

Drafting National Action Plan To Manage Soil Salinity and Carbon Sequestration In NENA Region (2)

Talal Darwish
GSP-FAO Regional Soil Consultant

State, causes and response to Low Soil Organic Carbon Stock in NENA Region

- Soils in most NENA countries are distributed in arid and semi arid climate.
- Vegetation cover is almost poor and the return of organic matter to the soil is restricted by rare vegetation, nomadic land use and unsustainable management of soil resources.
- Dominance of mining agriculture and uncontrolled grazing.
- What is the picture in every member country?
- Analysis of the national and local causative factors behind reduced SOC content and SOC stock.
- Development of management measures to prevent and reduce the hazards of soil degradation by erosion and increase SOC stock and maintain soil quality (health).

Development of national action plan for the sustainable management of soil resources.

The ministers of Agriculture of more than 68 countries meeting in Berlin in January 2022 announced: Food Security Starts with the Soil.

Global Forum for Food and Agriculture 2022 – Sustainable Land Use: Food Security Starts with the Soil

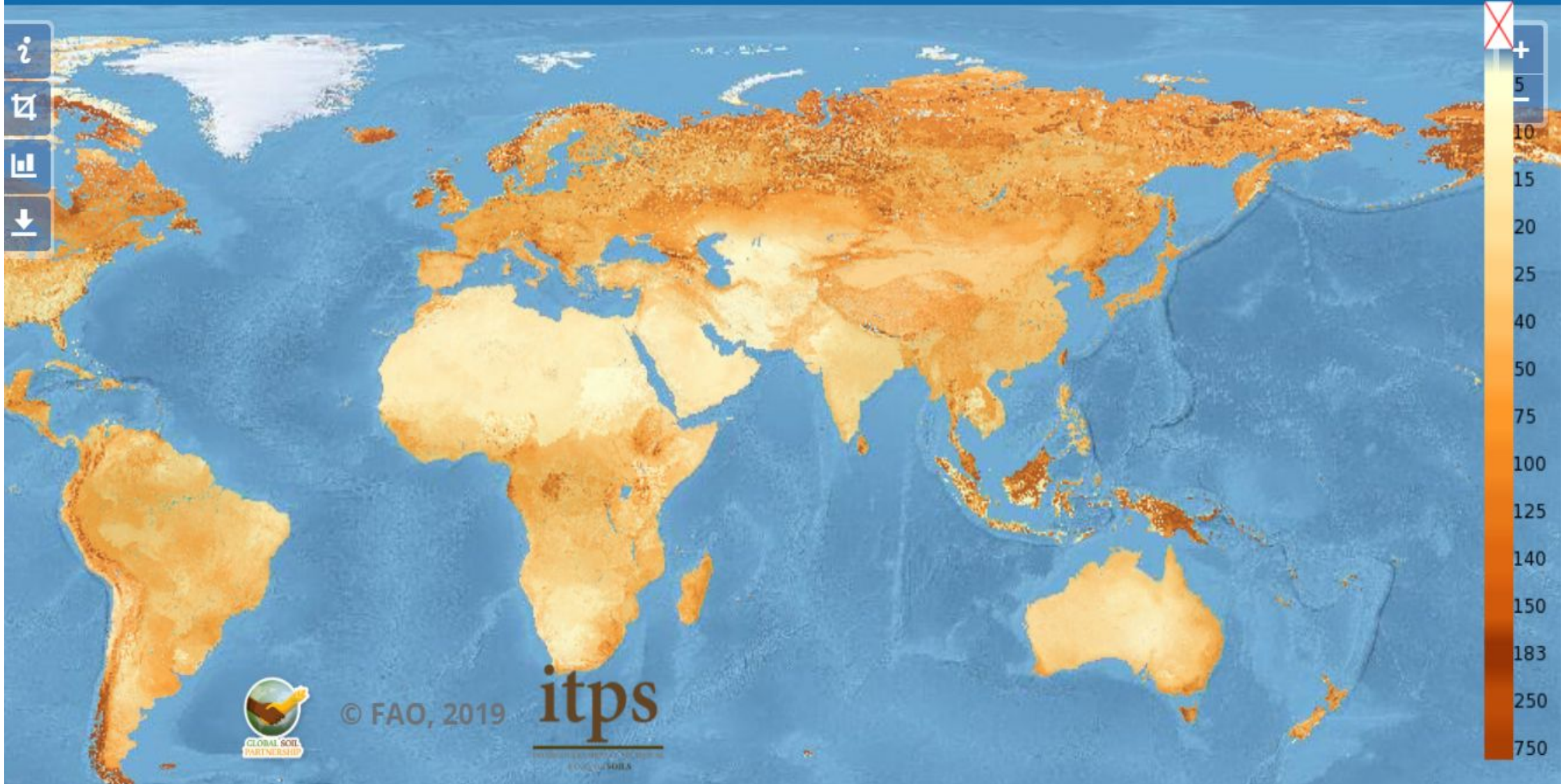
24 - 28 January 2022 | Online



GLOSI - GSOCmap (v1.5.0)

Global Soil Organic Carbon Map. Contributing Countries.

SOC tonnes.ha-1



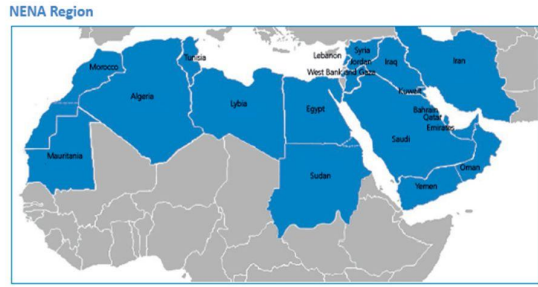
GLOBAL SOIL ORGANIC CARBON MAP (GSOCmap)



