

Ministry of Agriculture & Irrigation

Gen. Directorate of Forests Ranges & Desertification control

PRMOTING SUSTAINABLE FARMING IN MOUNTAIN REGIONS (YEMEN)

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1-Background

- **1-1 - General Information of Yemen:**

Yemen is an arid Middle Eastern country, occupying an area of 455000 Km² at the southern end of Arabian Peninsula. It is bordered to the North by Saudi Arabia , to the East by Oman , and to the South and West by a 2,200 Km Coastline along the Gulf of Aden , Arabian Sea and the Red Sea

- It has population estimated at about 22 Millions (according to the census of 2004). The population density is centered in the highlands areas. Yemen has one of the highest population growth rates in the world around 3.1%.
- It has many islands in the Red Sea and Arabian Sea, the largest one is Socotra Archipelago on the Arab sea .



Figure 1-1 Map of Yemen

1-2 Geographic Characteristics:

• Yemen is characterized by five major land systems, as follows:

- Hot and humid coastal plain.**
- Temperate Highlands.**
- High Plateaus (Hadramaut and Mahra Upland).**
- Desert interior .**
- Islands.**

• Some of Yemen's ecological zones are confined to small areas(e.g. Islands), with human communities , flora and Fauna highly adapted to subsist with them.

Other Zones are much larger(e.g. Temperate Highlands) and support the majority of the country's Agricultural production.

1-3 Climatic characteristics:

- Rainfall varies widely across of the country, from less then 50 mm along the coast areas, rising with the topography to between 500 and 800 mm in the Western highlands, and dropping again to below 50mm in the desert interior.**
- Regarding to temperature depends on elevation. Mean annual temperature range from 12 c° in the highlands to 30 c° in the costal plains.**

2- Natural Resources Management in the Mountainous area

2-1 Water:

- In the last three decades the country has fallen into a water crisis characterized by very rapid mining of the groundwater resources.
- This is reflected also on mountainous areas where has created environmental deterioration such as loss most of biodiversity, abandonment of terraces, deterioration of plantation covering and etc..



Natural Resources Management (Cont.)

2-2 The vegetation cover and woodlands :

- The vegetation cover in Yemen about 2.4million hectare. Around 2 million ha. woodlands, 0.4 million ha. agro-forestry area. These resources are regionally distributed as follows: Western highlands and foot slopes 76% , central highlands 17%, coastal plains 7% , and less 0.7% in Al-Mahara governorate.



- Also around 22 millions ha. classified as rangelands and woodlands definition are not clear.



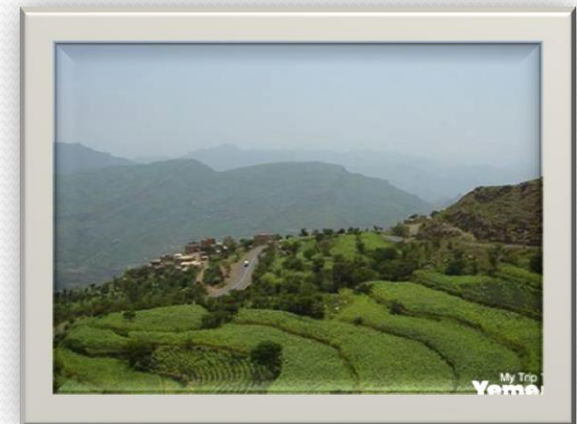
Natural Resources Management (Cont.)

2-3 Land use:

Only 2.2 percent of Yemen is considered to be arable land, and less than 0.6 percent of the land is planted with permanent crops. About 6,801 km² of the land is irrigated. According to the [United Nations](#).

- Most of mountainous area are watershed, which is estimated by 60% of total area in Yemen. In this system major activities are crops, coffee, some fruits.

- Most of the people in this system depends on mountainous resources specially forest-pastoral activates..

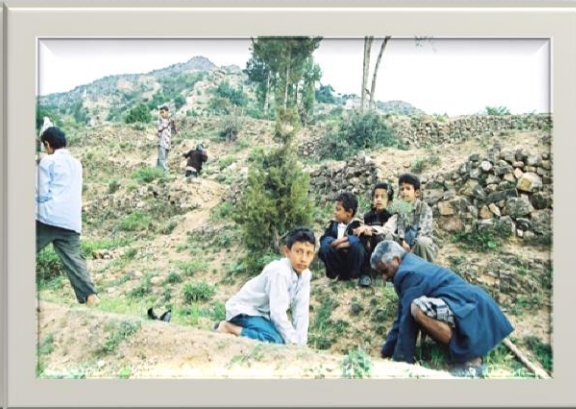


Types of Land degradation

Area (sq km)	Type of Land
48568.97	Desert Land
370.9	Chemical Degradation of land (Saline agriculture land)
58159.4	Land dunes
4752.5	Land degraded by heavy winds erosion
1029.4	Land degraded by light winds erosion
172.2	Physically degraded lands
281968.04	Rocky Land
6615.04	Mountainous Terraces
2721.54	Naturally Stable Land (Forests and trees)
6439.6	Land affected by water light erosion
18468.13	Land affected by water medium erosion
25798.35	Land degraded by water heavy erosion
483.46	Wet lands (Sabkha)

