

Programme for Mainstreaming Gender in Climate Change Efforts in Jordan



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ACRONYMS

AWO	Arab Women Organization
CO_{2eq}	Carbon Dioxide Equivalent
CoP	Conference of Parties
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CS	Civil Society
DOS	Department of Statistics
FAO	Food and Agriculture Organization
GAM	Greater Amman Municipality
GTZ	German Technical Cooperation
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
INC	Initial National Communication
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
INGOs	International Non-Governmental Organizations
JD	Jordanian Dinar (1 JD = 1.41US\$)
JMD	Jordan Metrological Department
JRF	Jordan River Foundation
JOHUD	Jordan Hashemite Fund for Human Development
JNCW	Jordanian National Commission for Women
JISM	Jordan Institution for Standard and Metrology
JS	Jordanian Standard
MSW	Municipal Solid Waste
MEMR	Ministry of Energy and Mineral Resources
MMA	Ministry of Municipal Affairs
MMT	Monthly Maximum Temperature
MoA	Ministry of Agriculture
MoEnv	Ministry of Environment
MoE	Ministry of Education
MoH	Ministry of Health
MOPIC	Ministry of Planning and International Cooperation
MoT	Ministry of Transport
MWI	Ministry of Water and Irrigation
MSL	Mean Sea Level
MDGs	Millennium Development Goals
MENA	Middle East and North Africa
NCARE	National Center for Agricultural Research and Extension
NEEDs	National Environmental and Economic Development Study for Climate Change
NERC	National Energy Research Center
NSW	National Strategy for Women
NHF	Noor Al Hussein Foundation
NGOs	Non-Governmental Organizations
PoA	Plan of Action
PV	Photovoltaic

RSCN	Royal Society for the Conservation of Nature
SNC	Second National Communication
TOe	Tonne Oil Equivalent
ToT	Training of Trainers
TNC	Third National Communication
UN	United Nations
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNEP	United Nations Environmental Programme
UNDAF	United Nations Development Assistance Framework
V&A	Vulnerability and Adaptation
WHO	World Health Organization
WAJ	Water Authority of Jordan
WWTP	Wastewater Treatment Plant

I. Executive Summary

The Kingdom of Jordan is an upper middle-income and developing country. Highly urbanized, over 70 percent of Jordan's population live in towns and cities, making the local population highly dependent on energy. Jordan furthermore also ranks amongst the ten most water-poor countries in the world, with dire consequences to agriculture, food security and sustainable livelihoods. Being both highly urbanized and extremely water scarce, the Kingdom also faces an additional challenge – waste reduction and management.

Climate change affects everyone, everywhere, but developing countries are most vulnerable and it adds substantially to existing suffering. Climate change also has a differentiated impact on women and men. Existing social conditions render women more vulnerable than their male counterparts, but they are not helpless victims. Due to their role in society, women have the potential to be powerful agents of change – capable of providing solutions to several climate change challenges.

Recognizing the important role that women can play in this regard, the Government of Jordan requested¹² the IUCN – The International Union for Conservation of Nature, through its regional office based in Amman, to assist in the drafting of a gender sensitive Programme for mainstreaming gender in climate change efforts in Jordan.

The main objective was “**to ensure that national climate change efforts in Jordan mainstream gender considerations so that women and men can have access to, participate in, contribute to and hence optimally benefit from climate change initiatives, programs, policies and funds.**” If adopted, it will be the first of its kind in the Arab region.

The development of the Program was made possible through the financial support of the Government of Finland, and is the result of a series of inputs – field visits, stakeholder consultation and research, amongst others. It has been drafted on the basis of an analysis of the current national priority sectors concerning climate change and identified by the Jordanian Government (i.e. water, energy, agriculture and food security, and waste reduction and management) and a workshop with stakeholder representatives from women organizations, Ministries of Environment, -Water and Irrigation, Agriculture, Finance, Planning and International Cooperation, Health, the United Nations Development Programme (UNDP), German Technical Cooperation (GTZ), academic institutions, Arab Women Organization (AWO) and NCARE, from 1 to 3 of November and held in Amman, Jordan.

The Programme defines the role that the Ministry of Environment, as implementing agent, will play to initiate and facilitate efforts - both internally, as well as with strategic partners at the national, regional and international levels - to overcome constraints and take advantage of opportunities to promote gender equality within the climate change context.

The Program furthermore outlines a framework for integrating a gender perspective in climate change efforts in Jordan over the period 2011–2016. It also establishes objectives, outlines substantive activities with reachable indicators within the ambit of the four priority sectors.

Finally, it also outlines several institutional imperatives to be considered for successful implementation of the programme.

¹ IUCN Received Endorsement from MoEnv Letter on June 29th, 2010

SECTION A: CONTEXT AND METHODOLOGY

II. Overview

Location

1. The Hashemite Kingdom of Jordan is located in South West Asia and ± 80 km to the east of the Mediterranean Sea. Jordan covers an area of 88,778 sq km. It is bordered to the North by Syria, on the North-East by Iraq, on the East and South by Sa'udi Arabia, on the South-Western part by the Gulf of Aqaba, and on the West by Palestine. It has a total land boundary length of 1,635 km and a coastline of 26 km.

Climate

2. The climate of Jordan is predominately Mediterranean, characterised by short dry summers and cool wet winters, with two short transitional periods. The first starts around October and the second around mid-April. The rainy season starts from October and ends by May.

Climatic Regions

3. Jordan can be divided into three main climatic regions: (i) the Jordan Valley (Ghore Region), (ii) the Highlands Region, and (iii) the Badia and Desert Region.
4. The western part of the country is also the world's lowest valley. Situated in the north of the country, the Jordan River passes through this valley in a north-south line downwards towards the Dead Sea. Due to its warm climate in winter and the availability of water for irrigation, the valley is considered as the food basket of Jordan, producing vegetables and fruit.
5. To the east of the Jordan Valley, a north to south mountain range reaches an altitude of 1150 m above mean sea level (MSL) in the north and about 1500 m above MSL in the south of the kingdom. Around 88% of human settlements in Jordan are to be found within this region.
6. To the east of this mountain range a semi desert plateau extends to cover approximately 80% of the total surface of the country. Most of Jordan (90%) consists of arid and semi arid areas and is characterised by considerable variation in rainfall with a total rainfall averaging less than 200 mm per year.

