



6 -7 June 2023, Rabat, Morocco

# 1<sup>st</sup> Regional Roundtable on WEFE Nexus in the Mediterranean “Promoting innovations, investments and upscaling of solutions”



**Water and  
Environment Support**  
in the ENI Southern Neighbourhood region

## Defining the WEFE Nexus concept

Presented by: Professor Michael Scoullas, WES Team Leader

# Emerging needs for an urgent, alternative approach: the NEXUS



Water and  
Environment Support  
in the ENI Southern Neighbourhood region

Population growth, urbanisation and littoralization increase dramatically the demand for water, energy and food, globally and in the Mediterranean region, while at the same time unprecedented extreme weather and climatic conditions further endanger the ecosystems and biodiversity as well as the sustainable provision of water, energy and food.

The WEF Nexus could provide a sound foundation for long-term social and economic stability by constituting the prerequisite for addressing climate change and biodiversity loss and for the management of public goods, the welfare state, peace and security in the Mediterranean region.



# Defining the Nexus

---



Water and  
Environment Support  
in the ENI Southern Neighbourhood region

WEFE Nexus is an approach that **integrates management and governance** across the multiple sectors of water, energy, food, and ecosystems.

This approach is a way to **make sure that policies and management** of water, energy, food and ecosystems **are not applied separately**. Simply this is not any longer possible, because of their complexity and interdependence.

Globally, as well as in the Mediterranean region, **there is a growing recognition of** the interconnectedness between Water, Energy, Food and Ecosystem Security, and **the need to be addressed as a system**.



# Accepting the reality requires integration through fair cooperation



**Water and  
Environment Support**  
in the ENI Southern Neighbourhood region

- The concept of Nexus is the **epitome of integration** and facilitates not only the proper understanding of **interrelationships of water, energy, food and ecosystems**, but also the need of policies and interventions in these sectors to be promoted in a coherent and coordinated way so that risks are reduced, security is enhanced, savings are made and sustainable development is approached.
- In essence, through the Nexus approach we accept that our policies and practices in each one of the above mentioned sectors, should take into account and **internalize the necessary elements of policies of the other sectors** facilitating a coherent and integrated management of all the four.
- **If the Nexus components are not adequately integrated, then policies cannot be implemented without creating collateral damages, or in the best case, internal frictions, delays and stagnation.**

