Water and Environment Support
in the ENI Southern Neighbourhood region

Evaluation of new methods to reduce the cross-subsidies in the water tariff of the agricultural sector in Israel

WES Workshop

26 July, Jerusalem, Israel

Presented by: Dr. Kerusha Lutchmiah, NKE

LDK CONSULTANTS LDK Consultants Global EEIG

This Project is funded by the European Union

Overview:
PRESENTATION OF ACTIVITY & DISCUSSION

Water and Environment Support
in the ENI Southern Neighbourhood region

10:20-11:45	**PRESENTATION OF THE ACTIVITY AND GENERAL DISCUSSION**
	- ***Introducing the WES activity in Israel (5 min)*** *WES* - ***Review of the water tariffs for agriculture in Israel (20 min)*** *Amir Shakarov or Gilad Fernandes- Economics Division (The Governmental Authority for Water and Sewage)* - ***Review of water tariffs and subsidies methods and practices in selected countries (30 min)*** *Dr. Kerusha LUTCHMIAH: Non-Key Expert (NKE)* - ***Q&A (10 min)*** - ***Applicability to agriculture in Israel (30 min)*** *Dr. Kerusha LUTCHMIAH: Non-Key Expert (NKE)*

This Project is funded by the European Union

1. Review of water tariffs and subsidies methods and practices in selected countries

This Project is funded by the European Union

1a. Criteria used for selection (*data 2021 report)

Water and Environment Support
in the ENI Southern Neighbourhood region

Criteria	Description	Weight
1. Climate	Arid or semi-arid climate. Experiences severe droughts.	Medium
2. GDP	~350Bn USD/year; 40k USD / capita	Low
3. Population	~8.7Mn, ~1.6% annual growth, 423pop / km2, ~8% rural	Low
4. Legislation	Water sources in the State of Israel are publicly owned and controlled by the state. Large infrastructure is controlled/set by Mekorot, as are all CAPEX. However, OPEX, O&M are scattered over 500+ water companies. The volume provided is very small by the many small suppliers.	High
5. Agriculture tariff	1,74 – 2,51 NIS / MCM for freshwater 0,93 – 1,1 NIS / MCM for effluents 0,56 - 0,66 NIS / MCM for brackish water	High
6. Water consumption	137 – 247 L per day per person; 100 - 230 L per household; 2,346 MCM (2016); 34% for domestic use, 55% for agriculture; 257 cm3 per capita/year	High
7. Similar agriculture policy	Over the past thirty years, Israel has implemented several reforms related to the provision of subsidies, central planning of agricultural industries, and the allocation of production quotas, price controls and import protection. The land is allocated to farmers for a nominal fee and is not tradeable. Water is distributed to farmers through a quota system; all water consumption is metered and charged. Other support structures:	Medium
8. Food security policies	Global Food Security Index; 8 / 113 overall, 9 / 113 affordability, 4 / 113 availability, 5 / 113 quality and safety, 64 / 113 natural resources and resilience	Low
9. Water scarcity condition	The total average annual potential of renewable water amounts to some 1,800 MCM, of which about 95% is already exploited and used for domestic consumption and irrigation. About 80% of the water potential is in the north of the country and only 20% in the south. Desalination is one of the main measures to increase the supply in Israel	Medium

1b. List of countries based on criteria

Water and Environment Support
in the ENI Southern Neighbourhood region

Criteria	Spain	Greece	Italy	Turkey	Australia*
1. Climate	+	++	+	+	+
2. GDP	-	+	-	-	-
3. Population	--	-	--	--	--
4. Legislation	-	-	++	+	-
5. Agriculture tariff	+	--	-	-	--
6. Water consumption	--	--	--	-	+
7. Similar agriculture policy	+	-	+	-	-
8. Food security policies	-	-	++	--	--
9. Water scarcity condition	-	--	+	-	--

++	very similar
+	similar
0	unknown
-	different
--	very different

This Project is funded by the European Union

1c. Selection based on high / medium

Water and Environment Support
in the ENI Southern Neighbourhood region

Criteria	Spain	Italy	Australia
1. Climate**	+	+	++
4. Legislation***	-	++	-
5. Agriculture tariff***	+	-	--
6. Water consumption***	--	--	+
7. Similar agriculture policy**	+	+	-
9. Water scarcity condition**	-	+	--

++	very similar
+	similar
0	unknown
-	different
--	very different

This Project is funded by the European Union

Italy: Summary of responsibilities & water tariffs

Agri water Policy	Italy
Water distribution systems	Rely mainly on the “Reclamation and Irrigation Consortia” (RIC). RICs are managed by associations of landowners, entities regulated by public law that control land reclamation and water distribution in a specific area and are subject to government supervision.
Tariffs	The tariff system is usually based on the **running costs of servicing an area**, but water is only measured in parts of the total irrigated area and **volumetrically priced**. Each reclamation and irrigation board must recover its O&M costs, and the tariff charge varies according to the actual cost of water supply. Regarding non-regulated surface and groundwater, the **final users pay** for all financial costs of the water supply.