Governance

7. The Administrative Divisions system by the Ministry of Interior divides Jordan into 12 provinces called governorates - each headed by a governor who is nominated by the Ministry of Interior and appointed by the Cabinet. They are the sole authorities for all government departments and development projects in their respective areas.

Population

8. The most recent national census of Jordan conducted in 2004, estimated the population to be 5,100,98³. The census estimated that there are another 190,000 people that were not counted. The national growth rate was 2.5% (at maximum) compared to 3.3% during the 1994 census. Males comprised 51.5% of Jordan's population (2,628,717), and females 2,472,264 (48.5%). Jordanian citizens made up 93% of the population (4,750,463), non-Jordanian citizens made up 7% (349,933). There were 946,000 households in Jordan in 2004, with an average of 5.3 persons/household (compared to 6 persons/household for the census of 1994). The next census is scheduled to take place in 2014.

Urbanisation

9. The population of Jordan is highly urbanised. In 1952, only 39.6% of Jordan's population lived in urban areas, but by 2006 this figure had reached 82.6%. The increase is largely a result of internal rural to urban migration, combined with the influx of refugees and migrants. The urban population in Amman, Irbid and Zarqa governorates now account for 4 million of people, and together constitute 71.5% of the total population of Jordan⁴.

Water and Energy

10. Given the fact that Jordan is located within the Mediterranean region that is considered among the driest areas of the world, the country is highly vulnerable to the impacts of climate change. As a result, the country has witnessed noticeable adverse impacts that rendered it to become the fourth water poorest country in the world. The per capita share of 150 cubic meters per capita per year from water resources is located far below the internationally identified water poverty line of 1000 cubic meter per capita per year.
11. Furthermore, the country also does not have indigenous energy sources. This makes Jordan fully dependent on the importation of fossil fuel.

III. Jordan's Vulnerability to Climate Change

12. As a country characterised by a semi-arid climate, combined with a high dependence on rainfall and scarcity of water resources, Jordan is one of the countries to be most affected by the effects of climate change.
13. The 2006 Human Development Report classified Jordan as one of the ten most water scarce countries in the world. The Initial National Communication (INC) to the UNFCCC stated that over the next three decades, Jordan will witness a rise in temperature, drop in rainfall, a reduction in ground cover, reduced water availability, increased frequency of heat waves, and more frequent dust storms.

³ The Preliminary Results of the Population and Housing Census 2004, Government of Jordan.

⁴ Department of Statistics of Jordan, 2008.

14. The Second National Communication (SNC) to the UNFCCC identifies water as a key priority area. An increase in water scarcity leads to insufficient domestic water supplies, having serious implications to equity of access and drinking water quality from time to time. This situation has serious implications for meeting the targets relating to access to water.
15. Less available water for agricultural activities has led to an increased usage of treated wastewater for the production of food, and also lead to farming communities using treated wastewater, in turn impacting consumers of crops to experience the additional burden of water-borne diseases.
16. Changes in rainfall patterns brought forth by climate change, will furthermore also push rain-fed areas towards irrigated agriculture.
17. The United Nations Development Assistance Framework (UNDAF) 2008-2012 identified four key challenges that could constrain progress towards the Millennium Development Goals (MDGs) within Jordan. These include:
 - (i) Water scarcity;
 - (ii) The supply, security and quality of drinking water;
 - (iii) Health, agriculture and food production vulnerability to climate change; and
 - (iv) Vulnerability of local biodiversity to climate change.
18. Although Jordan's emissions of greenhouse gases is relatively low, the impacts of climate change remain a threat to the country since the productivity of the ecosystem and the volume and quality of water resources are highly dependent on the hydrological cycle.

Possible Impacts of Climate Change in Jordan

- Water stress and reduction in the availability of fresh water due to potential decline in rainfall;
- Threats to agriculture and food security;
- Impact on human health due to the increase in vector and water-borne diseases; and
- Adverse impact on natural ecosystems, such as Jordan Valley, and coral reefs in Gulf of Aqaba, grasslands and mountain ecosystems.

IV. MANDATES, FRAMEWORKS ON GENDER IN JORDAN

19. The Government of Jordan is a signatory to, and member of, a number of key international agreements that already commit the country to gender mainstreaming.
20. These include chapter 24 of Agenda 21 (United Nations Conference on Environment and Development, 1992); the Johannesburg Plan of Implementation (World Summit on Sustainable Development, 2002); paragraph K of the Beijing Platform for Action (Fourth World Conference on Women, 1995); the World Conference on Human Rights (1993); the International Conference on Population and Development (1994); the World Summit for Social Development (1995); the Millennium Declaration (2000); and the requirements and agreements set out in the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW).

21. Jordan ratified CEDAW in 2007. In its preamble, CEDAW states that State Parties are bound to guarantee men and women equal opportunities in terms of economic, social, cultural, civil, and political rights.⁵
22. In a provision that has great relevance to the regulation of issues relating to climate change, CEDAW obliges State Parties to take “all appropriate measures to eliminate discrimination against women in rural areas in order to ensure, on a basis of equality of men and women, that they participate in and benefit from rural development” and “participate in the elaboration and implementation of development planning at all levels”, and “in all community activities”.⁶
23. CEDAW also recognizes that women should have equal rights to “obtain all types of training and education, formal and non-formal, including [...] the benefit of all community and extension services, in order to increase their technical proficiency”.⁷
24. CEDAW furthermore requires State Parties “to take all appropriate measures to eliminate discrimination against women in other areas of economic and social life in order to ensure, on a basis of equality of men and women, the same rights”.⁸
25. In particular, and in relation to financial mechanisms, there is a need to ensure that women have “access to credit and loans, marketing facilities, and appropriate technology [...]”⁹ as well as the “the right to bank loans, mortgages and other forms of financial credit”.¹⁰
26. The cumulative effect of these provisions is to place obligations on countries to ensure that women are granted equal opportunity and that the necessary conditions exist to enable their: (i) participation in decision making; (ii) negotiation of climate change agreements; and (iii) equitable participation in, and access to, financial mechanisms and technologies.
27. They may also be interpreted to require States to ensure the fullest possible participation of women in law and policy making at international level, where such laws and policies are deemed necessary to prevent discrimination.
28. The National Strategy for Women in Jordan (NSW 2006-2010) under the Jordanian National Committee for Women Affairs includes environment as a specific sub-area (ninth sub area), with its specific objectives and activities. Objective 1 reads:

“To enhance women’s role in the conservation of the environment and in its development. Of special importance for the climate change work are some of the measures identified under this objective”:

Measure 1: To integrate the traditional knowledge and practices of rural women with regard to the use and sustainable management of resources and in designing programs of management and environmental awareness;

Measure 3: To support the initiatives of women in producing consumed products (recycling);

⁵ Article 2(a).