The poorest OC stock in NENA

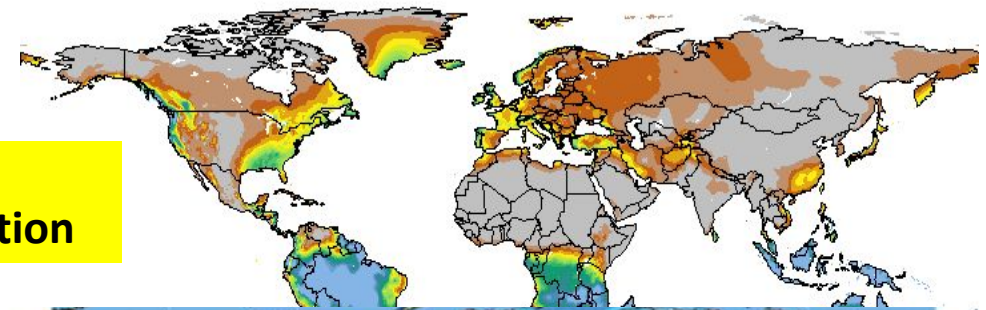


Climatic Conditions NENA

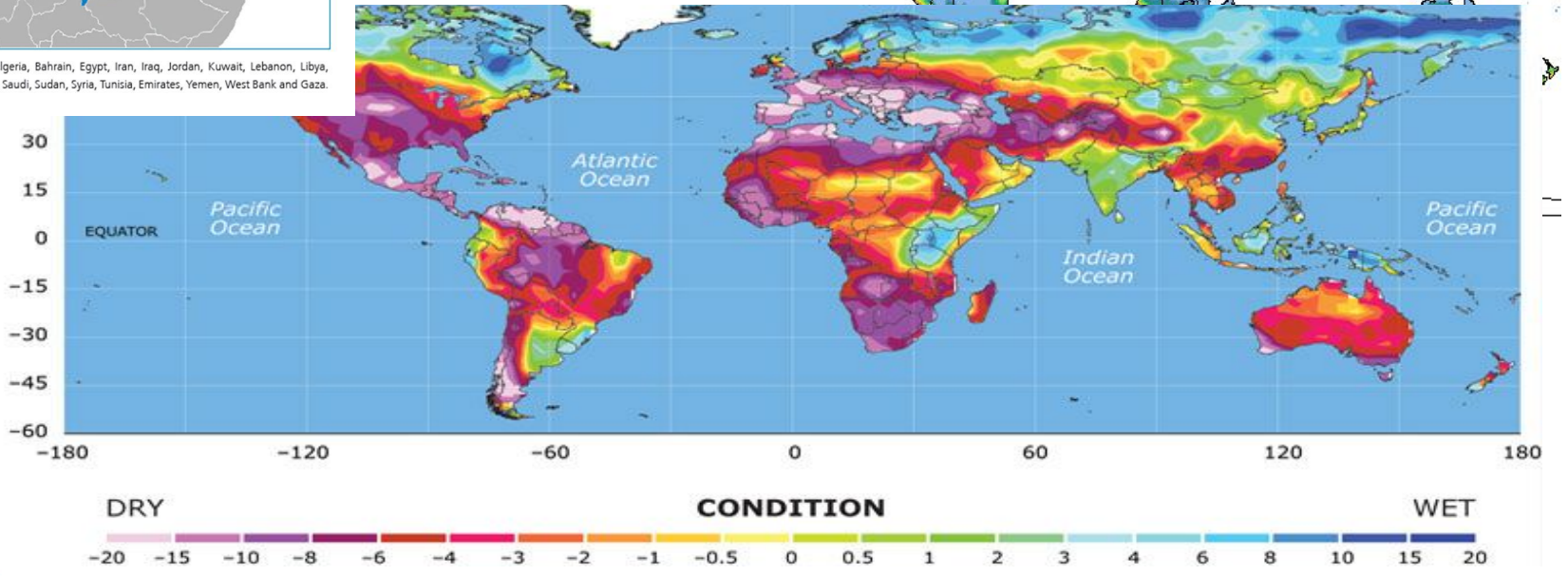


Countries of the NENA region: Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Saudi, Sudan, Syria, Tunisia, Emirates, Yemen, West Bank and Gaza.