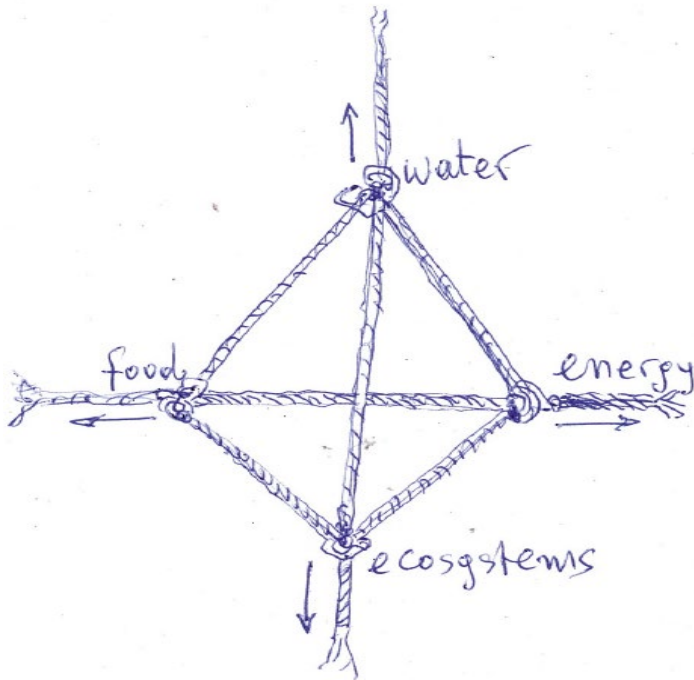


# Visualization of the Nexus

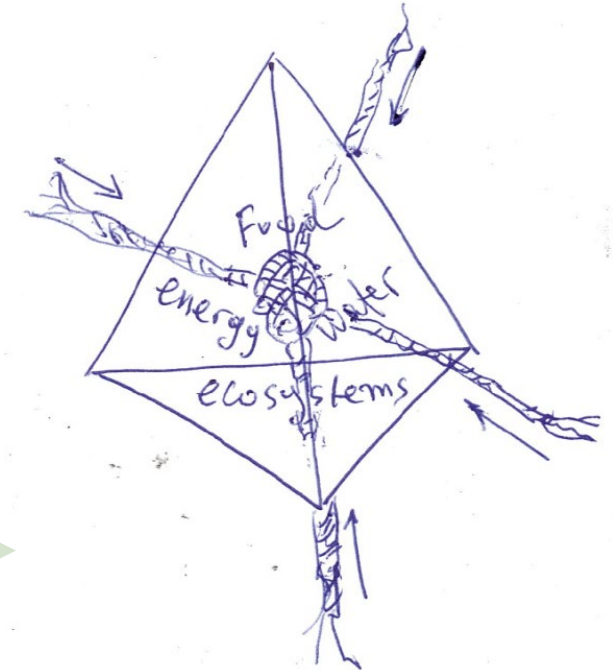


Water and Environment Support  
in the ENI Southern Neighbourhood region

From a system of “tensions”



we want to turn it into a:



a system of “convergence”



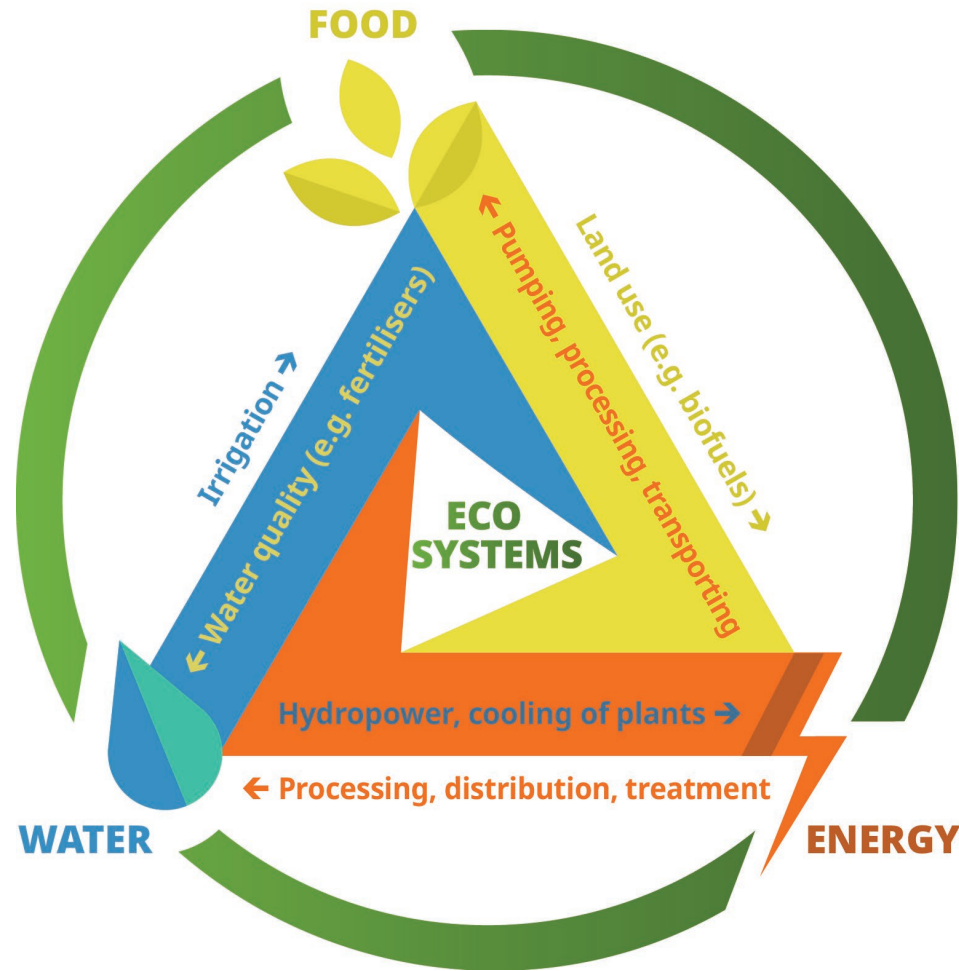
# Visualization of the Nexus



**Water and Environment Support**  
in the ENI Southern Neighbourhood region

There are several visualization attempts.