⁶ Article 14.2.

⁷ Article 14.2(d).

⁸ Article 13.

⁹ Article 14.2(g).

¹⁰ Article 13(b).

Measure 4: To facilitate the access of working women in the fields of industry, agriculture and animal production to skills, knowledge and environmentally friendly technologies and to train women and spread awareness among them on environmentally friendly methods of production, consumption and use of resources [...]; and,

Measure 6: [...] to enhance the sense of responsibility in order to contribute to solving modern environmental problems and control the possibilities of the emergence of new environmental challenges and to conserve the environment and resources.”

29. Climate change will affect all countries, in all parts of the world, but its impacts will be distributed differently amongst regions, generations, age classes, income groups, occupations and genders¹¹. The poor, the majority of whom are women living in developing countries, will be disproportionately affected.
30. Because climate change affects women and men differently, a gender equality perspective is essential when considering policy development, decision-making, and in development and implementation of strategies concerning mitigation and adaptation.
31. Women are not just helpless victims – they are powerful agents of change, and their leadership is critical. Women can help strategies related to water, energy use, agriculture and food security, economic growth, waste reduction and management, and policy making, amongst other things.
32. Gender inequalities intersect with climate risks and vulnerabilities. “Women’s historic disadvantages – their limited access to resources, restricted rights, and a muted voice in shaping decisions – make them highly vulnerable to climate change. The nature of this vulnerability varies widely, cautioning against generalization. But climate change is likely to magnify existing patterns of gender disadvantage”¹² (UNDP Human Development Report, 2007).
33. The Millennium Development Goals cannot be achieved in isolation of each other. It is therefore also not possible to achieve environmental sustainability (goal 7) when poverty (goal 1) and inequities between men and women (goal 3) persists.

V. Methodology

34. In light of the above, the Ministry of Environment of Jordan in collaboration with IUCN Regional Office for West Asia and the Office of the IUCN Senior Global Gender Adviser engaged in the development of a “Program for Mainstreaming Gender in Climate Change Efforts in Jordan”. The development of this Program was made possible largely due to the generous financial support from the Government of Finland.
35. The Program is the result of a series of inputs – field visits, stakeholder consultation and research, etc. It has been drafted on the basis of an analysis of the current national priorities concerning climate change and a workshop with male and female stakeholder representatives

¹¹ IPCC. (2001). Summary for Policymakers. Climate Change 2001: Impacts, Adaptation, and Vulnerability. Report of Working Group II of the International Panel on Climate Change. Switzerland: IPCC.

¹² UNDP. (2007). Human Development Report 2007/2008. Fighting climate change: Human solidarity in a divided world. USA: UNDP.

from women organizations, Ministries of Environment, Jordanian National Commission for Women, Water and Irrigation, Agriculture, Finance, Planning, Health, the United Nations Development Programme (UNDP), German Technical Cooperation (GTZ), academic institutions, Arab Women Organization (AWO) and NCARE, from 1 to 3 of November and held in Amman, Jordan.

The main objectives of the workshop were to:

- a. Identify and understand the importance of gender and climate change;
- b. Identify possible areas of actions/ interventions for a national plan of action on gender and climate change;
- c. Provide inputs to the Third National Communication Report in its preparation level; and
- d. Provide guidance on how to mainstream gender in NEED projects for Jordan.

36. Implementation of this Program will fall under the mandate of the Ministry of Environment, Jordan.
37. The Programme defines the role that the Ministry of Environment will play to initiate and facilitate efforts, both internally, as well as with strategic partners at the national, regional and international levels, to overcome constraints and take advantage of opportunities in order to promote gender equality within the climate change context.
38. The Program furthermore outlines a framework for integrating a gender perspective in climate change efforts in Jordan over the period 2011–2016. It establishes objectives, outlines substantive activities with reachable indicators within the ambit of four priority sectors, i.e. water, energy, agriculture and food security and waste reduction and management, also identified by NEEDS¹³.
39. Finally, it also outlines several institutional imperatives to be considered for successful implementation of the programme.

¹³ In 2010, The Jordanian Ministry of the Environment (MoEnv) approached the United Nations Framework Convention on Climate Change (UNFCCC) to seek funding to conduct a NEEDS assessment for climate change in the country and which was subsequently approved. NEEDS seeks to provide information on the financing needs to implement climate change mitigation and adaptation measures in Jordan, as well as to provide information on financial and policy instruments available to support these measures. The purpose of the study is to identify the priority mitigation and adaptation measures by Jordan in line with the country's national sustainable development strategy, and how these measures can be effectively financed through the available finance instruments and sources, such as public and private sector funding, multilateral initiatives, carbon markets and other sources of funding and how to integrate these options in the national development plans.

SECTION B

VI. General objective of the Programme

To ensure that national climate change efforts in Jordan mainstream gender considerations so that women and men can have access to, participate in, contribute to and hence optimally benefit from climate change initiatives, programs, policies and funds.

VII. Priority Sector 1: Water

Women as Agent of Change: Water Management

- Women are the main custodians of water at the household level, they therefore perform a crucial role in sustainable water use and management;
- Women in rural areas are able to adapt to and implement new techniques in water conservation;
- Women ensure household sanitation; and
- Women - and therefore families - can cope better with water scarcity when they have access to information and decision-making.