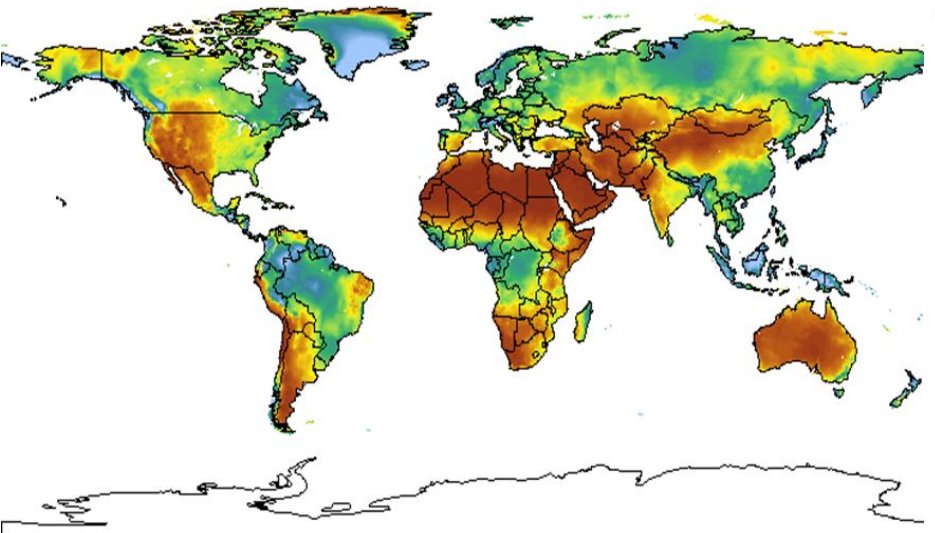
Monthly precipitation



Projections into 2090-2099

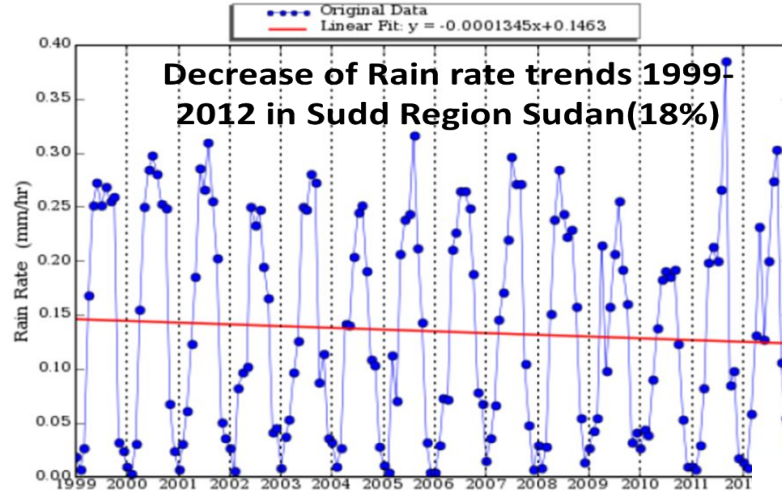


Ratio precipitation/potential evapotranspiration

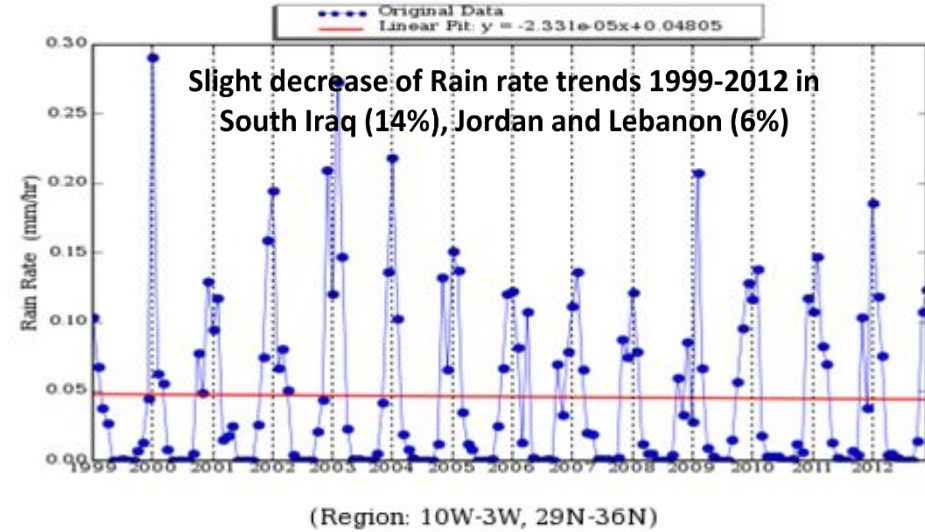


Climate Change and variability in NENA Region

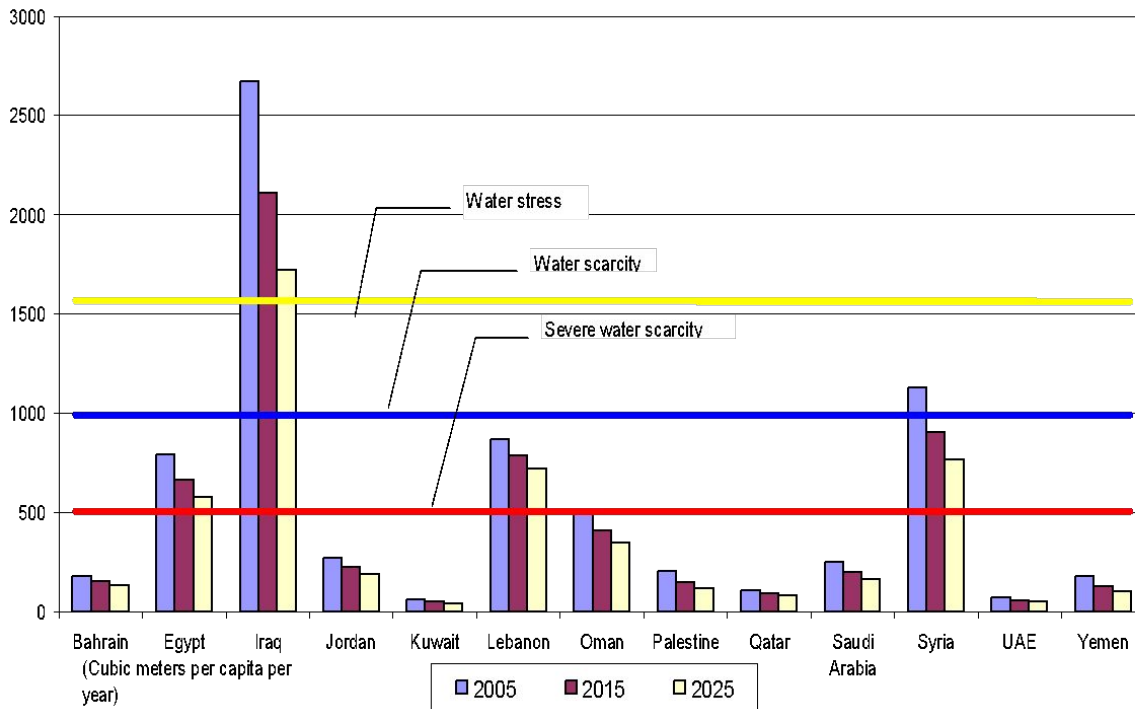
Area-Averaged Time Series (TRMM_3B43.007)
(Region: 31E-36E, 5N-10N)



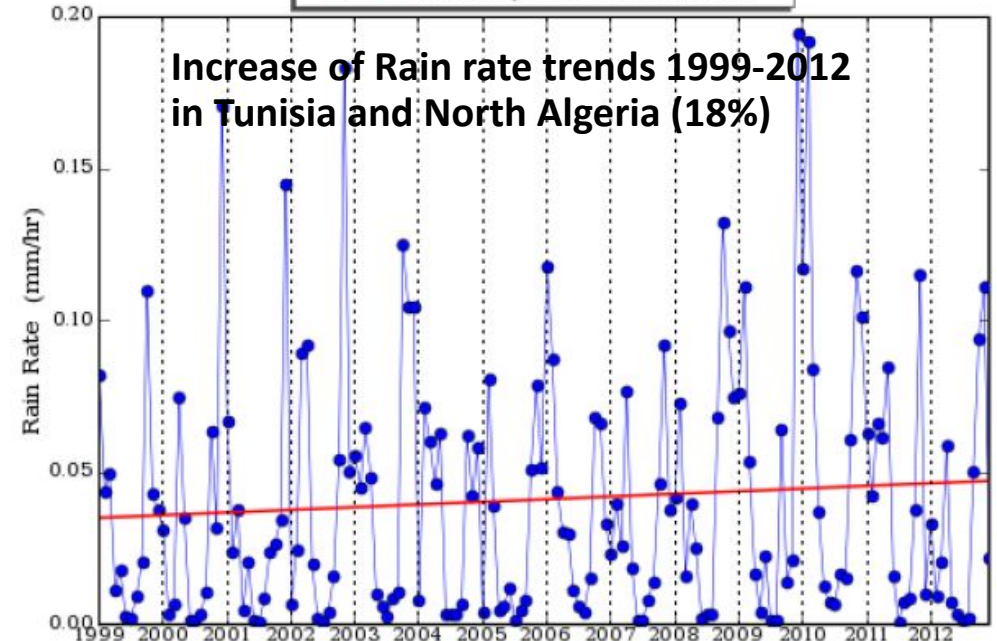
Area-Averaged Time Series (TRMM_3B43.007)
(Region: 34E-36E, 31N-33N)