This one is closer to the traditional WEF approach where ecosystems are not fully considered as a productive entity.

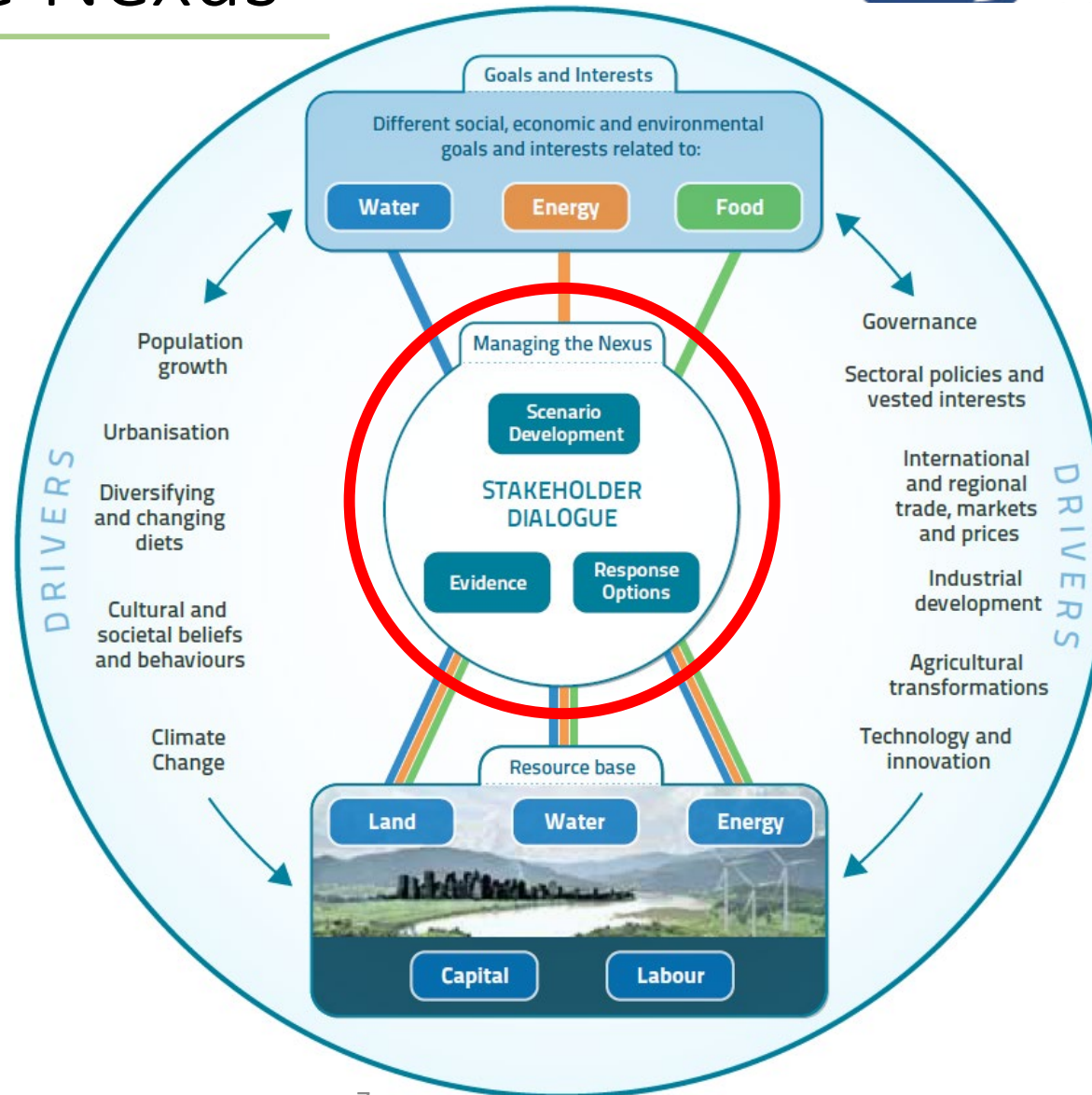


# Visualization of the Nexus



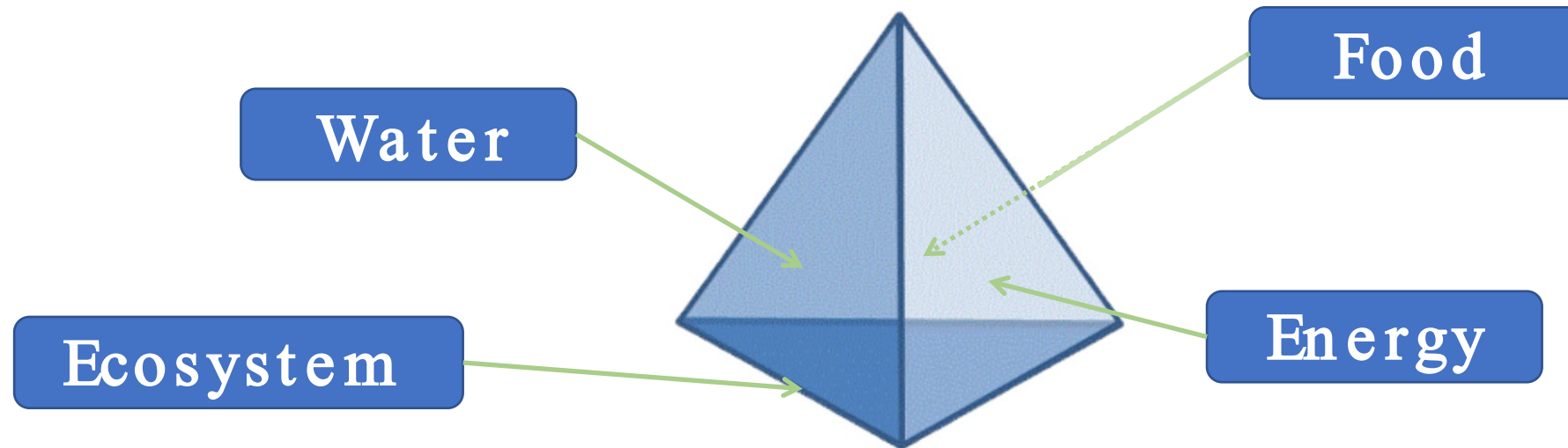
FAO's approach to WEFE

**The importance of stakeholder participation**



# Visualization of the