

FAO approach to the water-energy-food nexus for sustainable development

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Incorporating water into broader development frameworks through Nexus approaches

- FAO's goals
- State of Water Resources in the Arab Country
- FAO RNE Water Scarcity Initiative
- Why a Nexus approach?
 - ✓ Nexus management in the Syr Darya Basin
 - ✓ Water audit in Malta
- Towards broader water development

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FAO's Goals

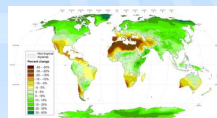
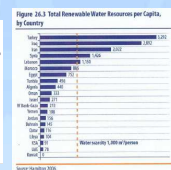
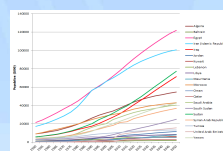
- *Eradication of hunger, food insecurity and malnutrition*
- *Elimination of poverty- sustainable livelihoods; and*
- *Sustainable management and utilization of natural resources (Land, water, air, climate and genetic resources)*

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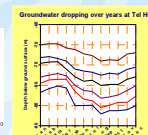
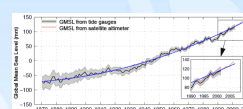


Water facts - the Arab region?

- Physical water scarcity; > 60% of the NENA's water is coming from outside the region.
- The region population growth; *It is expected to reach 600 million inhabitants by 2050. But, the available conventional water resources remain the same and the food demand is expected to increase 3X the current level.*
- Rapid NR degradation, desertification and groundwater depletion
- The climate variability and change impact is furthering the pressure on the resources:
 - increased average temperatures (in the range of 4-7 oC),
 - less and more erratic precipitation.
- Extreme events frequency and intensity has already started to increase - Drought (exposing >25 million of urban residents)
- More salt water intrusion in the coastal areas because of GW over drafting and Sea level rise



ICARDA: Climate Change: Relative change in mean annual precipitation 1980/1999 to 2080/2099



From http://www.earthobservatory.nasa.gov/images/and-figures/51151_001_FAO/groundwater/200804/20080401

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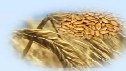


The context

Arab region: fragile natural resource base

10.2% of total area of the globe
2.1% of the precipitation
0.3% of its Renewable Water Resources

~ 3,000 m3 per capita per year



~ 5 million ton produced
~ 4 million ton imported
< 17% undernourished

< 700 m3 per capita per year



~ 45 million ton produced
~ 70 million tones imported
~ 7% undernourished

1960

Time

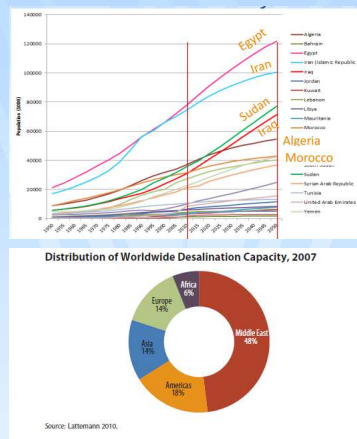
2011

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The region population *is expected to reach 600 million people by 2050.*

But, the available conventional water resources remain the same. and, the food demand is expected to increase 3X the current level.



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FAO new Approach

Regional Initiatives and Country Programming Frameworks (CPFs):

15 initiatives in the 5 FAO regions, 3 are in NENA region, the FAO RNE Initiatives are:

- **Water Scarcity**
- **Sustainable small-scale agriculture**
- **Building Resilience to Enhance Food Security and Nutrition**

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Delivery Mechanisms- Regional Initiatives and **Country Programming Frameworks** (CPFs):

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Water Scarcity Initiative

What, Where?

Initiated in 2013 by FAO in response to the FAO's Strategic Framework: demands from the national governments of the NENA regions, and the Hyogo Framework for Action 2005-2015

Objectives

Support member countries in identifying and streamlining policies, governance and best practices in agriculture water management, that can significantly contribute to **boosting agriculture productivity, improving food security and sustaining water resources.**

How?

