by many public and civil organizations in Jordan, a national biodiversity committee was established within the process of developing the NBSAP and it functions as an advisory group on biodiversity issues for the MoEnv.

Throughout Jordan, many examples have been developed in implementing local community-based conservation projects that link between biodiversity conservation and meeting local livelihood demands. Some of the main successes and case studies of excellence in this aspect were developed by the GEF Small Grants Programme (SGP)

Jordan has implemented many biodiversity conservation projects in the past decade, mainly based on GEF support. Some of the most notable previous biodiversity conservation projects are:

1. Conservation of the Dana and Azraq Protected Areas
2. Biodiversity Country Studies - Phase I
3. Biodiversity Strategy and Action Plan (BSAP) and Report to the CBD
4. Conservation and Sustainable Use of Dryland Agro-Biodiversity of the Near East.

Currently, an impressive set of biodiversity conservation projects is being implemented that contains the following:

1. Conservation of soaring migratory birds in the eastern sector of the Africa-Eurasia flyway system (Rift Valley and Red Sea flyways)
2. Conservation and Sustainable Use of Biodiversity in Dibein Nature Reserve
3. Conservation of Medicinal and Herbal Plants
4. Integrated Ecosystem Management in the Jordan Rift Valley

The Jordanian National Biodiversity Strategy and Action Plan (NBSAP) is a response to the obligations of CBD and has been developed as a guide to the implementation of the biodiversity convention in the country. It has been published by the Ministry of Environment in 2002 based on a national consultation process.

The NBSAP contained five main themes under which specific projects were proposed:

1. Protection of biological resources:
2. Sustainable use of biological resources.
3. Reducing the impact of mining on biodiversity.
4. Promoting integrated land use planning, water resources development, land tenure and land use planning
5. Towards a biodiversity-oriented society.

Jordan hosts the regional World Conservation Union (IUCN) Office for West, Central Asia and North Africa (WESCANIA) and has a 13-member strong IUCN national committee based on public and civil society organization. Jordan is also the host of the Middle East branch of BirdLife International. This organizational system provides a conducive environment for biodiversity conservation if effective coordination mechanisms are developed and operated.

National Priority Capacity Constraints in the implementation of CBD:

The CBD stocktaking report identified the following national capacity constraints for implementing the CBD listed according to priorities as classified by stakeholders. These constraints will be discussed in details in section II.

1. Low integration of the CBD concepts in the national policy formulation process:
2. Weak linkages between research and policy making:
3. Lack of national directives for Biodiversity Impact Assessment:
4. Lack of clear policies for regional and international technology transfer:
5. Incomplete national guidelines and management plans for conservation sites:
6. Lack of an institutional process for assessing the impact of regional and international agreements on biodiversity:
7. Low national capacity of community management for in-situ conservation outside the protected areas:
8. Lack of economic incentives and valuation of biodiversity components:
9. Weak mobilization of financial resources available for Biodiversity:
10. Lack of long-term coordination mechanism between institutions working in Biodiversity:
11. Weak institutional and legislative framework for regulating access to genetic resources and benefits sharing:
12. Lack of a national knowledge management and data processing system for monitoring and reporting on Biodiversity:
13. Lack of long term programs for awareness and education on new concepts in Biodiversity management:

2.2 United Nations Convention to Combat Desertification (UNCCD)

The Convention:

Desertification is not the natural expansion of existing deserts but the degradation of land in arid, semi-arid and dry sub-humid areas. It is a gradual process of soil productivity loss and the thinning out of the vegetation cover due to human activities and climate change.

Over 250 million people are directly affected by desertification and a third of the Earth's land surface is threatened by desertification. In addition, the livelihoods of some 1.2 billion people who depend on land for most of their needs and usually the world's poorest in over 110 countries are threatened.

The United Nations Convention to Combat Desertification emerged from the Rio Earth Summit in 1992. It was the only convention stemming from a direct recommendation of the summit's Agenda 21, and was adopted in Paris in 17 June 1994 and entered into force in December 1996. It is the first and only internationally legally binding framework set up to address the problem of desertification and has been signed and ratified by 190 countries.

The objective of this Convention is to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, through effective actions at all levels, supported by international cooperation and partnership arrangements, in the framework of an integrated approach which is consistent with Agenda 21, with a view to contributing to the achievement of sustainable development in affected areas.

The UNCCD is based on the principles of participation, partnership and decentralization- the backbone of good governance. It advocated a spirit of partnership as the basis upon which the states affected by desertification and donor countries should conduct their relations, unlike traditional top-down approaches that failed.

The Convention requires from its parties to guarantee that all relevant actors- local communities, women and youth groups, NGOs, national governments, donor agencies and scientific research institutions- cooperate by way of deciding on priorities, developing long-term programmes and implementing these. It insists on full and effective participation by the affected groups in the decision making, planning and implementation of the programme.

The UNCCD encourages the protection of traditional know-how that are conducive to sustainable development while also facilitating the exchange of latest data, information and technology through its committee on science and technology.

Box 2-2 Obligations and Requirements under the UNCCD

These are the main obligations and requirements by parties signatory to the UNCCD:

- Adopting an integrated approach addressing the physical, biological and socio-economic aspects of the processes of desertification and drought.
- Integrating strategies for poverty eradication into efforts to combat desertification and mitigate the effects of drought
- Promoting awareness and facilitate the participation of local populations, particularly women and youth
- Establishing strategies and priorities, within the framework of sustainable development plans and/or policies, to combat desertification and mitigate the effects of drought.
- Preparation and implementation of National Action Programmes (NAP) to Combat Desertification.
- Preparation and implementation of subregional and regional action programmes to combat desertification.
- Collection and dissemination of data and information related to desertification.
- Promoting technical and scientific cooperation in the fields of combating desertification
- Facilitating the transfer, acquisition, adaptation and development of environmentally sound, economically viable and socially acceptable technologies relevant to combating desertification.
- Promotion of capacity building
- Effective early warning and advance planning for periods of adverse climatic variation
- Joint research programmes for the development of appropriate technologies.
- Promotion of alternative livelihoods, including training in new skills

Desertification in Jordan:

Most of Jordan arid and semi-arid areas have suffered desertification. Although the rate of desertification was not identified, however several surveys and studies at the country's level indicated that Jordan's land is at the threat of high rate of desertification. The process has been accelerated by unsupervised management and land use practices of overgrazing, cultivation and plowing of marginal soils and woodland removal in the high rainfall zones. The regions of irrigated highlands and the Jordan Valley were also affected by aspects of salinization and alkalization of soil. In addition to human induced factors, climatic factors of irrational rainfall and periodic droughts are contributing to the problem. According to academic scientific assessments, the transition zone (between arid areas in the east and sub-humid areas in the west) has suffered from a high risk of desertification and is expected to lose its productivity over time.

On 21st October 1996, the Government of Jordan ratified the Convention to Combat Desertification, which entered into force on 16th December 1996. Jordan prepared and organised awareness campaigns and workshops to initiate the preparation of the National Action Plan.

The National Action Programme (NAP) to combat desertification was prepared in 2005 and officially launched in 2006. It includes six major programmes that are mainly "project-based". The programmes include several projects related to desertification monitoring and control, capacity building, natural resources rehabilitation and development. However, these programmes and the proposed projects provide

framework for an action plan to combat desertification. The proposed programmes are the following:

1. Desertification Information System (DIS),
2. Drought prediction and desertification control,
3. Capacity building and institutional development,
4. Restoration of degraded ecosystems of rangelands and forests,
5. Watershed management, and
6. Human, social and economic development initiatives.

Each programme has several projects with justification, activities, implementing agencies and initial budget.

National Priority Capacity Constraints in Implementing the UNCCD:

The UNCCD stocktaking report identified the following national capacity constraints for implementation of the UNCCD:

1. Lack of a national land use plan and legislation
2. Desertification has little priority in the national development plans
3. Weak linkages between scientific research and policy making
4. Inadequacy of public awareness programs for various target groups on sustainable land management
5. Duplication and absence of roles and responsibilities of organizations working in land management
6. Absence of guidelines and specific directives for land management and rehabilitation in the EIA system
7. Weak capacity of local communities
8. Absence of a national database and system to monitor desertification
9. Lack of a mechanism to evaluate the impacts of economic and agriculture agreements on land management
10. Weak capacity for outreach and networking with regional and global organizations and programmes

2.3 United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol

There is increasing scientific evidence that a gradual change in the world's climate is underway with expected drastic impacts on people and nature. Levels of carbon dioxide and other "greenhouse gases" in the atmosphere have risen steeply since the industrial revolution. Concentrations have increased mainly due to the use of fossil fuels, deforestation and other human activities, spurred by economic and population growth. Like a blanket around the Earth, greenhouse gases stop energy and heat escaping from the Earth's surface and atmosphere. If levels are too high, excessive warming can distort natural patterns of climate and rainfall. The Intergovernmental Panel on Climate Change (IPCC) predicted a rise of 1.4 to 5.8 °C in global mean surface temperature over the next 100 years. The impacts of such a rise will be devastating to nature and humans especially for developing countries.

The United Nations Framework Convention on Climate Change (UNFCCC):

The UNFCCC was negotiated in 1991 and adopted in the Rio Earth Summit in 1992. It entered into force in 1994. About 190 countries have ratified the UNFCCC until now. This almost worldwide membership makes the convention one of the most universally supported of all international environmental conventions.

The UNFCCC sets an overall framework for the intergovernmental efforts to tackle climate change. It establishes an objective and principles and spells out commitments for different groups of countries according to their circumstances and needs.

Commitments to be made by industrialized countries (Annex 1 countries) include that they must adopt climate change policies and measures with the aim of reducing their greenhouse gas emissions and to set an example of leadership and innovation for the rest of the world. The UNFCCC calls on industrialized countries to allocate financial resources to enable developing countries to undertake emissions reduction activities under the Convention and to help them adapt to adverse effects of climate change. In addition, they have to “take all practicable steps” to promote the development and transfer of environmentally friendly technologies to developing countries.

The Kyoto Protocol:

The international climate change negotiation process developed in 1997 the Kyoto Protocol to be a legally binding framework for emission reductions targets by 2015 and developed some practical resource mobilization mechanisms. The Kyoto Protocol calls for specific reductions in greenhouse emissions by the year 2015 from baseline rates of 1990. Different industrialized countries have various reduction targets based on their economic growth and share of global greenhouse emissions. With the signature of Russia in October 2004, the Kyoto Protocol entered into force in February 2005.

The Kyoto Protocol has developed some practical mechanisms for resource mobilization and international cooperation in climate change issues, including emission trading systems, clean development mechanisms, joint implementation mechanisms and carbon sequestration.

Climate Change in Jordan:

As a country characterized with semi-arid climate, high dependence on rainfall and scarcity of water resources, Jordan is one of the countries to be highly affected with climate change impacts. Although Jordan’s emissions of greenhouse gases are relatively very low, climate change is a big threat to Jordan since the ecosystem productivity and water resources are highly dependent on the hydrological cycle.

Box 2-3 Obligations and Requirements under the UNFCCC and Kyoto Protocol for Developing Countries

These are the main obligations and requirements from developing countries under the UNFCCC and Kyoto Protocol:

- Develop, periodically update, publish and make available to the Conference of the Parties national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases.
- Cooperate in preparing for adaptation to the impacts of climate change; and develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture
- Cooperate in technology transfer.
- Promote and cooperate in education, training and public awareness related to climate change and encourage the widest participation in this process
- Research and systematic observation of climate change and other functions
- Promote and cooperate in the full, open and prompt exchange of relevant scientific, technological, technical, socio-economic and legal information related to the climate system and climate change.
- Information and networking, including databases.
- Working with the Clean Development Mechanism.
- Improved decision-making, including assistance for participation in international negotiations.
- Institutional capacity building, especially through focal points.
- Assessing mitigation options
- Assessing vulnerability and adaptation
- Developing and implementing adaptation plans and measures.

Jordan's efforts within the UNFCCC:

Jordan has ratified the UNFCCC in 1994 and the MoE became the national focal point for climate change issues and UNFCCC. Jordan started its efforts within the framework of the UNFCCC in 1996 with a GEF-UNDP supported programme for national capacity building in documenting national emissions of greenhouse gases and preparing Jordan's national communication to the UNFCCC. The first national communication was submitted in 1998 and it has been the first national communication to be prepared by a developing country party to UNFCCC. The national communication included an inventory of greenhouse gases' emissions from all sectors; energy, industry, transport, agriculture, institutional and residential. The programme included developing national scenarios for greenhouse emissions for the upcoming 30 years based on various modeling systems. It has also included developing national mitigation measures for reducing the effects of climate change and a national action plan to reduce greenhouse emissions and turning into sustainable energy resources.

Based on this programme, a comprehensive assessment study was conducted in 1999 to anticipate the impacts of climate change on water resources in Jordan within the framework of vulnerability and adaptation to climate change. The study included four sectoral assessments on surface water, groundwater and wastewater in Zarqa basin and marine hydrological systems in the Gulf of Aqaba.

The MoEnv implemented between 2004-2006 the second phase of the capacity building programme under the title of “enabling activity” which included an inventory of current technologies. In 2006, the Ministry of Environment started preparing the Second National Communication (SNL) on greenhouse emissions that will also include suggested adaptation and mitigation measures for the first time in Jordan. The SNC project will develop and enhance national capacities to fulfill Jordan’s commitments to the Convention on a continuing basis; enhance general awareness and knowledge of government planners on issues related to climate change and reduction of Greenhouse Gases (GHG) emissions, thus enabling them to take such issues into account in the national development agenda; and mobilize additional resources for projects related to climate change and mitigation of GHG; projects which may be eligible also for further funding or co-funding by GEF or other multilateral or bilateral organizations.

Jordan and Kyoto protocol:

Jordan ratified the Kyoto Protocol in 2003 to become only the third Arab country party to the Protocol. A national committee was formed to develop project proposals and initiatives for the Clean Development Mechanism (CDM) of the Kyoto Protocol. The Protocol entered into force in February 2005 and Jordan has started to mobilize resources under the CDM to implement the Protocol by developing three CDM projects and various projects are now within the CDM pipeline.

National Priority Capacity Constraints for implementing the UNFCCC and Kyoto Protocol:

The stocktaking exercise identified the following national capacity constraints for implementation of the UNFCCC and Kyoto Protocol:

1. Low capacity for developing National Vulnerability studies and Adaptation measures and guidelines
2. Lack of economic incentives for climate change mitigation and adaptation
3. Inadequate Institutional and technical capacity for the Climate Change focal point at the Ministry of Environment
4. Low Capacity for implementing the CDM
5. Weak linkages between research, systemic observation and policy making
6. Lack of a systemic approach to technology inventory and transfer
7. Lack of clear and systematic integration of the UNFCCC main concepts in the national policy formulation process
8. Weak systematic capacity development for energy efficiency
9. Weak capacity for practical education and training
10. Low capacity for Knowledge management and networking
11. Ineffective enabling environment for renewable energy
12. Low capacity for resource mobilization

2.4 Synergies and Cross-cutting Issues

There are many common operational obligations under the Rio Conventions, including requirements for reporting, research, training, public education, awareness and national exchange of information. Experience in capacity development for global environmental management to date, points to an overarching need to strengthen coordination of environmental policy formulation and implementation among sectoral agencies at national (and sub-national) levels.

Institutional weaknesses at the national and agency level, e.g., lack of coordination among Convention focal points, often limit realization of linkages among Multilateral Environmental Agreements (MEAs).

The NCSA Resource Kit identifies potential approaches to ensure that possible synergies are identified through the NCSA process.

Some MEAs and international organizations have sought to identify potential areas of synergies between the Rio Conventions. Some examples of these efforts were:

- Mobilizing information and knowledge about synergies, especially among policymakers.
- Engaging and building consensus among all stakeholders on synergies.
- Mainstreaming MEAs into sectoral issues needs to be promoted strategically.

The UNFCCC identified activities to promote synergies under six cross-cutting thematic areas for implementing the Rio Conventions:

1. Technology development and transfer;
2. Education and outreach;
3. Research and systematic observation;
4. Capacity-building;
5. Reporting; and
6. Impacts and adaptation.

The CBD identified the following areas for possible synergies with UNFCCC and broader sustainable development planning, specifically among the mitigation and adaptation activities:

1. Land use, land-use change and forestry
2. Improved management of grasslands
3. Avoiding degradation of peat lands and mires
4. Revegetation

Strategic cross-cutting priorities in Jordan:

The cross-cutting stocktaking report has identified the following set of strategic priorities for synergies and cross-cutting issues between the three conventions:

1- Knowledge Management, outreach and networking:

Since efforts in implementing the three conventions are divided between various sectors and institutions, a priority need will be to develop the national knowledge management capacity for synergies between the three themes. Information should be collected, saved, processed and exchanged between institutions and professionals through effective knowledge management networks whether these networks already exist or should be developed. The knowledge management system could act as a tool for unified monitoring for environmental components and reporting requirements of the three conventions.

Although many awareness and outreach programmes have been implemented in Jordan on sectoral basis, there is still a need to advocate the integrated synergies between the three conventions for various stakeholders to keep up with new technical developments. Any awareness and outreach programme should be considered as a tool for capacity development and not an end by itself.

2- Technical training and technology transfer:

Technology transfer and cooperation is important to all three conventions. The Rio Conventions emphasize the importance of technology co-operation and transfer in achieving their respective goals. Mutually-supportive technologies like renewable energy, agriculture efficiency and ecosystem preservation will be of high value to address the common elements and synergies from a technological perspective.

Environmental and technical training packages developed by and for national institutions should begin to focus on linkages and synergies between the conventions. Programmes must be developed to utilize existing national and regional specialized centers to provide courses in technical areas relevant to all three conventions to targeted audiences. Another training tool could be course materials for technical professionals and agency staff on issues relevant to the three conventions — and the synergies, complementarities, and areas of overlap that exist — to be used in structured courses, workshops, and seminars. Such training programmes will increase the practical capacity by proof and evidence of the success stories in synergies and provide hands-on experiences to be applied in local conditions.

3- Sustainable Institutional Coordination Mechanisms:

Although the Ministry of Environment is the focal point for all the three conventions, the implementation of obligations depends upon the active involvement and commitment of other institutions especially line

governmental institutions and some NGOs. This requires a dynamic and sustainable coordination mechanism between the various institutions and to present the synergy perspective to all those institutions. This will help in developing integrated responses to the commitments and interlinkages between the conventions.

4- Using research for policy making:

The existing research in the educational system in environmental sciences and natural sciences in general does not adequately address scientific and practical linkages between the themes of biodiversity, desertification and climate change, and between these themes and the natural environment. Education on global environmental issues can promote the development of an increased awareness and understanding of the impact of local actions that degrade the environment sustainable development and human well being and will assist in developing educational packages that address the three themes and their cross-cutting issues in an integrated manner.

Concepts related to the synergies between the conventions should be integrated in educational programmes and curricula to ensure a sustainable flow of education packages and an integrated approach to education for environmental management and linkages between the three themes.

Another important capacity development priority is creating an enabling system for linking scientific research to policy making. Scientific research should focus on cumulative and synergistic impact assessments of the linkages between biodiversity loss; desertification and climate change and produce informed decisions on integrated responses and mitigation plans. Research on adaptation to climate change would be an essential component of cross-cutting research options.

The stocktaking report has also identified that the main cross-cutting concepts advocated by the conventions and which constitute the main policy elements of biodiversity, desertification and climate change are not well reflected in current national development and sectoral policies in a clear and integrated manner. Linkages between the Rio conventions and poverty eradication should be emphasized to ensure the credibility of integrating the themes into development policies. A major capacity development effort should be taken to increase the awareness and familiarity of decision makers with the concepts developed by the conventions.

5- Resource Mobilization:

Most institutions in Jordan lack the technical and practical knowledge for financial and technical resource mobilization to implement projects and programmes tackling synergies between the three themes. This is a major field for capacity development at institutional and individual levels since financial constraints represent some of the major difficulties facing environmental management in Jordan. Integrated resource mobilization can also help in minimizing overlaps and maximizing the benefits from international aid.

6- Local Communities empowerment and participation:

Communities are the end beneficiaries of any environmental management programme. Local communities' capacities to address issues of biodiversity, desertification and climate change should be developed in a sound technical way keeping close attention to the linkages with sustainable livelihoods. This can be done through capacity development for local institutions (municipalities, NGOs, CBOs, etc...) to enable them to develop their own initiatives to implement global environmental thinking in the local context.

2.5 Conceptual Framework of Capacity Development

Definitions:

Within the UNDP/GEF framework of capacity development analysis, *Capacity* is broadly defined as the ability of individuals, institutions and broader systems to *perform* their *functions* effectively, efficiently and in a sustainable way.

The functions to be performed in order to meet the requirements of the Conventions can be grouped as follows:

- organizing and formulating policies, legislations, strategies and programmes;
- implementing and enforcing policies, legislations and strategies, often through projects, notably by mobilizing and managing all required resources;
- building consensus and partnerships among all stakeholders;
- mobilizing information and knowledge;
- monitoring, evaluating, reporting and learning.

It is important to keep in mind that capacity consists of, but goes beyond, human resources. Capacity also involves effective institutions and broad social systems. For a country to be able to perform the above functions, it requires a complex composition of effective individuals, effective institutions and an appropriate enabling environment. In other words, if the country has the *appropriate* individuals, working effectively in the *appropriate* institutions, within the *appropriate* system, then it will be able to perform all the necessary functions and so meet its requirements under the Convention.

Capacity development is a process of change through which the system, institutions and individuals are strengthened in order to better perform the capacity functions.

Levels of Capacity Development

In the NCSA Resource kit published by GEF/UNDP Global Support Programme (GSP), capacity development is defined as *the process by which individuals, institutions and social systems increase*

their capacities and performance in relation to meeting each of the requirements under the Conventions. Annex 1 provides a breakdown of the identified stocktaking capacity constraints in relation to the three levels of capacity development.

At the individual level:

1. Improve the ability of individuals to manage and protect the environment, working as individuals, within organizations and within the larger society;
2. Change individual attitudes, knowledge, behavior and actions, through increasing their awareness, understanding and skills on relevant topics; this is often done through awareness-raising, education, training, learning-by-doing and peer learning;
3. Improve individual performance through promoting greater participation, ownership, motivation, incentives and morale; and
4. Improve individual performance through better human resources development, performance management and accountability systems.

At the Institutional Level:

1. Clarify and improve organizational structures and processes, such as mandate, mission, responsibilities, accountabilities, communications, and deployment of human resources;
2. Improve an organization's performance and functioning to make it more effective, efficient and responsive to change; this includes management, strategic planning, and implementation of programmes and projects;
3. Increase coordination and collaboration among groups or departments within the organization;
4. Build better relationships with the outside environment (other organizations within or outside the country); and
5. Provide better information systems, infrastructure and equipment to support the organization's work.

At the systemic level:

1. Create "enabling environments", i.e.; societal support, for better environmental management in all sectors of society;
2. Improve the overall political, economic, legislative, policy, regulatory, incentive and accountability frameworks within which organizations and individuals operate;
3. Improve formal and informal communication and collaboration among organizations and individuals; and
4. Promote the participation of all sectors of society in reaching environmental goals, through improved awareness, education and involvement and increased government transparency and accountability.

Section III.

Analysis of Thematic Capacity Constraints

Section III. Analysis of Thematic Capacity Constraints

3.1 Analysis of Priority Capacity Constraints

The analysis exercise was conducted between June-December 2006 where all the priority capacity constraints identified in the stocktaking phase were subjected to an analytical framework that was composed of the following layers:

1. The priority issue in the Convention's literature.
2. The priority issue in national implementation (previous/current)
3. The priority issue in national policies.

The three thematic profiles were then summarized through developing logical frameworks for the three themes, from which the outcomes and outputs were extrapolated through the Logical Framework Analysis (LFA) to feed into the NCSA action plan.

The detailed LFAs can be viewed via the NCSA website <http://ncsa.moenv.gov.jo> while the summary results will be presented in this section. Annexes (2-4) contain matrices documenting the capacity constraints for each thematic area and the associated suggested actions related to each capacity constraint.

3.2 Biodiversity Priority Capacity Constraints

BD 1: Low integration of the CBD main concepts in the national policy formulation process:

According to article 6 of the CBD, "Each Contracting Party shall, in accordance with its particular conditions and capabilities:

- (a) Develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, inter alia, the measures set out in this Convention relevant to the Contracting Party concerned; and
- (b) Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies."

Thus, the integration of the CBD concepts into national programs is in itself a commitment by each signatory state. These main elements include identifying and monitoring of the major components of biodiversity and

the processes which affect them, establishing systems for in-situ and ex-situ conservation, attempt sustainable use of components of biodiversity, create incentive measures for the conservation of biodiversity, creating and using national capacities for research and training, promoting public education and awareness, introducing national EIA standards for biodiversity, allowing, within legal limits of intellectual property rights, access to genetic resources and access to and transfer of technology and information as well as mechanisms to create and use equitably of biotechnology. There are some examples where attention is paid in national policies to the main elements of the CBD.

For example, the National Agricultural Strategy placed the “conservation of biodiversity and utilizing it in integrating and supporting agricultural development” as a general objective of the strategy. To this end, the Strategy calls for the use of local species in agriculture, and the use of local medicinal and aromatic plants for the benefit of local cooperative societies. Similarly, the NSAP-Biodiversity calls for the participation of farmers in the conservation of biodiversity.

The National Strategy for Combating Poverty (2002) called for the encouragement of sustainable livelihoods in rural areas. This entails the encouragement of use of natural resources by local communities in ways that can be considered both sustainable and rewarding.