Nexus where the “generated space” becomes prominent

Creating ample **space** for win-win approaches/trade-offs is **NECESSARY**



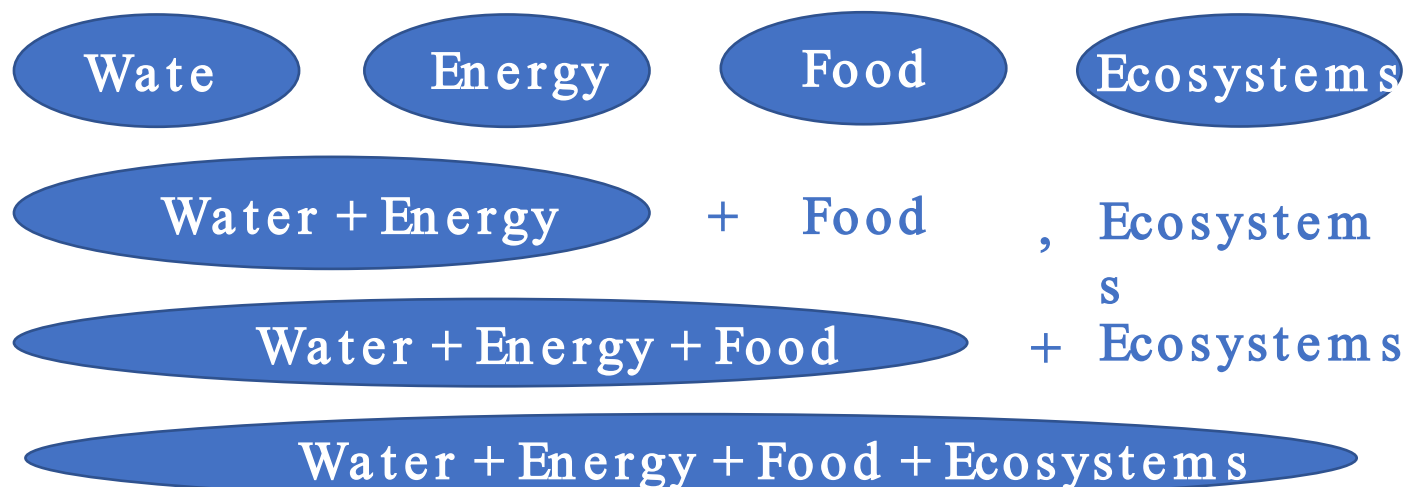
It provides the “space” within which policies and interventions should be closely coordinated and optimized in order to approach SD and achieve the SDGs.