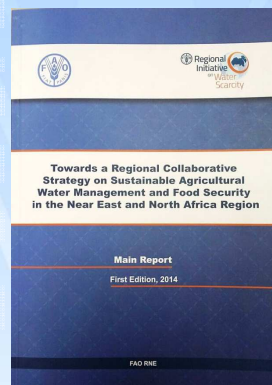
- National programs are key players
- Regional Collaborative Strategy and Strategic Partnership- innovative approaches for knowledge sharing and technology transfer and disseminations
- Total of 19 countries and thus far and 19 agencies/organizations are working together and joining FAO to implement the Initiative

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Water Scarcity Initiative (Update January 2015)

Focus Areas	Planned Action
1. Strategic planning & policies	"Country Reports" on Water Accounting, Food Supply Cost Curve and Gap Analysis Support Cooperation on Agricultural Water Management in the Lower Mesopotamia Yemen (Sana Project - The Netherlands)
2. Strengthening- reforming governance	UAE Implementation of the "Regional Collaborative Strategy"
3. Improving performances (efficiency) and productivity in major agric. systems and in the food chain	Increasing Water Productivity in Irrigated Agriculture (large scale) Increasing Water Productivity in Irrigated Agriculture (community scale)
4. Non-conventional water use	Increasing Yield and Water Productivity in Rainfed Agriculture Unlocking the potential of Protected Agriculture in UAE & GCC Countries Guidelines of Brackish Water use for Agriculture production in the NENA Region is being finalized Monitoring and evaluation of the use of treated waste water in Agriculture in the Abu Dhabi Emirate
5. Climate Change Adaptation, Resilience, DRR and Drought Management	Regional Assessment of Institutional Capacity to deal with Climate Change Climate Change solutions for the green sectors of selected zones in the NENA Regions (GIZ Project)
6. Building sustainability	Support to LAS in the National Action Plans (NAPs) of the NENA Countries to combat desertification
7. Benchmarking, monitoring and reporting on water use efficiency and productivity	Monitoring Agricultural Water Productivity by Remote Sensing (The Netherlands Project)



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Incorporating water into broader development frameworks through Nexus approaches



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Incorporating water into broader development frameworks through Nexus approaches

Water stress in the Mediterranean basin



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Why a Nexus approach?

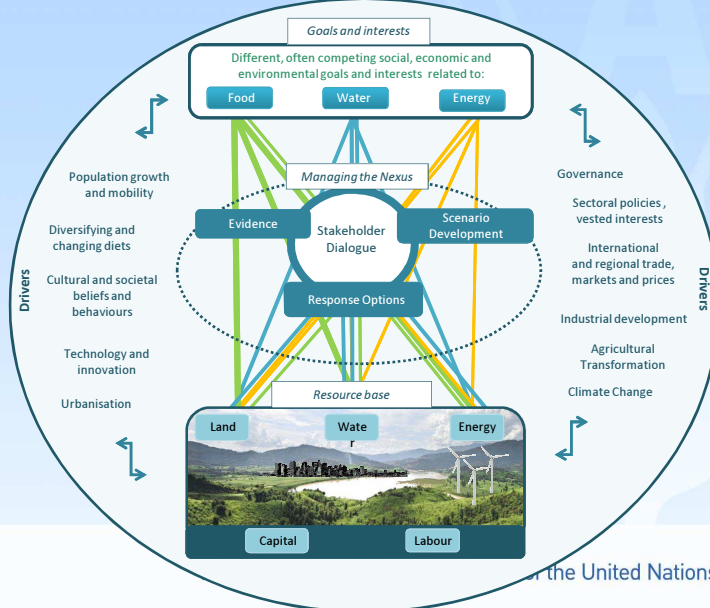


It's about balancing different resource user goals and interests – while maintaining the integrity of ecosystems.

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FAO Approach to Water-Energy-Food Nexus



Adopting a pragmatic approach

- **Across sectors**
 - Transparent and effective allocation mechanisms
 - Management of trade-offs
 - Enhancement of synergies
- **Within sectors**
 - Resources use efficiency → increased productivity of resources
 - Reduction of wastes and losses



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What sort of Nexus questions?

- What are the implications of policies and planning across sectors?
- What sorts of investments are needed to support the synergetic use of resources across sectors?
- How can we effectively manage demand, so that fewer resources are wasted?