The National Biodiversity Strategy and Action Plan (NBSAP) is the main biodiversity planning policy document. It includes good focus on the conservation and sustainable use of biodiversity in its various elements, but falls short of a clear integration of “access to genetic resources and benefits sharing” which is the third pillar of the CBD. This has been highlighted by another biodiversity-related capacity constraint that will be discussed below.

Some of the protected areas in Jordan, such as Dana and Ajloun, have integrated some of the concepts of CBD concepts, especially ecotourism and sustainable livelihoods into the management programme. This is potentially a very useful tool in integrating local societies into the conservation efforts. This experience may well be used both in official nature reserves and within environmentally sensitive areas which have not been designated as nature reserves.

None of the national strategies or programmes emphasizes the importance of education and awareness among decision makers to the concepts of community based conservation. This will need to be addressed if successful integration of conservation into poverty alleviation programs is to be realized. This is especially important in areas which have not been designated as nature reserves.

While there are some aspects of the CBD which have not been given enough attention to in Jordan’s policies related to biodiversity, as will be clear later, many of the main elements are in fact finding their way to implementation.

Identified gaps in biodiversity policies:

National policies in Jordan have missed the importance of developing national policy measures and statement on the thematic CBD issues and different types of habitat conservation (inland water biodiversity, mountain biodiversity, marine biodiversity, forest biodiversity, dryland biodiversity, etc...) and it is crucial that national and even local (habitat-level policies) be developed in relation to the various components of biodiversity. Such an objective can benefit from the various programmes of work developed by the CBD for the different thematic habitats and ecosystems.

Another main missing point in the national policy and planning process related to CBD is the lack of any integration or follow up of the 2010 Biodiversity targets. In decision VI/26, the Conference of the Parties adopted the Strategic Plan for the Convention on Biological Diversity. In its mission statement, Parties committed themselves to a more effective and coherent implementation of the three objectives of the Convention, *to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on earth.*" In decision VII/30, the Conference of the Parties adopted a framework to facilitate the assessment of progress towards 2010 and communication of this assessment, to promote coherence among the programmes of work of the Convention and to provide a flexible framework within which national and regional targets may be set, and indicators identified. Parties are invited to establish their own targets and identify indicators, within this flexible framework.

The targets are not well known in Jordan and have not been monitored and documented in a satisfactory way. It is important to keep track and evaluate on a continuous basis the progress towards achieving the 2010 Biodiversity targets.

In the last few years, the ecosystem approach has been developing as a main tool of adequate management and sustainable use of biodiversity and habitats supported by a robust operational guidelines developed by the CBD. The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. Application of the ecosystem approach will help to reach a balance of the three objectives of the Convention. It is based on the application of appropriate scientific methodologies focused on levels of biological organization which encompass the essential processes, functions and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of ecosystems.

As described by the Conference of the Parties, the ecosystem approach is the primary framework for action under the CBD. The Conference of the Parties, at its Fifth Meeting, endorsed the description of the ecosystem approach and operational guidance and recommended the application of the principles and other guidance on the Ecosystem Approach (decision V/6). The seventh meeting of the Conference of the Parties agreed that

the priority at this time should be on facilitating implementation of the ecosystem approach and welcomed additional guidelines to this effect (decision VII/11).

Jordan is in need to localize the ecosystem approach in its various conservation, sustainable use and restoration plans to implement the ecosystem approach at the national level based on CBD framework and principles.

Based on the Environmental Protection Law 2005, a variety of environmental bylaws were formulated including the bylaw no 29 for the year 2005 specific for “natural reserves and parks”. The bylaw includes procedural and planning guidelines for identification and establishment of protected areas, which includes the necessity for developing a site management plan. The bylaw provides the Minister of Environment with the legal power to declare any area that is rich in biodiversity as a “special protection zone” managed through regulations issued by the Ministry.

Based on the LFA of this capacity constraint, the following actions are suggested:

BD 1.1: A comprehensive capacity building/awareness plan to integrate CBD concepts in national policies and legislation is operational.

BD 1.2 A practical frameworks for linking biodiversity with poverty reduction policies and efforts is developed.

BD 1.3 National policy statements/plans for conservation of different habitats and thematic programmes identified by the CBD are developed.

BD 1.4 A national programme for monitoring the progress towards achieving the Biodiversity 2010 targets is developed including identification of national indicators.

BD 1.5 National operational guidelines for implementing the ecosystem approach developed with one/two demonstration projects implemented.

BD 2: Weak linkages between research and policy making:

This is an overarching issue mentioned and identified in the three thematic areas. This constraint has been identified in early stages by the NCSA Jordan process and selected as the main cross-cutting capacity constraint and was used as the basis for developing a GEF CB2 proposal that was submitted and technically cleared in 2006 with the aim of developing policy-relevant capacity for implementation of the Global Environmental Conventions in Jordan based on sound scientific research. The CB2 project will be discussed in details below.

Article 12 of the CBD requires the establishment and maintenance of programmes for scientific and technical education and training in biodiversity and the promotion and encouragement of research which contributes to the conservation and sustainable use of biological diversity. It also requires integration of research results in developing methods for conservation and sustainable use of biological resources. This aspect needs to be improved upon to fulfill the requirements of the CBD. Additionally, Agenda 21 (31.3 and 31.4) suggests that mechanisms to facilitate integration the research community into policy formulation and implementation.

Biodiversity research is currently conducted by academics in Biology departments in various universities with special focus on ecological dynamics and species composition and taxonomy. The Royal Society for the Conservation of Nature (RSCN) carries professional field research and surveys in partnership between its trained staff and experienced academics. The results of these surveys are usually integrated in management plans of natural reserves, but the comprehensive platform of biodiversity policy in Jordan scientific research is not well utilized by decision-makers.

During the formulation of the CB2 proposal, a national consultation process identified various underlying causes for the in-coherent integration between science and policy making in the three themes. The following statements reflect the situation related to constraints Desertification 3 and Climate Change 5.

The thematic stocktaking NCSA reports, as well as the cross-cutting prioritization analysis, have all confirmed that the main cross-cutting capacity development priority issue which has emerged from the NCSA process is 'Linking research to policy development'. The basis for this conclusion is that the existing research capacities in environmental and natural sciences do not adequately address the global environmental management themes in the areas of biodiversity, desertification and climate change.

Research on global environment issues can promote the development of an increased awareness and understanding of the impact of local actions that degrade the environment and undermine socio-economic capital for human well being. The NCSA process has confirmed that concepts related to the synergies between the conventions should be integrated in academic programmes and mandates of research institutes to provide for sound scientific base for implementation of the global environmental conventions.

Another important capacity development priority is creating an enabling system for linking scientific research to policy making. Scientific research should focus on cumulative and synergistic impact assessments of the linkages between biodiversity loss, desertification and climate change and produce informed decisions on integrated responses and mitigation plans. For example, the research on adaptation to climate change would be an essential component of such research options.

The Ecosystem Approach can offer a useful framework for adaptation activities for realizing synergy among the three Conventions. The approach acknowledges the inevitability of change and thus the framework can accommodate consideration of climate change and the need for adaptive responses. Its application requires

analysis at several spatial and temporal scales as well as interactions among drivers of change at the various scales. This multi-scale approach can be useful in analyzing the relationship between costs and benefits at local and global scales.

The NCSA thematic reports diagnosed the “disconnect” between “the scientific community” of the academic and civil institutions on the one hand, and the “policy making community” of public institutions on the other hand. This disconnect is thought to be one of the major constraints for implementing the three conventions.

The current set up does not encourage the results of research to backstop the policy and decision making in relation to the global environment Conventions. Therefore, often these decisions are not based on sound research and do not provide grounded justifications for action. This also has impact on developments of Strategies and Action Plans in the Rio Conventions related focal areas. The NCSA reports have also identified the lack of a sustainable knowledge management network at the national level to exchange and build the capacity of knowledge generation, codification and dissemination as a main priority.

At the broader national level, Jordan’s National Agenda was developed in 2005 and represents a historic milestone in efforts to build modern Jordan and address enormous challenges facing the country. The chief objective of the National Agenda is to improve the quality of life of Jordanians through the creation of income-generating opportunities, the improvement of standards of living, and the guarantee of social welfare.

The National Agenda has devoted a whole chapter to higher education and scientific research. According to the National Agenda, the current spending on research and development accounts for 0.4% of the GDP. The target for the year 2017 is to reach 1.55 of the GDP. It is emphasized that Scientific research can play an effective role in efforts to find solutions to Jordan’s socio-economic problems. However, the sector suffers from a fragmented administration, unclear channels and linkages, limited cooperation and coordination, and inefficient financial management.

Higher education and research in Jordan occupy a major economic and social importance, in addition to technological and environmental progress. With 23 higher education institutes, including 10 large public universities, university student exceed 230,000 in number and represent around 14% of the total Jordanian society. The Jordanian Government and society attach great importance to higher education and research, which is reflected in the annual budget for higher education which has reached JD 264 Million in 2004 of which, the Government contributes over 20% of this budget.

There is national commitment at national level to scientific research as an important sector to meet socio-economic targets. Several research institutions are actively working in the field of environmental management and sustainable development and some are specifically addressing global environmental issues. The multitude of research institutions can be classified as Governmental, NGOs or academic in nature, and although most of them cover thematic issues related to the Rio conventions, some have started to address and cover cross-cutting issues.

It was also confirmed through the NCSA analysis that there are currently several existing platforms for collaboration between research and policy making, some of which have proved their efficiency, despite the lack of consistent and systematic follow up, and these platforms include:

- Discussions opportunities of sectoral and national policies
- Participation of research institutions to studies, reviews and application of know-how conducted through policy institutions
- Participation to large scale projects implemented by line Ministries
- Participation to steering committees of projects implemented by line Ministries
- Interactions and formal exchange through workshops, conferences...
- Information exchange through web-sites, newsletter and the public media

The key problems identified during the CB2 consultations constraining the interventions of research institutions in influencing the whole policy process in Jordan is the lack of strategic guidance to research institutions for identification of priority research needs related to global environmental issues which could be adopted in research programmes and inform decision-making for better global environmental compliance.

The CB2 project has been designed to develop policy-relevant capacities for the implementation of the global environmental conventions by enhancing connectivity between the research and policy making for global environmental management.

The outcomes of the CB2 project are:

Outcome 1. Sustainable and effective collaboration mechanisms between policy making and research related to the Rio conventions are established.

Outcome 2. Global environmental issues and provisions of the three Conventions are integrated and implemented in policies and laws through research

Outcome 3: The capacity of the research institutions and awareness of policy-makers to support and undertake policy-oriented research related to the global environmental conventions is developed.

Specific to biodiversity, the stocktaking report has identified the need for capacity building in taxonomic research to allow the involvement of Jordan in the Global Taxonomy Initiative (GTI) and conducting national taxonomic needs assessment with special focus on specimen collection and management. The work on taxonomy should also pave the way for a well-researched publication of the National Red Data book.

Supporting actions that have been identified through the Biodiversity in-depth analysis and can be integrated in the NCSA action plan are:

BD 2.1 An accessible database of research on biodiversity and conservation is established.

BD 2.2 Scientific research used for enhancing monitoring of biodiversity components and development of habitat-specific and species-specific conservation plan.

BD 2.3 A special capacity building programme for taxonomic research is developed and operational in relation to the CBD GTI programme.

BD 3: Lack of national directives for biodiversity impact assessment and guidelines for restoration of degraded sites:

Clearly, Impact Assessment is an important tool in environmental management and guidelines as to what environmental impacts might be acceptable for various projects are a necessity. Impact assessment includes both Strategic Impact Assessment (SIA) and Environmental Impact Assessment (EIA) also known as Strategic Environmental Assessment (SEA).

Although a procedural legislation for EIA is governing the implementation of the EIA in Jordan since 2003, there are no specific and detailed thematic directives that are used by both the EIA consultants in preparing the EIA or by government officials in review and monitoring & evaluation. Accordingly, biodiversity related guidelines and directives are absent from the EIA process.

None of the previous strategies or action plans has put forth any ideas in this regard. This is probably because such directives should have been formulated as requirement for the implementation of the national bylaw on Environmental Impact Assessment. Formulation and implementation of EIA directives are under the purview of the Ministry of Environment and there are no legal hurdles to issue these directives, although capacity development to formulate and implement them may be required.

In addition to EIA biodiversity guidelines, there is a complete lack of national guidelines for identification and restoration of degraded sites. Only scattered localized experiments have been conducted in restoration of degraded sites, including the Azraq wetlands. Currently a national-donor effort is being mobilized for the restoration of Zarqa River basin. However, there is a clear need for a national mechanism and guidelines for restoration of degraded ecosystems including the selection of appropriate technologies related to each habitat.

Article 14 of the CBD specifically requires the implementation of mitigation measures for projects that may affect biodiversity, and requires the establishment and integration of EIA into policies that may adversely affect biodiversity. The lack of national directives, as a first step, clearly is at odds with the requirements of the CBD. Also, Agenda 21 (15.5 k) requests introduction of appropriate EIA procedures in implementing projects which might produce adverse results on biodiversity.

CBD has developed voluntary guidelines to assist Parties in incorporating biodiversity-related issues into environmental impact assessment and strategic environmental assessment legislation and procedures.

During the in-depth analysis, it was suggested that Biodiversity specific and detailed EIA directives should be formulated and implemented by the three sequential phases of the EIA process:

1. Biodiversity guidelines in the EIA ToRs.
2. Biodiversity guidelines in EIA reviews and mitigation measures.
3. Biodiversity guidelines in monitoring of projects after implementation.

To this end, the NCSA suggests the following actions related to this priority constraint:

BD 3.1 Guidelines of the Biodiversity Impact Assessment including the biodiversity directives are developed.

BD 3.2 A training programme for Biodiversity directives in EIA is established and operational.

BD 3.3 A national system of guidelines for restoration/rehabilitation of degraded habitats is developed and operational.

BD 4: Lack of clear national policies for regional and international technology transfer:

Apart from linkages developed on project-basis between national institutions and regional and international organizations and initiatives working on biodiversity conservation, Jordan lacks an effective mechanism for developing and maintaining regional and international partnerships for technology transfer and technical cooperation in Biodiversity related issues.

The transfer of technology and the best utilization of locally and globally available know-how and technology are intricately linked to the issue of linkages between research and policy making (constraint 2). This is because both these issues are related to the obtaining and distribution of funds related to conservation and other environmental goals. Thus, the lack of national policies in this regard is related to the exclusion of scientific researchers from the decision making process.

Article 16 of the CBD requires the facilitation of technology transfer by the contracting countries. While there are no legal or administrative hindrances to technology transfer to Jordan, more inclusive policies would allow for better decision making for the optimal use of available resources for technology transfer and localization. Agenda 21 (15.7) requests improved international cooperation in the field of conservation of biodiversity, and suggests a number of priority areas in this regard.

It is important to underline that the term “technology” not only refers to technical machinery and equipment (the so-called “hard” technology), but also to the notion of “soft” technology, that is, technological information or know-how. This knowledge is brought about both through research and innovation, that is, through moving ideas from invention to new products, processes and services in practical use, and through a complex and often costly process involving learning from others.

In the context of the Convention, relevant technologies include techniques for in-situ conservation such as integrated pest management, as well as technologies for ex-situ conservation such as preservation and storage technologies used in gene banks. They also include technologies related to the sustainable management of biodiversity resources, for instance, sustainable forest management or integrated water management. In addition, many monitoring technologies, such as remote sensing, are indispensable for the generation of updated and accurate biodiversity information, which is a crucial precondition to the design and implementation of policies for the conservation of biodiversity and the sustainable use of its components.

Technologies that make use of genetic resources include many examples of modern biotechnology. In a number of instances, the Convention provides for the transfer of such technologies as a mean to implement its third main objective that is, sharing the benefits arising out of the utilization of genetic resources in a fair and equitable manner.

Issues relating to technology transfer and cooperation are addressed in Articles 16, 17, 18 and 19 of the Convention. Technology transfer as a mean to achieving the equitable sharing of benefits from the use of genetic resources is mentioned in Article 19. In addition, training and research activities, so essential for establishing national capacities to diffuse and adapt technologies, are addressed in Article 12.

In 2004, at its seventh meeting held in Kuala Lumpur, Malaysia, the Conference of the Parties to the Convention, by decision VII/29, adopted a programme of work on technology transfer and technological and scientific cooperation. This programme of work spells out a number of strategic considerations to be taken into account in its implementation by the various actors. Grouped under four programme elements, it also spells out a number of operational targets and related activities required from Parties, other governments, international organizations and the Secretariat. The four components of this programme are: technology assessment, information systems, creating enabling environments and capacity building.

For Jordan, one of the main aspects included under technology transfer in the CBD is the promotion and regulation of biotechnology. Jordan has developed national instructions for biosafety that regulates the management of biotechnology. The instructions were a direct result of Jordan’s implementation of the Cartagena Protocol on Biosafety. Jordan has also developed a bylaw for the protection of “new plant varieties” which is a term describing the new varieties developed under biotechnology and which needs intellectual property rights protection.

However, Jordan still needs to develop national and regional agreements and bylaws that govern the access and benefits sharing of new technologies associated with the conservation and sustainable use of natural resources under the provisions of Article 16 of the CBD.

Currently, Jordan still lacks a clear policy on technology transfer at the national level that is linked to a national system for Intellectual Property Rights (IPR) of technological products. A clear and adaptive legislative framework is required.

The in-depth analysis of this constraint has led to the suggestion of the following actions:

BD 4.1 A national inventory of available technologies related to biodiversity is conducted as well as a technology needs assessment.

BD 4.2 A national policy statement and/or required legislation on technology transfer is developed and operational by relevant stakeholders.

BD 4.3 Regional and international networks for technology transfer are developed based on national inventory and policy statements.

BD 5: Incomplete national guidelines and management plans for conservation sites:

Article 8 of the CBD establishes general guidelines for management objectives for in-situ conservation, including various suggested measures.

There is a network of 7 protected areas managed by the Royal Society for the Conservation of Nature. Through an official agreement which was signed in 2004 between the MoEnv. and the RSCN, the MoEnv delegated the management of protected areas to the RSCN according to the Environmental Law. This agreement represents a major milestone in cooperation between the MoEnv and a national NGO. Through an official agreement signed in 2005 between Aqaba Special Economic Zone Authority (ASEZA) and RSCN, RSCN provides technical supervision for the management and the development of the Wadi Rum Protected Area. The seven protected areas cover 2% of the area of Jordan, but with a lot of proposed other 12 areas the coverage increases to 5%.

Protected Areas in Jordan are considered the main mechanism of the convention of Biodiversity Convention implementation. They embrace, within their management, key themes of the convention like the integration of economic development with biodiversity conservation and the sustainable use of biodiversity. Protected Areas in Jordan are considered effectively managed according to international criteria.

Not all the various conservation sites in Jordan include functional and science-based management plans. In the system of protected areas managed by the RSCN, guidelines for managing the protected areas are being implemented. Outside the network of protected areas, there are no guidelines. Biodiversity rich areas like Important Bird Areas (IBAs), national parks, grazing reserves and other forms of conservation site are not systemically managed or protected by a comprehensive management plan.

The 1996 NEAP for environmental protection called for “improved management of natural and cultural heritage”. Agenda 21 used similar terminology calling for management and protection of wildlife and natural habitats.

The NBSAP contains a strategic objective of “Improving our understanding of ecosystems and increasing our managerial abilities to this end”. There are no specific actions leading to this objective, as increasing abilities and understanding is a cumulative process that is not achieved by simply taking a decision. This point is intricately linked to constraint 2 (linkages between research and policy).

The National Agenda of 2005 calls for the establishment of a specialized body for taking care of nature reserves and urban spreading, but doesn’t mention the issue of national management guidelines.

The RSCN has a regional training center that has excelled recently in developing modules for management of protected areas. The cumulative experience of the RSCN, coupled with the practical experience of other institutions, can be the basis for developing a national programme for training on management plans for various conservation sites that can be applied through proper legislation and policies.

To overcome this capacity constraint the NCSA suggests the following actions:

BD 5.1 Comprehensive comparative review of the current management systems of conservation sites is conducted with gap analysis.

BD 5.2 Capacity building and training programmes for conservation site management are developed and operated.

BD 5.3 All conservations sites in Jordan have management guidelines related to their specific uses and functions. is functional.

BD 6: Lack of an institutional process for assessing the impact of regional and international economic and trade agreements on biodiversity:

The apparent lack of an institutional capacity to formulate national directives for EIA (constraint 3) is probably the same reason why there is no institutional process to assess the impact of regional and international agreements on biodiversity. This lack of capacity influences not only the ability to develop EIA directives,

assess the impact of regional and international obligations, but also the effect of many other factors that might affect biodiversity as well (urbanization, habitat fragmentation, movement of pesticides and pesticide residues through the food chain, and drying of wetlands among others). However, this kind of assessment is mainly linked to developing a national framework for Strategic Environmental Assessment (SEA)

Moreover, constraint 12 is devoted to collecting data on the status of biodiversity and creating a mechanism for this purpose. It can be suggested that assessing factors that can or potentially will lead to reduction of biodiversity can be part of the mandate of an entity which may be responsible for collecting and managing data on biodiversity, and subsequently formulating and implementing the EIA directives and assessing how entering various agreements will impact biodiversity in the country.

Jordan Agenda 21 calls for the geographic monitoring of rare and endangered species and ecosystems. Other documents also imply, but do not state, the necessity of understanding the nature of the threats to biodiversity.

For example, the NBSAP has five strategic objectives and one of them states that “work with other countries to conserve biodiversity, use biological resources in a sustainable manner and share equitably the benefits that arise from the utilization of genetic resources”. Although this concept is integrated in the NBSAP strategic objectives, it has not been translated into an operational action plan and a proposed project. In addition, the NBSAP calls for improved understanding of ecosystems and improved managerial abilities to this end. It also calls for reducing the impacts of industries on biodiversity, suggesting the need to understand the nature of these threats.

In general, the NBSAP bases its entire approach on the implication that the nature of the threats are well understood, which is probably not true in all cases. The linkage between scientific research and policy is a common thread through four different constraints (2, 4, 5 and 6).

Other socio-economic policies in Jordan do not include specific recommendations for studying the impacts of economic conventions on biodiversity, especially in relation to access and benefits sharing issues that are discussed within the Intellectual Property Rights of the global and regional economic agreements.

Since 2000, and in pursuit of economic liberalization and integration in the global and regional economy, Jordan has joined the WTO, negotiated and signed a Free Trade Agreement (FTA) with the USA and the EU partnership agreements as well as dozens of regional and global bilateral agreements. None of these agreements was subjected to a strategic environmental assessment that documents the potential impact on biodiversity in particular and ecosystem components in general.

While the Convention does not require measures that are directly related to international trade, there is a close relationship between many of its provisions – as well as those of its Biosafety Protocol – and the

provisions of the multilateral trade agreements of the World Trade Organization (WTO). For instance, the Parties to the Convention have emphasized the interrelationship between the Convention and the provisions of the WTO's Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPS), and the need to further explore this interrelationship. Similarly, Parties have underlined the relationship between the Biosafety Protocol and the provisions of the WTO Agreements on Technical Barriers to Trade (TBT) and Application of Sanitary and Phytosanitary Measures (SPS).

The in-depth analysis and logical framework of this constraint resulted in the following actions:

BD 6.1 A retroactive analysis and assessment of the impacts of trade and economic agreements on biodiversity is conducted.

BD 6.2 A national framework for strategic environmental assessment is developed and operational.

BD 6.3 A national training programme on strategic environmental assessment is developed and operational.

BD 6.4 An effective institutional system to be used for assessing the potential impacts of new trade and economic agreements on biodiversity is functional.

BD 7: Low national capacity for in-situ conservation outside protected areas, including lack of capacity of community management:

A national network of seven nature conservation protected areas and national parks has been developed and managed by the government and the RSCN. The network covers around 2% of the area of Jordan and the full list of proposed protected areas increases the coverage to 5%. However, biodiversity-rich habitats are being eroded and degraded outside the network of protected areas. Capacity development efforts should be done to establish an enabling environment for in-situ conservation of biodiversity-rich areas beyond the current and proposed protected areas system. The main elements of this effort can be focused on Important Bird Areas and National Tourism Parks and developing management plans for all kinds of protected areas.

A good amount of efforts has been put in place for increasing the capacity of local communities and institutions for the conservation and sustainable use of Biodiversity components. Most of these efforts have been supported by GEF projects in Dana, Azraq protected areas and the GEF agrobiodiversity project, in addition to the innovative community-based conservation efforts supported by GEF SGP. A national capacity development programme for local communities centered around biodiversity concepts and direct community involvement should be developed.

Experience gleaned from the initiatives of the GEF Small Grants Programme, RSCN, Badia Research and Development Center and by the Ministry of Agriculture should be used to encourage sustainable use of

natural resources in environmentally sensitive areas adjacent to protected areas. An action plan which includes specific target areas and activities should be developed to act on this issue.

National policies on biodiversity did not focus much attention on community management of protected areas and biodiversity-rich areas although the experience and cumulative knowledge has been developed on the ground. However, the NAP addressed community management of desert and dryland ecosystems in one of the programme areas, while the various socio-economic plans and policies formulated by the Ministry of Planning and International Cooperation and the Government in general, have stressed the need for involving local communities in natural resources management and planning.

The NBSAP calls for establishing an endangered species conservation programme focused on *in-situ* protection and management that is based on inside and outside protected areas. The NBSAP does focus also on the need to develop a national strategy for management and control of invasive species. These two programmes that are based on species level rather than ecosystem and habitat level, can open the route for national conservation programmes “outside” protected areas targeting certain key species and habitats.