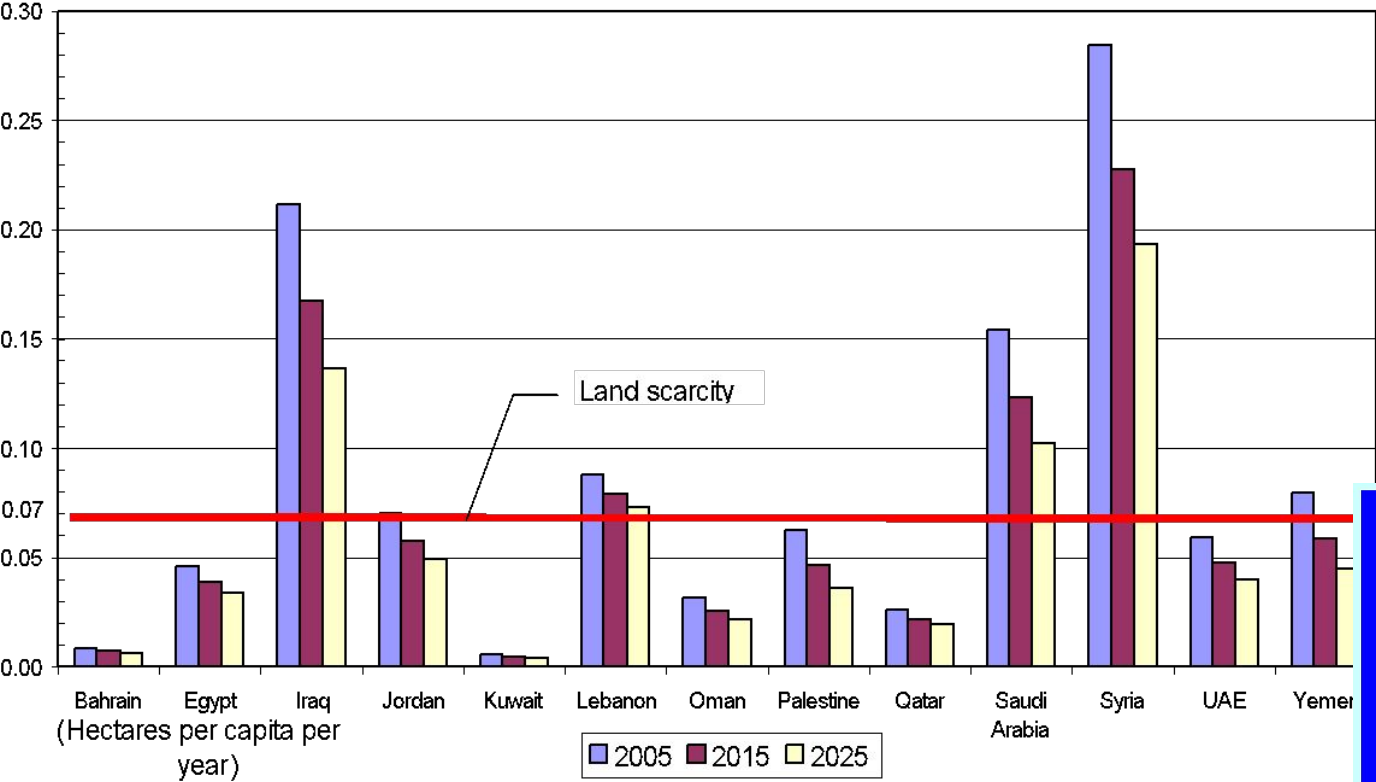
Per Capita Water Availability in the West Asia Region



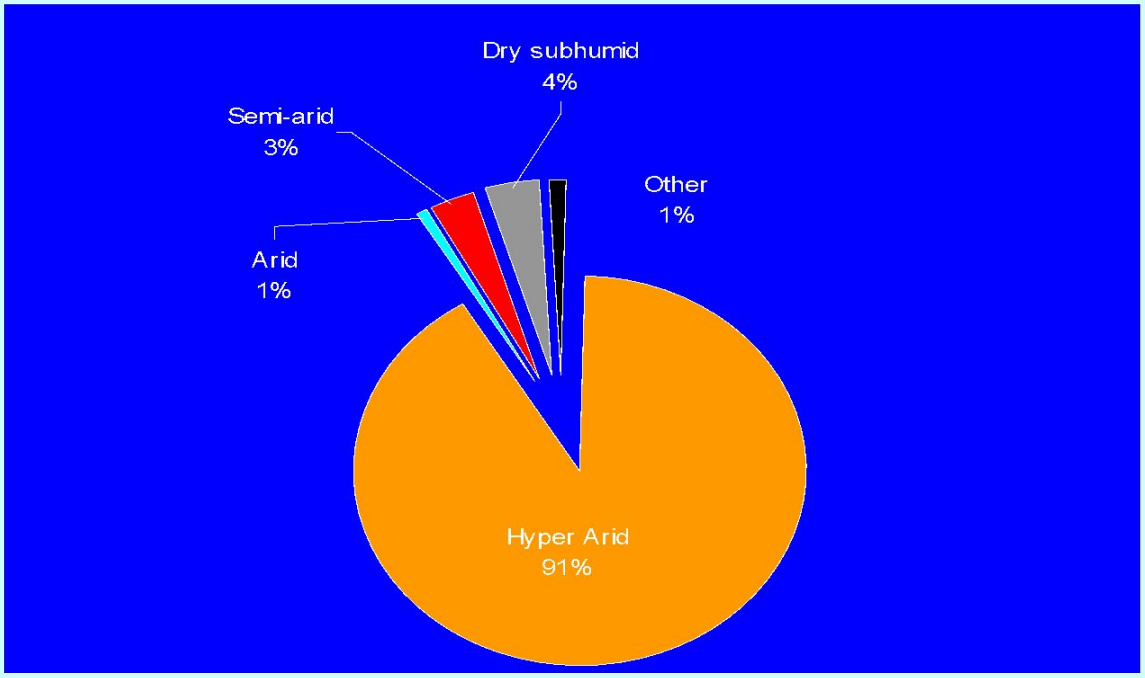
Original Data
Linear Fit: $y = 7.29e-05x + 0.03518$



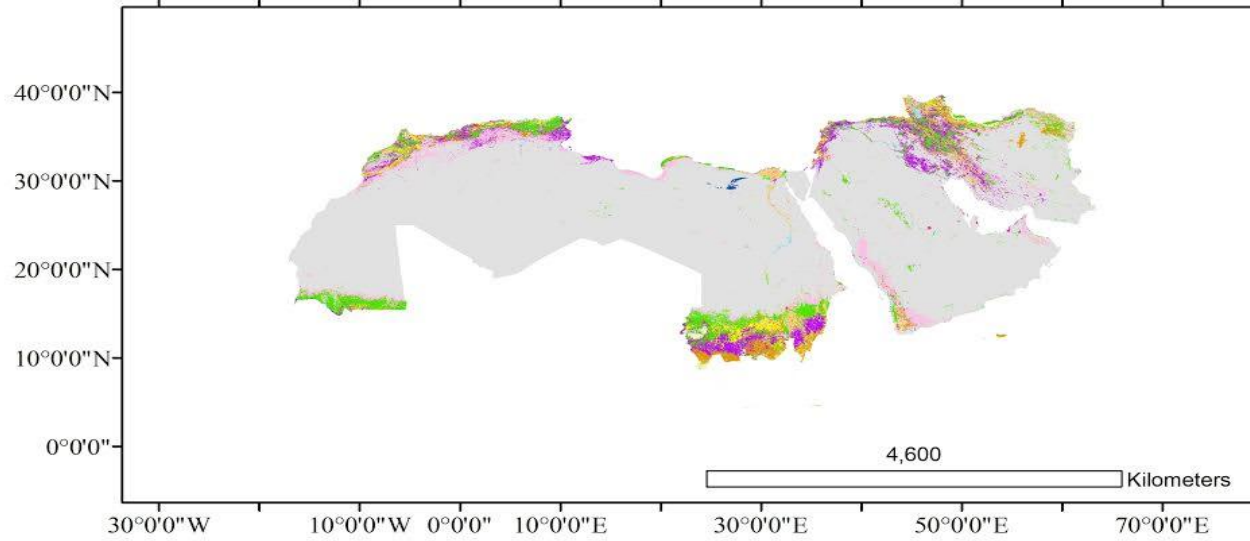
Per Capita Cultivated Land Availability in the West Asia Region