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Working with stakeholders on the assessment - a possible structure



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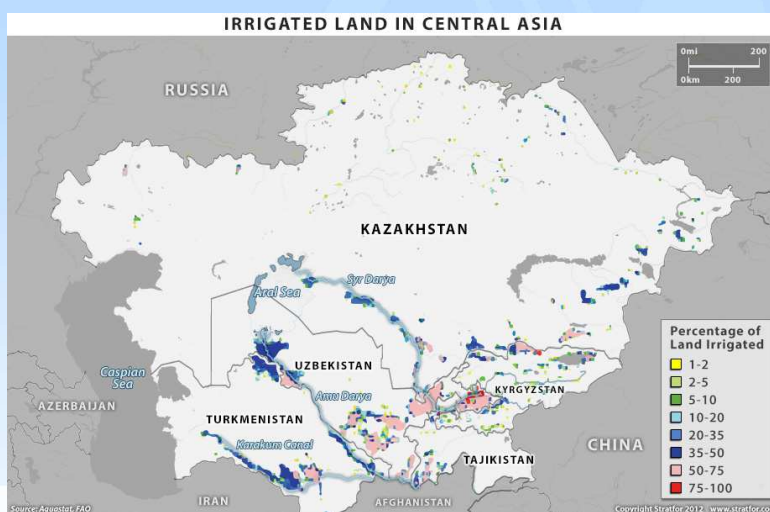
The Syr Darya Basin - Context



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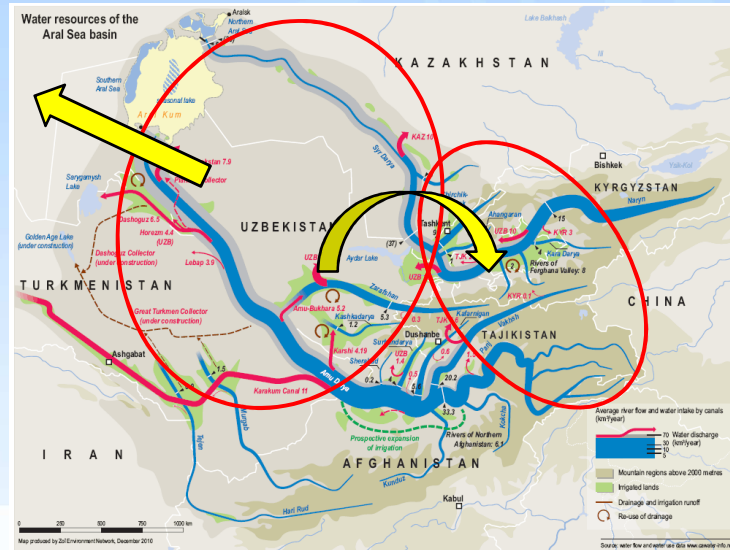
The Syr Darya Basin - Context



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The Syr Darya Basin – Nexus Challenges