Introduction & Vulnerability:

40. Climate change studies conducted in Jordan are very limited and only focused on the impacts of climate change on one single surface water and one groundwater resources, amongst 15 surface and 12 groundwater basins existing in Jordan.
41. Studies also show that higher temperatures and lower precipitation are expected as a result of climate change. Water resources, and other related issues such as rangeland and livestock are most likely to be vulnerable to climate change¹⁴.
42. This can be expected to cause a wide range of health effects, particularly in communities within, or at the edge of, deserts where water is scarce, highly polluted or salinated, and in communities where there are competing demands from household consumption, agriculture and other industrial sectors.
43. Based on the Second Communication Report the following adaptation measures can be taken into consideration with regards to the scarcity of natural water resources and their anticipated decrease as a result of climate change:

¹⁴ Jordan's Initial National Communications Report and Vulnerability and Adaptation to Climate Change Report, 1999.

a. Residential water supply:

- (i) Reduce water loss in distribution pipes;
- (ii) Introduce water saving technologies such as low-flow toilets and showers, and efficient appliances;
- (iii) Collect rainwater for garden, toilets, and other applications; and
- (iv) Promote water saving by awareness campaigns.

b. Irrigation:

- (i) Introduce water saving technologies in irrigation schemes such as drip, micro-spray, and night irrigation;
- (ii) Introduce new varieties of crops that use less water and are salt-tolerant;
- (iii) Increase the efficiency of irrigation systems;
- (iv) Reform water pricing; and
- (v) Use groundwater more efficiently.

c. Water quality:

- (i) Improve wastewater treatment plants (WWTP);
- (ii) Recycle wastewater;
- (iii) Develop river protection and sanitation zones; and
- (iv) Improve chemical and biological monitoring.

d. Socio-economic issues:

- (i) Train people of different ages and social statuses on water saving and sanitation methods;
- (ii) Increase public awareness of water related issues;
- (iii) Introduce water cleaning and softening technology;
- (iv) Introduce policy measures to ensure the equity in access to water;
- (v) Carry out studies to estimate the impacts of hydrological disasters such as flash floods and thunderstorms; and
- (vi) Improve the drought prediction and mitigation system.

Objectives	Action steps	Indicators of success	Responsible
To enhance the capacity of women and men from local communities to save water.	<ul style="list-style-type: none"> • Expand the training activities undertaken by academic institutions and civil society to include a gender perspective in research, planning, monitoring and evaluation exercises. • Provide refresher courses on water and gender issues at top management level. 	<ul style="list-style-type: none"> • Number of training activities incorporating a gender perspective. • Amount of gender disaggregated data available for use. • Number of sessions conducted at top management level. 	MoPIC, MoE, MoA, MWI, MoEnv, MOH, C.S.
To build the capacity of local communities on water management.	<ul style="list-style-type: none"> • Prepare short courses for community environmental educators with women participation. • Promote the development, validation, dissemination and transfer of technologies for the efficient use/ low cost technologies at household level with particular focus on vulnerable populations. • Establish a disaggregated database. • Value traditional knowledge through the creation of an experience exchange networks. 	<ul style="list-style-type: none"> • Number of courses conducted. • Percentage of women participation in courses. • Number of women participating in the dissemination sessions. • Number of new technologies being used by women and men. • Database available. • Number of experience exchange nets created. 	MoE, MoH, Universities
To ensure gender sensitive budgeting	<ul style="list-style-type: none"> • Monitor the amount of funds made available for gender activities at the local level. 	<ul style="list-style-type: none"> • Amount of resources allocated for women. • Number of projects targeting women. 	MOPIC, MOF, MOA, MoEnv
To ensure that climate change and gender are integrated in water polices and -strategies & adaptation measures proposed.	<ul style="list-style-type: none"> • Revision of national legislation related to water to ensure than gender and climate change considerations are fully integrated. 	<ul style="list-style-type: none"> • National policies include climate change and gender considerations. 	MWI, MOPIC, MOEnv, MOH, C.S. NGOs and INGOs

VIII. Priority Sector 2: Energy

WOMEN AS AGENTS OF CHANGE: ENERGY

- Women are instrumental in lowering energy consumption within the household as well as introducing new clean energy sources and technologies;
- In rural areas the access to clean, affordable and sufficient energy is essential for women as caretakers of the family and for overall hygiene. This is important for the health of the entire family and therefore also essential for a healthy society;
- Numbers of professional women in the energy sector can be a source of support and role model, in efforts to increase the role of women in renewable energy; and
- Household energy technologies that involved women and have included their inputs during design have been more effective and produce more benefits.

Introduction and Vulnerability

44. Energy security is a major challenge facing Jordan's sustainable development.
45. In response, the Ministry of Energy and Mineral Resources (MEMR) has developed an integrated and comprehensive energy master plan for the development of the energy sector over the next 20 years. The plan was approved by the Council of Ministers on December 7, 2004.
46. Implementation of the plan should yield a net increase in GDP of \$250 million per year for the Jordanian economy and will create a number of investment opportunities, which will be structured to encourage and promote private sector participation.
47. On January 28, 2007, The Royal Energy Committee was formed to undertake the following tasks:
 - (i) Review and modernize the national energy strategy;
 - (ii) Reconsider restructuring of the energy sector in Jordan and recommend ways by which to provide the necessary energy, particularly the alternative and renewable energy resources; and
 - (iii) Develop a work program with a clear mechanism and specified cost and time frame.
48. Jordan has made significant progress in improving energy efficiency on the supply side mostly through the introduction of natural gas as a major source of primary energy for electricity production. This was achieved by using combined cycle technology with a higher overall energy intensity than in most Middle East and North Africa (MENA) countries.
49. There is therefore considerable scope for demand-side management and energy efficiency measures.
50. It is expected that the Ministry of Energy and Mineral Resources (MEMR) will increase the potential contribution of renewable to be 7% by 2015 & 10% by 2020.

51. Key barriers to energy efficiency are:

- (i) Lack of knowledge by energy users of the benefits of energy efficiency;
- (ii) Lack of expertise to develop energy efficiency projects;
- (iii) High initial implementation cost;
- (iv) Lack of suitable financing mechanisms, as banks lack experience and awareness in energy efficiency and need assistance on risk analysis and mitigation to achieve bank comfortable with the loans; and
- (v) Lack of consistent institutional frameworks.

52. The Government decided to establish an energy efficiency fund and an agreement was subsequently reached with the World Bank to establish a combined energy efficiency and renewable energy fund.

53. Energy consumption for the year 2020 is estimated to reach 16,773,000 tonne oil equivalent (TOE), and if it is assumed that approximately 20 percent of the energy consumption could be saved from the total energy consumed in the year 2020 (as anticipated by MEMR studies), the estimated energy saved would be around 3,355,000 TOE through the implementation of energy efficiency programs.