One of the vital current projects in Jordan serving the conservation of key habitats and ecosystem “corridors” outside protected areas is the “Conservation of soaring migratory birds in the eastern sector of the Africa-Eurasia flyway system (Rift Valley and Red Sea flyways)”. The project implemented by BridLife International partners in Jordan and the region, aims to establish a regional conservation and monitoring program targeting globally significant bird species (including raptors) and bird habitats in the east Palearctic and west Arabian flyway. This flyway is an area of global biodiversity significance characterized by thousands of migratory birds that hibernate in southern Europe and the Middle East.

Another promising project will focus on the establishment of a new network of protected areas and integrated ecosystem conservation in the Jordan Valley. The GEF supported project “**Integrated Ecosystem Management in the Jordan Rift Valley**” aims to secure the ecological integrity of the Jordan Rift Valley, as a globally important ecological corridor and migratory flyway, through a combination of site protection and management, nature-based socio-economic development and land use planning.

The project will provide a large-scale pilot programme for introducing the principles and practice of integrated ecological management throughout a productive landscape and thus a potential global model. The proposed project is a comprehensive programme that will mainstream biodiversity conservation into land use and development programmes. It will build on the lessons learned from previous successful GEF initiatives, including the Dana Project.

The main component of the national activities involving communities in managing biodiversity is the GEF Small Grants programme (GEF SGP). The GEF SGP started working in Jordan in November 1992. During the period from November 1992 to October 2006, the programme has funded 150 projects which targeted different local community groups in different regions of Jordan with a total support of 4.0 million US \$.

In terms of focal area, 51% of the supported projects addressed issues related to **biodiversity**, 11% addressed issues related to **climate change**, 11% of the projects addressed issues related to **land degradation**, 21% of the projects addressed issues related to international waters; and the rest of the projects (about 6%) addressed multi-focal areas dealing with issues related to communication, networking and capacity building.

The SGP is instrumental in supporting grassroots initiatives which relate community development to the wider conservation of biodiversity issues.

Article 8 of the CBD requires protection of biodiversity in sensitive areas, be they within or outside protected areas. Article 8 (e) requires parties to promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas. The CBD COP has established a specific working group on Article 8 (j) related to traditional knowledge and innovations.

The in-depth analysis of this constraint has resulted in the following actions:

BD 7.1 A national plan to identify key habitats outside protected areas is designed.

BD 7.2 key species important for conservation are identified and conservation plans are designed based on species level.

BD 7.3 A training programme on community management of biodiversity outside protected areas is developed based on previous and current national experiences.

BD 7.4 A national programme for the management and control of invasive species is developed and implemented with the partnership of community management.

BD 7.5 Awareness toolbox for conservation of key species and sites is produced.

BD 8: Lack of economic incentives and valuation of biodiversity components:

The concept of “environmental valuation” and “environmental economics” is currently gaining momentum in Jordan. The Ministry of environment has recently implemented a project on the design and use of economic policy tools in environmental management. The stage is ready now for identification and application of proper incentive measures and policy tools for biodiversity conservation based on economic valuation.

The NBSAP contains a proposed project for capacity building for economic valuation of biodiversity components but no action has been done. However, the concept of “incentives” was integrated in the NBSAP but without clear description. One of the five strategic objectives of the NBSAP is to “maintain or develop incentives and legislation that support the conservation of biodiversity and the sustainable use of biological resources.

This is also related to the overarching issue of land use management. To be more specific, the lack of well defined urban boundaries means that land values outside the boundaries are close to those within. Thus, land within urban areas is under priced, while land outside is overpriced. Overpriced rural lands make it difficult to place economic values for biodiversity or natural resources. It would be challenging to place proper value on environmental assets on rural lands close to urban areas to justify the conservation of such assets.

The CBD does not provide for valuation of biodiversity, but article 11 requires the provision of appropriate incentives for the conservation and sustainable use of biological resources, when this is possible and appropriate.

However, some market based instruments can be used to energize biodiversity conservation. Suggested mechanisms include the Payments for Environmental Services (PES) that can be used by private sector provided a conducive legislative and administrative system is developed. In addition, the CBD is striving to develop other measures including fees on biodiversity-degrading activities or transferable quotas for biological resources. As an important milestone, a set of proposals was adopted under the Convention to provide guidance to governments on how to design and implement such incentive measures.

The LFA related to this constraint has resulted in the following suggested actions:

BD 8.1 Suitable economic incentives for biodiversity and natural resources management are identified and applied.

BD 8.2 Training programme on economic incentives and valuation tools are developed.

BD 8.3 Business plans for biodiversity conservation projects between private sector and other stakeholders are developed.

BD 9: Weak mobilization of financial resources available for biodiversity:

None of the strategies or action plans reviewed has addressed this issue. As in all aspects of environmental management and biodiversity protection in particular, much needs to be done to ensure sustainable funding for biodiversity research and protection. Most of the national policies do not include a resource mobilization plan or a time-bound action plan linked with resources. Some institutions working in biodiversity conservation have managed to develop their own standards and guidelines of fundraising and financial sustainability through adopting aggressive and robust fundraising methods. Others, which constitute the majority, have real problems in fundraising.

The NBSAP was launched in 2003 but it lacks prioritization and an effective resource mobilization system. In April 2005, the NCSA project supported an exercise of national prioritization of the NBSAP suggested

projects and initiated a system of integrated fundraising for implementing the priority projects coordinated by the Ministry of Environment.

The Ministry of Environment is currently establishing a national Environmental Fund under the provisions of the Environmental Protection Law. The National Environmental Fund can be a potential source for providing support for biodiversity conservation if the biodiversity portfolio proves to be more attractive and impact-oriented in a system of national sectoral competitions for funds.

Article 20 of the CBD requires the contracting parties to undertake, in accordance with their capabilities the financial resources necessary to achieve the objectives of the convention. It relies heavily on the commitments by developed countries to provide support for the CBD. The main source of financial resources is still the Global Environmental Facility (GEF). Based on the latest Resource Allocation Framework (RFA) in GEF, Jordan will have a minimum ceiling of available financial support that is much less than the amount enjoyed in the last decade. Such a development will require the spread of knowledge and capacity in fundraising and resource mobilization among national stakeholders and relying on developing efficient public-private partnerships for ecosystem and biodiversity conservation schemes.

To overcome this capacity constraint the LFA has suggested the following actions:

BD 9.1 Available resource mobilization tools and opportunities for biodiversity are reviewed.

BD 9.2 A system for private-public partnership for resource mobilization is developed.

BD 9.3 Training programme on resource mobilization is developed.

BD 9.4 Resource mobilization strategy for biodiversity is prepared and implemented.

BD 10: Lack of a long-term coordination mechanism between institutions working on biodiversity:

The NCSA stocktaking report notes that despite the existence of a national committee for the conservation of biodiversity, this committee is ineffective and rarely meets outside the framework of developing the NBSAP. Moreover, the report suggests that the Ministry of Environment can act as the secretariat and focal point for this coordination mechanism.

In the national strategies and work plans, the 1996 NEAP suggests the creation of a national registry for biodiversity. The National Agenda 21 requires evaluation and protection of floral biodiversity (not fauna). No mention is given as to how to achieve this. Agenda 21 also suggests establishing a national herbarium and a national botanical garden, as well as geographical monitoring of rare and endangered species,

communities and ecosystems. It is not clear if a central authority should be responsible for this, or should it be a “coordinated” effort.

One of the five strategic objectives of the National Biodiversity Strategy and Action Plan requires “Management of natural resources and distribution of roles (coordination) between organizations in a manner which preserves the basis of the natural resources necessary for Human life and its preservation such as soil, water, plant cover and climate, and developing these elements and utilizing them in a sustainable manner”.

The NBSAP-Biodiversity also suggests establishing a national data base for fauna, which presumably would require some coordination, or some mechanism for data collection from the various sources. After the NBSAP was launched, the national biodiversity committee associated with the NBSAP was practically halted with no frequent meetings. Generally, there is a problem of providing motivation for stakeholders to engage in long term coordination mechanisms that go beyond the requirements of specific projects.

Some national coordination mechanisms related to biodiversity do exist. The GEF SGP national committee is a shining example of the successful coordination of a voluntary committee that has overseen the GEF SGP for the past decade. The IUCN national committee consists of 13 members representing national organizations member in the IUCN and cover the vast majority of biodiversity stakeholders in Jordan.

Article 18 of the CBD requires the promotion of national and international cooperation by the contracting parties. Modes for national cooperation mechanisms are not suggested.

However, the following actions have been suggested to be integrated in the NCSA action plan:

BD 10.1 A national institutional coordination mechanism for biodiversity is established.

BD 10.2 An Effective monitoring and evaluation system is produced.

BD 11: Weak institutional and legislative framework for regulating access to genetic resources and benefit- sharing:

This is one of the major policy and legislation shortcomings concerning biodiversity in Jordan. Very little has been done to regulate access to and benefits sharing of biodiversity components.

Access and benefit-sharing of biodiversity and genetic resources is the 3rd pillar of the CBD. Article 1 of the CBD states that one of its objectives is the “*fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding*”.

Article 8 (j) of the CBD provides the main elements for this objectives by stating that parties have to “respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices”. The CBD has established a special working group on Article 8 (j) and Jordan should be able to mobilize its knowledge and expertise to contribute positively to the activities of this group.

The 2004 National Strategy for Agricultural Development called for the care for local agricultural strains, but without any specific mechanism to achieve this other than the application of international agreements. Asides from this reference, there is no mention of genetic data collection or sharing in any of the related environmental strategies or action plans (not even the National Biodiversity Strategy and Action Plan of 2003).

The recent awareness of the importance of genetic information suggests that little capacity is available to collect, manage and distribute this data. Genetic data may be collected and used as part of the knowledge management system which may be implemented as a response to constraint number 12.

Jordan lacks proper policies and legislation for regulating and promoting the fair and equitable access to genetic resources and this constitutes one of the most pressing legislative shortcomings in the country. The most prominent research that is conducted in Jordan related to access and benefit sharing of genetic resources is done by the National Center for Agriculture Research and Technology Transfer (NCARTT) which is the research arm of the Ministry of Agriculture.

Article 15 of the CBD clearly states that the authority for managing genetic resources is subject to national legislation and national sovereignty. However, countries are required to facilitate access to genetic resources for environmentally sound uses by other countries and not imposing restrictions against the principles of the CBD. The Bonn guidelines on access and benefit-sharing were adopted at CBD COP 6 and they represent the global framework for dealing with this issue.

The COP also decided to establish an Ad Hoc Open-ended Working Group with the mandate to develop guidelines and other approaches for submission to the Conference of the Parties.

CBD COP 8 in 2006 called for the establishment of an international regime and reference to disclosure requirements in intellectual property rights application. This is an indicator of the increasing importance of this issue in global negotiations and its impacts on national policies. It is vital that Jordan begins to build its own capacity and draft its own regulations to regulate the access and increase the possibilities for benefit-sharing of genetic resources.

The same COP requested the Working Group on Access and Benefit-sharing at its fifth meeting to further address the need and possible options for indicators for access to genetic resources and in particular for the fair and equitable sharing of benefits arising from the utilisation of genetic resources. It has also requested parties to start preparing national reports on the implementation of guidelines on access and benefit sharing.

The following actions have been suggested by the in-depth analysis:

BD 11.1 A review of existing mechanisms for genetic resources management is prepared with gap analysis is conducted.

BD 11.2 Legislation on regulating access to generic resources and benefits sharing ready for implementation.

BD 11.3 A training programme on the access and benefits sharing of genetic resources is operational.

BD 12: Lack of a national knowledge management and data processing system for monitoring and reporting on biodiversity:

This constraint is a long-lasting challenge that was mentioned in the 1996 National Environmental Action Plan (NEAP) which suggested creating a national registry for biodiversity and the 2003 NSAP for biodiversity as mentioned above, with a requirement for such a data base to cover both flora and fauna, and not simply fauna.

The response to this constraint is best achieved by the creation of a national knowledge management system, preferably as part of an effort to coordinate research and policy stakeholders (as articulated by constraint 10). The NBSAP calls also for the production of a national Red List Data Book and establishment of a national biodiversity database. It is clear that many policies have addressed this particular issue but the implementation remains to be elusive.

Monitoring and reporting on biodiversity is being carried out by more than one organization, but each has a limited scope. There is a need for developing a viable monitoring system between government, NGOs, Academia and private sector for monitoring the state of biodiversity. This entails the necessity for developing national biodiversity indicators to be used in monitoring and reporting.

The Research and Survey Section in the RSCN has established and compiled a national database entitled *Biodiversity in Jordan*. This database includes over 500 animal species and nearly 1500 plant species recorded in the country, with detailed descriptions of each species such as their taxonomy, habitat, and dates and locations where each was recorded. Most of the data for each species is collected through desktop research. Books, reports, and national and international publications are used to establish the base data. The CITES checklists and the IUCN Red Data Book are used to identify the global status of each species. A special data sheet is filled in to enable quick data entry into the database.

For fauna, all of Jordan's mammals, birds, reptiles, and amphibians are included, while for flora the database covers the flowering plants. Invertebrates and marine wildlife may be added in the future. Information on the national range of the species is collected through field research and from hunters.

Since biodiversity conservation efforts are divided between various sectors and institutions, a priority need will be to develop the national knowledge management capacity for biodiversity. Information should be collected, saved, processed and exchanged between institutions and professionals through an effective knowledge management network.

A good example of the progressive action of a nascent knowledge management system in Jordan is the biosafety clearinghouse mechanism. Jordan is currently developing its national biosafety clearinghouse system which is expected to establish a strong and effective data management infrastructure that can be utilized for related objectives. This mechanism, as well as the national information system, can both be utilized for the new collective network and knowledge management system instead of creating new infrastructure.

Article 7 of the CBD requires the contracting parties to establish guidelines for the identification and monitoring of biodiversity indicators and threats. The Convention assists Parties to design national-level monitoring programmes and indicators, taking in account the on-going work and initiatives on indicators. At the global level, indicators are used to assess progress towards the strategic target of a significant reduction of the rate of biodiversity loss by 2010.

The suggested actions related to this constraint are:

BD 12.1 A Knowledge management needs-assessment and gap analysis for biodiversity information is performed.

BD 12.2 Biodiversity monitoring indicators identified and sources of data verified.

BD 12.3 Knowledge management network established.

BD 12.4 A training programme in the use and maintenance of the KM system is functional with data updated on frequent basis.

BD 13: Lack of long-term programmes for awareness and education on new concepts in biodiversity management:

Awareness, especially for community stakeholders and policy makers, is a key component for the development of community based organizations, in-situ conservation efforts, as suggested in constraints 1 and 7. Awareness programmes need to be integrated into the development plans of endangered areas. Almost all national

policies (National Agenda 21, NBSAP, Agricultural Development Strategy, etc...) have called for the support and strengthening of national awareness programmes. It is important to make these programmes tailored to the new concepts in biodiversity management advocated by the CBD and its working groups.

Moreover, Biodiversity concepts are being integrated within national educational curricula through joint programmes between the government and NGOs. Through this programme, RSCN has established 1000 nature clubs in schools. RSCN develops annual activities for these clubs through well trained supervisors for these clubs supported by education materials which are produced regularly by RSCN.

Universities in Jordan can be categorized into two main categories, the Government universities and the private universities. The first private university was established in 1990. Private universities teach mainly the subjects that have demand in the Jordanian market and neighboring countries. Private universities have not developed yet teaching subjects which are clearly linked to biodiversity conservation because there are still limited work opportunities for specialists in biodiversity conservation in Jordan and the neighboring countries.

Government universities in Jordan have long history of teaching basic sciences like biology which has a direct link with biodiversity conservation. Some universities has established recently new departments or transformed existing departments and integrated elements of wider environmental issues in their curricula. However, a lot of the new and emerging concepts in biodiversity management, especially the “ecosystem approach” are still not well integrated in the national biodiversity conservation circles. It is imperative that these new concepts be translated into capacity building programmes at the national level to localize the emerging knowledge.

Such integration of new biodiversity concepts should be vital at the level of university education where biodiversity and natural resource management courses should be able to incorporate the CBD concepts in curricula.

Article 13 of the CBD requires contracting parties to promote and encourage understanding of the importance of biodiversity. There is no mention of integration of such programmes into management efforts.

Suggested actions from the LFA of this capacity constraint are:

BD 13.1 Main emerging CBD concepts for the education/awareness programme identified.

BD 13.2 Gaps in current education and awareness programmes identified through a comparative survey.

BD 13.3 Education/awareness programme designed to fill the gaps.

3.3 Desertification Priority Capacity Constraints

Ten capacity constraints have been identified in NCSA process. Herein they are presented and reviewed.

LD 1: The lack of a national land use plan and legislation:

The root cause of desertification and land degradation problems in Jordan can be attributed to the lack of an effective national policy or guidelines for land use planning. The country needs to invest in capacity development efforts at both systemic (policies) and individual levels for the main objective of developing an effective land use policy that will protect the fertile land from urbanization and assign sustainable use patterns for various types of land.

This issue was mentioned in the 1992 National Environment Strategy, in the 1996 NEAP, the National Strategy for Agricultural Development, the NBSAP and the National Agenda of 2005. National land use plans and legislation should integrate the ecosystems approach, linking biophysical with socioeconomic requirement to achieve the most sustainable form of land use with the best social and economic results for the local communities. It is clear that all national environmental policies have strongly called for the development of a landuse plan.

Currently, the Ministry of Municipal Affairs is coordinating a working group representing many stakeholders to develop the much-needed comprehensive land use plan starting with the designation of land suitable for industrial activities. However, this process needs a lot of continuous momentum and capacity development for both the formulation and the implementation phases. In December 2006 the first draft of the plan was released and the process of review will benefit highly from an approach derived from the conceptual framework developed by the UNCCD.

Article 10 of the UNCCD specifies the need to incorporate information on the causes of desertification within the NAP to combat desertification. This includes emphasis on long-term strategies designed to combat desertification and mitigate the effects of drought, emphasizing implementation and integration with national policies. There are no strict provisions for implementing land use planning as an approach to combating desertification, as this problem seems to be unique to Jordan. However, chapter 10 of Global Agenda 21 calls for integrated planning and management for land resources, calling for optimal use balancing economic, social and environmental requirements. Jordan has not fulfilled this obligation under Agenda 21.

The NCSA suggests the following actions related to this capacity constraint to be included in the action plan:

LD 1.1 Sustainable land use plan developed.

LD 1.2 Participatory management and ecosystem approach incorporated in land use planning.

LD 1.3 Legislation options to support the land use plan proposed.

LD 1.4 A training module established for implementing the new land use plan.

LD 1.5 Market-based economic instruments introduced for valuation of the ecosystem damage and proposing incentives for sustainable land management.

LD 2: Desertification is not considered as a national development priority with no allocation of enough financial resources:

Although land degradation is occurring at an accelerated rate in Jordan, it is not yet considered to be a major socio-economic and developmental challenge like water and energy. The public budget and the private sector are not allocating enough financial and technical resources for combating desertification in a systematic way.

Desertification was mentioned in the National Environment Strategy of 1992, Agenda 21, and naturally in the National Strategy and Action Plan to Combat Desertification (2006). Additionally, issues related to desertification are mentioned in the national water strategy and the national agricultural strategy. However, funding for effective implementation is widely viewed as being inadequate.

As in the case of biodiversity (see constraint 9 there), methodologies for fund raising should be developed to alleviate this problem. Because there is a lack of economic valuation of the cost of land degradation, there is no mechanism to determine the cost of land degradation (see constraint 8 in the biodiversity section). The NAP calls for the establishment of a National Fund to combat desertification under one of its strategic programmes. Moreover, the Ministry of Planning and International Cooperation is currently developing a resource mobilization strategy for implementing the NAP based on the conceptual analysis and prioritization of NAP activities.

It is vital that Jordan puts desertification on the top of its environmental and developmental challenges, along with water and energy to facilitate the process of resource mobilization and allocation from both domestic and international sources. Some good breakthroughs are emerging, as the National Agenda 2006 has placed

desertification as one of the main environmental challenges and the national budget has committed financial resources to implementing few suggested activities in the NAP. The Global Mechanism and the Ministry of Planning and International Cooperation (MoPIC) has developed in 2005 an agreement on a medium-term UNCCD implementation strategy for Jordan that is focused on four analytical clusters that will be implemented in 2007. The four analytical clusters are:

- A. Analysis of the strategic programming elements of the NAP and the proposed activities at all levels, for identifying a set of priority interventions for phase I UNCCD implementation.
- B. Analysis of the national planning processes and institutional arrangements for proposing improvements to UNCCD implementation.
- C. Identification of sources, opportunities and strategies for increasing financing for UNCCD implementation; and
- D. Developing a comprehensive medium-term UNCCD implementation strategy for Jordan.

In 2006, the IFAD/GEF supported project “Mainstreaming Sustainable Land Management Practices in Jordan” was launched with a clear objective to facilitate the enhancement of the enabling policy, regulatory and incentive frameworks that govern natural resources use, promote integrated land use planning and mainstream SLM into national planning frameworks. This will enable the mitigation of land degradation and help alleviate poverty, as well as, support the Government in meeting its obligations under the UNCCD. Article 20 of the UNCCD requires the undertaking to mobilize adequate financial resources by the contracting parties for implementation of their national action plans. Agenda 21 suggests a similar requirement (12.22), but with no specific recommendations for levels of funding.

Suggested actions developed under this capacity constraint are:

LD 2.1 Combating desertification promoted as priority in development plans.

LD 2.2 Sustainable mechanism to mobilize financial resources developed.

LD 2.3 The NAP projects implemented through national and global funding mechanisms.

LD 2.4 Combating desertification becomes a priority in the Higher Committee for Agriculture.

LD 3: Lack of linkages between scientific research and policy making:

This is an overarching issue mentioned in the general comments and in constraints 2, 5 and 6 of the Biodiversity section. There is still no national policy framework for linking research with policy making or even for the integrated development of research in Jordan. The analysis provided for Biodiversity

capacity constraint number 3 is also valid for desertification. However, some added points can be stated here.

Although a lot of efforts are being conducted in scientific research on land degradation issues, they are not finding their route to the policy making and management systems. A capacity development programme for creating an enabling system for linking scientific research to policy making is one of the major priorities in sustainable land management in Jordan. Research has been a pivotal component of the work conducted by the Badia Research and Development Center (BRDC) and the National Center for Agricultural Research and Technology Transfer (NCARTT). This body of knowledge can be used for informed decision making.

Linked to research, the NAP includes a specific strategic programme to develop a desertification information system based on practical projects related to desertification mapping and monitoring and establishment of a desertification database.

Article 17 of the UNCCD requires that the contracting parties support research activities which help understand the process of desertification and develop responses to combat this phenomenon. The Article focuses on research linked with local community empowerment and use of local knowledge and technology suitable to local conditions. However, it does not require that the results of research be actually used in policy making. Agenda 21 (31.3 and 31.4) suggests that governments should actively attempt to integrate the research community into sustainable development policies.

The research community in Jordan can benefit from a better presence in the Committee for Science & Technology (CST) in the UNCCD where national experts can be able to share experiences with their regional and global counterparts and participate more effectively in the scientific progress of combating desertification options. The CST collects, analyses and reviews relevant data. It also promotes cooperation in the field of combating desertification and mitigating the effects of drought through appropriate sub-regional, regional and national institutions, and in particular by its activities in research and development, which contribute to increased knowledge of the processes leading to desertification and drought as well as their impact.

The NCSA has developed the following suggested actions in response to this capacity constraint:

LD 3.1 A comprehensive assessment of the state of research in desertification completed.

LD 3.2 Scientific research related to desertification and land degradation enhanced.

LD 3.3 Specialized staff and research centres developed.

LD 3.4 Coordination mechanisms between policy and research stakeholders developed and implemented.

LD 4: Inadequacy of educational and training and public awareness programmes for various target groups on sustainable land management:

Despite good efforts done in awareness, education and training programmes in Jordan, there is a general inadequacy of sustainable and technically sound programmes for various target groups associated with land management on sustainable land management priorities and combating desertification. Such concepts in land management should be integrated in curricula and taught in higher education curricula and training programmes that are based on hands-on examples and lessons learned in sustainable land management issues.

The general public, local communities and decision makers should be made aware of various aspects of sustainable land use management. This should include aspects such as tillage techniques, terracing, irrigation problems, crop use, water harvesting, GIS systems, traditional knowledge and any other aspects that would help communities and decision makers achieve economically and socially viable usage of environmental assets. Such an effort should dovetail with the programs to be implemented in response to constraint 13 of the biodiversity section.

Most national policies focused on awareness and education. The NAP included a strategic programme on capacity building based on professional training initiatives on desertification monitoring and control. Many projects that were proposed by the NAP included training and awareness components. However, the implementation is still below expectations.

The National Strategy for Youth (2004) calls for the integration of environmental concepts in the national curricula and benefiting from experiences of youth participation in environmental management in other countries.

Article 19 of the UNCCD specifically requires the contracting parties to engage in such programmes as part of the supporting measures to combat desertification. The UNCCD puts high emphasis on the participation of main social target groups (local communities, youth, women, etc...) This would be in line with Agenda 21 (12.55-12.63), which establishes the need for increased local community involvement based on better dissemination of information to these communities.

Suggested actions in relation to this capacity constraint are:

LD 4.1 Educational and public awareness programs developed and implemented.

LD 4.2 Woman and youth participation in sustainable land management enhanced.

LD 4.3 Public awareness packages and programmes on sustainable land management developed.

LD 4.4 Desertification concepts introduced into educational programs and curricula.

LD 5: Duplication and absence of roles and responsibilities of organizations working in land management:

The efforts of land management and combating desertification are scattered among many institutions. There is a pressing need to define specific roles and responsibilities to minimize redundancy and for better integration of available resources.