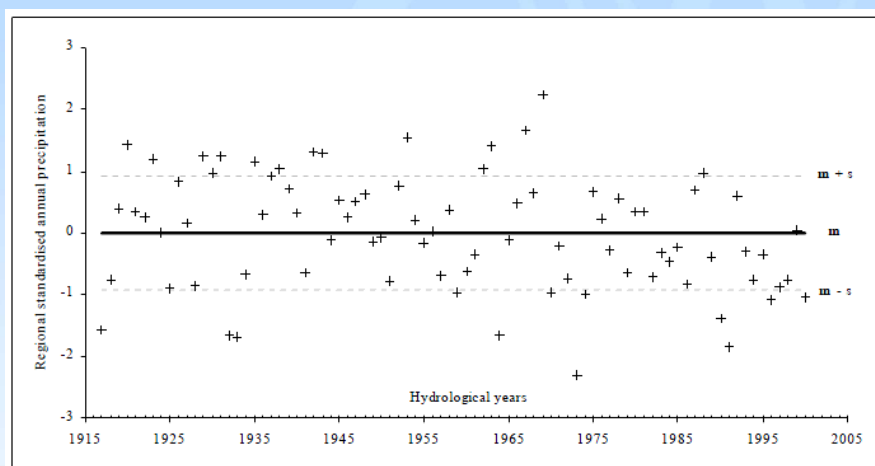
The Syr Darya Basin – Nexus Solutions



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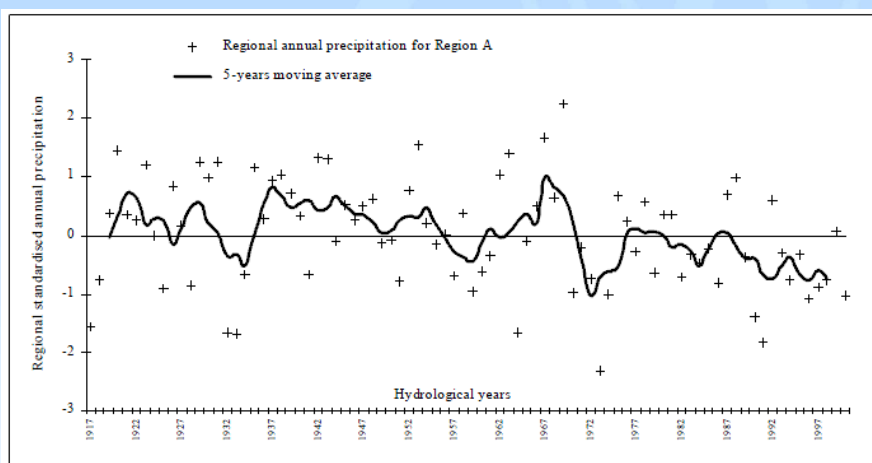
Water audit in Cyprus



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Water audit in Cyprus



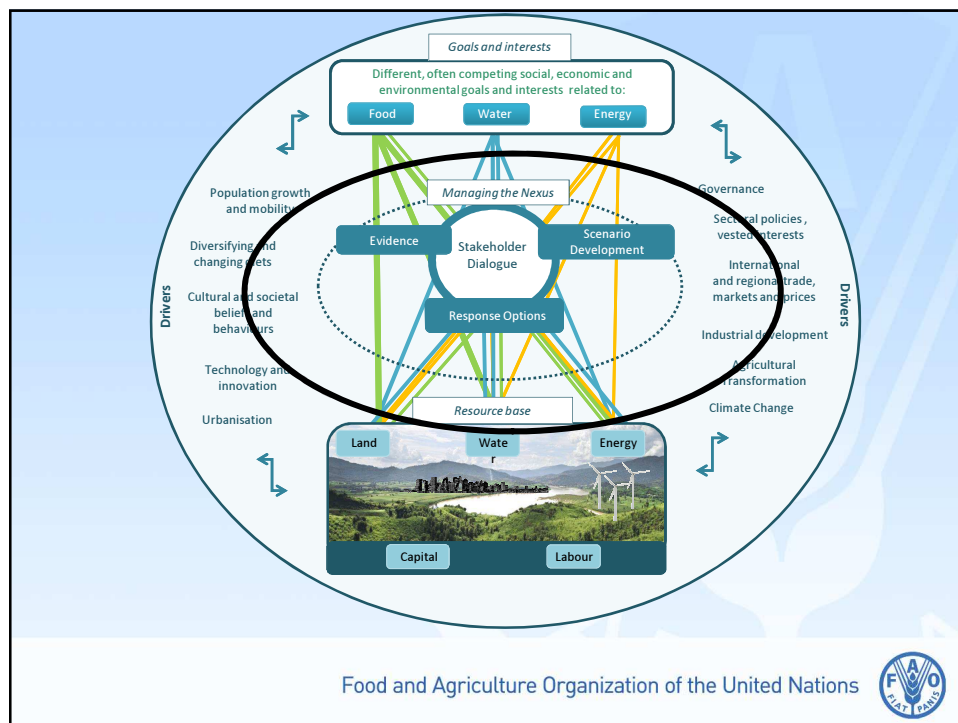
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Cross-Sectoral Work in Practice

- ✓ Awareness raising is spreading
- ✓ Knowledge base expanding
- ✓ Analytic tools being developed
- ✓ Increasing evidence of engagement across sectors, particularly private sector
- ? Policy formulation - still predominantly sector based
- ? Planning systems mainly fragmented

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