Objectives	Action steps	Indicators of success	Responsible
To promote the participation of women and men in renewal energy efforts at household level.	<ul style="list-style-type: none"> • Campaigns to encourage families to switch to solar panels or wind energy. • Training course for women and men for maintenance and management of PV panels and wind technologies. • Access to scientific innovations considering women' needs. 	<ul style="list-style-type: none"> • Establishment of a women fund for introducing energy saving devices (solar, efficient technologies). • Number of solar panels installed. • Number of wind technologies used by women. 	MEMR, MoEnv, Gam, MoM, NGO, Private Sector
Women and men involved in the reduction of GHGs emissions at household level.	<ul style="list-style-type: none"> • Development of public awareness campaigns in schools, community centers and places of worship places to bring about behavioural change. • Development of public campaigns to encourage citizens to reduce amount of electricity consumption. • Encourage families to increase energy efficiency through enforcement of construction codes. 	<ul style="list-style-type: none"> • Number of presentations presented in schools and mosques. • Number of communities involved in campaigns. • Reduction of per capita consumption. • Number of environmental consideration in codes related to energy efficiency. 	MEMR, MoEnv, GAM, MoM, NGO, Private Sector, local governorate
To ensure women and men involvement in decision-making process related to climate change at local government level.	<ul style="list-style-type: none"> • Ensure a gender balance in decision-making bodies at the local level. 	<ul style="list-style-type: none"> • Percentage of women participating in Climate Change Committees. 	MoH, MoM
Disaggregated data on energy supply, consumption and demand by gender available.	<ul style="list-style-type: none"> • Development of studies in the energy sector. • Coordinate with research institutes to conduct studies both in rural and urban areas. 	<ul style="list-style-type: none"> • Gender database establish. 	MEMR, Universities, research centres

IX. Priority Sector 3: Agriculture & Food Security

Women as Agent of Change: Agriculture and Food Security

- Females play a fundamental role in agriculture through weeding, fruit collection and others;
- Women are the principal caretakers of animals and marketing is usually carried by males;
- According to the Jordanian Department of Statistics women own less than 4.5% of the land and less than 1.8% of agricultural and irrigation equipment;
- Educating women in agricultural techniques can contribute in increase their efficiency in dealing with water;
- Home gardens are instrumental for food security at the household level. By building capacity of women on new irrigation techniques sustainable and more productive home gardens; and
- Women take the majority of household decisions concerning food provision, its processing and purchases in the house. They have direct influence on the diet of the household and the demand for organic food.

Introduction and Vulnerability

54. Agriculture contributed substantially to the economy at the time of Jordan's independence, but has subsequently suffered a steady decline over the past decades.
55. Farming remains economically important and production grew in absolute terms. However, even with increased production, the failure of agriculture to keep up with the growth in the rest of the economy resulted in an insufficient domestic food supply. Jordan therefore needs to import staple foods such as cereals, grain, and meat.
56. Between 1982 and 1985, the total food importation bill averaged around JD180 million per year, accounting for more than 15 percent of total imports during the same period. At the same time, cash crop exports generated around JD40 million per year, yielding a net food deficit of JD140 million.
57. The suffering of the agricultural sector continued in the 1990s into the present time despite the increase in production and exported crops. However, observers expected food imports to remain necessary indefinitely.
58. Much of Jordan's soil is not arable even if water would have been available. Estimates show that between 6 percent and 7 percent of Jordan's territory is arable - a figure that is slowly being revised upwards as dry-land farming techniques becomes more sophisticated.
59. Only about 20 percent of Jordan's geographic area received more than 200 millimetres of rainfall per year, the minimum required for rain-fed agriculture.
60. The high rainfall areas, however, suffered from urbanization and land fragmentation which resulted in permanent loss of these lands. Much of the country's land therefore can be classified as unsuitable for agriculture.
61. Rainfall varied greatly from one year to another, so crops were prone to be ruined by periodic drought. In 1986 only about 5.5 percent (about 500,000 hectares) were under cultivation. Fewer than 40,000 hectares were irrigated, almost all in the Jordan River

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- Valley. Because arable, rain-fed land was exploited extensively, future growth of agricultural production depended on increased irrigation.
62. In 2006, only about 80,000 hectares were irrigated out of around 250,000 hectares of total cultivated land (DOS, 2006). The most profitable segment of Jordan's agriculture is fruit and vegetable production (including tomatoes, cucumbers, citrus fruit, and bananas) in the Jordan Valley. The rest of crop production, especially cereal production, remains volatile because of the lack of consistent rainfall.
 63. Vulnerability studies shows that agriculture in Jordan is one of the most vulnerable sectors to climate change, as the available water and land resources are limited and most of the country's land is arid and used as open range.
 64. The results of the vulnerability assessment for agricultural sector showed that climate change could have significant impacts, in particular on rainfed agriculture. Field crops and fruit trees were the main rainfed crops. Adverse impacts of climate change on rainfed cultivation and the arid and semiarid rangelands were identified as the most significant impacts on the sector of livestock and the overall production of the country's food.
 65. Data for the governorates within both study areas showed no obvious correlation or similar trends between rainfall and yield of wheat and barley, except in year 1999 when rainfall amounts and yield were extremely low.
 66. Analysis of crop data also showed differences between cultivated and harvested areas for all rainfed crops and emphasized that rainfed cultivation was the most sensitive sector that might be affected by adverse climatic impacts.
 67. The average ratio between harvested and cultivated area was 0.52 for wheat and 0.45 for lentil. The lowest ratio (0.28) was for barley, which was mainly cultivated for hay.
 68. The suffering of the agricultural sector is aggravated by the increase in demand for water and depletion of available resources. In the year 2003, about 506 MCM of water was consumed for irrigated agriculture, which comprised 62.5 percent of Jordan's total water consumption (DOS, 2003).
 69. Only 3 percent of the country's work force comprises skilled agricultural workers. The agricultural sector contributed 2.3 percent of GDP in the year 2004 (down from 8.5 percent in the year 1994).
 70. Economics will play an increasingly important role in the future allocation of water. As a result, farmers in Jordan Valley and the highlands will soon find it difficult to justify their priority claim over water resources.
 71. Although irrigated agriculture is the largest user of water in Jordan, most of the available water resources for irrigation come from treated wastewater. Therefore, the key challenges to irrigated agriculture are the improvement of water use efficiency and the alleviation of adverse environmental impacts resulting from the reuse of treated wastewater. On the other hand, agriculture dependent on rain will face the challenge of climatic variability and change.