As is the case in constraint 10 in the biodiversity profile, many organizations are interested in studying and implementing combating desertification activities. Such a goal has not been specified in previous strategies or action plans related to desertification, but a mechanism similar to that advocated in the biodiversity section might be implemented to coordinate and share data and research results, and to avoid duplication of efforts.

During the evolution of the NAP, a special national committee on desertification was officially established in Jordan. However, this committee does not meet regularly in independence of the NAP related tasks and responsibilities. It is important to revitalize this committee and ensure its structural and performance sustainability.

The recently launched IFAD/GEF supported project “Mainstreaming Sustainable Land Management Practices in Jordan” includes a component to support the development of coordination mechanisms to ensure that an efficient and cost effective inter-sectoral planning system is developed.

The UNCCD (Article 16) offers guidelines for information collection, analysis and exchange, but does not specify the distribution of roles between various concerned organizations. This is left to the specific national conditions and it is obvious that developing and maintaining a sustainable coordination mechanism is a vital component in any capacity development action plan.

Actions related to this capacity constraint are:

LD 5.1 Harmonized and coordinated mechanisms to combat desertification developed.

LD 5.2 Roles of institutions well defined.

LD 5.3 TOR (mandate) for involved institutions developed.

LD 5.4 A practical and sustainable institutional coordination mechanism functioning.

LD 5.5 Staff of the involved institutions trained and qualified.

LD 6: Absence of guidelines and specific directives for land management and rehabilitation in the EIA system:

Although a national bylaw on Environmental Impact Assessment has been developed in Jordan, there are no detailed EIA directives for Impact Assessment on land degradation and desertification. Some capacity development programmes and initiatives can be invested for developing the directives and applying them.

While many of the policies and strategies emphasize protection, little is mentioned in the reviewed documents on the issue of rehabilitation. The NAP calls for the development and rehabilitation of forests and rangelands, but is clear that little emphasis has been placed on this issue thus far. This is also true for the directives necessary for the implementation of EIA mitigation measures including land rehabilitation and restoration in areas subject to development actions.

As is the case in biodiversity (constraint 3), national directives necessary to implement the National EIA bylaw have not been issued. This results in a serious gap in legislation that needs to be addressed. It is not clear if a lack of capacity is the reason for this gap, or whether other obstacles exist to the issuance of these directives.

Again, the issue of land management as an overarching theme should be mentioned. A national land management plan would take into consideration many environmental, social and economic considerations on a large scale level. Modifying such a plan would be the purview of EIA assessment for individual projects and activities.

Moreover, there are policy and technical guidelines for the rehabilitation of damaged or eroded sites, and the dependence is mainly on accumulated technical experience in rehabilitation efforts which can always be subjected to trial and error, wasting energy and resources.

Article 10 of the UNCCD emphasizes the importance of preventive measures to protect undegraded or slightly degraded lands.

The NCSA in-depth analysis has suggested the following actions in relation to this constraint:

LD 6.1 EIA system with directives on land management and desertification upgraded.

LD 6.2 Sustainable land and water management systems developed in the EIA process with focus on ecosystem approach.

LD 6.3 EIA directives and guidelines for land and water management developed with focus on mitigation measures.

LD 6.4 Guidelines for rehabilitation of damaged lands established.

LD 6.5 A training module on desertification and land management directives in the EIA developed and used.

LD 7: Weak capacities of local communities:

Local communities are the ultimate beneficiary of sustainable land management programmes and their empowerment through training, institutional and technical capacity development and financial resources development is a key factor for the success of any desertification control programmes. This should be associated with documenting and applying traditional knowledge for sustainable land management.

The necessary empowerment of local communities should derive from both documentation and scientific analysis of various forms of traditional knowledge and dissemination of this knowledge through educational and training programs (see constraint 4 above). This can be conducted in concert with similar activities in the biodiversity program (see constraint 13 in the biodiversity section). National policies did not focus on the issue of local community empowerment until the NAP (2006) put great emphasis on that issue through the development of a specific programme on human, social and economic development initiatives that are completely based on local community empowerment.

The National Agenda 21 called for diversification of the income of people so as to mitigate poverty and reduce pressure on land resources.

The National Poverty Reduction Strategy (2000) included the concept of “sustainable livelihoods” in one of its six operational programmes. However, the strategy does not reflect a deep and clear understanding and appreciation of the “sustainable livelihoods” concept and the linkages between poverty eradication and natural resources management.

The GEF SGP started working in Jordan in November 1992. During the period from November 1992 to October 2006 the programme has funded 150 projects which targeted different local community groups in different regions of Jordan with a total support of 4.0 million US \$.

Regarding land degradation projects, the GEF SGP has supported around 40 projects until October 2006 having a late start due to the late introduction of land degradation as one of the GEF focus areas. The SGP programme focuses on complete partnership of all parties concerned with land preservation to have the best results. In Addition, the programme focuses on mitigating land degradation through illustrating its causes and sound management of land resources as part of the activities dealing with biodiversity, climate change and international waters.

The supported projects focus on monitoring of soil physical and biological properties, development of sustainable agriculture and irrigation techniques including water harvesting, supporting income-generating activities that improve sustainable livelihood in fragile ecosystems, traditional productive home gardens and empowerment of women and youth in local community with specific capacity building projects.

The programme usually targets communities and areas that face various social and economic challenges that do not necessarily include global environmental issues. As a result, the programme promoted a sustainable livelihood strategy that allows communities and households to achieve both global and local benefits in the GEF focal areas while improving their economic conditions.

Article 19 of the UNCCD is devoted to the need to build capacity along all segments of stakeholders, with special focus on local communities.

The provisions of UNCCD recognize traditional knowledge as part of the range of technologies and techniques which could be harnessed to manage dryland ecosystem in a more sustainable way. The benefits of such traditional knowledge relate to identification of useful farm practices (poverty reduction), plant and animal species (conservation and diversity), and forms of social organization which function well in a particular agro-pastoral system (community empowerment). To fully utilise these benefits, reciprocity between traditional knowledge and modern technologies has to be promoted in an integrated approach.

Suggested NCSA actions under this capacity constraint are:

LD 7.1 Traditional knowledge and know-how documented, protected and integrated with the development plans in target areas.

LD 7.2 Local community institutions upgraded or created.

LD 7.3 Community-based training packages and programmes developed and conducted.

LD 7.4 A package of community actions toolkit linking poverty reduction and gender empowerment to combating desertification \ developed.

LD 8: Absence of a national database and system to monitor desertification:

There is a pressing need to develop and implement a national programme for monitoring desertification and drought based on a sound system of indicators. This system should be linked to a national programme for knowledge management on sustainable land management issues that is accessible to all stakeholders.

This constraint is coupled with an absence of a national indicator system to monitor desertification and drought. There are no specific criteria in Jordan for defining the meaning of desertification. Simply, different people see it in different ways and thus approach the issue from multiple perspectives. These can range from biophysical to socioeconomic criteria. It is no surprise that there is no unified data base, as this would entail collection of groundwater and surface water, soil characteristics, satellite images, soil deterioration maps, plant cover data, rainfall records, among others. In short, most types of environmental data available would be part of such a database. Such data would ideally be available to all workers in the field. Such a project would be very ambitious.

The National Agenda of Jordan (2005) calls for establishing a national desertification monitoring system and using it efficiently as well as desertification mapping.

The NAP includes a special strategic programme on developing a desertification information system based on mapping, identification and monitoring of indicators. In the NAP, monitoring and indicators development is linked to legislative and training initiatives as well.

The recently launched IFAD/GEF supported project “Mainstreaming Sustainable Land Management Practices in Jordan” includes a component to support the development of an environmental monitoring system at national and project levels, so as to (i) enable the Government to assess land degradation mitigation measures and the contribution of such measures in achieving global benefits, and (ii) to identify appropriate, practical and cost effective indicators at the project level.

Article 16 of the UNCCD documents the need to establish a mechanism for information collection, analysis and exchange, at local, regional and global levels. The establishment of a national data base will work to fulfill this important obligation under the UNCCD. Under Agenda 21 (12.5-12.14) a programme area is suggested to specifically develop systems for the collection of information and monitoring of desertification.

Benchmarks and indicators (B&I) linked to the impact of desertification, the areas of monitoring, assessment and early warning systems have been identified as the integral components of the holistic approach to understanding the casual factors and spatial-temporal characteristics of drought and desertification processes that can be used to inform the society about possible actions for counter-measures and find out future trends. It is apparent from the guiding principle of the UNCCD that an assessment of desertification at periodic intervals should be a pre-requisite for desertification control programmes.

Jordan has been developing recently a system for warning against drought with the support of the FAO which is partnering the Ministry of Agriculture. The development of a robust indicator system will contribute positively to this endeavor.

LD 8.1 An accessible national database and monitoring system to combat desertification established.

LD 8.2 Indices and indicators of desertification and drought identified and developed.

LD 8.3 Knowledge dissemination means and networks created.

LD 8.4 GIS and multimedia soil and desertification maps produced.

LD 9: Lack of a mechanism to evaluate the impacts of economic and agricultural agreements on land management:

Jordan has signed many trade and economic agreements in the last few years in its pursuit to be integrated into the global economic system. Some of the agreements contain articles and provisions that have a direct and cumulative impact on sustainable land management. Other international agreements signed by Jordan in agricultural sector contain important provisions related to land management. A capacity development programme should be established to raise the awareness of decision makers, professionals and community at large of the linkages between trade, agriculture and other economic agreements and land degradation issues.

This mirrors a similar constraint in the biodiversity section (constraint 6). The lack of specific directives for EIA as related to desertification (constraint 6 of this section) may be the result of poor capacities or the lack of political will. The failure to detect dangers or opportunities provided by the trade or agricultural agreements may be a serious flaw in the process of negotiation and may have significant long term repercussions.

In general, there is a lack in policies for economic valuation of ecosystem components including drylands. A major effort should be done for capacity development in this particular issue.

The UNCCD does not address this issue directly. Agenda 21 (2.19-2.22) recommends policies designed to achieve balance between economic and environmental imperatives related to trade, with proper attention to the requirements of various global trade organizations and treaties.

The suggested actions under this capacity constraint are:

LD 9.1 Mechanism to assess the impacts of existing and new economic/agricultural agreements on desertification established.

LD 9.2 Previous and draft new agreements reviewed to understand economic and agricultural impacts.

LD 9.3 A training module on Strategic Environmental Assessment developed and used.

LD 9.4 Awareness among decision makers on the economic and agricultural impact of the agreements increased.

LD 10: Weak capacity for outreaching and networking with regional and global organizations and programmes:

The capacity of national organizations to coordinate and network with regional and global programmes and organization should be enhanced through capacity development for networking and outreach and opening communication channels with regional and global stakeholders for better sharing of experiences and developing practical partnerships

This constraint is similar to the fourth constraint in the biodiversity list. The ministries of environment and planning do have the outreach and networking capacity needed. The ability to leverage these capacities for greater local participation will require a clear and transparent effort to help and establish these linkages. Article 12 of the UNCCD requires the parties to ensure an enabling environment for cooperation with the international community to combat desertification. This includes cooperation in research and development, exchange of information and technology transfer. Moreover, the UNCCD calls for developing and maintaining subregional and regional action programmes (Article 11) and international cooperation (Article 12) and information exchange (Article 16). Agenda 21 (37.1-37.13) suggests actions for creating national mechanisms and international cooperation.

Jordan is a member of the Asia Regional Action Programme and a member of the Sub-regional programme of West Asia (SRAP). Sub-regional or joint action programmes may include agreed joint programmes for the sustainable management of trans-boundary natural resources relating to desertification, priorities for co-ordination and other activities in the fields of capacity building, scientific and technical co-operation, particularly drought early warning systems and information sharing, and means of strengthening the relevant sub-regional and other organizations or institutions.

The West Asia SRAP framework was developed based on a long consultation process that resulted in two main themes: water resources and vegetation cover.

The UNCCD secretariat publishes frequently the state of knowledge on networks and organizations working in combating desertification around the world. The UNEP Regional Office for West Asia has published a regional report in coordination with the Asia subregional thematic programmes resulting from the UNCCD. Both references are essential for forging and utilizing regional and global networks.

The suggested actions developed by the NCSA in-depth analysis related to this capacity constraint are:

LD 10.1 Potential networking opportunities identified based on the review of existing networks and organizations at the regional and global level.

LD 10.2 Operational procedures and time frame for networking at all levels developed.

3.4 Climate Change Priority Capacity Constraints

The global nature of the Climate Change Convention sets it apart from the more local requirements needed to protect biodiversity and combat desertification. However, local imperatives relating to the cost of energy and the possible benefits of exchanging emissions rights, require approaching this issue in a somewhat different perspective. In addition, the issues of adaptation, vulnerability and mitigation are in the heart of the Climate Change interests in developing countries.

There are 12 constraints related to Jordan's dealing with this issue based on the analysis undertaken by the NCSA process. These are:

CC 1: Low capacity for developing National vulnerability studies and adaptation measures and plans:

One of the main priorities for Jordan will be to build national capacity for developing adaptation plans and measures for the impact of climate change on major sectors (water, agriculture, energy, Biodiversity, etc...). This is consistent with the great emphasis given to adaptation measures in all developing countries. Required capacity in this field relates to technical capacity to undertake vulnerability assessments (agriculture, forestry, water resources, health, human establishments, etc.), technical capacity to identify adaptation options in the various areas and to elaborate adaptation plans, and technical skills to use climate models, to use scenarios and to interpret results.

Adaptation has been defined by the Intergovernmental Panel on Climate Change (IPCC) as "*Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits opportunities*".

It is vital that Jordan be able to plan its adaptation options and programmes in an early stage instead of being forced to “reactive adaptation” later on. The adaptation options must be development-based and form a strategic element of the sustainable development framework and not only a response to the climate change challenge.

In addition to adaptation, vulnerability studies associated with the national communications and GHG inventories are important components of Jordan’s response to the climate change challenges, and required capacities relate to technical Capacity to undertake GHG.

The potential for dramatic environmental change caused by global rises in greenhouse gasses is particularly serious for Jordan. The semi-arid climate of the country and the dearth of water resources make it particularly vulnerable to global warming. Despite this, the current capacity to anticipate the scale of environmental change and to place vulnerability assessments and adaptation measures in response to this threat is viewed as insufficient.

Building capacity for understanding vulnerability and identification of potential adaptation measures should start with an inventory of national capacities. A small core administrative group in the Ministry of Environment linked to the National Committee on Climate Change (NCCC) may act as a coordination mechanism to oversee the preparation of vulnerability and adaptation studies, allowing allotment of specific tasks to researchers employed in various interested sectors in the country. Such an approach would be more efficient and less expensive and time consuming as building new capacities.

With the absence of a national policy for Climate Change in Jordan, other sectoral policies have included little mentioning of climate change issues. Even the water and agriculture policies did not mention the vulnerability and adaptation to climate change.

Article 4.4 under the Convention, which specifies the commitments of the Annex II countries, states that the developed country Parties and other developed Parties under the Convention, are required to assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation.

Further, the Marrakech Accord decided that an adaptation fund shall be established to finance concrete adaptation projects and programmes in developing country Parties to the Protocol, and the Annex I Parties ratifying the Protocol were invited to provide funding for adaptation in developing countries, in addition to the share (2%) proceeds on CDM (Decision-/CP.7) In addition, the Special Climate Change Fund (SCCF), which was set up in the Marrakech Accords (COP 7), may be used specially for adaptation until a full fledged adaptation fund is set in place. In UNFCCC COP 12 in November 2006, an agreement was reached on the adaptation 5 year programme of work which paves the way for more concrete action related to adaptation plans. In the same meeting, the modalities and principles of the adaptation fund were agreed.

The UNFCCC working papers and some of the technical publications by the UNFCCC and Kyoto protocol contain detailed descriptions of the guidelines and processes of measuring adaptation and vulnerability as well as developing National Adaptation Plans of Actions (NAPAs).

Suggested actions under this constraint are:

CC 1.1 Potential adaptation measures identified in the fields of biodiversity and land management.

CC 1.2 Awareness and training programs for promoting the application of these studies by related sectors conducted.

CC 1.3 Sectoral vulnerability assessment reports developed.

CC 1.4 Medium to long term adaptation options identified and mainstreamed in national development planning.

CC 1.5 Adaptation projects developed and implemented.

CC 2: Lack of economic incentives for climate change adaptation measures:

Jordan is in need for capacity development at systemic and institutional levels for establishing and operating economic tools and incentives for various stakeholders in climate change dimensions.

At oil prices over \$60 per barrel, the need to adopt policies for lower fuel consumption is greater than ever before. None of the policies referring to the issue of GHG contain any detailed plan or vision of how to comply with the climate change convention.

Compliance with the convention and the need to lower fuel consumption requires the development and implementation of renewable energy systems and the lowering consumption of fossil fuel. Despite the expressed need for implementing such initiative since the 1992 national strategy for environmental protection (which included clauses for an energy strategy and monitoring and protecting air quality), through the agenda 21 program, which also emphasized energy saving and use of alternative energy sources and protecting air quality, through the environmental and social plan of 2004-2006, and onwards, the lack of capacity for dealing with this issue thus far is unfortunate.

All of these strategies and action plans give broad headlines, with no specific plan to implement any part of them. The development of a national plan to take advantage of the Kyoto Protocol was only mentioned in the June 2005 report of the higher national committee for sustainable development. This is probably due to the only recent rise in the cost of fuel. The Kyoto Protocol also contains economic incentives to reduce emissions of GHGs.

Some government incentives may be implemented to encourage lower energy consumption. This option may be explored in this regard. The National Energy Strategy calls for the promotion of renewable energies but with no specific recommendations for using renewable energy as mitigation to climate change. It is clear that a market-suitable approach should be developed in national energy policies to contribute to the mitigation measures suggested.

The promising indications are related to the fact that shift towards less consumption of oil is becoming a necessary lifestyle in Jordan and that may enhance a more conducive financial and legislative environment for adaptation measures that will be identified. The progress towards establishing an adaptation fund will provide a great support for developing economic incentives.

The NCSA in-depth analysis provides some actions:

CC 2.1 Appropriate economic incentives for adaptation identified.

CC 2.2 Mobilization of financial resources to implement mitigation and adaptation options in related sectors through public-private sector partnerships.

CC 3: Inadequate Institutional and technical capacity for the Climate Change focal point at the Ministry of Environment:

The Climate Change focal point at the Ministry of Environment is coordinating national activities in the field of climate change and is in need for more capacity development investments in all aspects of climate change. This will ensure high quality management and coordination performance of the climate change unit parallel to the on-going technical and institutional capacity building process at the Ministry of Environment. Specific issues in capacity development include energy evaluation and emission factors, adaptation and mitigation programmes and CDM mechanisms.

The focal point system in the Ministry of Environment should consist of a core group (a coordination unit) capable of coordinating efforts of experts available at various institutions around the country. This group will be responsible for contracting experts needed to improve GHG inventory in the 6 related tasks regarding emissions sources and sinks, improving the quality of future national communication reports, enforcing and sustaining the GHG inventory process, evaluating energy and emission factors, adaptation and mitigation programmes and CDM mechanisms. National capacities should be identified and inventoried prior to duplicating capacities that already exist.

The support programme should also be wide to include the national committee for climate change and the Designated National Authority (DNA) of the CDM as both committee act as decision-making and monitoring entities for all climate change activities in Jordan.

The potential for capacity building for enhancing negotiation skills in the UNFCCC system need to be explored, especially with the European Capacity Building Initiatives.

Suggested actions by the NCSA are:

CC 3.1: The technical capacity of the Designated National Authority (DNA) and the National Climate Change committee evaluated and needs assessed.

CC 3.2 A capacity development programme based on the needs assessment developed and conducted.

CC 3.3 The negotiations skills of the national UNFCCC delegates increased via a special capacity building programme.

CC 4: Low capacity for implementation of the CDM:

Jordan has recently started to reap the benefits of the CDM after a period of reluctance. However, its participation in this mechanism is hampered by weak understanding and information of the institutional and legal framework, technical infrastructure, enforcement capacity, and human resources needed to implement the mechanism. Major efforts in capacity development should be focused on this particular issue.

Jordan has managed to leverage CDM for three projects that have been approved by the DNA and is in the phase of negotiating with partners for developing CDM proposals for further 6 projects. The country has used the emission trade market for the first time in 2006 by partnering with the Finnish government in carbon trading of biogas factory reductions of emissions.

Relevant sectoral policies still lack the integration of CDM concepts and a programme for capacity development for integrating CDM in the national policies should be implemented. In addition, a special programme for capacity building for the private sector's involvement in CDM should be implemented. Special emphasis should be placed on the Project Design Document (PDD) development methodologies.

It is also suggested that a capacity building programme be developed and tailored to the technical and governance needs of the DNA. Moreover, emphasis should be placed on the exploration of development and poverty alleviation outcomes resulting from CDM project with special focus on land use change projects.

Actions suggested by the NCSA include:

- CC 4.1 CDM promoted among stakeholders by technical capacity building.
- CC 4.2 Capacity building programme based on the needs of the DNA developed.
- CC 4.3 Suitable, efficient and result-oriented procedures for CDM implementation developed.
- CC 4.4: CDM PDDs developed and approved by all related stakeholders.
- CC 4.5 Potential for the use of CDM projects in supporting development objectives and alleviating poverty explored.

CC 5: Weak linkages between research, systematic observation and policy making:

The major efforts conducted in scientific research on energy and climate change issues in Jordan are not finding their route to the policy making and management systems. A capacity development programme for creating an enabling system for linking scientific research to policy making is one of the major priorities in energy management and climate change in Jordan. The research capacity building component should be focused on systemic observations and collecting, managing and utilizing activity data and emission factors as well as capacity to establish a sustainable Observation System on Climate Change.

The issue of integrating research and policy decisions has been raised in both the biodiversity section (constraint 2) and in the desertification section (constraint 3). This schism can be most easily avoided in the case of climate change, in the capacity building efforts actively seek to utilize the scientific capacity already present in the country, as has been suggested in the comments on constraints 1, 3 and 4 in this section. These are parts of the commitments outlines in articles 4 and 5 of the UNFCCC.

Suggested actions developed by the NCSA LFAs are:

- CC 5.1 Linkages mechanisms between research, and policy making to implement the climate change convention identified.
- CC 5.2 : The linkages mechanisms promoted.
- CC 5.3 Linkages mechanisms between research, systemic observation, and policy making to implement the climate change convention adopted by stakeholders.
- CC 5.4 A system for integrated inventory of GHG emissions and adaptation measures within policy making developed.

CC 6: Lack of a systemic approach to technology inventory and transfer:

In Jordan, as everywhere in the world, almost all economic activities have direct or indirect effects on emissions. However, some sectors, like energy, industry, transportation, forestry, agriculture and waste management, are generally more climate relevant than others and deserve special attention with regard to the transfer of environmentally sound technology. On this basis, it is necessary to collect information from different sources in the country and to prepare an inventory and assessment of technologies already available prior to considering the transfer/retrofit of the existing technology. In order for Jordan to fulfill its obligations under the UNFCCC, financial and technological support is necessary to ensure technology transfer; for example, building institutional capacity, establishing/strengthening research centers and funding demonstration projects that mitigate climate changes. Other capacity requirements include capacity to identify, adapt and disseminate relevant Climate Change safe technologies and capacity to coordinate the various Transfer of Technology initiatives and to report on the achievements.

In order to fulfill the country's obligations under the UNFCCC, it will become necessary to import or localize expertise and technology. In order to make best with Jordan's limited resources, it would be best to inventory existing and potential know-how and technology available. Environmentally sound technologies should be identified, and ultimately adopted by the appropriate stakeholders. Legislative and institutional barriers obstructing the transfer of environmentally friendly technologies should be removed. After this is achieved, resources will need to be made available to fulfill the said obligations.

Article 4 of the UNFCCC (section 7) commits developed countries to provide financial and technical resources to developing countries in order to fulfill their obligations. The same article includes commitments for technology transfer. The text asks countries to Promote and cooperate in the development, application and diffusion, including transfer, of technologies practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol in all relevant sectors, including the energy, transport, industry, agriculture, forestry and waste management sectors.

Technology can be transferred through several different channels. The traditional channel has been bilateral and multilateral development assistance in the form of export credits, insurance, and other trade support. Incorporating climate change considerations into the programmes of national development offices and multilateral development banks would also greatly increase the transfer of low-emissions technologies. The Climate Change Convention has opened up a new channel via the Global Environment Facility (GEF). In addition, the Kyoto Protocol establishes a Joint Implementation mechanism and a Clean Development Mechanism to attract private and public sector funds for transferring technology and know-how to, respectively, countries with economies in transition and developing countries.

The GEF has a critical role to play in the co-development and transfer of advanced technologies. The GEF supports both the development and demonstration of technologies that can improve economic efficiency and reduce greenhouse gas emissions while promoting sustainable development in developing and transition

countries. GEF projects can be used to demonstrate the technological feasibility and cost-effectiveness of renewable energy technologies and energy efficiency options. In these cases, the GEF pays the added cost of introducing a climate-friendly technology in place of a more polluting one.

The delivery of new hardware alone rarely leads to “real, measurable and long-term environmental benefits” in the host country. In many cases, it is absolutely essential to strengthen existing local institutions. This includes building managerial and technical skills and transferring the know-how for operating and replicating new technological systems on a sustainable basis. Without such preparation, advanced technologies may fail to penetrate the market. Capacity building also has a role to play in ensuring that new technologies are, in the words of the Convention, “compatible with and supportive of national environment and development priorities and strategies, and contribute to cost-effectiveness in achieving global benefits.