This Project is funded by the European Union

Italy: The tax system and licenses

- The tax system in the Puglia region is a relevant example for our study since it involves the most prominent sample of groundwater self-supply users in Italy.
  - Farmers pay a fixed component for access to a water source (abstraction license valid for 5 years) while a variable component is paid per irrigable hectare;
  - This has been interpreted as an 'ecotax' to internalize environmental and resource costs.
  - Moreover, licensing renewal involves additional costs for technical expertise (i.e. geological and agronomic), making the administrative procedure even more costly.

The Puglia region represents a unique case in Italy, where the renewal of water rights has been shortened to below the 20-year licensing period.

This Project is funded
by the European Union

Italy: Subsidies Reforms in Agri

- In the agri sector, subsidies are used to compensate (for environmental impact) or to reduce agricultural pollution.
- The public budget subsidizes, directly or indirectly, most of the water and sewerage infrastructure, as well as other environmental protection assets.
- Agriculture has largely benefitted from the public financing of water transfer schemes and irrigation management. However, the collective management of environmental infrastructures dedicated to industry and agriculture is linked to the small size of individual dwellings, thereby integrating many water users and polluters with diffused sources and making monitoring highly problematic.

This Project is funded
by the European Union

Italy: Best practices and successes

- For Italy, the government's decision to implement a volumetric tariff system for all users helps to recover costs. This tariff structure has the greatest potential to fulfil cost recovery.
  - The motivation is specifically directed at the recovery of environmental and resource costs, but this makes full cost recovery more tangible and could work well in the Israeli context.
- A continuous effort in Italy, "greening" of the agricultural sector needs to become more of a mindset shift.
  - Incentives can help tremendously, but ensuring farmers understand their role in the ecosystem can lead to greater intrinsic motivation to approach water use more efficiently, e.g. Australia has done a great job of prioritizing the role of its farmers.

This Project is funded
by the European Union

Italy: Lessons learned

- The environmental aspects remain a struggle in Italy, and sustainable, long-term use of groundwater is not realized. In some areas, groundwater has even exceeded the natural recharge capacity.
- Agricultural pollution, including the use of fertilizers and pesticides, remains a threat to the quality of aquifers. Efforts have been implemented, i.e. ecotax, to reduce this. However, the lack of rules (and of databases) is insufficient to track the progress.

This Project is funded
by the European Union

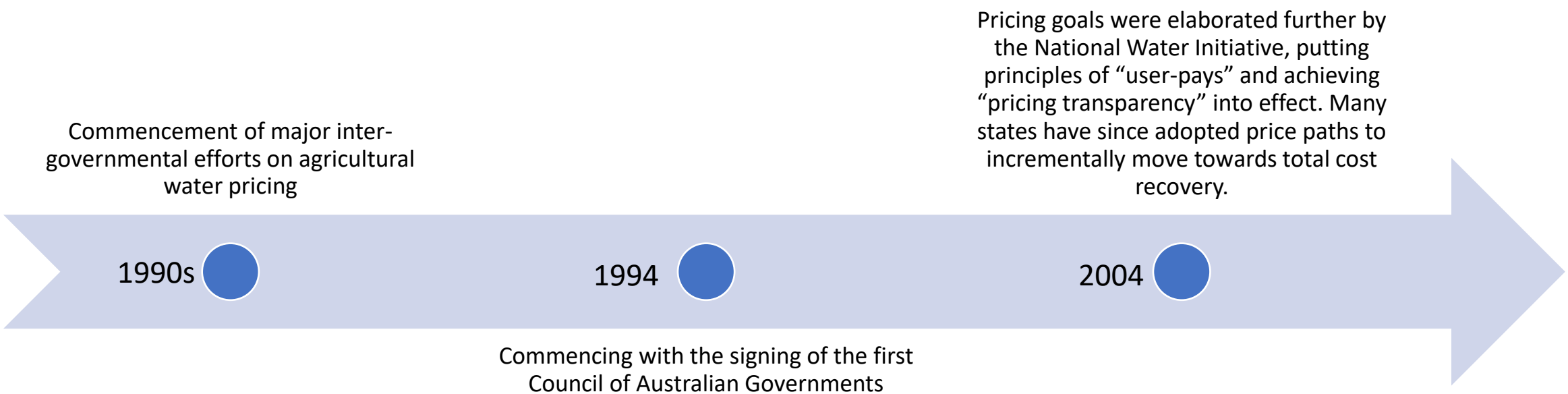
Aus: Summary of responsibilities & water tariffs

Agri water Policy	Australia
Management of land and water resources	(incl. links between water and agricultural policy) Responsibility of the **state and territory governments**. The Australian government has a leadership role in co-ordinating actions to improve the efficient operation of water markets.
Tariffs	Tariff data remains complex because these are dependent on the individual schemes in the different states, the source water, each catchment's market structure, spot pricing and the usage basis.