# Evolution of WEFE planning, policies, co-decision and operations

---

Approach as an evolving recognized system

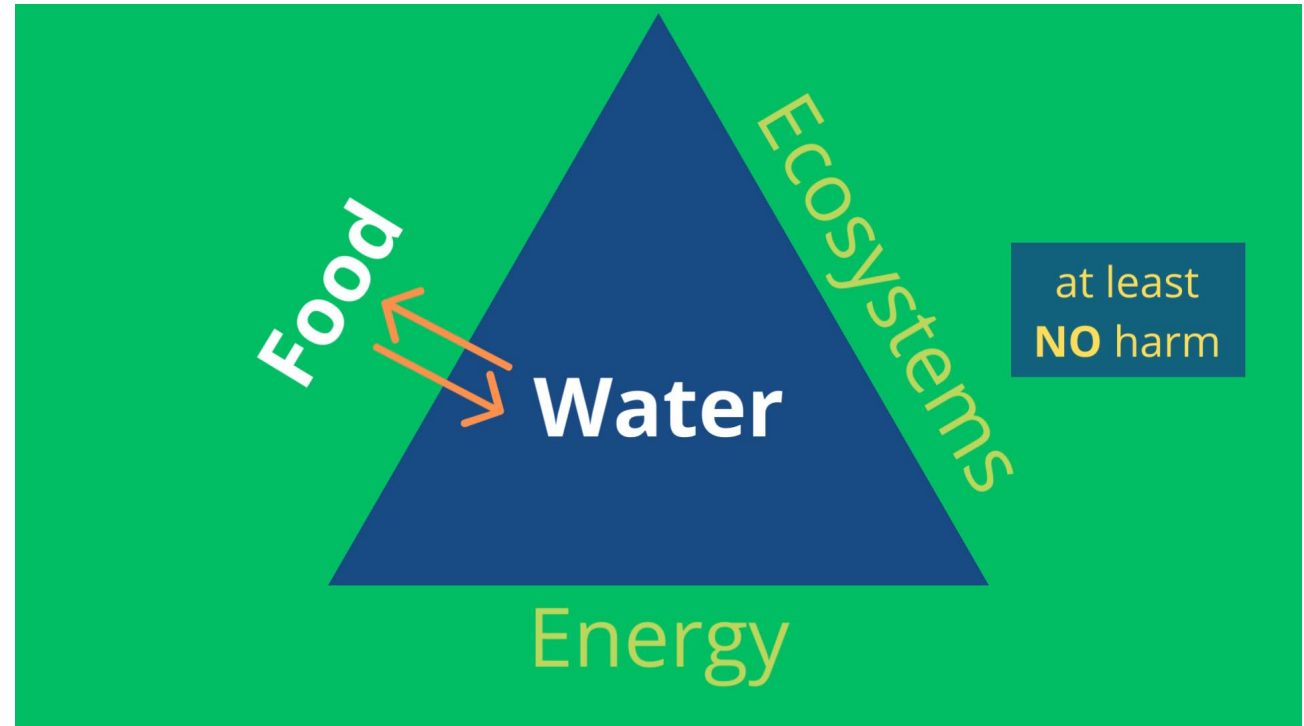


# Evolution of WEFE planning, policies and operations

Although planning with 4 components is feasible this is still more complex than the prevailing single-sector planning.