Objectives	Action steps	Indicators of success	Responsible
<p>To increase women participation in adaptation projects/programs related to agriculture.</p>	<ul style="list-style-type: none"> • Raise awareness amongst women about the benefits of planting drought resistant and salt tolerant trees and shrubs. • Improve efficiency of the water storage system through construction of small dams and rehabilitation of the springs. • Introduce agricultural practices amongst women to increase sustainable production and productivity. • Introduce low cost technologies for woman and communities on managing plant, livestock production and water resources. • Adopt efficient, cost-effective and sustainable use of food processing. • Train woman to adapt to climate change through introducing new technologies related to agricultural activities. 	<ul style="list-style-type: none"> • Number of women using drought resistant and salt tolerant trees and shrubs. • Number of small chains and small dams constructed. • Number of springs rehabilitated. • Number of projects developed and implemented by rural woman. • Food and nutritional security improved. • Improvement of soil quality. • Number of women trained on new technologies. • Number of women using the new technologies. • Increase number of women participating in food processing. • Number of women trained. 	<p>MOA, MOPIC, NCARE, NGOs</p>
<p>To increase women participation in decision-making and implementation related to food</p>	<ul style="list-style-type: none"> • Promote women's participation in decision-making positions. (Municipalities) 	<ul style="list-style-type: none"> • Number of women occupying positions related to decision-making and implementation. 	<p>MOA, MOPIC, NCARE, NGOs</p>

<p>security and agricultural programs or projects.</p>	<ul style="list-style-type: none"> Promote woman participation in small-scale enterprises and food processing transformation industries. 	<ul style="list-style-type: none"> 4 pilots per governorate per year 	
<p>To increase participation of local communities in adaptation projects/programs related to agriculture.</p>	<ul style="list-style-type: none"> Enhance efficiency of local NGOs and committees by: <ul style="list-style-type: none"> Raising awareness of stakeholders/committees on how to adapt to climate change. Revive the use of traditional knowledge and practices. Promote community participation in decision making at local level. 	<ul style="list-style-type: none"> Number of adaptation projects about agriculture/climate change developed and implemented by rural communities. Number of community leaders represented in NGO's, municipality (disaggregated by sex). 	<p>MOA, MOPIC, NCARE, NGOs</p>
<p>To increase participation of local communities and women in mitigation projects/programs related to agriculture.</p>	<ul style="list-style-type: none"> Develop alternate techniques and practices to soil and water conservation. Reduce over pumping, overgrazing, wooding, water use, use of chemical fertilizers. Introduction of cost effective renewable energy appliances (solar, biogas, wind). 	<ul style="list-style-type: none"> Number of villages using improve soil water tillage machinery (rainfall harvesting). Decrease excess usage by 5%. Number of cost effective renewable energy appliances used. 	<p>MOA, NCARE</p> <p>MEMR, NGO's, Energy research centre</p>
<p>To enhance the capacity of local communities and women to contribute to natural resources conservation.</p>	<ul style="list-style-type: none"> Increase access to and knowledge of sustainable use of natural resources. Roll-out awareness campaigns on sustainable use of natural resources, conservation and 	<ul style="list-style-type: none"> Number of communities and women participating in rehabilitation projects (desertification and reforestation). Number of awareness and media campaigns for public. 	<p>MOE, MOA, NCARE</p> <p>NGO's, Press and TV, NCARE</p>

	<p>renewable energy.</p> <ul style="list-style-type: none"> Enhance efficiency of existing NGO's and cooperatives and enable them to sustainably manage rangelands and pastures. Promote implementation of activities and projects to reduce the intensive use of natural resources. 	<ul style="list-style-type: none"> Number of communities adopting new technologies. Number of NGO's and women cooperatives and cooperative involved in rangeland management. Number of women involved in activities and projects. 	<p>NGO's, MWI, MOA, NCARE, International NGOs</p> <p>NGO's, MWI, MOA, NCARE, International NGOs</p>
<p>To contribute to education, training and capacity building of local communities with special attention to women.</p>	<ul style="list-style-type: none"> Develop capacity building and extension courses on: <ul style="list-style-type: none"> Soil, water conservation Grazing management Safe agricultural practices Desertification control, deforestation, food forest Renewable energy uses Food processing Livestock management Horticulture and vegetables management Finance, accounting, marketing, networking, communication 	<ul style="list-style-type: none"> 10,000 beneficiaries trained. 	<p>MOA, NCARE, NGO's, Mo education, Mo energy, MWI</p>
<p>To improve the capacity of officials and technicians in the agricultural sector on gender.</p>	<ul style="list-style-type: none"> Develop a training protocol for the agricultural sector. Conduct trainings on gender, agriculture and climate change. Conduct research on women's role in agriculture. 	<ul style="list-style-type: none"> Number of officials and "Agricultural Extension Engineers " trained. Data available on women and agriculture 	<p>MOA, NCARE in cooperation with international al organizations and civil society.</p>

	<ul style="list-style-type: none"> To examine policies, programs, and projects and to analyse them from a gender perspective and to redraft them, if necessary, in a way, that secures higher access of women to resources in rural and remote districts. 	<p>in Jordan.</p> <ul style="list-style-type: none"> Number of policies revised. 	<p>National Jordanian Commission for Women.</p>
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X. Priority Sector 4: Waste Reduction and Management

Women as Agents of Change: Waste Reduction and Management

- Women play major role in the separation of household waste;
- Women make the majority of consumption decisions within the household;
- Women play an important role in moulding behaviours and consumption patterns of new generations;
- Women perform and manage the disposal of household waste; and