Main capacity development activities for technology transfer can also focus on developing sound and elaborated technology transfer projects that can be attractive for investment by using the UNFCCC guidebook on preparing technology transfer projects for financing.

Suggested actions under this capacity constraint are:

CC 6.1 A comprehensive inventory of current applied technology conducted.

CC 6.2 Technology needs assessment produced.

CC 6.3 Environmentally sound technologies promoted.

CC 6.4 A legal, regulatory and institutional framework that coordinates technology transfer, adaptation and enforcement developed.

CC 6.5: Technology transfer projects based on financial opportunities developed.

CC 6.6: Environmentally sound Climate Change technology adopted by stakeholders.

CC 7: Lack of clear and systematic integration of the UNFCCC main concepts in the national policy formulation process:

Climate change and UNFCCC concepts are not well integrated in the national policy and planning system. Although renewable energy has become an important element in the national energy and socio-economic policy, the issues of climate change are not among the main priorities of national policies.

The global, rather than the local nature of the issue, has generated little interest in integrating the UNFCCC into the national policy formulation process. In order to increase interest and awareness of this issue, integration of these concepts into national policies should emphasize the issues that can be of local benefit. These include the use of the Kyoto Protocol, renewable energy development and energy saving (from an economic imperative) as well as reforestation. Promotion of these concepts should be undertaken to all levels of stakeholders. However, a climate change policy should be developed in Jordan taking into consideration the linkages with other sectoral policies through vulnerability and adaptation.

Under Article 4, section 1 of the UNFCCC, it is an obligation for developing countries to take these issues into consideration. The article states that countries “take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments, formulated and determined nationally, with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change”

Actions suggested based on this capacity constraints are:

CC 7.1 Promoting the integration of UNFCCC concepts in sectoral policies.

CC 7.2 Development of regulatory framework to implement future climate change options, including incentives and regulations and involve decision-makers from all relevant sectors.

CC 7.3 Integration of identified adaptation measures into relevant sectoral policies.

CC 8: Weak systematic Capacity Development for Energy Efficiency:

Unfortunately, the main development infrastructure in Jordan has been built on the premise of low cost energy. However, recent political and economic developments, especially raising crude oil prices, in the region and the world, have stressed the need in Jordan for more emphasis on developing energy efficiency schemes. This approach is driving the country to develop technologies and practices for energy efficiency at all levels of energy consumption. The national focus on energy efficiency will be a positive driving force in many sectors including energy and transport, and a practical capacity development programme should be associated with this transition.

Energy efficiency should be considered at various scales, from the micro scale (insulation of buildings and improved industrial efficiency) to the countrywide scale (land use and urban planning). While it would be difficult to undo what has been done, recognition of past mistakes will allow changing the way such issues are approached. This will require increasing awareness and the capacity to implement energy audits in various sectors. The expertise and experience of the National Energy Research Center should be brought to bear in this context.

Energy efficiency options and technologies have been promoted by a variety of initiatives and networks in Jordan. Most notable of these are the National Energy Research Center (NERC) and the Jordanian Cleaner Production Programme (JCPP). The NERC conducts technological research on developing energy efficiency technologies while the JCPP provides technical advice for small and medium scale industries in energy audits and applications of energy efficiency.

Suggested actions related to this capacity constraint are:

CC 8.1 Promoted and Adopted energy efficiency programs in all sectors.

CC 8.2 Guidelines for energy audit and energy efficiency programs developed and implemented.

CC 9: Weak Capacity for Practical Education and Training:

Education and training is a major cross-cutting issue that is central to the success of any environmental programme for capacity building. Any education and training programme for climate change should be based on the national priorities identified through this stocktaking exercise and main capacity constraints and should be looked at as a tool and not an end by itself. The main entry point for education and awareness could be the adaptation measures and plans for different sectors and assimilating and processing new practical knowledge resources on climate change adaptation and mitigation measures and clean development mechanism especially project design and requirements. Other entry points for education, awareness and training could be based on identifying socio-economic impacts of climate change in addition to major environmental impacts.

Local capacities exist in the form of higher education institutes teaching and researching in the fields of engineering, energy and land use management. What is simply needed is focusing existing capacities in the proper direction. The nature of the education and training content is not similar to the training required by the biodiversity or the desertification sectors. The nature of the stakeholders is different, as would be the content of the education. This can be integrated into teaching curricula at both school and university levels.

Amongst commitments of developing countries, Article 4 of the UNFCCC calls for cooperating in education; training and public awareness related to climate change and encourage the widest participation in this process, including that of non-governmental organizations. Article 6 of the UNFCCC is specific to education, training and public awareness. It asks the countries to develop educational and public awareness programmes on climate change and its effects; promote Public access to information on climate change and its effects and Public participation in addressing climate change and its effects and developing adequate responses. Under article 9 of the UNFCCC, a subsidiary body for scientific and technology advice is responsible for, among other things, supporting endogenous capacities in developing countries. It is required that this mechanism can be taken advantage of.

Suggested actions under this capacity constraint are:

CC 9.1 Public awareness programs at different levels developed.

CC 9.2 Climate change issues integrated in curricula of schools and other academic institutions.

CC 10: Low Capacity for Knowledge management and networking:

There is a clear need at the national level to develop a knowledge management and networking system that would facilitate the acquisition, processing and dissemination of technical knowledge on climate change issues across organizations and between various professionals in the field.

Although a national environmental communication strategy was prepared in 2001, it has been hardly implemented. However, many initiatives on knowledge management were suggested in other sectoral strategies that can be linked to Climate Change. This can be done in conjunction with the institutional and technical capacity building effort prescribed in the comments on constraint CC 3.

Article 4 of the UNFCCC requires countries to share information. It calls to “Promote and cooperate in scientific, technological, technical, socio-economic and other research, systematic observation and development of data archives related to the climate system and intended to further the understanding and to reduce or eliminate the remaining uncertainties regarding the causes, effects, magnitude and timing of climate change and the economic and social consequences of various response strategies”

Actions that were developed based on the LFA of this capacity constraint are:

CC 10.1 Operational procedures and a time frame networking at all levels developed.

CC 10.2 Better communications and sharing of experiences with regional and global partners achieved.

CC 10.3 A plan on data and information management is developed.

CC 10.4 A unified climate change knowledge management system developed, accessible and operational.

CC 11: Ineffective enabling environment for renewable energy development:

Recent political and economic developments, especially raising crude oil prices, in the region and the world, have stressed the need in Jordan for more emphasis on developing renewable energy resources and increasing

the share of renewables, i.e. wind and solar, in the national energy mix. This political and economic factor can play a catalyst role in re-structuring the energy sector in Jordan to embrace technologies and innovations of renewable energy within an overall enabling environment.

Indeed, renewable energy is considered the largest domestic energy source together with oil shale. Technical and market potential exists to significantly increase the share of renewable energy sources into Jordan's energy balance, and resulting in employment and economic benefits. However, the contribution of such resources in the national energy mix is still minor. For the long-term future, ensuring the security of energy supplies is a highly important issue, but this is regarded as of minor importance relative to the more immediate social and economic problems facing Jordan.

Efforts have been made to promote the use of renewable energy, such as wind, solar and biomass, but these are not likely to make more than marginal contributions to the national energy balance during the next fifteen years, unless attitudes change and energy unit prices rise significantly. This is due to the fact that harnessing renewable energy has in general been more expensive per unit of energy than that obtained from conventional energy sources but is nevertheless, environmentally beneficial. Nevertheless, renewable energy provides approximately 1.5% of the total current primary energy demand in Jordan.

This should include implementing policies that include economic incentives and awareness programs. A national law for the promotion of renewable energy is currently being drafted and it should be supplemented with economic instruments that provide incentives for renewable energy development and adoption.

Although the National Strategy for Energy (2005) sets goals for renewable energy contributing 8-10% of total energy generation and 2% of total energy used, the lack of any specific plans suggests that these goals are not and will not be seriously pursued. There is a national need for development of renewable energy sources, both for economic and environmental reasons.

In the last quarter of 2006, a high level ministerial committee was formed for the advocacy of renewable energy in Jordan and is currently supported by an advisory technical group. The aim of this committee is to formulate a national policy statement for renewable energy use and bringing renewable energy to the economic feasibility through the removal of barriers hindering adequate shift to the use of renewable energies.

The National Agenda of Jordan (2005) calls for the shifting of the energy fuel mix from oil to gas in power generation and energy-intensive industries. It also calls for the strengthening of the role of the National Energy Research Center (NERC) to develop the exploitation of new and renewable energy resources, promoting energy conservation and establish suitable regulatory frameworks to manage these resources.

Suggested actions related to this capacity constraint are:

CC 11.1 Awareness program for prompting the utilization of renewable energy resources developed.

CC 11.2 System of incentives for companies making investments in renewable energy introduced.

CC 11.3 Development of a national policy and legislation for the promotion of renewable energy.

CC 12: Low Capacity for Resource Mobilization:

Most institutions in Jordan lack the technical and practical knowledge for resource mobilization. A particular focus should be given to GEF resource mobilization options in the area of climate change. This is a major field for capacity development at institutional and individual levels. This should be implemented in conjunction with the development of national capacities for CDM implementation.

With the GEF Resource Allocation Framework (RAF) system agreed in 2006, Climate Change is one of the two main themes to be focused upon by GEF in its current cycle where resources are allocated for countries based on each country's contribution to global environmental benefits. A systematic development in Jordan's ability to implement the UNFCCC principles and associated activities based on the 2nd national communication and adaptation measures will increase the opportunities of better resource mobilization and benefiting from UNFCCC's financial mechanisms. However, there is a pressing need that the UNFCCC and GEF manage to operationalize the Special Climate Change Fund (SCCF) as well as the adaptation fund stipulated in the Marrakech Accord. The SCCF has two windows on "sectoral activities" and "economic diversification".

The UNFCCC COP 12 asked GEF to give due priority to adaptation activities and explore options for undertaking land use and land-use change projects within the climate change focal area. If these requirements are met, further availability of financial resources will be very useful to Jordan. However, more focused approaches should be taken by Jordan to fully benefit from the available resources outside the GEF framework, especially by forging public-private partnerships.

Suggested actions under this capacity constraint are:

CC 12.1 An effective plan on resource mobilization capacity building developed.

CC 12.2 National training programmes on resource mobilization developed.

3.5 Organizational Capacity Assessment

Rationale

The NCSA project has conducted an organizational capacity assessment exercise within the framework of the in-depth analysis conducted after the stocktaking exercise has identified the strategic cross-cutting capacity constraints. The objective of the capacity assessment exercise was to empirically evaluate the existing capacities of 30 key national organizations and institutions with direct implementation relation with one or more of the three Rio themes. The full capacity assessment study can be viewed from the NCSA website <http://nca.moenv.gov.jo> while a summary of the main results is presented in this section.

The seven strategic capacity constraints were used as the backbone of the capacity assessment where a questionnaire was designed to solicit feedback for organizational capacity assessment related to the functions of the seven strategic capacity constraints, which are:

1. Knowledge management, outreach and networking.
2. Technical training and technology transfer.
3. Sustainable institutional coordination mechanisms.
4. Linking research related to conventions with legislation and policies.
5. Resource mobilization.
6. Empowerment of local communities.
7. Development of infrastructure facilities.

Methodology:

To conduct the capacity assessment exercise, the following methodology was implemented.

1. Literature Review:

The consultative/scientific team collected and reviewed the literature available from its resources; in the governmental and nongovernmental organizations, universities, research centers by studying the annual reports, published work and international scientific papers and reports dealing with capacity assessment. In addition, this was accomplished through our visitations to the different electronic sites related to capacity assessment.

2. Community Participation and Public Hearings and Key Persons Interviews:

A workshop was organized by the Ministry of Environment where 30 key national stakeholders participated. They were from Governmental Institutions, Ministries, Universities, National Research Centers and Non-governmental Organizations. A key presentation on the objective of the capacity assessment exercise was

presented to the participants followed by comments and discussions. Shortly after that, a questionnaire was distributed to the stakeholders for collecting the information related to capacity assessment of their institutions. This helped the NCSA team to gather further information to support and complement what was collected through the literature review.

3. Questionnaire design:

The questionnaire was designed in a comprehensive manner covering all the information needed for this study. It was computerized and has eight major sections. Feedback and comments from several national relevant consultants were seriously considered after a round table discussion which took place in the MoEnv.

Sections of the questionnaire:

The questionnaire had eight sections to cover the strategic priorities in cross-cutting issues (synergies). They were addressing major issues at three different levels:

First, at the system (societal) level, dealing with issues such as enhancement and/or creation of an enabling environment to create opportunities, to minimize brain drain, legislations, policies, strategies, programmes, action plans are well defined and clarifying relationships between projects and broader problems of desertification and land degradation, political, economic, regulatory, incentive and accountability frameworks within which organizations and individuals operate and harmonization, synchronization and orchestration for a common purpose

Second, at the institution level, focus was on issues such as building on existing capacities rather than having new institutions, mission statements, organization vision and mandate, co-ordination, co-operation, integration and partnership between all stakeholders.

Third, at the individual level, the focus was on issues such as a continuous process of learning and building on existing knowledge, job requirements and skill levels: Are jobs correctly defined and are the required skills available?, training/retraining: Is the appropriate learning taking place? Career progression, performance/conduct, incentives/security, values, integrity and attitudes, morale and motivation.

The first section (General information) had eleven questions addressing general and personal information. The second section (Knowledge management, outreach and networking) contained eleven questions addressing whether a centralized information system is on place and if the gathered information are used for planning.

The third section (Technical Training and Technology Transfer) contained six questions addressing whether the national organizations have technology transfer, training and teaching materials at schools and universities related to biodiversity, desertification and climate change.

The fourth section (Sustainable institutional coordination mechanisms) contained eighteen questions related to the objectives, plans, focal points and mechanisms for coordination for the implementation of the three conventions. It also addresses whether the national organizations have missions, vision, strategies, focal points or trust fund and understanding of the clean production mechanism for the implementation of the conventions.

The fifth section (Linking Research Related to Conventions with legislation and policies) contained fifteen questions related to the objectives, mission, and plans of the stakeholders on research, in the areas of biodiversity, desertification and climate change. It also addresses whether the organizations link their researches with national policies and policy making and decisions. Furthermore, it deals with the type of research carried on these organizations and if there are some measures to mitigate the impacts of activities on biodiversity, desertification and climate change.

The sixth section (Resource Mobilization) contained twelve questions that address the human and financial resources, time of staff members available, morals and promotion criteria. Also, it addresses whether there are programmes for resource mobilizations related to the three conventions. It also deals with any projects or programmes that are developed by the organizations related to the economic evaluation and any incentives for biodiversity and desertification.

The seventh section (Local Communities empowerment and participation) had nine questions in this section. They deal with the role of the stakeholders in supporting the participatory approach in their activities; have financial support, mechanisms and coordination between the local communities.

The eighth and last section (Development of infrastructure) contained six questions. They are related to the infrastructure of the institutions; if they have buildings, offices, laboratories, data base and other facilities.

Data Analysis and Tabulation:

Once the questionnaires were filled and completed, the collected information was interred into a program design for this purpose in the computer using Statistical Package for Social Sciences (SPSS).

Results and Discussion:

I- General information:

A total of 30 key organizations were involved in this exercise. The stakeholders represent different relevant Ministries, Governmental Organizations (GO), Scientific Research Centers (SRC), Private Sectors (PS) and non-governmental organizations (NGO). About 40% were from governmental organizations, 25% from

NGOs and 25% of the participants from research centers. Only one participant was from the private sector (3%) and 7% were from Ministries.

The participants were distributed according to their knowledge and their effective participation in the three conventions; biodiversity, desertification and climate change. About 60% of the stakeholders expressed their knowledge of the three conventions and only 7% expressed their lack of knowledge in any of the three conventions. Twenty five percent of the participants reported that they consider themselves as effective participants in three conventions and another 25% in two conventions; biodiversity (BD) and desertification (LD) while only 3.6% expressed their lack of effective participation in any of three conventions.

II. Cross Cutting Priorities:

1- Knowledge Management, Communication and Networking

About 93% of the participants responded that they have central information system, 89% use it for planning and 57% comply with the special obligation regarding documentations, publications and exchange of information as stated in the articles of the three conventions respectively. Furthermore, about 40% the participants expressed that they have weakness in reporting, publication and documentation in relation to the three international conventions and about 11% were neutral stating they have no opinion. In regard to whether there is appropriate investment in the media means to publish the special activities of their organizations, for the purpose of awareness and education, 61% responded positively and 14% responded they do not know.

Analysis of results related to communication means for dissemination of information by the stakeholders revealed that the most common feature of the types of means was that more than one mean is used; 18% used workshops, lectures and meetings while 11% used a combination of newsletters, emails and workshops and 11% used a combination of journals and newspapers, emails and workshops. Furthermore, 11% used a combination of all the five means addressed; news letters, journals and newspapers, emails, announcement and workshops.

Analysis of results related to the role of stakeholders in the application of awareness programs related to the conventions, and coordination and communication plans with regional and international organizations was conducted. It was revealed that about 21% of the participants expressed that they do not have such awareness programmes. About 14% expressed the availability of such programs in biodiversity 11% in desertification and 7%, in climate change. Another 21% expressed that they have such programmes in the areas of biodiversity and desertification. In regard to the presence of an active plan for contacts, communication and coordination with regional and international organizations, it was found that 21% of the participants have active contact plans pertaining to biodiversity, 7% for desertification and 11% in climate change.

Only about 18% showed that they do not have such plans and 11% have plans for the three conventions and 7% for two conventions. As far as the planning to establish a special unit for contact and awareness related to the three conventions, only 6 participants responded positively; 4 for biodiversity, one for earth and environment/desertification and one for transportation technology.

Analysis of the responses of the stakeholders to whether they are involved as a member in any national committee or mechanism complies with obligations and tasks towards the implementation of the three conventions was conducted. About 11%, 18% and 14% of the participants specified and responded positively regarding biodiversity, desertification and climate change respectively, while 18% responded negatively, 7% did not know and 6 stakeholders did not answer the question.

Analysis of the responses of the stakeholders to whether they develop and use special indicators to monitor the status of biodiversity or desertification or gas emission causing climate change was also conducted. About 32% responded negatively and 11% positively, while 14% and 11% responded specifically to biodiversity and climate change respectively. Five participants did not respond.

2- Training and Technology Transfer:

In this section questions were related to whether the national organizations have programmes for technology transfer, training programmes or units, accumulative experience, information and tools for training and best practice programme development based on documentation of best case studies and practices. In addition, questions related to whether the national organizations apply programs based on recent technology, pertaining to issues on a) biodiversity protection and sustainable use b) or desertification and land rehabilitation and increased productivity c) or climate change and reduced gas emission and better uses of energy.

Analysis of the data showed that 18%, 14%, 14% and 11% have programmes for technology transfer in biodiversity, climate change, the three conventions and biodiversity and desertification respectively. About 29%, 4%, 11%, 11% and 7% of the stakeholders have training units or programmes in biodiversity, desertification, climate change, biodiversity and desertification, and in the three conventions together, respectively. Eighteen percent and 25% have accumulative experience, information and tools for training in the three conventions and in biodiversity and desertification respectively and 18% in each of the biodiversity and climate change issues. For best practice programme development, based on documentation of best case studies and practices, it was found from the analysis that about 29%, 14% 14% and 18% of the stakeholders have such programs in biodiversity, desertification, climate change and in the three conventions together, respectively.

In addition, about 14%, 11%, 14% and 14% of the national organizations applied programmes based on recent technology, pertaining to issues on a) biodiversity protection and sustainable use b) or desertification and land rehabilitation and increased productivity c) or climate change and reduced gas emission and better uses of energy and on the three conventions together respectively, while 3 participants did not respond.

Furthermore, out of the 28 national organization participated in this capacity study, 8 have applied no educational programmes at schools or at the universities while about 22% of the participants applied such programmes in biodiversity, and 14% in the three conventions together and 11% in biodiversity and desertification.

3. Sustainable institutional coordination mechanisms:

Several questions were asked in regard to whether the national participated organizations have a) mandate and responsibilities related to the three conventions supported by financial allocations, b) focal point, c) a coordinating unit for international environmental agreements in particular, and d) if the organization is member in a national body(eis) responsible for implementation of one or more of the agreements.

Analysis of the results showed that about 18%, 11%, 7%,7% and 11% of the participants have mandate and responsibilities related to the three conventions supported by financial allocations in biodiversity, desertification, climate change, biodiversity and desertification, and the three conventions together, respectively. About 32% of the stakeholders do not have mandates and responsibilities related to the three conventions and three participants did not answer the question. About 18%, 7%, 14% and 11% of the stakeholders have a focal point for biodiversity, desertification, climate change, and the biodiversity and desertification issues, respectively. About 29% of the stakeholders do not have a focal point related to the three conventions and four participants did not answer the question.

Furthermore, it was found that about 14%, 11%, 18% and 4% of the participated stakeholders have a coordinating unit for international environmental agreements in particular in the areas of biodiversity, desertification, climate change, and biodiversity and desertification respectively. About 11% of the stakeholders do not have a coordinating unit for international environmental agreements and five participants (18%) did not answer the question. In addition, the analysis of results revealed that 14%, 7%, 11%, 14%, and 7% of the participated stakeholders are member in a national body(eis) responsible for implementation of biodiversity, desertification, climate change, biodiversity and desertification, and the three conventions agreements together, respectively.

When a question was asked in regard to whether the national organizations include the principles of the three conventions in their programmes and strategic plans, it was found that about 4%, 4%, 14%, 25% and 25% of the participated stakeholders responded positively in the areas of biodiversity, desertification, climate change, biodiversity and desertification, and biodiversity and desertification and climate change together, respectively.

Four participants indicated that they do not include these principles and three did not answer the question. In regard to coordination with the focal points of the three issues, the results showed that 14%, 7%, 18%, 14% and 21% of the stakeholders responded positively pertaining to biodiversity, desertification, climate change,

biodiversity and desertification and the three conventions together, respectively. There were five participants who responded negatively and two did not answer the question.

Several questions were also asked in regards to whether the participated stakeholders have a) a coordination unit for the three conventions or for global environmental management, b) an administrative mechanism to evaluate and benefit from the past projects and practical lessons for future planning, c) have independent trust fund, d) apply strategic planning for the determination of the organization vision, mission and strategic objectives and identification of the future projects and linking them with the main environmental issues and e) sufficient technical experience to make the link between the important economic agreements and the three conventions.

About fifty percent and 61% of the participated stakeholders responded positively saying that they have a coordination unit for the three conventions or for global environmental management and have an administrative mechanism to evaluate and benefit from the past projects and practical lessons for future planning respectively. About 43% showed that they have independent trust fund while 25% responded negatively and 21% they do not know. In regards to whether the national organizations apply strategic planning for the determination of the organization vision, mission and strategic objectives and identification of the future projects and linking them with the main environmental issues and whether they have sufficient technical experience to make the link between the important economic agreements and the three conventions, 86% and 61% responded positively, respectively. About 7% and 21% do not know while 4% and 11% responded negatively, respectively.

Several questions were also asked in regards to whether the participated stakeholders have a) a biodiversity site and manage it, b) rehabilitate and administer a desertification site, c) have special programs for reducing gas emission affecting climate change and support programs for renewable energy, d) sufficient knowledge of the concept of Clean Development Mechanism (CDM) and how it is implemented, e) looking or ambitious to have or to execute programs in the framework of CDM.

About forty three percent and 32% of the participated stakeholders responded positively saying that they have and manage a biodiversity site and rehabilitate a desertification site respectively. About 43%, 64% and 61% of the participated stakeholders showed that they have programs for reducing gasses affecting climate change, have sufficient knowledge of clean development mechanism and are ambitious to have or to execute programs in the framework of CDM, respectively.

A question was made regarding the participation of the stakeholders in the general policy making of the different issues such as biodiversity, desertification, climate change, general environment policy, general economic policy, poverty alleviation and unemployment, food security and energy. Analysis of the results of the responses of the stakeholders revealed that about 32% of the stakeholders responded positively for biodiversity, desertification and climate change together. About 29% of the stakeholders responded positively for biodiversity, desertification, climate change and general environment policy together. Furthermore, 36% of the stakeholders responded positively for food security, while 48% responded positively for energy. About

26% of the stakeholders responded positively for the general economic policy and poverty alleviation and unemployment. Only two participants said they do not have any participation in these policies or do not know.

4. Linking Education and Research with Policy Making.

The existing education system in environmental sciences and natural sciences in general, does not adequately address scientific and practical linkages between the themes of biodiversity, desertification and climate change, and between these themes and the natural environment. Education on global environmental issues can promote the development of an increased awareness and understanding of the impact of local action that degrade the environment sustainable development and human well being and will assist in developing educational packages that address the three themes and their cross-cutting issues in an integrated manner.

Concepts related to the synergies between the conventions should be integrated in educational programmes and curricula to ensure a sustainable flow of education packages and an integrated approach to education for environmental management and linkages between the three themes. Another important capacity development priority is creating an enabling system for linking scientific research to policy making. Scientific research should focus on cumulative and synergistic impact assessment of the linkages between biodiversity loss, desertification and climate change and produce informed decisions on integrated responses and mitigation plans. Research on adaptation to climate change would be an essential component of cross-cutting research options. Below is the analysis of the responses of the national stakeholders regarding linking research with policy making.

Several questions were asked regarding the involvement of the stakeholders participated in this study in research and its linking in the areas of biodiversity, desertification and climate change. Some questions focused on whether the stakeholders have a) programs and strategies where biodiversity, desertification and climate change are clearly included, b) strategies with clear vision, mission and their practical objectives related to biodiversity, desertification and climate change, c) if they conduct research in biodiversity, desertification and climate change, and d) if the stakeholders link their research work with the national policies pertaining to the national priorities in environmental issues.