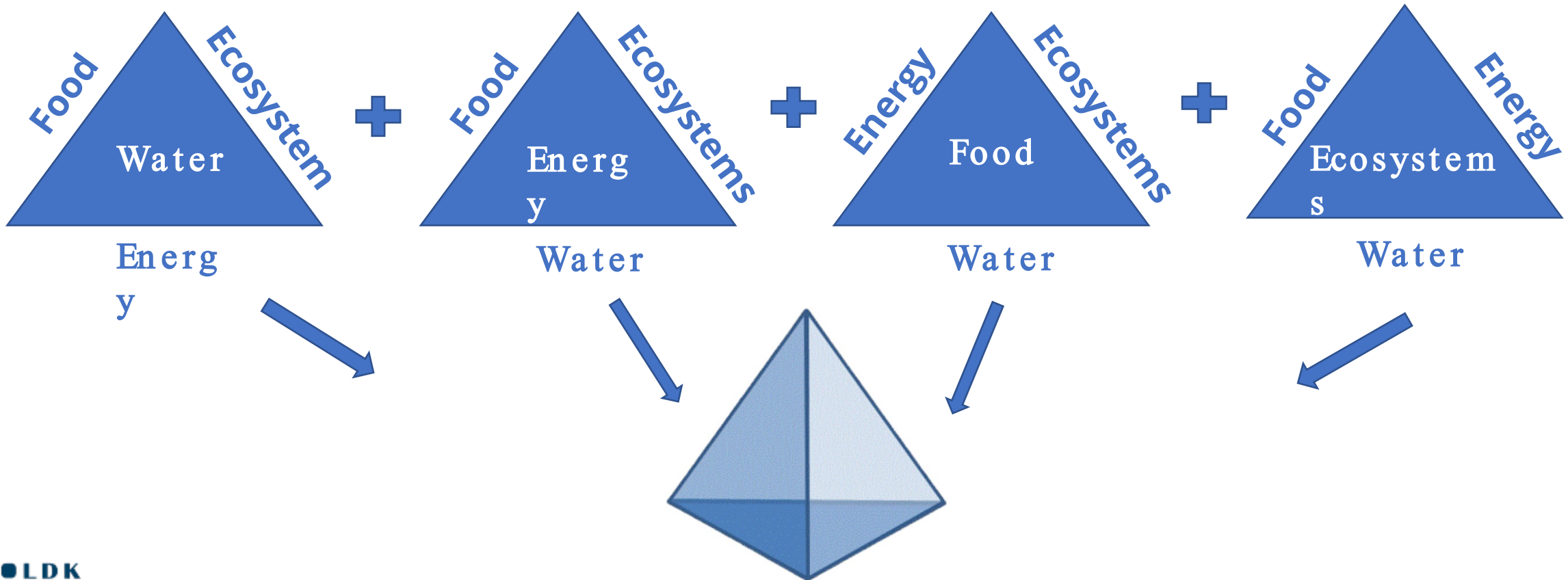
An **intermediate operational step** (applied already within WES) would be to plan for each component (e.g. Water) to interact with one of the other 3 (e.g. Food) for the achievement of optimal results, **BUT** at the same time, it is important to secure (at least), that **there will be no damage for the rest of them.**

Gradually, if this approach becomes the prevailing practice for interactions among all 4 components, the WEFE Nexus approach will be **achieved.**



# Evolution of WEFE planning, policies and operations

Evolution based on mutual efforts of the sectors to get integrated



# The “Nexus” approach enhances security & resilience

---



**Water and  
Environment Support**  
in the ENI Southern Neighbourhood region

Addressing security of the **system** requires both:

- **Reducing the competition among sectors** and other conditions, pressures and root causes of the vulnerability of the system.
- **Enhancing its resilience** (*the ability of a system to return to equilibrium after a perturbation or disturbance*)

To implement the above, an **integrated management** is needed by employing **appropriate governance** and all three categories of tools identified for achieving Sustainable Development:

- **Scientific/technological,**
- **Institutional/legislation and**
- **Educational/information/awareness raising/cultural**





# Fundamental WEFE principles for elaborating integrated solutions leading to sustainability:

---

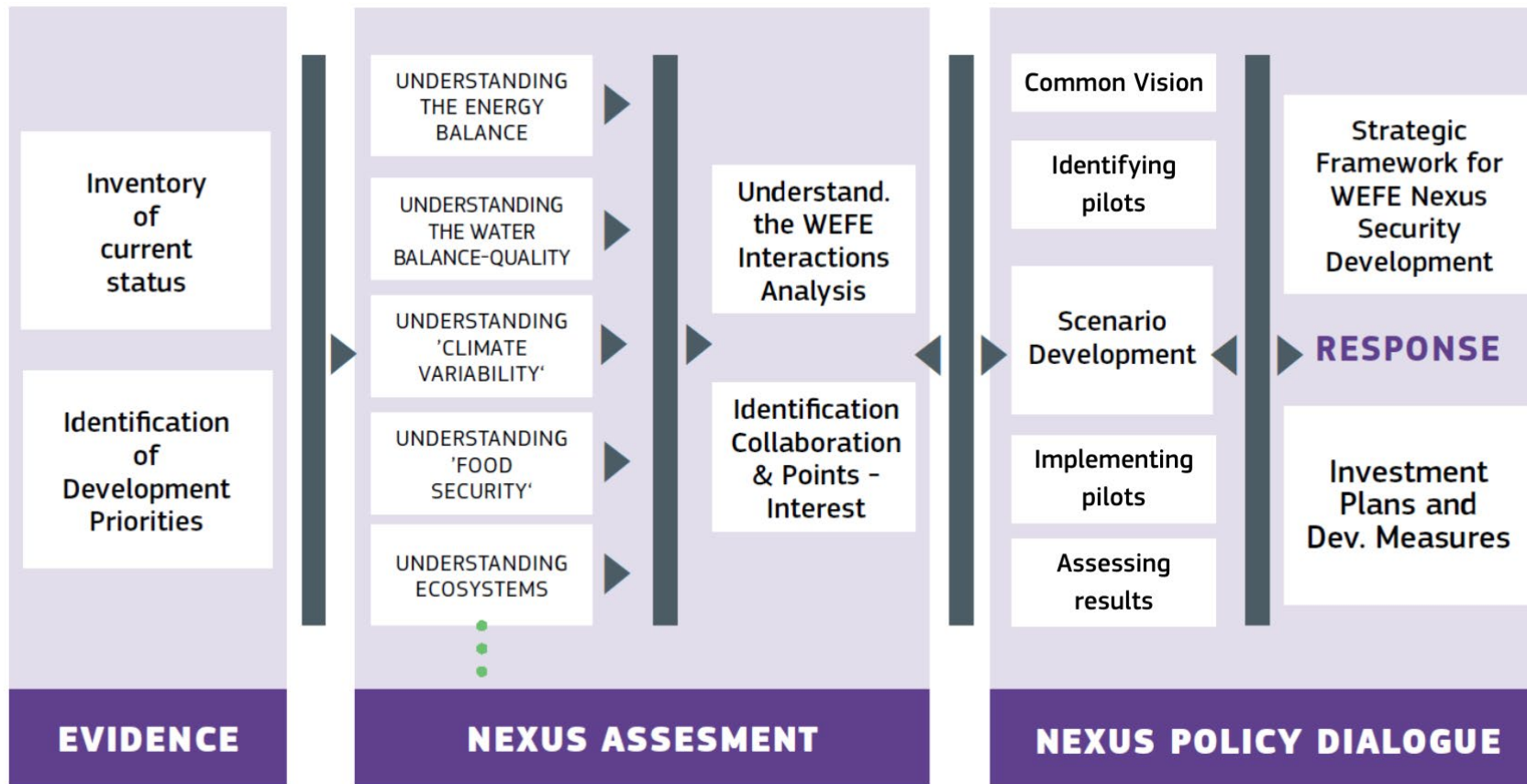
- **Comprehending interdependencies of the 4 components** as part of a system across space and time.
- **Focusing on the efficiency of the function of the system**, rather than on the productivity of each one of the components.
- Mutually recognizing among sectors the **interdependencies among all components** and get involved in rational and inclusive dialogue leading to decision-making processes for efficient and responsible use of the 4 components.
- **Identifying integrated policy solutions** to maximize mutually beneficial responses and minimizing unwanted collateral damages (time)
- **Encourage and maintain coordination across sectors and stakeholders**, focusing on Public-Private Partnerships to enhance sustainability of synergies.