Introduction and Vulnerability

72. The volume of municipal solid waste (MSW) has increased in the last decade. This was the result of population pressure, industrial development, new consumption patterns and life style.
73. Solid waste management is the responsibility of the Common Services Councils of the Ministry of Municipal and Rural Affairs and the Greater Amman Municipality (GAM) for Amman and its suburbs.
74. The Ministry of Environment is considered as the authority for the regulations pertaining to management of solid waste, in addition to also taking on a coordinating role with national and international parties. The Ministry of Environment has listed solid waste management as an urgent priority and is in the process of preparing a detailed master plan for solid waste management in Jordan.
75. It has been estimated that municipal solid waste reaches a gross annual production rate of approximately 1.5 million tonnes. The daily average per capita generation rate of municipal solid waste stands at 0.6 Kg and 0.9 Kg in rural and urban regions; respectively. In Jordan, there are about 21 solid waste disposal sites distributed in the country.
76. In the long term, the Ministry of Municipal Affairs is considering closing the existing scattered municipal waste landfills and operate only three regional and centralized landfills (In addition to the already existing Al Ghabawi Landfill site that serves the central region, an additional two central landfill sites will be developed for the Northern and Southern regions).
77. With regards to industrial wastewater, the Amman-Zarqa region is the largest urban centre in Jordan and also has the largest industrial congregation. It is here that the majority of Jordan's industries are located. The Jordanian standards (JS) (JS 202/2006) define the maximum allowable concentrations of treated industrial wastewater effluents to be discharged to wadis and rivers, and to be reused for irrigation and groundwater recharge (JISM, 2006). Additionally, the Jordanian regulation number 18/1998 (WAJ, 1998) defines these limits for effluents to be connected to sanitary sewer system. Industries that can't treat their generated industrial wastewater may collect and dispose of that wastewater into an authorized dumping site (such as Al-Ekader dumping site). Unfortunately, some of these industries dispose of their wastewater to wadis (an Arabic word for ephemeral water courses) and open areas.

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78. In the year 2000, GHG emissions from the waste sector totaled 2713 Gg CO₂ eq. at 13.5 percent of Jordan's total GHG emissions. Most of the emissions were from disposal of domestic solid waste which accounted for 12.5 percent (2515 Gg CO₂ eq) of the total GHG emissions, while wastewater handling accounted for 1 percent (199 Gg CO₂ eq) of the total GHG emissions.
79. Nowadays, around 57 percent of the households are connected to the sewer system. The first domestic wastewater treatment plant was established and commissioned in the year 1968 in Ein Ghazal to serve a population of 300,000. Nowadays, there are 23 domestic wastewater treatment plants in the country. Water Authority of Jordan (WAJ) is the responsible authority for operation and conducting the necessary routine and emergency maintenance for most of the domestic wastewater treatment plants.
80. The Institutional Framework for the waste management at national level, two key institutions are involved is Solid Waste Management - the Ministry of Municipal and Rural Affairs (MMRA) and the Ministry of Administrative Development and Environment (MADE).
81. The MMRA plays a central role by virtue of its administration of municipal affairs; a key responsibility of the Ministry is to provide municipalities with the necessary funds to invest in SWM infrastructure. The key role of MADE is regulating activities with a potential negative impact on the environment and natural resources. This includes solid waste management.
82. As a consequence, municipalities share waste disposal facilities. In some cases they also share waste collection systems, although more commonly individual municipal units operate their own waste collection systems. The governorates are in charge of monitoring waste disposal sites from a health and safety perspective.

RURAL			
Objectives	Action steps	Indicators of success	Responsible
To raise awareness and build capacity in schools, community centres and places of worship such as mosques and churches.	<ul style="list-style-type: none"> Identify pilot areas and target groups to launch the initiative. Identify needs according to each community's situation. Develop training modules on waste management. Conduct "Train the Trainers" (TOT) sessions for community centre representatives, teachers at schools, Imams and priests. TOT to conduct training sessions at schools and surrounding communities. 	<ul style="list-style-type: none"> 15-20 pilot areas have been initiated. At least 30% of the population of each pilot area have knowledge on waste management. At least 30% of the attendees at each targeted community centres are women. 	MoEnv in collaboration with INGOs and NGOs such as: IUCN, JOHUD, JRF, NHF, RSCN
To enhance involvement and participation of women in raising awareness and capacity building.	<ul style="list-style-type: none"> Conduct needs assessment sessions for women. Conduct training sessions to raise their awareness on their roles and responsibilities with regard to waste management. 	<ul style="list-style-type: none"> At least 30% of trained women are effectively involved and participating in awareness campaigns. 	MoEnv in collaboration with INGOs and NGOs such as: IUCN, JOHUD, JRF, NHF, RSCN
To introduce suitable technologies for composting.	<ul style="list-style-type: none"> Identified the best composting techniques for the women and men from the community Identify the relevant association in each pilot area to coordinate composting methods and generate income. Develop training modules on composting techniques and methodologies. Make the necessary materials for composting available. Conduct training session for the women on the separation of organic waste and composting. 	<ul style="list-style-type: none"> At least 70% of trained women are doing composting. At least 80% of organic waste is collected and composted and used (individually or collectively). The amount of non-recyclable waste generated is minimized. Number of women trained. 	MoEnv, MoA, Jordan Valley Authority, IUCN, JOHUD, JRF, NHF

<p>To provide small grants for women for small scale reuse and recycling projects and enterprises (clothes, furniture, plastics, paper)</p>	<ul style="list-style-type: none"> • Train women and men on developing grants proposals. • Train the women and men on the implementation of the project and the measurement of achievements. 	<ul style="list-style-type: none"> • Number of grants accessed by women. • All targeted associations in each pilot area are able to develop proposals and implement projects. • Proper handling of produced waste. • More environment friendly products introduced and used. 	<p>Small grants Programme (UNDP) and others</p>
<p>To introduce suitable technologies for wastewater treatment.</p>	<ul style="list-style-type: none"> • Identified the best wastewater collection and treatment methods for the community. • Identify the relevant association in each pilot area to coordinate activities and generating income. • Develop training materials on the suitable designs to separate wastewater and sludge (where possible). • Establish a revolving fund for introduction of techniques. 	<ul style="list-style-type: none"> • At least 30% of wastewater is treated and used for irrigation with best and low cost technology (individually or collectively). • Percentage of women that access and receive funds. 	<p>MoEnv, MoA, MoWI, JVA, IUCN, JOHUD, JRF, NHF</p>

BIG CITIES			
Objectives	Action steps	Indicators of success	Responsible
To raise awareness of women, men and children on changing consumption behaviour and choosing environmental friendly products.	<ul style="list-style-type: none"> Use media, journals, and shops for gender-targeted awareness campaigns. Use media, education curricula to teach best practices of consuming behaviours and waste management. Create sources for producing environment friendly products. 	<ul style="list-style-type: none"> Consumers are aware of the separation of process waste. Curricula include knowledge in waste management (school and university). Consumers are more sensitive to buy environmental friendly products. Percentage of produces waste is dumped in landfills minimized. 	MoE, MoEnv, Ministry of Trade and industries, Universities IUCN, and others
To develop proper policies, frameworks, technology systems for waste management.	<ul style="list-style-type: none"> Formulate a gender-sensitive strategy and policy for waste management. Coordinate with gender experts to support the development of the strategy and its implementation. Cooperation and communication system to be established among municipalities, MoEnv and community centre paying special 	<ul style="list-style-type: none"> A gender-sensitive strategy is developed and implemented. Gender considerations integrated in waste management system. Good communication & cooperation system between the concerns parties in place. Waste management system for urban and town areas are taking in to consideration in planning. 	MoE, MoEnv, MoA, Ministry of Trade & industries, MoPIC, Universities, IUCN, and others