In regards to programmes and strategies where biodiversity, desertification and climate change are clearly included, analysis of results showed that about 11%, 7%, and 14%, of the stakeholders responded positively for biodiversity, desertification and climate change, respectively. About 21% and 18% of the stakeholders responded also positively for a) biodiversity and desertification, b) biodiversity, desertification and climate change, respectively. In regards to visions, missions and objective programmes and strategies where biodiversity, desertification and climate change are clearly included, analysis of results showed that about 11% of the stakeholders responded positively for each of biodiversity, desertification and climate change. About 25% and 21% of the stakeholders responded also positively for a) biodiversity and desertification, b)

biodiversity, desertification and climate change, respectively. Only two participants said they do not have any participation in these policies or do not know.

In regards to whether the participated stakeholders conduct research in biodiversity, desertification and climate change, analysis of the results showed that about 7%, and 14% of the them responded positively for each of biodiversity and desertification, and for climate change respectively. About 21% and 14% of the stakeholders responded also positively for a) biodiversity and desertification, b) biodiversity, desertification and climate change, respectively. In regards to the responses of the stakeholders on linking their research work with the national policies pertaining to the national priorities in environmental issues, it was found that a) 25% and 11% responded positively to biodiversity, and each of desertification and climate change, respectively, b) 7% for the three conventions together, and for climate change and desertification.

About 93% of the stakeholders responded positively and expressed their willingness and interests to join a national network aiming at linking scientific research with the international environmental agreements, policy making and environmental legislations. There was only 14% who expressed that they have sufficient funds to maintain research in the issues of the three conventions and 57% showed that they have enough qualified professional with sufficient skills and experience to conduct research related to the conventions. In addition, about 61% of the stakeholders expressed that the policy and decision makers were aware and interested in the need to apply research in the areas of the three conventions and linking research with policy making. Furthermore, about 86% of the stakeholders showed that they have in their institutions principles for promotion and professional development which is based on research, merit and qualification.

About 79% of the stakeholders responded positively and considered that the biodiversity, desertification and climate change are major environmental issues for Jordan. About 39% of stakeholders responded positively and have scientific research mechanisms or managements of programmes which may contribute in linking cross cutting issues among the areas of biodiversity, desertification and climate change. In addition, 39% of stakeholders responded positively and expressed their intent to put emphasis on research and future programmes adaptation and mitigation measures to reduce gas emissions affecting climate change. Furthermore, 50% of the stakeholders responded positively and expressed their intent and taking measures to reduce gas emission, increase energy efficiency and move towards alternative energy. In regards to the identification of the impacts of the different activities carried out by the stakeholders on biodiversity and to prevent these impacts, 43% responded positively and 29 % responded negatively while 21% do not know.

5- Financial Resource Mobilization:

Results of responses of the stakeholders on whether they have a) sufficient resources to participate in the implementation of the convention, b) needs for financial/efficient human resources, c) sufficient time and human resources for participation in the implementation of the convention, d) incentives, resource

mobilization and intellectual rights for the implementation of the conventions and e) insure proper expediter and diversify resource income were analyzed. It was revealed that about 11%, 82%, and 61% of the stakeholders responded positively in regard to whether they have sufficient resources to participate in the implementation of the convention, have needs for financial/efficient human resources and have sufficient time and human resources for participation in the implementation of the convention respectively. While 50% and 61% responded negatively to whether they have sufficient resources to participate in the implementation of the convention and have sufficient time and human resources for participation in the implementation of the convention, respectively. Furthermore, about 57% and 82% of the stakeholders responded positively in regard to whether they have incentives, resource mobilization and intellectual rights for the implementation of the conventions and insure proper expediter and diversify resource income respectively.

Furthermore, about 86% of the stakeholders reported that when they prepare their proposals and submit them to donating agencies, they consider their technical and human resource capabilities. Also about 71% of the stakeholders responded that they have fair evaluation based on professional criteria that insure incentives for researches and employee which insure distinction. It was also found from the analysis that 86% of the stakeholders have ethical and professional criteria for incentives and performance. In regards to programmes for energy saving to improve the investment on the financial resources and reduction of losses, it was found that 61% of the stakeholders have such programs.

When a question was asked in regard to whether the participated stake holders execute specified programmes for financial resource mobilization in any of three conventions; biodiversity (BD), desertification (LD), and climate change (CC), 25% responded negatively and 25% did not respond (table 18). Only in biodiversity, and biodiversity and desertification, 21% and 14% responded positively, respectively.

When a question was asked in regard to whether the participated stake holders develop programme(s) or project(s) on a) economical evaluation of biodiversity, b) economical evaluation of the impact of desertification, c) use of financial incentives for the protection of biodiversity, and d) use of financial incentives for the reduction of CO₂ emission and the conversion to use renewable energy, about 25% and 21% of the responses positive regarding the use of financial incentives for the reduction of CO₂ emission and the conversion to use renewable energy and the use of financial incentives for the protection of biodiversity, respectively. About 11% of the responses were also positive regarding economical evaluation of biodiversity. Furthermore, 11% responded positively regarding the combination of economical evaluation of biodiversity and economical evaluation of the impact of desertification and another 11% responded positively regarding the four questions together; economical evaluation of biodiversity, economical evaluation of the impact of desertification, use of financial incentives for the protection of biodiversity, and use of financial incentives for the reduction of CO₂ emission and the conversion to use renewable energy. Two responses were missing.

6. Local Community Empowerment and Participation

Communities are the end beneficiaries of any environmental management programme. The capacities of local communities should be addressed and developed in a sound technical way to cope with the issues of biodiversity, desertification and climate change.

The majority of the participated stakeholders (86%) supported the participatory approach (PA) with local communities in the execution of the projects. While only 39% showed that they have human and financial resources to support the PA in project execution. Interestingly, about 69% of participated stakeholders deal with local community as the main beneficiaries in the environmental issue with emphasis on desertification.

As far as the executive tools and mechanisms used to ensure the participation of local communities in the process of decision making, the stakeholders described that they use a) training and workshops (25%), b) implementation of projects (14.3%), c) civil societies (7.1) and others such as participation and some unidentified support and Badia development. In regard to development and implementation of field mechanisms to insure and enable local communities executing their own activities, it was found from the analysis of the results that workshops and training also constitute the mechanism (25%), followed by surveys, field supervision and implementation of energy project (7.1%) each while 13 responses were missing.

7. Development of Infrastructure Facility:

Analysis of the responses of the stakeholders on whether they have suitable buildings, offices, sufficient furniture, transportation means to execute their activities, phones, computers, emails, electronic sites, fax, sufficient infrastructure; laboratories, needed equipment, library, data base, sufficient knowledge to execute the needed activities, own land, centers or sites to execute the needed activities, manage or participate in the management of reserve or site important to biodiversity, has been conducted.

It was revealed that 96% has suitable buildings, offices, sufficient furniture, transportation means to execute their activities and 89% has phones, computers, emails, electronic sites, and fax. About 64% has sufficient infrastructure; laboratories, needed equipment, while 86% has library, data base, sufficient knowledge to execute the needed activities. It was also found that 68% of the stakeholders have their own lands, centers or sites to execute the needed activities, and 54% manage or participate in the management of reserve or site important to biodiversity.

Section IV.
NCSA Action Plan

Section IV. NCSA Action Plan

4.1 NCSA Action Plan

The NCSA Action Plan has been developed through a participatory process that included coordination between NCSA consultants and national stakeholders. The first step in developing the NCSA action plan was to conduct the in-depth analysis of the thematic priority capacity constraints as discussed in details in section II. The in-depth analysis resulted in a logical framework analysis for the three themes that illustrated the outcomes and outputs that should be integrated in the action plan. In doing so, the action plan was based on the six cross-cutting strategic priorities, and the suggested projects/actions were designed in a way to respond to the cumulative and integrated priorities identified in the in-depth analysis where most of the project has the synergy element by responding to the three themes together. However, some suggested projects were theme-specific and respond to priorities related to only one convention.

The six programmes of the NCSA action plan contain 20 suggested projects, and the list of programmes is:

- Programme One: Knowledge Management, Outreach and Networking
- Programme Two: Technical Training and Technology Transfer
- Programme Three: Developing and Maintaining a National Coordination Mechanism.
- Program Four: Using Research for Policy Making
- Programme five: Resource Mobilization
- Programme six: Local Community Empowerment.

The following project concepts were developed based on the three thematic logical framework analysis and the packages proposed actions that can be viewed in Annex (5). The project concepts include rationale, objectives and proposed outcomes. The action plan includes a proposed implementation mechanism involving stakeholders.

Programme One: Knowledge Management, Outreach and Networking Rationale:

The knowledge and communication barriers facing the proper implementation of the Rio Conventions are closely related and have been identified by the three thematic profiles together. The knowledge portfolio was divided into communication, data management, networking and outreach systems that all can be grouped together under the umbrella of “knowledge management”.

The knowledge barrier in Jordan is the most important because of the limited information and weak knowledge generation and processing, especially regarding environmental management. Even if some of the information is available, its accessibility and dissemination to the target stakeholders is still very weak and largely does not exist. On the other hand, it has been proven that sound decision-making is enabled by accurate, complete and relevant information, where knowledge management system can play a key role in supporting the management staff with the needed information.

A common thread running through all three Conventions is the need for public awareness and education about the Conventions and the issues which they seek to address. In the thematic assessment reports, which formed the platform for the cross-cutting review, public awareness is cited as a key issue for implementation of Jordan’s obligations under the Conventions. It is important to understand that the country needs to take preventive and mitigation action with regards to the environment, not only to meet its obligations under the Conventions, but for the protection and conservation of our natural resources base which is critical to sustainable development.

Problem statement:

Knowledge bases and appropriate technologies related to desertification, climate change and biodiversity do exist in Jordan but are fragmented and not shared adequately due to bad connectivity. Those databases and systems are not “live”; feedback to and from the lower level is not foreseen and updating is not part of their design. Also, networking, when available, is vertical. Horizontal networking is vastly under-developed (at the national and regional level). In addition to the weak capacity for outreach and networking with regional and global organizations and programmes, there is weak documentation of local and traditional knowledge on land degradation, sustainable land management, ecosystem management and biodiversity conservation. Among the causes that contributed to this are; the unqualified staff in knowledge dissemination; limited and conventional dissemination tools; weak outreach for regional and global networking and inadequate follow up for procedures and approaches of communications and funding.

There is a need to increase public sensitivity to environment and development problems and involvement in their solutions and promote a sense of personal environmental responsibility and greater motivation and commitment towards environmental management and sustainable development.

Proposed Projects:

Project 1.1 Development of an integrated knowledge management system for the three Conventions:

Implementation mechanism:

An existing data management entity linked to at least one of the three convention themes can act as the custodian to this project by enhancing its infrastructure and KM capacity to host the KM system. Other key stakeholders should join as equal status partners to provide the information and the necessary processing required. The implementation system can include the data management system, governmental organizations and academic/research centers.

Objectives:

- To establish a national knowledge management system for the collection, processing and distribution of information related to the three conventions.
- To contribute to the use of the KM system in enhanced informed decision-making and better awareness programmes.
- To develop a set of national indicators for the monitoring of state of biodiversity, desertification and climate change.

Activities:

- Conducting a needs assessment to identify gaps and priority knowledge management needs for related institutions.
- Identification of the content of the KM system and sources of information
- Selecting proper knowledge management channels and systems based on existing ones that can be upgraded.
- Purchase and development of required software and connectivity systems.
- Creating an open source accessible system for the collection and retrieval of information in the form of a database or other KM media.
- Defining roles and responsibilities on the addition and use of existing information and sorting all issues related to intellectual property rights.
- Identification of suitable indicators and processes of data generation for combined monitoring of biodiversity, desertification and climate change indicator systems.
- Training for key personnel directly linked with the design, management and use of the KM system.

Outcomes:

- A comprehensive, sustainable and maintained KM system to serve all stakeholders operational and accessible.
- Improved knowledge about the three themes and updated channeling of new information.
- A national indicator system with clear sources of monitoring information for the three themes of biodiversity, climate change and desertification.
- Trained personnel in the use and management of the KM system.
- Multi-media and modern software knowledge products developed and accessible.

Estimated Budget: 500,000 US \$

Project 1.2 Development of a comprehensive outreach and networking programme for the three Rio conventions at national, regional and global levels:

This project is based on two components related to outreach and networking from an organizational perspective where experiences and activities can be shared and new partnerships can be established for more concerted and effective activities related to the implementation of the three conventions. This project can be implemented as a theme-specific project or based on synergies. The objectives and activities stated below are related to the synergies perspective but can be used with slight modifications to the theme-specific projects.

Implementation mechanism:

Three organizations, each specialized in one of the themes will take the lead in its own theme while the three of them will constitute an “implementation coalition” that will coordinate the activities and reach out to various stakeholders. In case that one organization or an existing committee can be equipped with the necessary networking and comprehensive knowledge of the three themes together, it can act as the implementing agency (network).

Objectives:

- To engage national stakeholders in a networking and outreach system with other national stakeholders.
- To engage national stakeholders in a networking and outreach system with regional and global partners.
- To document and use lessons learned and experiences from networking programmes for the benefit of national stakeholders' activities in implementing the Conventions.
- To facilitate opening of new opportunities in partnerships with national, regional and global partners in implementing the Conventions.
- To contribute to the process of coordination in policies and statements between national, regional and global partners in issues of common interest.

Activities:

- Conducting a thorough survey of the existing networks and organizations working in implementing the conventions at the national and regional levels.
- Identification of the key stakeholders at the global level linked directly with implementing the conventions.
- Development of thematic partnership groups at the national level.
- Exploration of possible partnerships at the national, regional and global level, at this same order.
- Implementing team collaboration tools and processes (discussion forums, workshops and meetings) for stakeholders.
- Foster the involvement of an expert group and partnerships with key international, regional, multilateral and local organizations
- Developing demonstration projects and partnerships with key regional and global partners for specific and realistic objectives.

Outcomes:

- National organizations involved in partnerships than can deliver combined impacts.
- More involvement of national organizations in regional and global environmental activism.
- Sharing of experiences and lessons learned between involved organizations in the network.
- Sustainable professional networks that can enhance the development and implementation of transboundary activities.
- Better coordination of positions and statements especially in south-south networking.

Estimated Budget: 200,000 US \$

Project 1.3: Developing an integrated public awareness and education programme:

This project will focus on the target groups of the general public and students in various education phases. It should be able to bring simplified information for the public and state-of-the-art knowledge to students about the three conventions and themes, with special focus of the new concepts and approaches developed by the scientific bodies of the conventions. The aim of this project is to transfer the quality knowledge resulting from the Conventions, tailored to the Jordanian conditions to the general public and students in a variety of suitable awareness and education tools.

Implementation Mechanism:

This project should be implemented by a coalition of three organizations the ministry responsible on public education in Jordan (Ministry of Education in specific), an NGO with an excellent record in environmental awareness activities and a university that will take the lead in introducing the concepts of the three conventions

in its curriculum and be committed. The coalition can increase in membership with the support provided by the Ministry of Environment (Focal point of the conventions), the Ministry of Higher Education (for planning the modification of university courses) and another NGO that can assist in awareness activities. This will be the first awareness project to act on the three issues of biodiversity, climate change and desertification together.

Objectives:

- To increase the level of public awareness of the conventions and the associated themes, with special focus on new concepts.
- To enhance the school curricula with new concepts in the three conventions.
- To develop a higher education package of courses related to biodiversity, climate change and desertification.

Activities:

- Establishment of the project's coordination system.
- Survey and analysis of all education and awareness approaches and guidelines developed by the three conventions.
- A national assessment of all previous and existing awareness and education projects with gap analysis and identification of lessons learned.
- Selection of content to be used in the awareness and education plans derived from the conventions and localized to national conditions.
- Development of awareness strategy with used modules and awareness tools.
- Set up pre-service and in-service training programmes for all teachers, administrators, and educational planners.
- Prepare publications and conduct seminars and workshops for schools, universities and communities to spread knowledge and awareness to the targeted communities and their schools and community centers.
- Development of new concepts in the curricula.
- Development of the new university course outlines, resources and planning for implementing the new courses.

Outcomes:

- More awareness in the general public about the conventions and the themes of biodiversity, desertification and climate change.
- School curricula enhanced with new concepts.
- New university courses developed for biodiversity, desertification, climate change and their linkages.

Estimated Budget: 500,000 US \$

Programme Sustainability:

The programme is expected to be institutionally and socio-economically sustainable. At the institutional level, the programme will follow already defined national plans and will work within national institutions without creating new instances or decision making bodies. Thus, no additional institutions or management structures requiring additional financing will be created by the project.

Programme activities build on the country's ongoing environmental management programmes as well as national action programmes to combat desertification and the strategy for biodiversity. This will greatly increase the prospects for institutional sustainability of the project by having project activities closely connected to national frameworks.

The practices to be promoted will also be compatible with the average level of human and financial capital present in communities. The transfer of knowledge and dissemination of technologies associated with the project's capacity building and on-the-ground demonstrations should strengthen beneficiaries towards improved and more stable resource based livelihoods and self reliance.

The individual projects will be based on knowledge which is a non depleting resource that will be always generated, processed and maintained. The outcome of the three projects should combine to produce a sustainable source of information and a system of intellectual development that will be sustainable by the sustainability of knowledge.

It is estimated that the programme has a reasonably high probability of being sustainable after programme termination date.

Programme Two: Technical Training and Technology Transfer

Rationale:

Building capacity of researchers, managers and practitioners in the field of Biodiversity, Desertification and Climate Change is needed to ensure successful implementation of the three Rio Conventions (Biodiversity, Desertification and Climate Change). The components of this programme will strive to promote innovative technical and institutional mechanisms to enhance environmental management practices with local, regional and global environmental benefits. By so doing, the programme will promote and enhance synergies between the Conventions. In the process of capacity building there is also a strong component of technology transfer within the framework of the three conventions.

Programme components:

Project 2.1: Preparations of a technology needs assessments in the themes of Biodiversity, Climate Change and Desertification:

This project will tackle the issue of technology transfer by conducting thorough national needs assessment of new and proper technologies related to the three themes. This will also be coupled with a comprehensive inventory of existing technologies. It is difficult to envisage the typology and context of the technology needed. So, this particular project will not go beyond the point of assessment and identification of potential technology transfer systems. Based on this assessment, Jordan can be better prepared to develop and implement targeted technology transfer initiatives.

Implementation mechanism:

This project should be implemented by technology developers and users in Jordan, as well as policy makers related to intellectual property rights issues. Overall guidance should be done by the Ministry of Environment. The involvement of private sector and the technology development research institutions is crucial.

Objectives:

- To develop a comprehensive technology inventory and needs assessments for Jordan.
- To identify required technology through a gap analysis of existing technology.
- To identify potential technology transfer routes.
- To assess the current national and global legislative framework regarding technology transfer and intellectual property rights.
- To design realistic and well-articulated technology transfer programmes for Jordan.
- To create an enabling legislative and administrative environment for technology transfer.

Activities:

- Survey and analysis of all technology transfer guidelines and approaches developed within the three conventions.
- Conduct a thorough national technology assessment exercise in the themes of climate change, biodiversity and desertification.
- Identify gaps in technologies available nationally.
- Identify the required technology.
- Assess the national legislative and administrative system for technology transfer and identify needed modifications to overcome barriers.
- Establishing a roster of national experts and researchers in the fields of technology transfer in order to form a national advisory technical board that assist the government in all related technical matters.
- Create a database of required appropriate technology and its sources that is continuously updated.
- Explore potential technology transfer routes and partnership.
- Develop a national plan for transfer of appropriate priority needs technologies and their sources with adequate enabling environment.
- Develop a capacity building programme related to the new technologies.

Outcomes:

- National needs in technology transfer identified.
- Regional and global technology transfer routes identified.
- Database on new technologies developed and updated.
- An enabling legislative and administrative environment for technology transfer established.
- Technology transfer agreements, partnerships and initiatives designed.
- A national technology capacity building plan developed.
- Barriers against technology transfer removed.
- A legal, regulatory and institutional framework that coordinates technology transfer, adaptation and enforcement developed

Estimated Budget: 250,000 US \$

Project 2.2: Development of a technology transfer system and capacity building for energy efficiency and renewable energy:

A special attention was apparent in the NCSA process on adopting energy efficiency and renewable energy technologies through the UNFCCC and other technology transfer systems as a basic requirement for adaptation and mitigation measures under UNFCCC but more urgently as a vital process in energy restructuring in Jordan in response to the global increase in oil prices.

Implementation mechanism:

This project should be implemented by energy policy makers (Ministry of Energy and Mineral Resources), the energy technology developers (National Energy Research Center), energy users (Private Sector- Cleaner Production Programme) and Ministry of Environment.

Objectives:

- To develop a comprehensive technology inventory and needs assessments for energy efficiency and renewable energy.
- To identify required technology through a gap analysis of existing technologies in energy efficiency.
- To identify potential technology transfer routes.
- To assess the current national and global legislative framework regarding technology transfer and intellectual property rights related to energy efficiency and renewable energies.
- To design realistic and well-articulated technology transfer programmes for Jordan.
- To create an enabling legislative and administrative environment for technology transfer in sustainable energy.
- To develop a system of incentives for companies making investments in renewable energy.

Activities:

- Survey and analysis of all technology transfer guidelines and approaches developed in the UNFCCC and Kyoto Protocol.
- Conduct a thorough national technology assessment exercise for energy efficiency and renewable energies.
- Identify gaps in technologies available nationally.
- Identify the required technology.
- Assess the national legislative and administrative system for technology transfer and identify needed modifications to overcome legislative and financial barriers.
- Create a database of required appropriate energy efficiency and renewable energy technology and its sources that is continuously updated.
- Explore potential technology transfer routes and partnerships.
- Develop a national plan for transfer of appropriate priority needs technologies and their sources with adequate enabling environment.
- Develop a capacity building programme related to the new technologies
- Combine standards, tools, and training in making energy efficiency an integral part of corporate management systems
- Capacity building on the development and implementation of government-sponsored recognition schemes based on verified energy savings

- Organize workshop involving all the concerned institutions with the objective of presenting the appropriate approaches to assess technology transfer needs
- Providing financial and non-financial incentives for the diffusion of relevant technologies
- Collect information on cost- effective technologies (energy efficient, renewable energies tech.) via different sources.

Outcomes:

- National needs in technology transfer for energy efficiency and renewable energy identified.
- Regional and global technology transfer routes identified.
- Database on new technologies developed and updated.
- An enabling legislative and administrative environment for technology transfer established.
- Technology transfer agreements, partnerships and initiatives designed.
- A national technology capacity building plan for energy efficiency and renewable energy developed.
- Barriers against technology transfer removed.
- Guidelines for energy audit and energy efficiency programs developed and implemented
- System of incentives for companies making investments in renewable energy introduced

Estimated Budget: 400,000 US \$

Project 2.3: Developing and implementing a comprehensive training programme on priority technical concepts of the three conventions

This is a comprehensive technical training programme that targets practitioners in the fields of linkages between biodiversity, desertification and climate change. The project can be implemented to serve three parallel lines representing the three themes or in combination and synergies. This will be a long-term training programme with a special attention on training for trainer system and focusing on technical terms and new concepts in the three conventions

Implementation Mechanism:

The project should be coordinated by the Ministry of Environment and two or three well established training centers in Jordan where individual training courses will be developed with the support of global training organizations specialized in the three conventions. Trainees should be selected based on a competition module where strict and transparent guidelines should be used for selecting trainees who will transfer the knowledge to other professionals.

Objectives:

- To develop and implement training modules on the three conventions
- To create a pool of national experts in various organizations with adequate knowledge of the three conventions and their relations.

Activities:

- Conducting a national needs assessment exercise for identification of training needs and modules.
- Engage with the secretariats and scientific bodies of the three conventions in selecting proper training modules.
- Identification of global and regional partners with experiences in training of the modules selected.
- Development of training manuals
- Establishing the team of trainers.
- Selection of trainees.
- Conducting training programmes.

Outcomes:

- National expertise in the three conventions built.
- Training manuals developed and used.
- Increased base of trained practitioners.
- Knowledge translated into actions on the ground from the institutions in which individuals work.

Estimated Budget: 750,000 US \$

Programme Sustainability:

No additional institutions or management structures requiring additional financing will be created by the programme. The programme will be executed and hosted by the Ministry of Environment. The programme will base its interventions mainly on existing organizations, such as local authorities, municipal and local governments and local interest groups. The programme activities are built on the country's ongoing programmes as well as national action programs in climate change, biodiversity and desertification. This will greatly increase the prospects for institutional sustainability of the programme by having programme activities closely connected to national frameworks.

The practices to be promoted will also be compatible with the average level of human and financial capital present in communities. The capacity building and on-the-ground demonstrations of new technologies should strengthen beneficiaries towards improved and more stable resource based livelihoods and self reliance. The technologies and knowledge to be transferred and localized will be a sustainable asset for the country in its pursuit of implementing the global conventions and achieving national impacts.

Programme Three: Developing and Maintaining National Coordination Mechanisms:

Rationale:

The efforts of environmental management are scattered among many institutions in Jordan. Currently, there are several agencies with some degree of responsibility or influence with regard to environmental issues; among them: Ministry of Environment, Ministry of Planning and International Cooperation, Ministry of Tourism and Antiquities, Ministry of Energy and Mineral Resources, Ministry of Agriculture, Ministry of Water and Irrigation, Natural Resources Authority, Badia Research and Development Center, Department of Land and Surveys, Ministry of Municipal Affairs, and various NGOs and academic institutions.