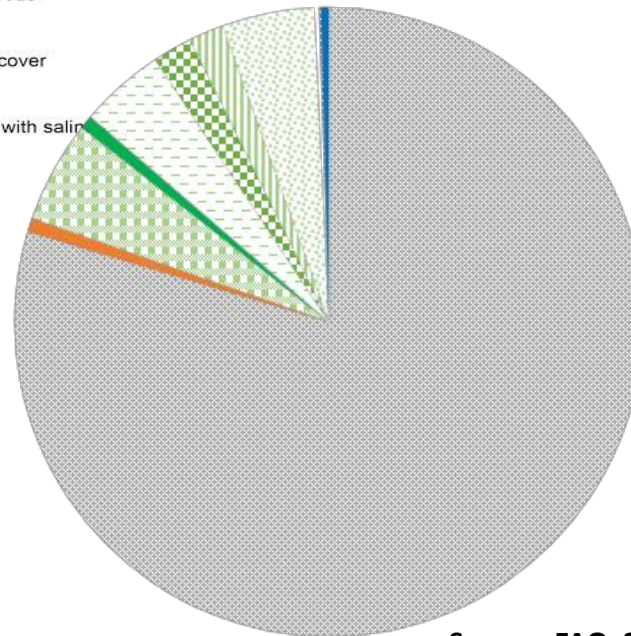
Dryland Areas in the ESCWA Region



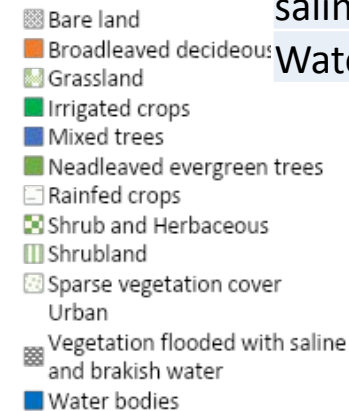
Land cover land use NENA



Legend



Bare land	79.64
Broadleaved deciduous trees	0.70
Grassland	5.27
Irrigated crops	0.66
Mixed trees	0.00
Needleleaved evergreen trees	0.02
Rainfed crops	4.39
Shrub and Herbaceous	2.03
Shrubland	1.79
Sparse vegetation cover	4.75
Urban	0.23
Vegetation flooded with saline and brakish water	0.12
Water bodies	0.39



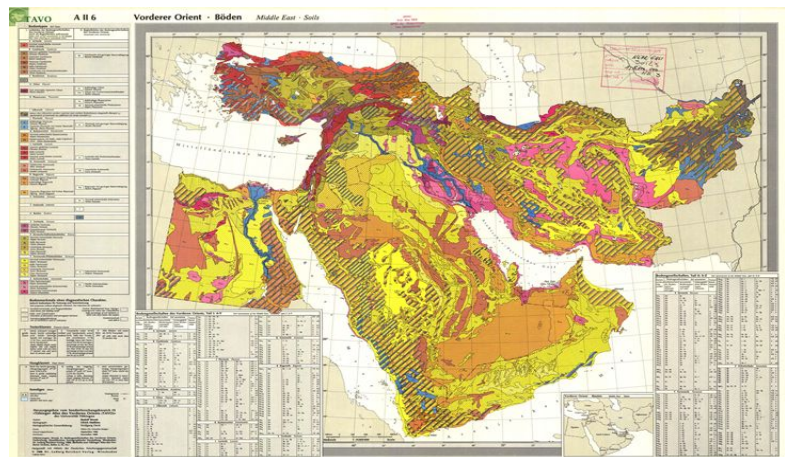
Source: FAO, 2003

Available Regional Soil Information (Soil Legacy)

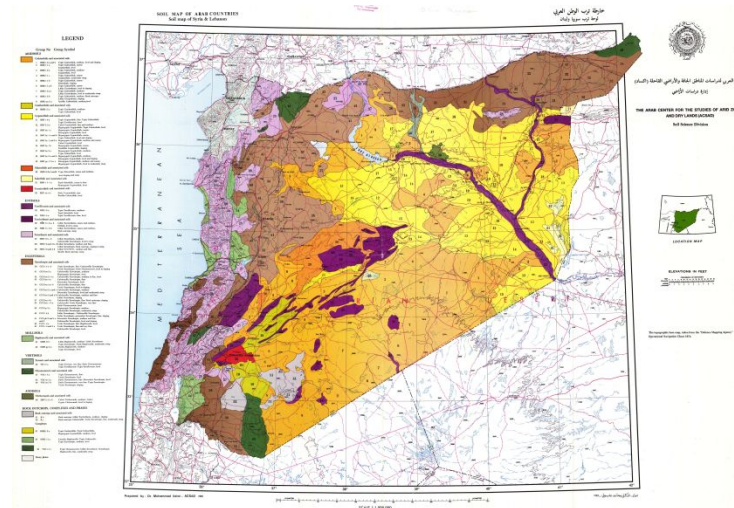


- Asia soil map (Russian Classification) 1030 maps of the Asian continent pertaining to soil and related studies were added to the European Digital Archive of Soil Maps: [EuDASM archive](http://EuDASM.archive).

