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Expert Group Meeting on Sustainable Land Management
as a Best Practice to Enhance Rural Development
in the ESCWA Region
Beirut, 25 – 27 March 2009

Land Management in Drought Planning

by

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Palestine

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UN-ESCWA
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Factors Inducing Land Degradation in Palestine

1. Human Induced Factors:

- *Historical Aspects*
- *Political Aspects*
- *Socioeconomic Aspects*
- *Absence of Land Use Planning*

2. Natural Factors:

- *Climate*
- *Scarcity of Water*
- *Geomorphology*

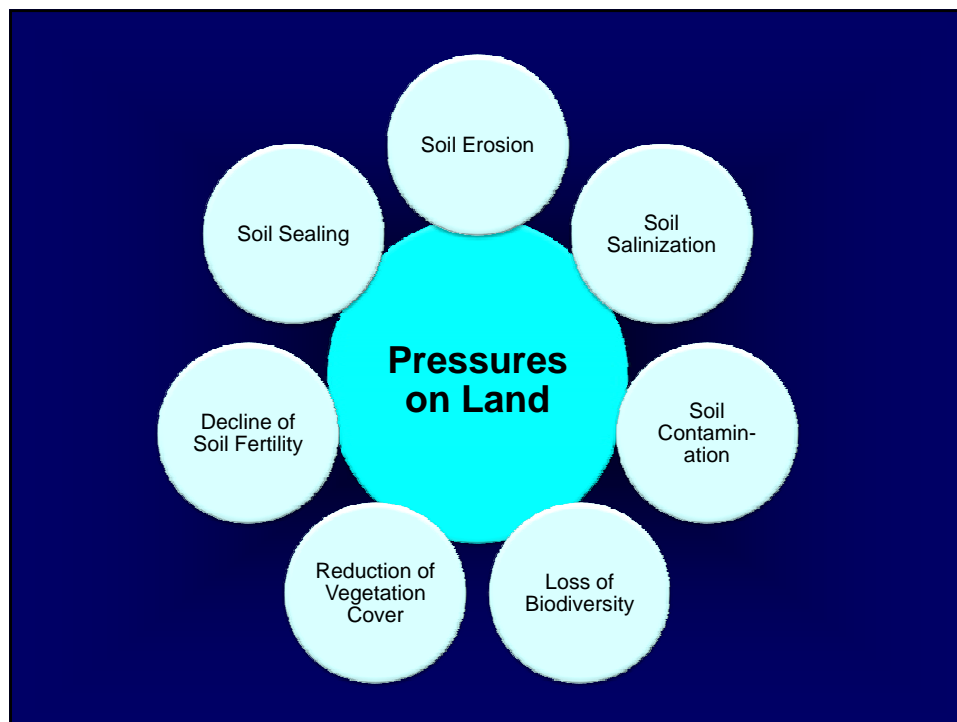
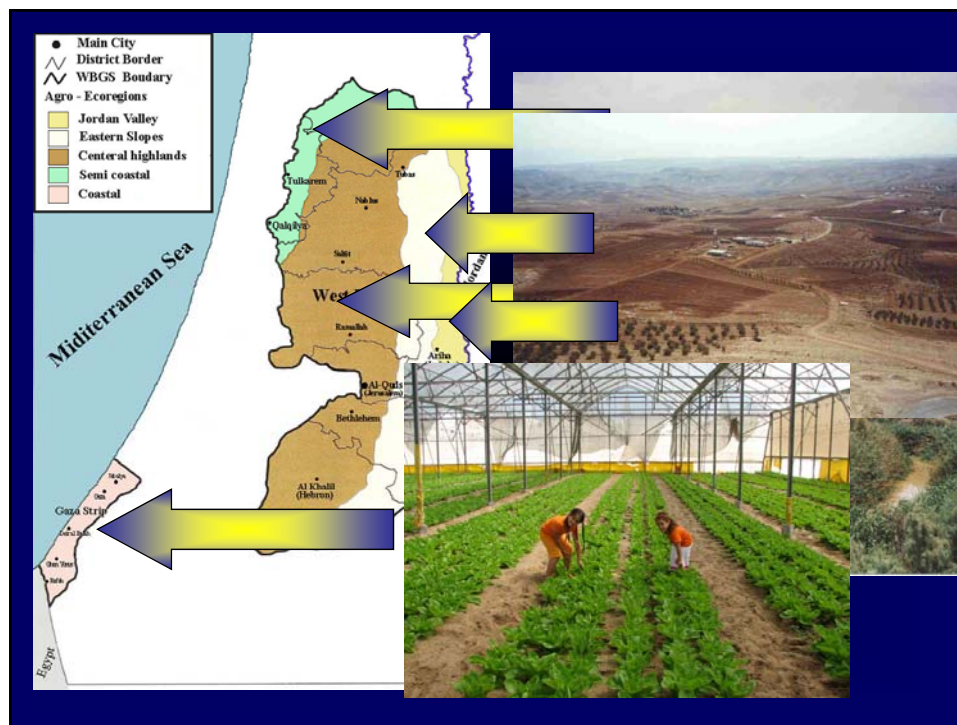
Climate Classification of the West Bank