There is some confusion over agencies' roles and authorities and in other instances lack of coordination among those agencies and duplication of efforts. There is a pressing need to define specific roles and responsibilities to avoid duplication of effort. At the same time, the legal framework is not clearly spelled out, and more important, there are serious problems in enforcing Environmental Law. Financial constraints and a lack of equipment, trained personnel and general awareness are inhibiting the consistent application and enforcement of environmental laws in Jordan. This would require identification of roles for each institution and subsequently implementing training programmes for the staff.

Project 3.1: Development of a sustainable coordination mechanism between institutions implementing the three conventions:

The NCSA stocktaking and capacity assessment exercises have identified a set of 30 key institutions related directly with the implementation of one or two of the three conventions. The main aim of this project is to formulate a sustainable coordination system between these institutions. This can be better applied through existing networks and cooperation mechanisms or expanding them. As the mandates and requirements of the different institutions are diverse and the focus is different, it will be more realistic and practical to form three thematic coordination groups that can be then overseen by a higher coordination committee formed of 7 members from the three thematic committees.

Implementation mechanism:

The secretariat of the implementation mechanism will be the Ministry of Environment. Three thematic committees will be formed as follows:

Biodiversity national committee:

1. Ministry of Environment.
2. Ministry of Agriculture.
3. Ministry of Planning and International Cooperation.
4. Ministry of Municipal Affairs.
5. Department of Statistics.
6. National Center for Agriculture Research and Technology Transfer.
7. Royal Society for the Conservation of Nature
8. Royal Society for the Conservation of Marine Environment.
9. Syndicate of Agricultural Engineers.

Desertification National Committee:

1. Ministry of Environment.
2. Ministry of Agriculture.
3. Ministry of Planning and International Cooperation.
4. Ministry of Municipal Affairs.
5. Ministry of Water and Irrigation
6. Royal Geographical Center.
7. Badia Research and Development Center.
8. Water and Environment Research Center.
9. Jordanian Society for the Desertification Control and Badia Development.

Climate Change National Committee:

The national committee for climate change is still functioning and coordinated by the Ministry of Environment. It is suggested that the same mechanism is continued while exploring possibility of including academic/ research institutions and NGOs in the committee.

Higher Coordination Committee:

The three thematic committees will select a higher committee for coordination between the three thematic committees to oversee the coordination and synergy efforts. The details and ToRs of each committee will be described in NCSA Action Plan Implementation Mechanism.

Objectives:

- To create sustainable coordination mechanisms for national synergies in implementing the conventions and the NCSA action plan.
- To increase the effectiveness of current coordination mechanisms and ensure proper implementation of all suggested projects based on synergies.

Activities:

- National assessment of lessons learned and experiences of previous coordination committees.
- Formulation of the thematic committees.
- Formulation of the higher coordination committee.
- Development of the final ToRs and mandates of each committee.
- Development of reporting systems.
- Establishment of a scientific/technical advisory committee.

Outcomes:

- Effective coordination mechanism system for implementing the three conventions developed among the stakeholder institutions
- Technical and organizational capacity for implementing the Rio conventions consolidated and strengthened.
- Implementation of the Rio conventions more coordinated.

Estimated Budget: Zero cost action

Project 3. 2. Technical and professional strengthening of the Rio Conventions Focal points at the MoEnv.

This project will be based on the capacity development needs of the Rio Conventions' focal points at the MoEnv. The first step will be to develop a stable and effective organizational structure for the functioning and coordination of the three focal points to act in a synergistic manner. Once the coordination structure is in place, a comprehensive capacity building programme should be designed and implemented.

Objectives:

- To create a stable and effective organizational structure for the integrated functions of the three Rio conventions focal points.
- To raise the individual capacity of the focal points and the organizational capacity of the MoEnv in

implementing the Rio conventions.

- To create a system of direct coordination between the three focal points.

Activities:

- Design an organizational cooperation structure for the three focal points (see NCSA Action Plan Implementation Mechanism)
- Conduct a capacity needs assessment for the individual focal points and the organizational system of implementing the Conventions at the MoEnv.
- Develop a comprehensive capacity building plan for the focal points and the MoEnv.
- Mobilize capacities from the various organizations, departments and ministries to the MoEnv to work with the UNFCCC, CBD and UNCCD focal points at the ministry to facilitate the implementation of conventions.
- Conduct the capacity building plan.

Outcomes:

- Qualified and professional Conventions' implementation units (entities) established at the MoEnv
- Better implementation of the CBD, UNCCD and UNFCCC by Jordan while ensuring synergies in implementation.
- Better negotiation, networking and reporting skills by the focal points.

Estimated Budget: 150,000 US \$

Sustainability:

The Government of Jordan has heavily invested in adequate institutional capacity to handle preparation and implementation of natural resources management projects during previous years. This programme will support technical, administrative and institutional coordination for the implementation of the Rio conventions. The programme projects will build on the existing management structures at the Ministry of Environment, which will be scaled-up for administration and technical development and ensuring sustainability of the functions of established coordination mechanisms and the new capacities of the Conventions' focal points.

Program Four: Using Research for Policy Making:

Rationale:

This is the central programme of the NCSA action plan. The end objective of this programme is to enhance the quality and impact of policy formulation processes by direct linkages to research outcomes. As mentioned previously, the NCSA project has designed a cross-cutting capacity building proposal (CB 2) for GEF to build and maintain a national network and coordination mechanism between research and policy makers. The individual projects in this programme have been designed to serve specific technical priorities that were evident from the NCSA process and will all be based on the research-policy coordination mechanism to be developed by the CB 2 project. The projects in this programme are theme-specific and respond to specific technical priorities arising from the NCSA process.

Project 4.1: Developing technical directives for Biodiversity and Desertification and rehabilitation of degraded lands in the national EIA process

Implementation mechanism:

The implementation mechanism should involve all stakeholders linked to the EIA process in Jordan in all its development phases. The stakeholders should represent government, private sector, NGOs and local communities. The main stakeholder is the Ministry of Environment through its Licensing and Guidance Directorate which develops and implements EIA guidelines.

Objectives:

- To develop and implement specific directives for biodiversity protection and desertification control in the national EIA system.
- To develop national guidelines for rehabilitation and restoration of degraded lands as a basic component of EIA mitigation measures.
- To identify habitats of special biodiversity and desertification vulnerability that are not suitable for development projects.

Activities:

- A survey of the current EIA system and gap analysis in terms of biodiversity and desertification.
- Screening to determine which projects, interventions or development activities require directives for biodiversity and desertification.
- Developing clear directives for biodiversity and desertification to be used in the ToRs of EIA and specifying projects that need biodiversity and desertification EIAs.

- Identify biodiversity and desertification proper mitigation measures.
- Develop direct indicators for monitoring of the EIA mitigation options.
- Use of the directives in few demonstration EIAs.
- Issuing national directive for biodiversity and desertification to be adhered by all stakeholders.
- Developing guidelines for restoration and rehabilitation of degraded lands and habitats as key components of the EIA process and license.
- Involve the right experts in the process at the right time, and linking various components of the impact assessment process (social, environmental, health and so on).
- Identification of biodiversity and desertification hotspots that are vulnerable and not suitable for development projects.
- Promote environmental management and impact assessment through industrial and economic forums, perhaps using examples from the 'leading' companies to demonstrate the value and benefit of taking action.
- Encourage leading companies to require suppliers, business partners, and others they work with, to have biodiversity policies and action plans that include biodiversity and impact assessment practices.

Outcomes:

- National directives for biodiversity protection and desertification control inserted in the national EIA system and become legally-binding.
- Guidelines for restoration and rehabilitation of degraded lands integrated within the EIA mitigation measures.
- Biodiversity and desertification hotspot habitats protected from development activities based on the EIA and licensing process.

Estimated Budget: 100,000 US\$

Project 4.2: Developing a regulatory framework for access to and benefit sharing of genetic resources.

Implementation mechanism:

This project should involve all national stakeholders related to the process of identification, processing and use of genetic resources and intellectual property rights. It needs to be expanded to include legislators and policy developers in sustainable development, trade and agriculture.

Objectives:

- To develop a national regulatory framework for the access and benefits sharing of genetic diversity.

- To protect the national sovereignty rights on genetic resources as governed by the CBD framework.
- To facilitate a development-friendly system for benefit sharing that protects the rights of local communities and indigenous knowledge holders.
- To enhance the conditions for fair and equitable technology transfer related to genetic resources.
- To ensure that the government have sovereign rights over the biological resources in the country and the authority to determine access to genetic resources rests with the government.
- To enhance Jordan's involvement in the global system of access and benefit sharing by developing its own national legislation with a development focus.
- To share the benefits arising from the use of genetic resources and their derivatives fairly and equitably with the country of origin that provided the genetic resources and with other stakeholders, as appropriate

Activities:

- Survey of the current national legislation pertaining to genetic resources and IPR in general.
- Comprehensive survey and assessment of the CBD guidelines on access and benefit sharing with special emphasis on the Bonn guidelines.
- Complete understanding of the global trade-related mechanisms for access and benefit sharing and the development-based alternatives.
- Designing national regulatory mechanisms for access and benefit sharing from a national development perspective.
- Conducting a training programme for practitioners and an awareness programme for the public on the issues of access and benefit sharing based on national regulatory system.

Outcomes:

- A national, development-based regulatory legislative system for access and benefit sharing designed.
- Rights of local communities and genetic resources owners protected from a sovereign perspective based on CBD guidelines.
- Jordan's regulatory framework ready and development-friendly before engaging in the global access and benefit sharing system.
- Qualified practitioners and legislators trained in access and benefit sharing issues.
- Provisions for access to benefits sharing of genetic resources developed.

Estimated Budget: 100,000 US \$

Project 4.3 Development of a policy system for strategic environmental assessment for economic and trade agreements on the environment:

Implementation mechanism:

This project should involve the wide spectrum of organizations and sectors associated with the trade negotiations and the development and implementation of trade and economic agreements. The project should be inclusive enough to involve NGOs and civil society organizations concerned with environmental protection and sustainable development. The Ministry of Environment should be involved through its integrated licensing and EIA department as well as the trade and environment national committees.

Objectives:

- To develop a practical and effective system for the application of Strategic Environmental Assessment (SEA)
- To use the SEA system in assessing the environmental impact of currently implemented trade and economic agreements at the bilateral, regional and global levels.
- To use the SEA in assessing new agreements prior to signature and assist negotiators in identification of potential environmental impacts of trade and economic agreements.
- To ensure that trade agreements are environmentally friendly and supportive of sustainable development objectives.
- To strengthen the capacity of Jordanian trade policy to protect the environment through the promotion of sustainable development

Activities:

- Establishing a national strategic committee for the development of national system/guidelines for SEA.
- Developing national operational and technical directives and bylaws for SEA.
- Applying the SEA in analysis of current trade and economic agreements.
- Conducting training programmes on the application of SEA.
- Establishing a national system for use of SEA in negotiations for new trade and economic agreements.
- Seek provisions in trade agreements under which parties to those agreements strive to ensure that they do not weaken or reduce the protections afforded in national environmental laws and policies as an encouragement for trade

Outcomes:

- Procedural and technical SEA guidelines and directives developed and functional.
- A policy system for strategic environmental assessment for economic and developmental agreements on the environment developed
- Newly negotiated trade agreements subject to participatory and transparent SEAs.

Estimated budget: 150,000 US \$

Project 4.4 Developing national assessments for adaptation measures to climate change for biodiversity and desertification sectors:

Implementation Mechanism:

This project should be implemented by all partners involved in policy making and scientific research in the fields of biodiversity, desertification, agriculture and climate change. The main stakeholder is the Ministry of Environment and the main coordination mechanism is the national committee on Climate Change.

Objectives:

- To empirically assess the vulnerability of the biodiversity components, natural habitats, land and agricultural sector to potential climate change in Jordan.
- To develop a national mechanism for the identification of potential adaptation measures for climate change impact on biodiversity and land management.
- To strengthen Jordan's planning portfolio in terms of adaptation measures and to seek practical resource mobilization for implementing adaptation measures.
- To improve on agricultural management practices allowing carbon sequestration to occur in soil.
- To implement land use planning initiatives that guide the expansion of human settlements away from high risk zones
- To strengthen existing and, where needed, establishing national and regional hubs and information networks for rapid response to extreme weather events

Activities:

- Comprehensive review of the adaptation portfolio at the UNFCCC and associated global and regional networks.
- Conduct a participatory assessment of vulnerability to current climate variability and extreme weather events, and to assess where climate change is causing increases in associated risks.

- Conducting vulnerability assessment studies on selected sectors and areas related to biodiversity and land management.
- Identify fragile ecosystems and species prior to a crisis, to maximize protection during and following a disaster.
- Engage in forest management and watershed protection to improve yields, provide habitat and reduce climate hazards
- Supporting capacity building, including institutional capacity, for preventive measures, planning, preparedness and management of disasters relating to climate change, including contingency planning, in particular, for droughts and floods in areas prone to extreme weather events.
- Carry out a systematic public awareness program for highlighting
- Vulnerabilities and sectoral problems and the way forward in dealing with adaptation to climate change.
- Training programmes on the use of adaptation methodologies in the national context.
- Identification of suitable adaptation measures.
- Preparing a practical package of adaptation projects for resource mobilization.

Outcomes:

- Vulnerability of habitats and land degradation (agricultural sector) to climate change empirically assessed.
- Adaptation methodology identified and practiced in Jordan.
- National adaptation measures identified.
- Resource mobilization plan developed based on sound adaptation measures.

Estimated budget: 500,000 US \$

Project 4.5 developing a national system for monitoring and supporting the achievements of the Biodiversity 2010 targets:

Implementation:

Coordinated by the Ministry of Environment, this project should involve all stakeholders involved in the planning, research and applications of biodiversity protection including NGOs, grassroots organizations, academic centers and private sector in addition to the public sector. It can also be coordinated by the Biodiversity thematic coordination committee.

Objectives:

- To raise awareness among policy makers, researchers and practitioners of the importance of the Biodiversity 2010 targets.

- To develop a package of national indicators for monitoring the progress towards achieving 2010 targets.
- To develop specific plans and programme leading to the achievement of the 2010 targets.

Activities:

- Conducting a comprehensive assessment and understanding of the 2010 targets stipulated by the CBD among national stakeholders.
- Developing national indicators for monitoring the progress towards 2010 targets.
- Assessing the progress achieved in all targets until now.
- Developing specific plans and measures for achieving the various targets with required resources identified.
- Conducting a public awareness and technical education campaigns for the 2010 targets.

Outcomes:

- An understanding of the Biodiversity 2010 targets is widespread among stakeholders.
- Specific and realistic plans developed for achieving the 2010 targets.
- Indicators for monitoring progress developed and used.

Estimated Budget: 100,000 US \$

Project 4.6 Developing a national taxonomy initiative for documenting state of species

Implementation Mechanism:

This project is based on field research and ecological studies and will involve institutions active in documenting state of species and developing taxonomic identification records. The project will be also linked to the Ministry of Environment to ensure proper reporting to the CBD in relation to the state of species under threat and their taxonomical documentation.

Objectives:

- To complete the current taxonomic record of species in Jordan.
- To develop a system for taxonomical identification and specimen preservation.
- To develop the capacity of national taxonomists.
- To document the state of species in Jordan.
- To develop specific conservation plans for key threatened species.
- To provide adequate ecological and taxonomical data for the publication of the national Red data book.

Activities:

- Establish a roster of national experts in taxonomy as individuals or institutional expertise.
- Liaise with the Global Taxonomy Initiative(GTI) and review its technical guidelines.
- Capacity building for national taxonomists on the application of the GTI.
- Document the species records in Jordan.
- Analyze and document the location and distribution of species in a GIS system.
- Develop special conservation plans for key threatened species.
- Assessment of the state of threatened and endangered species.
- Developing adequate data for the publication of the national Red data book.
- Development of awareness tips and toolkits for the conservation of key species.

Outcomes:

- An experienced roster of taxonomists in Jordan.
- Complete record of species in Jordan.
- Localization and distribution of species documented.
- State of different species documented.
- Available information used for Red data book.
- Conservation plans developed for key threatened species
- An Awareness toolbox for conservation of key species is produced

Estimated budget: 250,000 US \$.

Project 4.7: Development of conservation and sustainable use plans for various habitat biodiversity in Jordan based on the ecosystem approach:

Implementation Mechanism:

This project is based on field research and ecological studies and will involve institutions active in documenting the state and conditions of various habitat biodiversity in Jordan. The project will be also linked to the Ministry of Environment to ensure proper reporting to the CBD in relation to the thematic biodiversity programmes.

Objectives:

- To document the state of biodiversity in various habitats and ecosystems in Jordan.
- To develop conservation plans based on different habitats biodiversity with special focus on conservation outside protected areas.

- To introduce the practical concept of ecosystem approach in Jordan and implement demonstration projects.
- To develop national capacities in habitat specific conservation and sustainable use measures.

Activities:

- Assessing the current biodiversity status in various habitats and CBD thematic programmes (inland water biodiversity, mountains, dryland biodiversity, marine biodiversity, agrobiodiversity, forest biodiversity, etc...).
- Capacity building efforts conducted in the conservation of each habitat and ecosystem approach.
- Identification of threats and impacts on biodiversity in each habitat.
- Conducting a public awareness programme for the conservation of biodiversity in various habitats.
- Encouraging targeted research on biodiversity components in hotspot habitats based on ecosystem approach.
- Identification of conservation and sustainable use plans for each habitat's biodiversity within the ecosystem approach.
- Implement demonstration projects based on the ecosystem approach.

Outcomes:

- State of biodiversity in each habitat and ecosystem documented and updated.
- Conservation plans developed for each habitat based on ecosystem approach.
- National qualified researches, managers and practitioners trained in habitat conservation and sustainable use using the ecosystem approach.
- Demonstration projects based on ecosystem approach implemented.

Estimated Budget: 500,000 US \$

SUSTAINABILITY:

The programme projects are expected to be institutionally and socio-economically sustainable. At the institutional level, the programme will follow already defined national plans and will work within national institutions without creating new instances or decision making bodies. Thus, no additional institutions or management structures requiring additional financing will be created by the programme.

Projects activities build on the country's ongoing environmental management programmes as well as national action programmes to combat desertification and the strategy for biodiversity and climate change activities. This will greatly increase the prospects for institutional sustainability of the programme by having programme activities closely connected to national frameworks.

The practices to be promoted will also be compatible with the average level of human and financial capital present in communities.

Programme Five: Resource Mobilization

Rationale:

This programme is based on the identification and use of proper economic instruments and tools for environmental conservation and management that are based on market-mechanisms and other economic approaches resulting ultimately in the leverage of additional resources for the implementation of the Rio Conventions.

The use of economic incentives has been gaining momentum worldwide for its broad success in environmental protection. Market-based or economic incentives will provide financial rewards for environmental protection in Jordan. Market-based approaches to environmental protection in the form of economic incentives are a clever form of government regulation that goes beyond the command and control measures to active involvement of partners, especially from the private sector.

Jordan is in need for capacity development at systemic and institutional levels for establishing and operating economic tools and incentives for various stakeholders in environmental management dimensions. Currently, there is a lack of expertise in fund raising and a non-traditional resource mobilization strategy for activities related to the implementation of the Rio conventions and environmental management.

At present, no economic incentives for environmental management are identified or experimented in Jordan. Some instruments have been identified but still not developed or implemented for waste management and climate change, but no instruments are identified for biodiversity and sustainable land management. One of the major focus areas of this programme will be economic valuation of environmental costs and ecosystem services.

An incentive-based approach offers advantages that distinguish it markedly from the regulatory approach. These advantages include flexibility, encouragement of technological innovation, improved relationships between the private and public sector, better management of resources, and substantial cost savings.

Project 5.1: Development of market-based economic tools for environmental management in the themes of biodiversity, desertification and climate change

Implementation Mechanism:

This project should be implemented by the Ministry of Environment in close cooperation with the Ministries of finance, planning, trade and industry and the private sector. It will need to explore potential development of market-based economic instruments for resource mobilization for biodiversity conservation and sustainable land management and adaptation measures. The involvement of specialized economic research centers will be highly useful.

Objectives:

- To develop and implement market-based economic tools for environmental management in the sectors of biodiversity, land management and climate change.
- To develop national guidelines and procedures for economic valuation of the cost of environmental degradation and values of ecosystem services.
- To assess the potential for using economic instruments to provide incentives and financing for combating desertification, adaptation to climate change, and biodiversity conservation
- To increase national capacities in developing and implementing economic tools for environmental management.
- To apply economic tools in an enabling legislative system.

Activities:

- Comprehensive assessment of currently used and identified economic tools for environmental management.
- Comprehensive survey and documentation of the whole spectrum of market-based economic tools
- Developing national guidelines for economic valuation of ecosystem services.
- Developing national guidelines for assessing the economic costs of environmental degradation in biodiversity and land management.
- Developing economic scenarios for the cost-effectiveness of the adaptation measures.
- Developing a training programme on economic tools for environmental management.
- Identification of suitable economic tools in the sectors of biodiversity, land degradation and climate change.
- Introduce subsidies and incentive mechanism for resources conserving activities and products (example: Tax relief or differential taxes).
- Impose penalties (fines and taxes) on all practices leading to land degradation and loss of biodiversity
- Legalization of such tools through legislative and economic reform processes.
- Adoption of identified market-based tools.

Outcomes:

- Market-based economic tools for environmental management in the sectors of biodiversity, land management and climate change developed.
- National guidelines and procedures for economic valuation of the cost of environmental degradation and values of ecosystem services developed.
- National capacities in developing and implementing economic tools for environmental management enhanced.
- Cost-effectiveness of adaptation measures assessed.

Estimated cost: 200,000 US \$

Project 5.2: Development of a national system for public-private partnership for resource mobilization for environmental management

This is a project that will be implemented in full partnership between government and private sector where fair and equitable public-private partnerships should be built. A special coordination mechanism should be designed with overall guidance from the Ministry of Environment

Objectives:

- To develop fruitful and effective partnerships between environmental management institutions and private sector in the fields of land degradation, biodiversity conservation and adaptation to climate change.
- To develop a national system for Corporate Social and Environmental Responsibility (CSER)

Activities:

- Comprehensive inventory and assessment of the current public-private and civil-private partnerships for environmental management in Jordan.
- Identification of potential partnerships between public, civil and private stakeholders.
- Introduction of Corporate Social and Environmental Responsibility guidelines.
- Establishment of a sustainable programme for partnership with the private sector at the Ministry of Environment.

Outcomes:

- Partnerships between public, private and civil sectors for specific environmental management initiatives forged and implemented.
- Corporate Social and Environmental Responsibility guidelines developed.

Estimated budget: 100,000 US \$

Project 5.3 Development of an effective national implementation system for Clean Development Mechanism (CDM)

Implementation Mechanism:

This project will be implemented by the National Designated Authority (DNA) for the CDM in partnership with the national committee for climate change. Clear and direct coordination mechanisms should be also established between the two committees and the private sector.

Objectives:

- To raise the national capacity in designing and implementing CDM projects.
- To enhance the national implementation process of the CDM and increase its efficiency.
- To integrate development components into CDM projects.
- To enhance the participation of the private sector in the CDM process.

Activities:

- Capacity needs assessment for the DNA and national climate change committee in terms of CDM.
- Analysis of the current CDM process and identifications of gaps and weaknesses.
- Developing capacity building initiatives in CDM design and implementation.
- Identification and removal of barriers restricting the participation of the private sector in CDM process.
- Developing CDM PDDs in partnership between public and private sectors.
- Inclusion of development objectives (poverty alleviation, local development, etc...) in CDM projects.

Outcomes:

- National capacity in designing and implementing CDM projects developed.
- The national implementation process of the CDM more effective and inclusive.
- CDM PDDs developed and approved by all related stakeholders
- National development priorities integrated into CDM projects
- The participation of the private sector in the CDM process enhanced.

Estimated Budget: 200,000 US \$

Programme Six: Local Community Empowerment

Rationale:

Sustainable impact after completion of a basic investment is difficult to achieve unless there is local participation and acceptance by both the beneficiaries and local communities. Adoption of Rio Conventions can not be expected unless communities assume responsibility for the management of their natural resources. This requires several fundamental changes in the supply of community support: (i) greater delegation of management responsibilities to local communities; (ii) improved operational linkages with public staff; (iii) simplified diagnostic and planning procedures; (iv) flexibility in terms of the activities to be supported; and (v) increased number of field teams to expand coverage. The main principle of this programme is that the communities, including the rural poor, would be empowered to work out their development programmes and action plans according to their own needs and priorities. This project aims to increase the community sense of ownership and responsibility for infrastructure and eventually will enhance the sustainability of the development effort and adoption of the Rio Conventions in Jordan.

Local communities are the ultimate beneficiary of biodiversity conservation and sustainable land management programmes and their empowerment through training, institutional and technical capacity development and financial resources development is a key factor for the success of any natural resources and environmental management programmes. The present situation in Jordan, as related to community participation, can be characterized by: (i) inconsistent community involvement in natural resources management; (ii) weak documentation and development of traditional knowledge of local communities; (iii) weak capacity and low empowerment of local communities; (iv) insufficient community-based training programmes on natural resources and environmental management; and (v) low level of replication and scaling-up of local best practices for combating desertification and protecting biodiversity.

The added value of this programme will be the tendency to integrate biodiversity conservation and sustainable use with sustainable land management approaches and introducing adaptation to climate change at the community level with combined results benefiting the three conventions together.