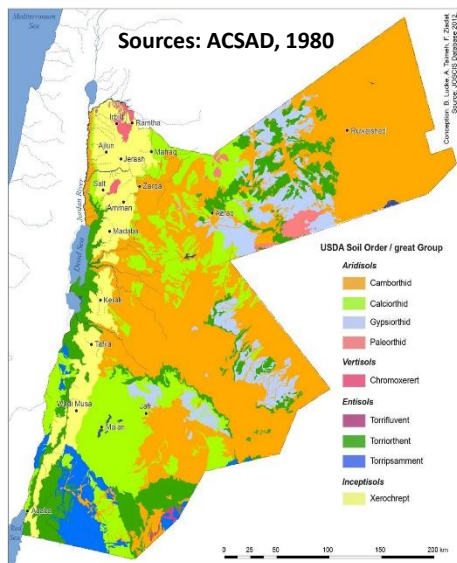
(Data source: Land and Water Development Division, FAO, Rome 2007)



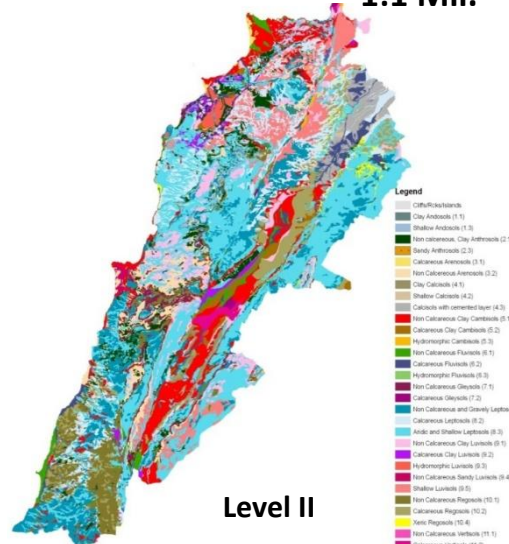
The Middle East Soil map



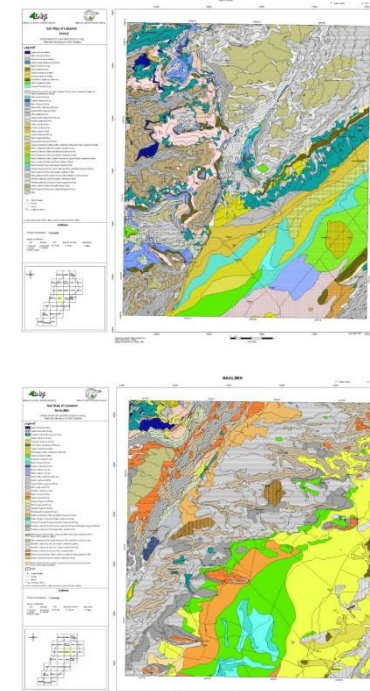
Soil Map of Syria and Lebanon Source: ACSAD, 1994 1:1 Mil.



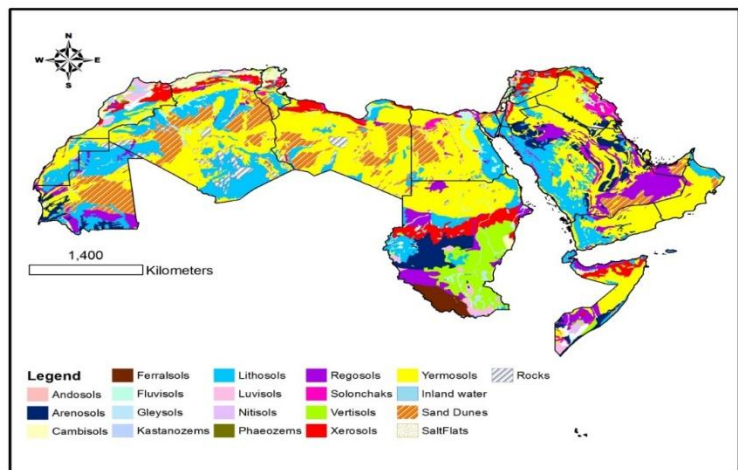
Soil Orders of Jordan 1:1000.000



Level II

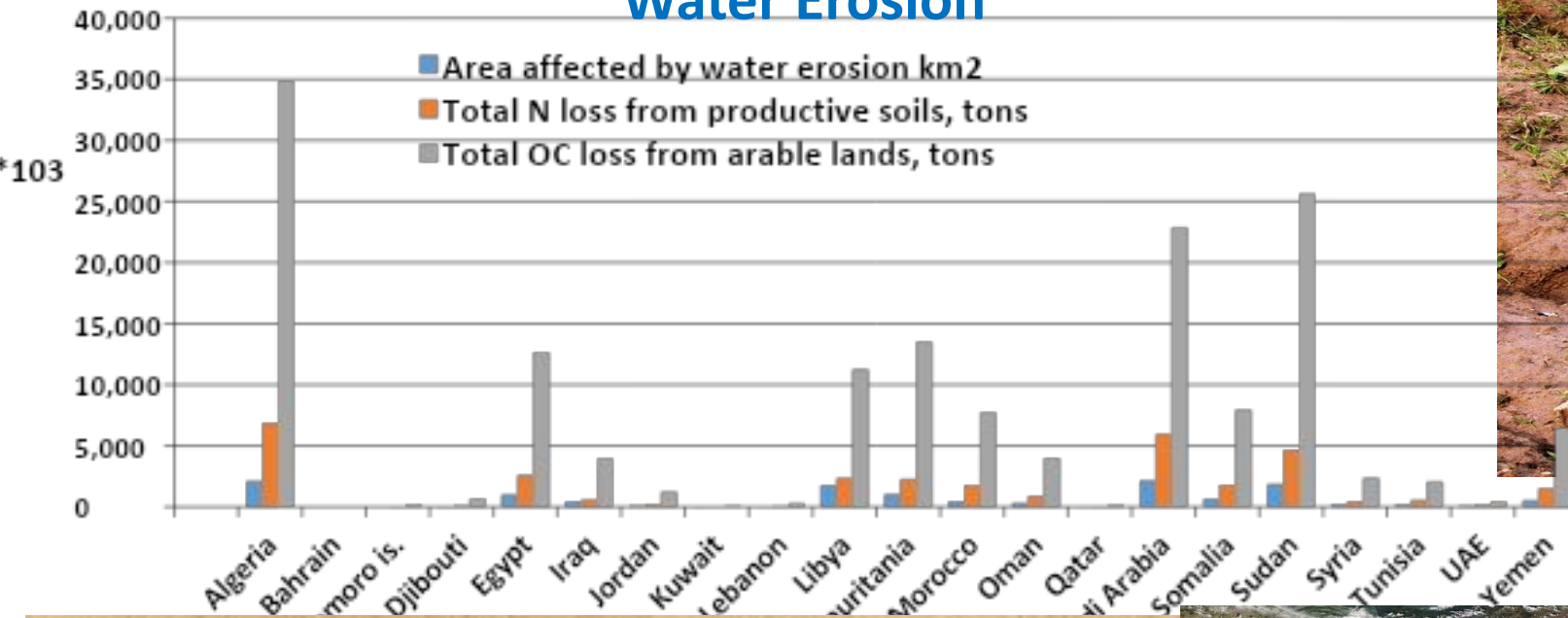


Level III



Soil Groups of East and South Mediterranean based on soil data from the DSMW (1:5 Mil.)