Legend:

- Arid
- Extremely Arid
- Humid
- Hyper Arid
- Semi Arid
- Subhumid

Land Research Center
Jerusalem

0 5 10 20 30 40
kilometers



Drought in Palestine (1998/99 season)

- ☒ PA has declared a state of emergency because rainfall in WB was 40% below normal.
- ☒ Drought has caused losses of 400 M. US\$
 - ☒ Barley prices have increased from \$120 to \$132 per ton.
 - ☒ 75% of Palestinian livestock breeders depended on fodder to supplement grazing.
 - ☒ Breeders had to spend \$11 M. to feed their animals that summer and also paid extra money to buy water.
 - ☒ Rain-fed farming has totally collapsed.
 - ☒ Irrigated agriculture has also been affected.
 - ☒ Palestinians were forced into the black market to purchase water, consuming up to 20 percent of their income on this item.
 - ☒ Palestinians paying \$4 per cubic meter (including delivery costs) for water costing Israelis \$0.50-\$1.00 per cubic meter.

Drought in Palestine (2007-2008 Season)

Total rainfall reached 67% of the annual average in WB

Total direct loss = 113.5 M US\$ (farm gate prices)

More than 200,000 small ruminants were affected.

Crop	Yield Reduction %	Losses Value M US\$
Wheat	40	6.9
Fodder Crops	35	4.5
Fruits	35	10.6
Olive	40	60.7
Grape	35	14.1

Impact of Drought on Land Management

- ☼ Distortion of sustainable management
 - ☑ Impact on land use, cover, and suitability.
 - ☑ Erosion due to wind and run off resulted from thunderstorms and overgrazing in range land and pasture.
 - ☑ The long-term loss in farm production.
 - ☑ Deterioration of land quality.
 - ☑ The Impact of wildfires on remove vegetation and soil backing.
 - ☑ Impact on soil biodiversity.
 - ☑ Long term impacts of mitigation measures (non-conventional water).
- ☼ Future conflicts related to environmental concerns.

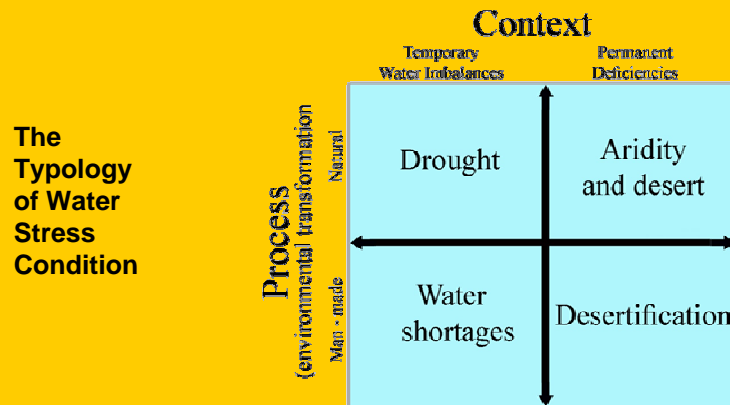
CONCEPT OF DROUGHT

Drought is the consequence of a natural reduction in the amount of precipitation received over an extended period of time, usually a season or more in length, although other climatic factors are often associated with it can significantly aggravate the severity of the event. Drought is also related to the timing and the effectiveness of the rains. Thus, each drought year is unique in its climatic characteristics and impacts

Drought differs from other natural hazards in several ways:

1. Slow-onset, creeping phenomenon.
2. Duration from months to years.
3. No single indicator or index applied in all conditions.
4. No universal definition.
5. Nonstructural and cumulative impacts.
6. Great spatial extent.

The misunderstanding of drought, as a temporary natural event, and desertification as a permanent man-made event, is misleading planner and policy makers in conceptualize, analyze, and propose the appropriated plans and interventions.



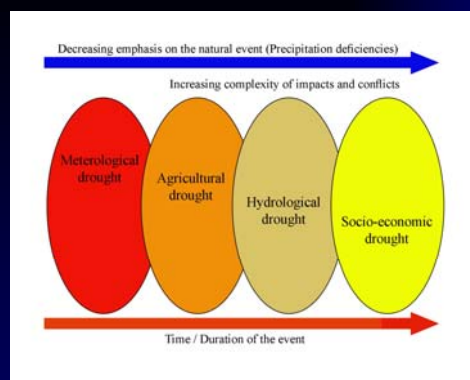
Dimension of Drought Impact

☀ **Meteorological D.** (degree and duration of dryness).

☀ **Agricultural D.** (effect of water shortages on plants, crops and yield productivity).