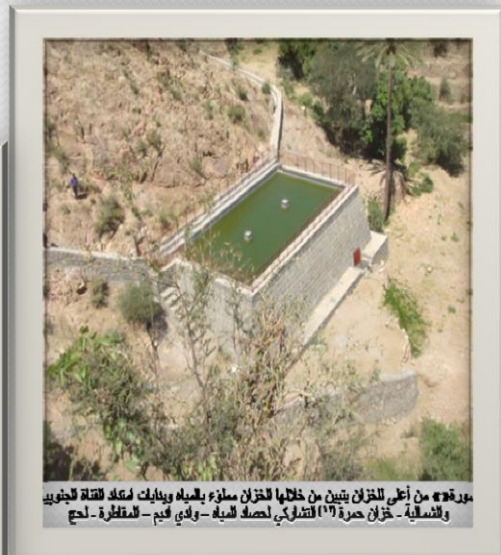
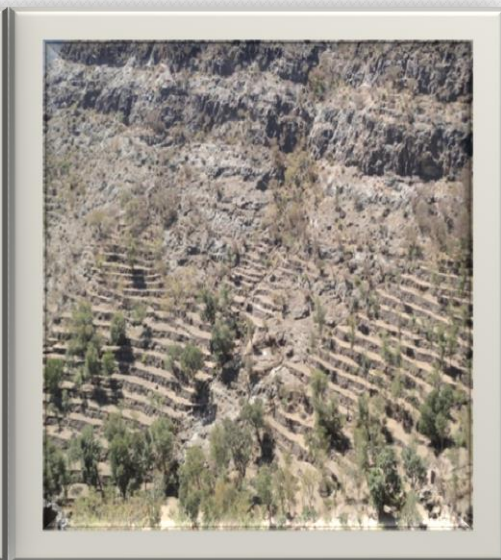
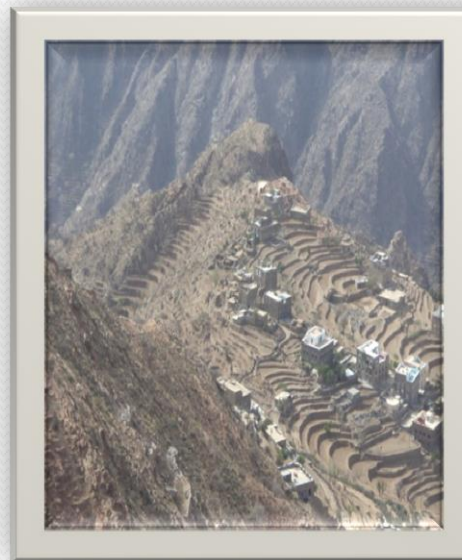
3- Interventions in the mountainous area:

- Halve moon and stripe Water harvesting system.
- Coffee plantation .
- Reforestation .
- Water basin for livestock



Interventions (cont)

- Terraces Rehabilitation
- Water harvesting for supplement irrigation.
- Road construction



مرفوعة من أعلى الخزانات بتبين من خلالها الخزانات مملوءة بالمياه ويهايك لتعكس لثلاثة الجنوبين والنسائية - خزان حمرة (١٧) التشاركي لحصك للمياه - وادي قديم - للمقطرة - لحج

3- Challenges

3-1 Water:

- The water crisis in Yemen has the potential to cause the destruction of the nation.
- It is affected by a sharp population increase, misguided agricultural policies, growing of Qat (local water consuming shrub), a lack of governmental regulation on using water, and a vulnerable climate to global warming.



3-2 Vegetation cover:

It is effected by many following factors:

- Natural factors: low rainfall, drought, water erosion , wind erosion, floods.**
- Socio-economic factors: Cutting of trees and shrubs for firewood , construction , over grazing of livestock , cultivation and expansion of buildings and cities.**



3- Challenges (Cont.)1

3-3 Land use:

It is effected by many factors such as water and wind erosion , climate change pattern (drought and flooding), migration, high cost of production, high cost of maintenances, low yield and returns. Small terraces areas, construction of roads, and wrong agricultural techniques



Recommendations

- **Implementation of policy statements concerning people participation for natural resources conservation .**
- **Insure for rural people awareness to use natural resources on sustainable manner.**
- **Involving rural women in project plans for watershed management.**
- **Increase budget for watershed management activities (locally and Internationally).**
- **Develop the regulations and laws with regard to natural resources conservation aspects.**

Thank you
for your attention