# Ongoing NEXUS process towards a Strategic Framework



Water and Environment Support  
in the ENI Southern Neighbourhood region



Adaptation from:



POSITION PAPER ON WATER, ENERGY, FOOD AND ECOSYSTEMS (WEFE) NEXUS AND SUSTAINABLE DEVELOPMENT GOALS (SDGS)



With the participation of:



LDK Consultants Global EEIG

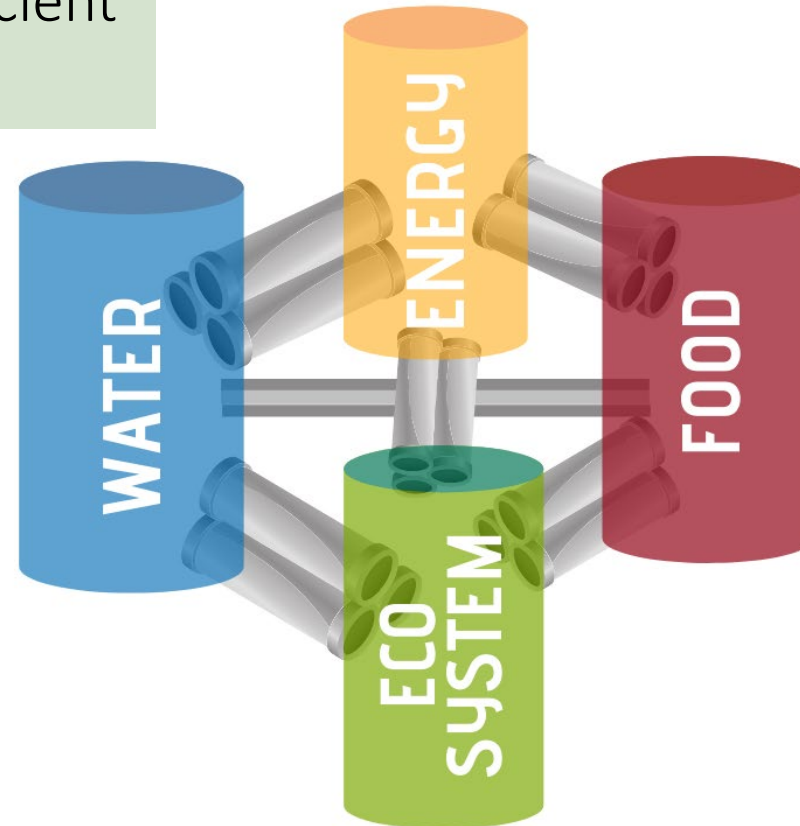
This Project is funded by the European Union



WEFE requires the “abolishment” of the traditional “silos” approach, not necessarily by “abandoning” individual sectors, but by providing wide and multiple channels of efficient interconnection.



**Water and Environment Support**  
in the ENI Southern Neighbourhood region



WEFE Nexus highlights enhanced needs and opportunities for funding from other **sectors/silos**

- Economy
- Security
- Welfare
- Employment
- ....



# Areas where Nexus approaches are established or in the pipeline



Water and  
Environment Support  
in the ENI Southern Neighbourhood region

- Wastewater treatment with low energy requirements (e.g. with Nature-Based solutions/constructed wetlands and use of renewable energies) re-using water in agriculture for food production
- Domestic wastewater as source of nutrients/fertilizers for agriculture employing renewable energies
- Use of solid waste and/or sludge for production of compost with very low/renewable energy inputs to improve soil fertility for agriculture and landscaping







Thank you  
for your attention  
and keep up with  
our latest news!

[WES-MED.EU](http://WES-MED.EU)