☀ **Hydrological D.** (effect of precipitation shortfall on surface or subsurface water supply).

☀ **Socioeconomic D.** (supply of and demand for some economic goods with elements of meteorological, agricultural, and hydrological drought).



The Cycle of Disaster Management

- ☀ Managers and decision makers react to drought from a crisis perspective.
- ☀ Society has moved from one disaster to another.
- ☀ Many response measures increased vulnerability.
- ☀ Update strategies and action plans to include prevention approach to reduce risk and vulnerability to extreme events.
- ☀ Protection and recovery planning means the use of all parts of disaster management cycle.



Why Plan for Drought

- ☀ To provide a dynamic framework to assess an ongoing set of actions to prepare for and effectively respond to drought, including periodic reviews of achievements and priorities, readjustment of goals, means and resources, as well as strengthening institutional arrangements, planning, and policy making mechanisms for drought mitigation.
- ☀ To reduce the impact of drought.
- ☀ To practice risk management rather than crisis management.
- ☀ To give decision makers the chance to relieve the suffering population or/and economic sector.
- ☀ To develop drought policy that anticipates and resolve conflicts between natural resource users.

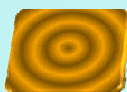
The Drought Planning Process



MEDROPLAN PROJECT

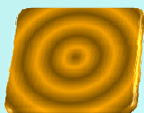
The Operational Component : Identifying both the long and short term activities and actions that can be implemented to mitigate and prevent drought impacts.

Short Term measures



- Water supply management
- Water Demand Management
- Mitigate Impact
- Agricultural Practices (Land management)

Long Term measures



- Water supply management
- Water Demand Management
- Mitigate Impact
- Agricultural Practices (Land management)

Short Term Mitigation Measures

- ✱ Estimating water requirement and agricultural drought risk (*threshold cost*).
- ✱ The quantification of the overall drought risk of agricultural systems
- ✱ Improving soil management practices
 - ☑ Improving water retention.
 - ☑ Increasing the soil water storage capacity.
 - ☑ Increasing soil infiltration.
 - ☑ Controlling evaporation from the soil.
 - ☑ Enhancing the water harvesting to control runoff.
- ✱ Reducing crop water requirement (deficit Irrigation) .
- ✱ Crop insurance schemes.
- ✱ Change in land cultivation practices (tillage, mulching, ... etc).
- ✱ Introducing of drought and salinity tolerant crops.
- ✱ Encouraging the Agroforestry Practice .
- ✱ Using of non conventional water.
- ✱ Change crop pattern and varieties.

Long Term Mitigation Measures

- ☑ Making climate prediction match farmer needs .
- ☑ Improving the skill of farmer to use climate information in making decision on farm basis.
- ☑ Complementing of soil data base with climate, land use, land cover, and other possible data.
- ☑ The Importance of soil parameters in building efficient early warning system and drought agricultural indices.
- ☑ Implementing new technologies and management approaches for allocating and controlling the water and land uses.
- ☑ Compiling the drought management with the driving forces governing the pressure on the resources themselves, the behavior of the users, and the diverse human and social objectives.
- ☑ Finding the Legal and institutional Framework .
- ☑ Enhancing the cooperation among research centers and Universities.
- ☑ Introducing new crops and species of drought tolerant crops (forage crops).

Water, Legal, and Human Factors and Land Management

- ☀ The identification of the necessary tasks, policy tools, organizational design and institutional framework to achieve and sustain high productivity of water and land in agriculture should be implied in the elements of managing system.
- ☀ In the utilization of land and water, the balance between the processes of soil formation and soil degradation, as well as the maintenance in the quantity and quality of water should be integrated with the ecological function and future demands for water and land.
- ☀ The equitability in resources distribution to maximize the resultant economic and social welfare should not compromised the sustainability of vital ecosystems.
- ☀ Formulating the proper natural resources legal and institutional systems where a range of procedural and administrative mechanisms will enable the planners to reconcile these competing issues and to respond for the primary interest of human and natural resources.

Important topics to be considered

- ☀ The vulnerability of Palestinian Natural resources.
- ☀ Land Management and restriction to accessibility.
- ☀ Variation in quantity and distribution of annual rainfall.
- ☀ Vulnerability of agricultural sector.
- ☀ Political situation.
- ☀ Technical context.
- ☀ Collective experience (previous lessons).
- ☀ Public prospective.

Conclusion

- It is very important to start formulating a drought policies to mitigate future drought and modify the management system
- Political will and commitment to take risk reduction measures.
- Adequate policy, institutional capacity and resources.
- Better awareness and understanding of the drought hazards and the underlying causes of societal vulnerability.
- Risk reduction is perceived as technical problems ignoring both social and economical factors.
- Coordination and flow of information.
- Inclusion of land management in national drought policy and preparedness plan.
- Consistency of drought management with the goals of sustainable development.

**THANK YOU
FOR
ATTENTION**