	<p>attention to the needs and contributions of women.</p> <ul style="list-style-type: none"> • Include the waste management system in the urban and town planning. • Include the separation system in new building codes. 	<ul style="list-style-type: none"> • All new buildings have separation system within their designs. 	
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SECTION C: INSTITUTIONAL IMPERATIVES

83. The following institutional imperatives are drawn from similar processes around the world that have proven effective in ensuring optimal benefit and delivery and recommended within the context of Jordan.

XI. Intergovernmental coordination for supporting the mainstreaming of gender in climate change efforts

84. It is highly recommended that provision should be made within the composition of the National Inter-ministerial Committee on Climate Change, to include a permanent gender expert with a dedicated Terms of Reference. This gender expert should be a person with a credible track record in gender, environment and development. The expert will be required to maintain close ties with other gender experts at the national and international level to ensure efficiency and representatively.

85. The Jordanian National Commission for Women should also play an important role in following and supporting the present Programme. Special efforts should be conducted to ensure that climate change is address in the new National Strategy for Jordanian Women that will be elaborated for 2010-2015.

XII. Ensure that gender criteria (where relevant) are incorporated in the development of projects and programmes associated with climate change in Jordan

86. The National Inter-ministerial Committee on Climate Change, as the main body responsible to provide guidance on initiatives relating to climate change in Jordan, would be the appropriate body to ensure that projects and initiatives under consideration are in line with the principles of this Programme, and furthermore that projects are analysed to ensure that gender considerations are fully integrated.

87. It is also strongly recommended that a Gender Consultative Support Group to the gender expert in the Inter-ministerial Committee be established. The necessary expertise could

be drawn from gender focal points from international organizations, the Jordanian National Commission for Women, women organizations and donors, amongst others. Particular attention should be given to the establishment of gender-sensitive reporting, monitoring and evaluation systems.

XIII. Strengthen capacity of implementers of the Programme

88. Climate change activities will require combined efforts from different sectors and stakeholders. Therefore there is a need to develop a common understanding on what gender considerations associated with climate change are.
89. Gender workshops or training courses should never be stigmatized as specialized courses reserved only for “gender specialists” or for women alone. It is important that all staff, policy advisors, and senior managers associated with the implementation of this Programme should develop the capacity to promote gender equality and equity.
90. Training therefore needs to be tailored-made and targeted on specific issues, such as gender and water or gender and energy, for example. Training should furthermore be systematic, continuous, and adapted to the duties and responsibilities assigned to each person within a division or project.
91. In the case of projects undertaken in the field, it cannot be said that traditional training in gender has been particularly effective in bringing about the required changes in sustainable development and environmental interventions.
92. A learning-by-doing or experiential learning approach has, however, greatly aided programme and project staff to incorporate gender issues within the project and programme cycle, to distil lessons from the field, and to support bottom-up policy development.
93. Of vital importance in this capacity building process is the need to build awareness of climate change issues among women’s organizations in Jordan. This will allow participating organizations to identify opportunities for their full participation in the processes and implementation of the Convention on Climate Change.
94. The importance of the development of a specific training protocol that will form an integral part of this Programme cannot be underestimated. Various institutions within Jordan can support this process, such as IUCN and UNDP.

XIV. Secure on-going commitments from funders to support the Programme for Mainstreaming Gender in Climate Change Efforts in Jordan

95. An intensive campaign for fundraising for the full implementation of this Programme will be necessary. As an initial activity, donor meetings could be conducted to present the Programme to interested parties.
96. Bilateral meetings with important international funding mechanism such as the GEF could be pursued and have proven very successful in other instances. A useful platform for such meetings could for example be the COPs and associated negotiating meetings.

BIBLIOGRAPHY:

Initial National Communication Report to UNFCCC, General Corporation for Environment Protection, 1999

Second National Communication Report to UNFCCC, Ministry of Environment, 2009

Draft National Environmental and Economic Development Study for Climate Change "NEEDs Report. May 2010"

Jordan Agenda 21, Towards Sustainable Development, UNDP, Amman, 2002

Jordan Environment Status Report, First Report, Ministry of Environment, Amman 2009

National Agenda, Jordan That We Want, 2006-2015, Amman 2006

Dos (2003): "Jordan Agricultural Statistics", National Department of Statistics.

Dos (2009): "Jordan Environment Statistics", National Department of Statistics.

Dos (2010): "Jordan Agricultural Statistics", National Department of Statistics.

DoS (2004): "Jordan Environmental Statistics Book 2003", National Department of Statistics.

JISM (2006) Jordan Institution for Standard and Metrology

The Millennium Development Goals Report 2010

MoMRAE (1991): "National Environmental Strategy", Ministry of Municipal, Rural affairs and the environment.

MoP (1995): "National Environmental Action Plan", Ministry of Planning.

MoWI (1998): "National Water Strategy", Ministry of Water and Irrigation.

MoPIC (2002): "National Socio-Economic Development Plan 2004- 2006", Ministry of Planning and International Cooperation.

MoA (2003): "National Strategy for Agricultural Development", Ministry of Agriculture.

MoSD (2003): "Poverty Alleviation Strategy", Ministry of Social Development.

MoEnv (2005): "National Strategy and Action Plan to Combat Desertification", Ministry of Environment.

IPCC [Core Writing Team, Houghton J. T., Ding Y., Griggs D.J., Noguer M., Trenberth, k., van der Linden, X. Dai, K. Maskell, and C.A. Johnson (eds.)]. (2001). *Climate change 2001: The Scientific Basis*. Part of the contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 881pp.

The World Bank. (2009). *Gender and Agriculture Sourcebook*. Washington

The Preliminary Results of the Population and Housing Census 2004, Government of Jordan.