



# **Forests , Rangelands and Climate Change in Jordan Near East Region Country Reports**

## **Introduction**

Jordan is a Mediterranean country that depends mostly on rain as its main water resource . recent years have witnessed shortage in the rainfall in different parts of the country .

As a result , numerous streams have dried out , underground water level has fallen to critical levels.

In addition , extreme weather conditions such as flash food during winter and heat waves during summer are becoming more frequent in the region . these conditions are direct consequences of global climate changes that have recently been affecting several locations , which are dramatically impacting wide ranges of ecosystems .

Jordan is currently facing several environmental challenges . recent studies and monitoring programme have indicated that water scarcity and air pollution ( although concentrated in hot spots of industrials and urban development ) are at the top of the list and are expected to be aggravated by climate change .

Land degradation ( desertification ) is another challenge that affects productivity of rangelands, forests and other ecosystem services in Jordan.

Although Jordan has made considerable progress in conserving biodiversity resources and establishing protected areas , concerned agencies still need to address these areas .

Moreover , Jordan is facing challenges with solid waste management .

Concerning climate change , Jordan contributes very little to global emissions—carbon emission in Jordan are estimated to be around 0.1 per cent of global emission .

However , similar to many other countries , climate change will likely affect Jordan .

Negative effects of climate change would include a reduction in agricultural productivity , drought , an aggravated water scarcity problem and land degradation .

## **Feathers of the forest sector in Jordan**

Forests in Jordan consist of both natural and man-made forests including windbreaks and shelter belts.

The forests cover an area estimated ( 87 000 ha ) in addition to about 2405 km of roadside plantations .

Although Jordan has less than 1 per cent forest cover .

The forest land consist of scattered fragments with little natural regeneration .

Cultivated agricultural fields are integrated into the forest lands , making it difficult to control grazing, tree cutting and land encroachment for urban and agricultural expansion .

Many factors contribute to the degradation of Jordanian forests . overgrazing , overexploitation and forest clearing are causing a serious depletion in forests , because these practices lead to soil erosion , watershed destabilization microclimate changes .

There is a permanent threat to sustainable soil and water management for agricultural due to the environmental degradation of upper watersheds.

In addition , fuel wood is illegally harvested in several areas at a faster rate than natural regeneration can support .

Inadequate forest management and fire control exacerbate this problem.

Conversion of forest lands into other land uses such as agricultural , building , and development zones is also contributing to the depletion of forest areas. One of the main problems in Jordan in managing natural resources , and forest in particular , is the weak enforcement of laws and regulations.

The failure to have appropriate legal enforcement and to take legal action against some violations certainly affects the sustainable and effective management of the forest resources .

Forest areas are fragmented without clear demarcation , and some locations contain no clear boundaries .

The current management approach for forest areas lacks the proper mechanism to involve the local community or other key stakeholders , such as the private sector .

The insufficient budget allocation in general and to extension in particular results in a lack of awareness and extension activities that focus on forest resources and the roles they play with respect to the environment and the local economy.

### **Afforestation activities**

In Jordan , there are currently 14 permanent tree nurseries that make different species of plants available for afforestation programmes .

Afforestation is carried out to protect and improve existing forest as well as to improve the semi-arid conditions , soil conservation (windbreaking) , and greening the landscape.

The draft forest policy addresses as a priority the quality and survival rates of such plantations . there is a need to conduct an evaluation for these activities in order to improve afforestation activities.

Afforestation activities on degraded land have at times caused serious conflict with local people who previously used such areas as free grazing land.

ongoing afforestation activities include roadside afforestation , at an average of 120 km per year , afforestation at dam banks , and production of forest seedlings in forest nurseries , at a rate of five million seedling annually.

### **Assistance required**

Activities that promote the participation of the local communities in conservation efforts and the sustainable management of resources.

### **Recent climatic activities and projects in Jordan**

1.The National Strategy for Agricultural Development (NSAD) for the 2000-2010.

## 2. Agricultural Document

The Agricultural Document , launched in 2009 , aims to discuss and address barriers to agricultural development .

## 3. National Biodiversity Strategy and Action Plan

The Jordanian National Biodiversity Strategy and Action Plan is a response to the obligations of the convention on biodiversity diversity .

The NBSAP has been developed as a guide to the implementation of the biodiversity convention in the country . it was published by the MoE in 2002 and based on a national consultation process.

## 4. National Action Programme to Combat Desertification

The National Action Programme to Combat Desertification provides guidelines of the national actions needed to combat desertification in Jordan. it outlines in detail the basis for performing the relevant tasks, objectives , activities and methodology for combating desertification in Jordan .



This National Action Plan to Combat Desertification also describes the present institutional framework of government institutions and non-government organizations responsible for or active in the field of combating desertification.

5. National programme for Rangeland Rehabilitation and Development .

.National Afforestation Project

7.Green Belt Project

8.Forest land surrounding the project Dams

9.Development project nursery

10.Forest Protection Project

## **Recommendations**

A. Clearly and effectively integrate forest development and management into relevant national development plans and strategies.

- B. Facilitate and support private sector investment in forest management by carrying out policy reforms and institutional strengthening , which would create , for instance , incentives and tax exemptions.
- C. Create adequate awareness among decision-makers with regard to the potential contribution of forests in national sustainable development.
- D. Develop and establish positive incentives for the private sector, NGOs, private citizens to reduce the loss of forests, to promote reforestation , afforestation aspects of the projects.
- E. There is an urgent need to have a coordination mechanism that is legally established or ( at least) operable under current legislation . a coordinating body government this mechanism should have a clear mandate, financial autonomy , and an institutional framework .

This would allow the entity to coordinate efficiently different efforts related to SFM through the implementation of strategies and plans, thus satisfying the commitments made to achieving sustainable management objectives .

This proposed coordination body could , during its creation , benefit from lessons learned from other similar coordination mechanism (such the national committee for combating desertification and the national committee for biodiversity ).

F. Most international donors consider the water and environmental sectors as high priority in Jordan . present the projects to those donors in such a way that shows the linkages between forests and watershed environment management , such as watershed management.

## **Conclusion**

Data from six meteorological stations were examined using several tests in order to detect any changes in air temperature , relative humidity and precipitation over last decades . our findings revealed that minimum air temperature has increased since the seventies of the last century . this increase indicates a slight changes in regional climate .

Rainfall records have revealed that precipitation has been fluctuating at all stations and no statistical trends of increase or decrease in the annual precipitations indicating climatic change were detected .

Annual maximum air temperature records do not show clear trends , but annual minimum temperatures have increased while the annual range of temperature have decreased .decreasing temperature range proves that the earth is becoming more efficient in trapping terrestrial infrared radiation , which is responsible of the global warming.

Studies have come up with important findings , they pointed out that Jordan is indeed being affected by the global warming .