Proposed Projects:

Project 6.1: Development and implementation of a comprehensive capacity building and innovation programme for community management of natural resources based on traditional knowledge

Implementation system:

This project should be implemented by mobilizing all networks and institutions with direct linkages to

community action. The Ministry of Environment and Ministry of Agriculture should be closely involved with the implementation of community based initiatives. One of the main partners of this project would be the GEF Small Programme, the Badia Research and Development Center and many NGOs and CBOs.

Objectives:

- To increase the technical and administrative capacity of CBOs in community management of natural resources.
- To demonstrate the implementation of community-based projects linking biodiversity conservation and sustainable use with sustainable land management and adaptation to climate change.
- To empower the communities to utilize traditional knowledge in natural resource management with proper conservation of their property rights.
- To develop a practical framework based on evidence on the integration of biodiversity conservation and sustainable land management with poverty alleviation.

Activities:

- Document traditional and local knowledge and practices of farmers in land and resources management and biodiversity and incorporate in the development of innovations and the application of new technologies;
- Develop database for traditional knowledge and its uses;
- Provide training and awareness raising to understand and up-take knowledge generating from local community and understand the impact of environment and natural resources degradation on community well-being;
- Documenting success stories of community management linked to poverty reduction and sustainable livelihoods in local communities
- Strengthen the capacities of community organizations to assume various developmental activities such as land rehabilitation, afforestation, water harvesting and input supply;
- Facilitate dialogue on key policy issues such as land tenure impacting on natural resources management through the development of permanent consultation and negotiation processes between local communities, national policy-makers and research community;
- Develop modules of community management of natural resources based on national, regional and global experiences.
- Conduct capacity building initiatives on community management in the specific linkages between biodiversity conservation and land management.
- Applying a community approach where the community individuals and their organizations would play an integral role to promote sustainable utilization of natural resources.
- Designing a community action toolkit based on experiences with special focus on the gender and poverty reduction dimensions of community management

Outcomes:

- Technical and administrative capacity of CBOs in community management of natural resources enhanced.
- Implementation of community-based projects linking biodiversity conservation and sustainable use with sustainable land management and adaptation to climate change evident through demonstration projects.
- Communities empowered to utilize traditional knowledge in natural resource management with proper conservation of their property rights.
- A practical framework based on evidence on the integration of biodiversity conservation and sustainable land management with poverty alleviation developed.
- A package of community actions toolkit linking poverty reduction and gender empowerment to community management developed

Estimated Budget: 500,000 US \$

Project 6.2: Mobilization of community action for conservation adjacent to protected areas:

Implementation Mechanism:

This project will be implemented by the Ministry of Environment, the Royal Society for the Conservation of Nature, the GEF SGP and the community based organizations around protected areas. The project will strive to ensure environmentally sustainable, economically productive and socially responsible practices around protected areas so that no negative impacts will be suffered by protected areas from adjacent socio-economic activities and to integrate communities into conservation processes.

Objectives:

- To involve local communities in conservation action around protected areas and increase their ownership of sustainable resource management practices.
- To widen the geographical area and economic scope of sustainable management around protected areas.
- To raise the capacity of communities in community management of biodiversity and natural resources around protected areas.
- To integrate the concept of conservation and sustainable use of biodiversity components and sustainable land management to communities.
- To add a cultural and traditional knowledge component to the conservation and sustainable use of biodiversity in protected areas' geographical and ecosystem continuity.
- To prevent the introduction of invasive species in protected areas.

Activities:

- A comprehensive assessment of the socio-economic conditions of local communities around protected areas.
- Development of livelihood and socio-economic activities alternatives that is compatible with the conservation and sustainable use methodology.
- Establishing partnerships with local communities in community management.
- Providing training and capacity development in the methodologies of community management and conflict resolution.
- Strengthen local and community organizations and indigenous institutions to enhance participation and ownership in natural resources management, activities and programmes and decision-making
- Establish participatory community coordination groups around each protected area to ensure the bottom up feed of information
- Designing a programme for the prevention of introduction of invasive species to protected areas and their surroundings.

Outcomes:

- Local communities involved in conservation action around protected areas.
- The geographical area and economic scope of sustainable management around protected areas widened.
- The capacity of communities in community management of biodiversity and natural resources around protected areas developed.
- A national programme for the prevention of invasive species developed and implemented with the partnership of community management

Estimated Budget: 200,000 US \$

Sustainability:

The programme is expected to be institutionally and socio-economically sustainable. At the institutional level, the project will follow already defined national plans and will work within national institutions without creating new instances or decision making bodies. Thus, no additional institutions or management structures requiring additional financing will be created by the programme.

The practices to be promoted will also be compatible with the average level of human and financial capital present in communities. The community participation through their empowerment should strengthen beneficiaries towards improved and more stable resource based livelihoods and self reliance.

The programme will strengthen the enabling environment through the community empowerment so that Jordan can effectively implement its commitments for the implementation of the UN Convention to Combat Desertification, Climate Change, and Biodiversity.

The proposed programme is aligned with the GEF Strategic Approach to support community empowerment in that it will address needs which have been identified as priorities by the community and which are consistent with those identified by the Rio Conventions.

4.2 NCSA Action Plan Implementation Mechanism

The NCSA action plan needs a robust and effective implementation mechanism based on institutional coordination and transparency. The following mechanism is hereby suggested.

At the Ministry of Environment:

The Ministry of Environment is the organizational focal point for the three Rio conventions, and that brings it an added value for the proper internal coordination of the implementation of the three conventions.

The Ministry of Environment has been going through a successful capacity building and organizational development process in 2005-2006 and the current NCSA action plan should be anchored to that emerging organizational structure.

The NCSA action plan suggests the formation of a Conventions Implementation Committee (CIC) composed of the three technical focal points for the UNFCCC, CBD and UNCCD and headed by the Secretary General of the MoEnv.

The CIC will be mandated with the following objectives:

1. Ensuring the coordinated implementation of the individual implementation process of the three Conventions.
2. Integrating specific and cross-cutting requirements in a unified implementation system if possible.
3. Sharing of updates and new approaches in each convention and ensuring synergies in implementation.
4. Integrating common priorities in the conventions in the overall MoEnv action plan and strategic planning process.
5. Overall supervision of the implementation and resource mobilization of the NCSA action plan.

At the national level:

Thematic Coordination Committees:

Three Thematic Coordination Committees (TCC) should be created, each hosted and coordinated by the focal point of the Convention and headed by the Secretary General of the MoEnv.

A national committee for climate change does exist, while there is a need to create the biodiversity and desertification committee as suggested in the implementation mechanism of programme 3 in the action plan.

Each thematic committee will have the following mandate:

1. Overall coordination of the implementation of the Convention, including review of and preparation of reporting requirement and reviews of conventions literature.
2. Linkages with the various networks and committee established by each convention.
3. Integrating the priorities and requirements from the implementation of the convention in the strategic planning of each organization member in the committee.
4. Overall supervision and guidance of the implementation of the NCSA action plan related to the particular convention.

Specific ToRs should be developed for the three thematic committees based on the specific nature of each convention.

Higher Coordination Committee:

The members of the three committees should in turn select, by voting a Higher Coordination Committee (HCC) composed of two members of each TCC plus the Secretary General of the Ministry of Environment as a head. The HCC will be the main entity developing strategic planning for the integrated implementation of the three conventions and in particular the NCSA action plan. Specific ToRs should be developed for the committee.

Scientific Advisory Committee (SAC):

The SAC should be composed of 15 profound scientists/ professionals selected by merit with proven experience and updated knowledge on the three conventions. The membership should be based on equal representation of expertise in the following fields:

1. Project proposals development.
2. Protected Area management.

3. Ecosystems and habitats.
4. Impact Assessment
5. Genetic Resources
6. Agrobiodiversity
7. Landuse planning
8. Traditional knowledge in land management.
9. Desertification control.
10. Community management of natural resources.
11. Energy efficiency.
12. Renewable energies.
13. Adaptation to Climate Change.
14. CDM concepts.
15. Economic incentives.

This committee will act as a backstopping and advisory body to the various committees associated with the conventions and will be active in the formulation of full-fledged proposals based on the project concepts identified in the NCSA action plan. The SAC will also provide advice and consultation to the MoEnv and other institutions involved in reporting and implementation of the conventions.

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Annexes

Annex 1: Thematic capacity Constraints linked to various capacity levels.

Biodiversity Capacity Constraints:

No	Constraints	Individual	Organizational	Systemic
BD 1	Low integration of the CBD concepts in the national policy formulation process			
BD 2	Weak linkages between research and policy making			
BD 3	Lack of national directives for Biodiversity Impact Assessment			
BD 4	Lack of clear policies for regional and international technology transfer			
BD 5	Incomplete national guidelines and management plans for conservation sites			
BD 6	Lack of an institutional process for assessing the impact of regional and international agreements on biodiversity			
BD 7	Low national capacity of community management for in-situ conservation outside the protected areas			
BD 8	Lack of economic incentives and valuation of biodiversity components			
BD 9	Weak mobilization of financial resources available for Biodiversity			
BD 10	Lack of long-term coordination mechanism between institutions working in Biodiversity			
BD 11	Weak institutional and legislative framework for regulating access to generic resources and benefits sharing			
BD 12	Lack of a national knowledge management and data processing system for monitoring and reporting on Biodiversity			
BD 13	Lack of long term programmes for awareness and education on new concepts in Biodiversity management			

Desertification/ Land degradation Capacity Constraints

No	Constraints	Individual	Organizational	Systemic
LD 1	Lack of a national land use plan and legislation			
LD 2	Desertification has little priority in the national development plans			
LD 3	Weak linkages between scientific research and policy making			
LD 4	Inadequacy of public awareness programmes for various target groups on sustainable land management			
LD 5	Duplication and absence of roles and responsibilities of organizations working in land management			
LD 6	Absence of guidelines and specific directives for land management and rehabilitation in the EIA system			
LD 7	Weak capacities of local communities			
LD 8	Absence of a national database and system to monitor desertification			
LD 9	Lack of a mechanism to evaluate the impacts of economic and agricultural agreements on land management			
LD 10	Weak capacity for outreaching and networking with regional and global organizations and programmes			

Climate Change Capacity Constraints

No	Constraints	Individual	Organizational	Systemic
CC 1	Low capacity for developing National vulnerability studies and adaptation measures and plans			
CC 2	Lack of economic incentives for climate change adaptation measures			
CC 3	Inadequate Institutional and technical capacity for the Climate Change focal point at the Ministry of Environment			
CC 4	Low capacity for implementation of the CDM			
CC 5	Weak linkages between research, systematic observation and policy making			
CC 6	Lack of a systemic approach to technology inventory and transfer			
CC 7	Lack of clear and systematic integration of the UNFCCC main concepts in the national policy formulation process			
CC 8	Weak systematic Capacity Development for Energy Efficiency			
CC 9	Weak Capacity for Practical Education and Training			
CC 10	Low Capacity for Knowledge management and networking			
CC 11	Ineffective enabling environment for renewable energy development			
CC 12	Low Capacity for Resource Mobilization			

Annex 2: Matrix for Action in response to Biodiversity capacity constraints:

No	Constraint	Action No	Proposed action
BD 1	Low integration of the CBD main concepts in the national policy formulation process	BD 1.1	A comprehensive capacity building/awareness plan to integrate CBD concepts in
		BD 1.2	A practical frameworks for linking biodiversity with poverty reduction policies and efforts is developed
		BD 1.3	National policy statements/plans for conservation of different habitats and thematic programmes identified by the CBD are developed
		BD 1.4	A national programme for monitoring the progress towards achieving the Biodiversity 2010 targets is developed including identification of national indicators
		BD 1.5	National operational guidelines for implementing the ecosystem approach developed with one/two demonstration projects implemented
BD 2	Weak linkages between research and policy making	BD 2.1	An accessible database of research on biodiversity and conservation is established
		BD 2.2	Scientific research used for enhancing monitoring of biodiversity components and development of habitat-specific and species-specific conservation plan
		BD 2.3	A special capacity building programme for taxonomic research is developed and operational in relation to the CBD GTI programme
BD 3	Lack of national directives for biodiversity impact assessment and guidelines for restoration of degraded sites	BD 3.1	Guidelines of the Biodiversity Impact Assessment including the biodiversity directives are developed
		BD 3.2	A training programme for Biodiversity directives in EIA is established and operational
		BD 3.3	A national system of guidelines for restoration/rehabilitation of degraded habitats is developed and operational
BD 4	Lack of clear national policies for regional and international technology transfer	BD 4.1	A national inventory of available technologies related to biodiversity is conducted as well as a technology needs assessment
		BD 4.2	A national policy statement and/or required legislation on technology transfer is developed and operational by relevant stakeholders
		BD 4.3	Regional and international networks for technology transfer are developed based on national inventory and policy statements

BD 5	Incomplete national guidelines and management plans for conservation sites	BD 5.1	Comprehensive comparative review of the current management systems of conservation sites is conducted with gap analysis
		BD 5.2	Capacity building and training programmes for conservation site management are developed and operated
		BD 5.3	All conservation sites in Jordan have management guidelines related to their specific uses and functions
BD 6	Lack of an institutional process for assessing the impact of regional and international economic and trade agreements on biodiversity	BD 6.1	A retroactive analysis and assessment of the impacts of trade and economic agreements on biodiversity is conducted
		BD 6.2	A national framework for strategic environmental assessment is developed and operational
		BD 6.3	A national training programme on strategic environmental assessment is developed and operational
		BD 6.4	An effective institutional system to be used for assessing the potential impacts of new trade and economic agreements on biodiversity is functional
BD 7	Low national capacity for in-situ conservation outside protected areas, including lack of capacity of community management	BD 7.1	A national plan to identify key habitats outside protected areas is designed
		BD 7.2	key species important for conservation are identified and conservation plans are designed based on species level
		BD 7.3	A training programme on community management of biodiversity outside protected areas is developed based on previous and current national experiences
		BD 7.4	A national programme for the management and control of invasive species is developed and implemented with the partnership of community management
		BD 7.5	Awareness toolbox for conservation of key species and sites is produced
BD 8	Lack of economic incentives and valuation of biodiversity components	BD 8.1	Suitable economic incentives for biodiversity and natural resources management are identified and applied
		BD 8.2	Training programme on economic incentives and valuation tools developed
		BD 8.3	Business plans for biodiversity conservation projects between private sector and other stakeholders are developed
BD 9	Weak mobilization of financial resources available for biodiversity	BD 9.1	Available resource mobilization tools and opportunities for biodiversity are reviewed
		BD 9.2	A system for private-public partnership for resource mobilization is developed
		BD 9.3	Training programme on resource mobilization is developed
		BD 9.4	Resource mobilization strategy for biodiversity is prepared and implemented

BD 10	Lack of a long-term coordination mechanism between institutions working on biodiversity	BD 10.1	A national institutional coordination mechanism for biodiversity is established
		BD 10.2	An Effective monitoring and evaluation system is produced
BD 11	Weak institutional and legislative framework for regulating access to genetic resources and benefit- sharing	BD 11.1	A review of existing mechanisms for genetic resources management is prepared with gap analysis conducted
		BD 11.2	Legislation on regulating access to generic resources and benefits sharing ready for implementation
		BD 11.3	A training programme on the access and benefits sharing of genetic resources is operational
BD 12	Lack of a national knowledge management and data processing system for monitoring and reporting on biodiversity	BD 12.1	A Knowledge management needs-assessment and gap analysis for biodiversity information is performed
		BD 12.2	Biodiversity monitoring indicators are identified and sources of data verified
		BD 12.3	Knowledge management network established
		BD 12.4	A training programme in the use and maintenance of the KM system is functional with data updated on frequent basis
BD 13	Lack of long-term programmes for awareness and education on new concepts in biodiversity management	BD 13.1	Main emerging CBD concepts for the education/awareness programme identified
		BD 13.2	Gaps in current education and awareness programmes identified through a comparative survey
		BD 13.3	Education/awareness programme designed to fill the gaps

Annex 3: Matrix for Action in response to Desertification/land degradation capacity constraints:

No	Constraint	Action No	Proposed action
LD 1	The lack of a national land use plan and legislation	LD 1.1	Sustainable land use plan developed
		LD 1.2	Participatory management and ecosystem approach incorporated in land use planning
		LD 1.3	Legislation options to support the land use plan proposed
		LD 1.4	A training module established for implementing the new land use plan
		LD 1.5	Market-based economic instruments introduced for valuation of the ecosystem damage and proposing incentives for sustainable land management
LD 2	Desertification is not considered as a national development priority with no allocation of enough financial resources	LD 2.1	Combating desertification promoted as priority in development plans
		LD 2.2	Sustainable mechanism to mobilize financial resources developed
		LD 2.3	The NAP projects implemented through national and global funding mechanisms
		LD 2.4	Combating desertification becomes a priority in the higher committee for agriculture
LD 3	Lack of linkages between scientific research and policy making	LD 3.1	A comprehensive assessment of the state of research in desertification is completed
		LD 3.2	Scientific research related to desertification and land degradation enhanced
		LD 3.3	Specialized staff and research centres developed
		LD 3.4	Coordination mechanisms between policy and research stakeholders developed and implemented

LD 4	Inadequacy of educational and training and public awareness programmes for various target groups on sustainable land management	LD 4.1	Educational and public awareness programs are developed and implemented
		LD 4.2	Woman and youth participation in sustainable land management enhanced
		LD 4.3	Public awareness packages and programmes on sustainable land management developed
		LD 4.4	Desertification concepts introduced into educational programmes and curricula
LD 5	Duplication and absence of roles and responsibilities of organizations working in land management	LD 5.1	Harmonized and coordinated mechanisms to combat desertification are developed
		LD 5.2	Roles of institutions well defined
		LD 5.3	ToR (mandate) for involved institutions developed
		LD 5.4	A practical and sustainable institutional coordination mechanism is functioning
		LD 5.5	Staff of the involved institutions trained and qualified
LD 6	Absence of guidelines and specific directives for land management and rehabilitation in the EIA system	LD 6.1	EIA system with directives on land management and desertification are upgraded
		LD 6.2	Sustainable land and water management systems developed in the EIA process with focus on ecosystem approach
		LD 6.3	EIA directives and guidelines for land and water management developed with focus on mitigation measures
		LD 6.4	Guidelines for rehabilitation of damaged lands established
		LD 6.5	A training module on desertification and land management directives in the EIA is developed and used
LD 7	Weak capacities of local communities	LD 7.1	Traditional knowledge and know-how documented, protected and integrated with the development plans in target areas
		LD 7.2	Local community institutions upgraded or created
		LD 7.3	Community-based training packages and programmes developed and conducted
		LD 7.4	A package of community actions toolkit linking poverty reduction and gender empowerment to combating desertification is developed

LD 8	Absence of a national database and system to monitor desertification	LD 8.1	An accessible national database and monitoring system to combat desertification established
		LD 8.2	Indices and indicators of desertification and drought identified and developed
		LD 8.3	Knowledge dissemination means and networks are created
		LD 8.4	GIS and multimedia soil and desertification maps produced
LD 9	Lack of a mechanism to evaluate the impacts of economic and agricultural agreements on land management	LD 9.1	Mechanism to assess the impacts of existing and new economic/agricultural agreements on desertification established
		LD 9.2	Previous and draft new agreements are reviewed to understand economic and agricultural impacts
		LD 9.3	A training module on Strategic Environmental Assessment developed and used
		LD 9.4	Awareness among decision makers on the economic and agricultural impact of the agreements increased
LD 10	Weak capacity for outreaching and networking with regional and global organizations and programmes	LD 10.1	Potential networking opportunities are identified based on the review of existing networks and organizations at the regional and global level
		LD 10.2	Operational procedures and time frame for networking at all levels developed

Annex 4: Matrix for Action in response to Climate Change capacity constraints:

No	Constraint	Action No	Proposed action
CC 1	Low capacity for developing National vulnerability studies and adaptation measures and plans	CC 1.1	Potential adaptation measures identified in the fields of biodiversity and land management
		CC 1.2	Awareness and training programmes for promoting the application of these studies by related sectors conducted
		CC 1.3	Sectoral vulnerability assessment reports are developed
		CC 1.4	Medium to long term adaptation options are identified and mainstreamed in national development planning
		CC 1.5	Adaptation projects are developed and implemented
CC 2	Lack of economic incentives for climate change adaptation measures	CC 2.1	Appropriate economic incentives for adaptation are identified
		CC 2.2	Mobilization of financial resources to implement mitigation and adaptation options in related sectors through public-private sector partnerships
CC 3	Inadequate Institutional and technical capacity for the Climate Change focal point at the Ministry of Environment	CC 3.1	The technical capacity of the Designated National Authority (DNA) and the National Climate Change committee is evaluated and needs are assessed
		CC 3.2	A capacity development programme based on the needs assessment is developed and conducted
		CC 3.3	The negotiations skills of the national UNFCCC delegates are increased via a special capacity building programme
CC 4	Low capacity for implementation of the CDM	CC 4.1	CDM is promoted among stakeholders by technical capacity building
		CC 4.2	Capacity building programme based on the needs of the DNA is developed
		CC 4.3	Suitable, efficient and result-oriented procedures for CDM implementation developed
		CC 4.4	CDM PDDs developed and approved by all related stakeholders
		CC 4.5	Potential for the use of CDM projects in supporting development objectives and alleviating poverty is explored

CC 5	Weak linkages between research, systematic observation and policy making	CC 5.1	Linkages mechanisms between research, systemic observation and policy making to implement the climate change convention are identified
		CC 5.2	The linkages mechanisms are promoted
		CC 5.3	Linkages mechanisms between research, systemic observation, and policy making to implement the climate change convention are adopted by stakeholders
		CC 5.4	A system for integrated inventory of GHG emissions and adaptation measures within policy making developed
CC 6	Lack of a systemic approach to technology inventory and transfer	CC 6.1	A comprehensive inventory of current applied technology is conducted.
		CC 6.2	Technology needs assessment produced
		CC 6.3	Environmentally sound technologies promoted
		CC 6.4	A legal, regulatory and institutional framework that coordinates technology transfer, adaptation and enforcement developed
		CC 6.5	Technology transfer projects based on financial opportunities developed
		CC 6.6	Environmentally sound Climate Change technology adopted by stakeholders
CC 7	Lack of clear and systematic integration of the UNFCCC main concepts in the national policy formulation process	CC 7.1	Promoting the integration of UNFCCC concepts in sectoral policies
		CC 7.2	Development of regulatory framework to implement future climate change options, including incentives and regulations and involve decision-makers from all relevant sectors
		CC 7.3	Integration of identified adaptation measures into relevant sectoral policies.
CC 8	Weak asystematic Capacity Development for Energy Efficiency	CC 8.1	Promoted and adopted energy efficiency programs in all sectors
		CC 8.2	Guidelines for energy audit and energy efficiency programmes developed and implemented
CC 9	Weak Capacity for Practical Education and Training	CC 9.1	Public awareness programs at different levels developed
		CC 9.2	Climate change issues integrated in curricula of schools and other academic institutions

CC 10	Low Capacity for Knowledge management and networking	CC 10.1	Operational procedures and a time frame networking at all levels are developed
		CC 10.2	Better communications and sharing of experiences with regional and global partners are achieved
		CC 10.3	A national plan on data and information management is developed and implemented.
		CC 10.4	A unified climate change knowledge management system is developed, accessible and operational
CC 11	Ineffective enabling environment for renewable energy development	CC 11.1	Awareness programme for prompting the utilization of renewable energy resources is developed
		CC 11.2	System of incentives for companies making investments in renewable energy is introduced
		CC 11.3	Development of a national policy and legislation for the promotion of renewable energy
CC 12	Low Capacity for Resource Mobilization	CC 12.1	An effective plan on resource mobilization capacity building is developed
		CC 12.2	National training programme on resource mobilization is developed

Annex 5: The NCSA Action Plan: Programmes and Projects vs. Conventions:

Number	Programme/project	CBD	UNCCD	UNFCCC
1	Knowledge management, outreach and networking			
1.1	Development of an integrated knowledge management system for the three Conventions			
1.2	Development of a comprehensive outreach and networking programme for the three Rio conventions at national, regional and global levels			
1.3	Developing an integrated public awareness and education programme			
2	Technical training and technology transfer			
2.1	Preparations of a technology needs assessments in the themes of Biodiversity, Climate Change and Desertification			
2.2	Development of a technology transfer system and capacity building for energy efficiency and renewable energy			
2.3	Developing and implementing a comprehensive training programme on priority technical concepts of the three conventions			
3	National coordination mechanisms			
3.1	Development of a sustainable coordination mechanism between institutions implementing the three conventions			
3.2	Technical and professional strengthening of the Rio Conventions> Focal points at the MoEnv			
4	Using Research for Policy making			
4.1	Developing technical directives for Biodiversity and Desertification and rehabilitation of degraded lands in the national EIA process			
4.2	Developing a regulatory framework for access to and benefit sharing of genetic resources			

4.3	Development of a policy system for strategic environmental assessment for economic and trade agreements on the environment			
4.4	Developing national assessments for adaptation measures to climate change for biodiversity and desertification sectors			
4.5	developing a national system for monitoring and supporting the achievements of the Biodiversity 2010 targets			
4.6	Developing a national taxonomy initiative for documenting state of specie			
4.7	Development of conservation and sustainable use plans for various habitat biodiversity in Jordan based on the ecosystem approach			
5	Resource Mobilization			
5.1	Development of market-based economic tools for environmental management in the themes of biodiversity, desertification and climate change			
5.2	Development of a national system for public-private partnership for resource mobilization for environmental management			
5.3	Development of an effective national implementation system for Clean Development Mechanism (CDM)			
6	Local community empowerment			
6.1	Development and implementation of a comprehensive capacity building and innovation programme for community management of natural resources based on traditional knowledge			
6.2	Mobilization of community action for conservation adjacent to protected areas			