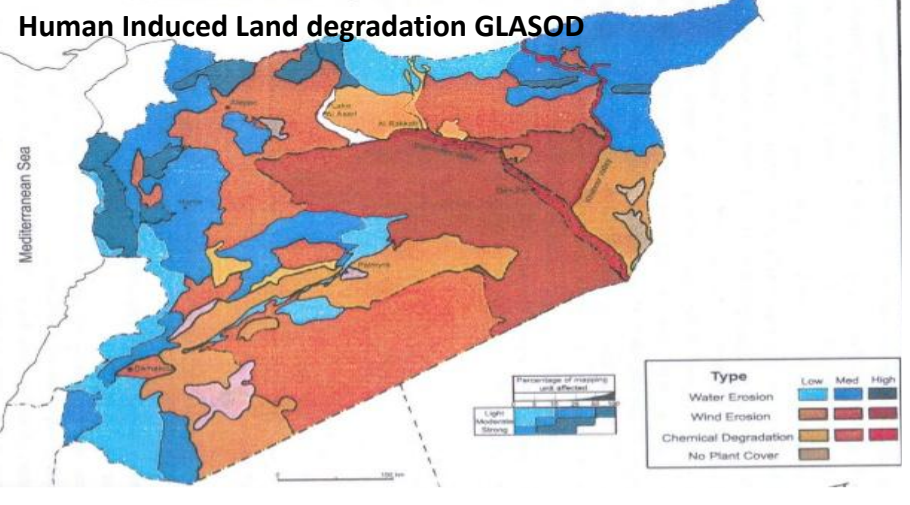
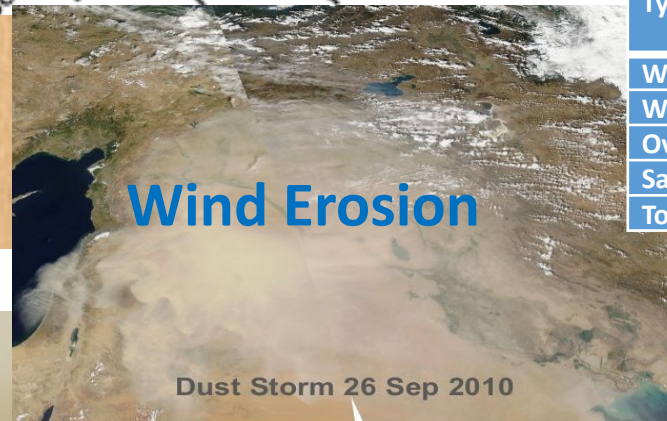
Water Erosion



Relative Extent of human-induced soil degradation in Syria x1000 ha

Type	Degree		
	Slight	Moderate	Severe
Water erosion	902	127	29
Wind erosion	1210	380	30
Overblowing	11	267	130
Salinization	15	20	90
Total	2138	794	297

Degradation Type	Light Degradation	Medium Degradation	Intensive Degradation	Very Intensive Degradation	Total
Area %	2	5.2	38.9	6.8	53
Area hectares	56629.5	148395	552769	96628	1421894



Dust Storms in Damascus



The NAP Priority Programme

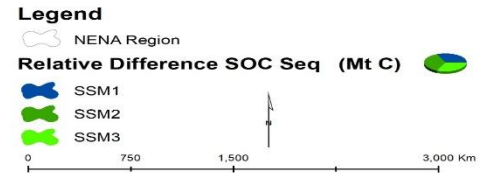
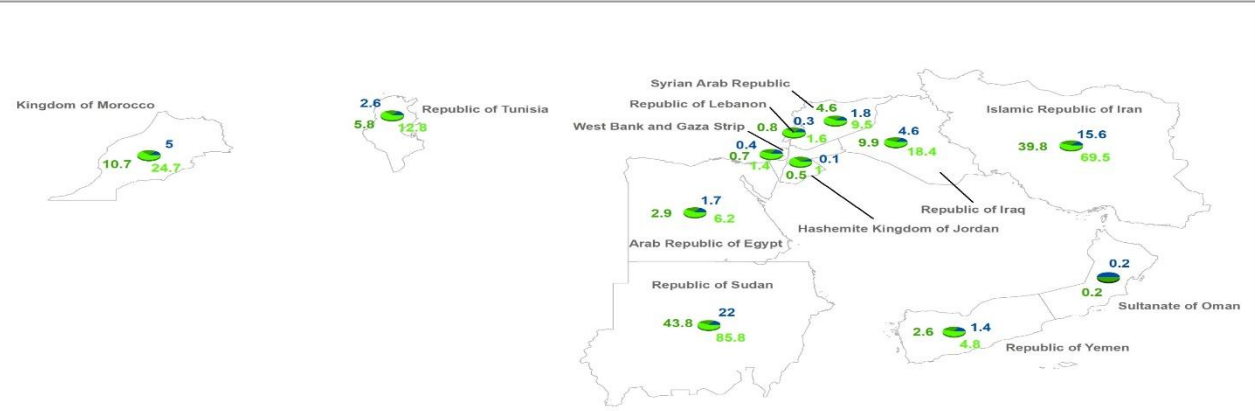
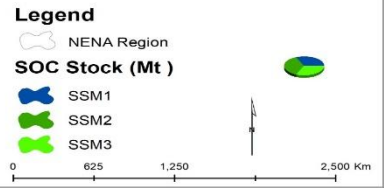
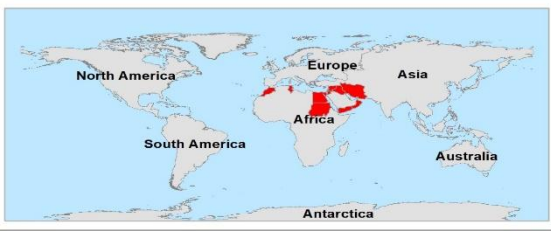
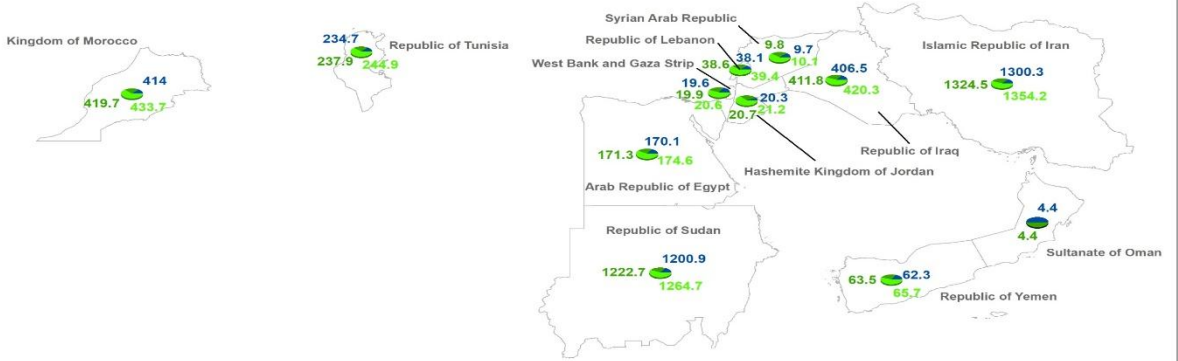
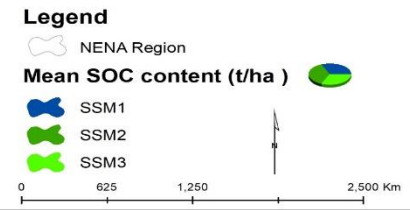
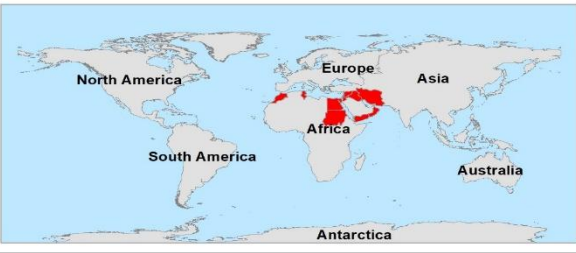
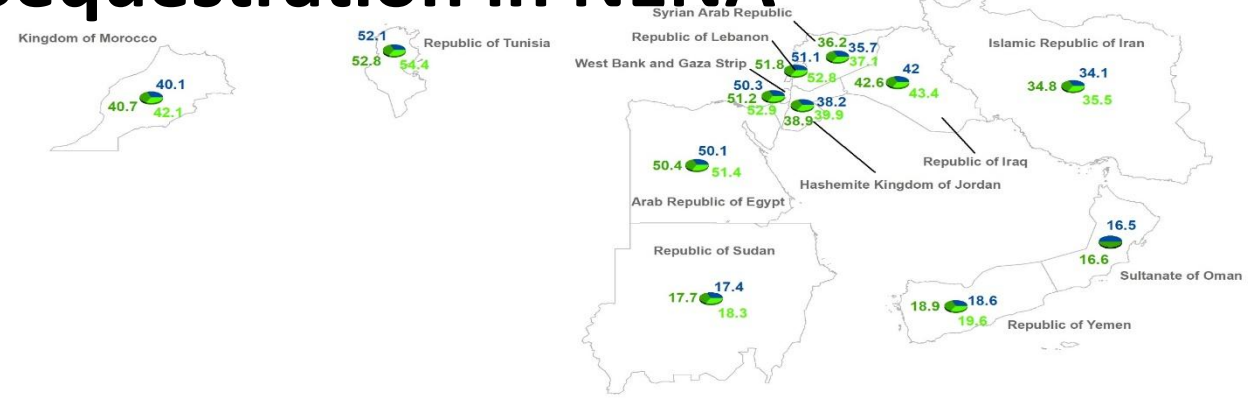
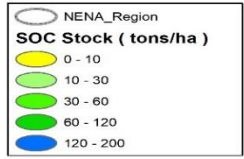
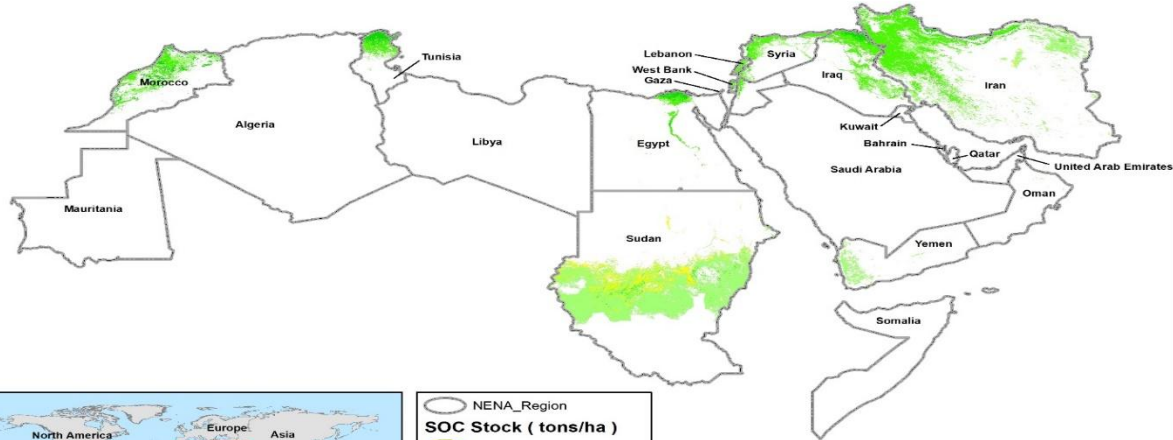
Programme 1. Extension of the Badia Integrated Development Programme

Programme 2. Water Erosion Control in Coastal Areas

Programme 3. Sustainable Land Management Practices in River Basins

Mapping of SOC Stock and SOC Sequestration in NENA

State of the Art



Drafting National Action Plan For SSM: Protect Soil Quality, Soil Services and ecosystem functions

I. Review of National Soil Context

1. Soil Types, Soil Distribution and Soil Properties

2. Soil Data and Soil Information Generation and Sharing

3. Current Soil Related Policies, Planning, Monitoring and Research

4. National Development Targets Related to SSM and NSIS

V5. Gaps and Needs for SSM and NSIS to Mainstream the National Agricultural Strategy and Reach the National Development Targets

II. Mapping of Salinity Affected Soils (SAS) and Soil Organic Carbon Sequestration (SOCSeq)

II.1. Number and distribution of point soil data

II.2. Soil indicators for SAS and SOCSeq mapping

III. Soil Salinity and Sodicity map

III.1. Data Analysis with Statistics in Reference to Soil Salinity and Soil Sodicity Problems in the Country Under Current Management Practices

III.2. Case Studies on Reclamation of Salt Affected Soils

III.3. Case Studies on Reclamation of Sodic Soils

Drafting National Action Plan For SSM: Protect Soil Quality, Soil Services and ecosystem functions (Cont.)

IV. Soil Organic Carbon Sequestration Potential

IV.1. Data Analysis with Statistics in Reference to SOC Content and Stock in the country and the Potential for SOC Sequestration under different SSM scenarios

IV.2. Case Studies on Management of Soil Organic Carbon and improved carbon Sequestration in the country

V. Strategic Framework and Plan of Action

V.1. Vision on Needed Soil Related Policies, Planning, Monitoring and Research

V.2. Goals and Strategic Objectives to Achieve Sustainable Soil Management

VI. Strategic Targets for the Development of Sustainable Soil Management

VI.1. Target 1 (T1): Strengthen Soil Policies and Legislation

VI.2. Target 2 (T2): National Institutional Structure and Mechanism

VI.3. Target 3 (T3): Institutional and Individual Capacity

VI.4. Target 4 (T4): Adaptation and Dissemination of Sustainable Soil Management Framework and Awareness

VI.5. Target 5 (T5): Development of National Soil Information System (NSIS)

VI.6. Target 6 (T6): Soil Research and Development Timeline and Responsibilities of National and Local Actors

VII. Conclusion and Recommendations



Thank you