This Project is funded by the European Union

Aus: Water policy in Agri sector

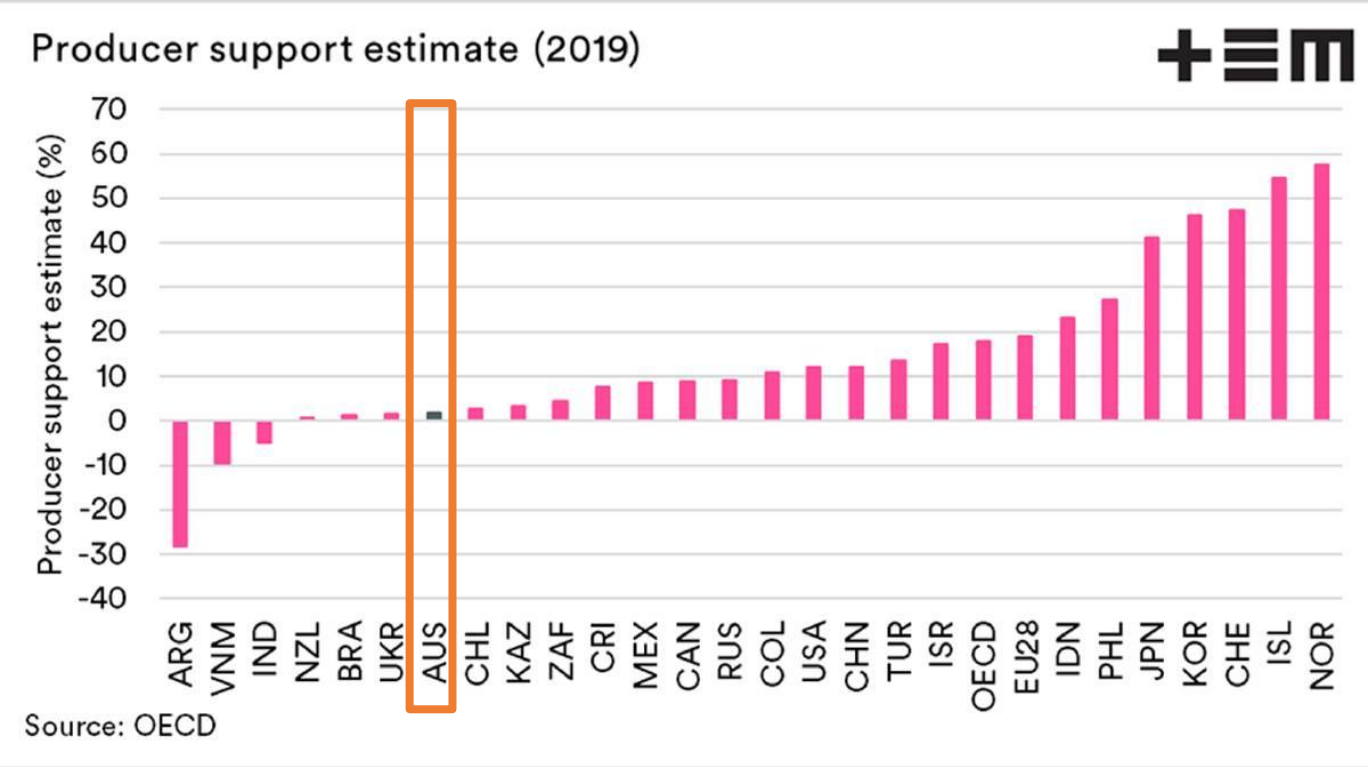
Water and Environment Support
in the ENI Southern Neighbourhood region



This Project is funded by the European Union

Aus: Subsidy reforms in agri (1)

- Australian farmers are some of the least subsidized.



This Project is funded by the European Union

Aus: Subsidy reforms in agri (2)

- Overview:
  - 2016-18: >2% of Australian farmer revenues were derived from government support (OECD).
  - Previously, the government heavily subsidized operational costs of water supply schemes. Now, farmers pay charges to the supply scheme operator to cover these costs.
  - Since mid-1980s: Australia gradually reduced its producer supports. However, it has reformed its approach to agricultural support over time, in line with national competition policy and other pro-competitive reforms and is consistent with WTO obligations.
  - Government support mostly goes to R&D.

This Project is funded
by the European Union

Overview of direct & indirect support

Support	Description	Examples	Further information
Direct	Direct farm support is concentrated on **risk management tools** to help manage the uniquely variable climate.	○ Drought payments for infrastructure investment ○ Tax benefits, i.e. income tax smoothing as a form of support. ○ Farm Management Deposits	The Farm Management Deposits framework helps farmers save money in good years, anticipating years of strife.
Indirect	R&D is a significant source of support**. Levy payments to research organizations** are increased with government payments.	Environmental programs make up the bulk of the R&D subsidies as farmers play an important role in protecting natural resources. The government works with farmers through Landcare, the MDB Plan and other programs to help implement positive environmental changes.	R&D in Australia has allowed farmers to be efficient enough not to rely on other subsidies.

This Project is funded by the European Union

Aus: Best practices and successes

- Australia's water reforms, including higher prices for water and water trading, have contributed to a 50% reduction in the amount of irrigated water per hectare while maintaining agricultural production
- Introducing **full cost recovery, adjusting tariffs, and changing pricing policy** have assisted Australia in removing cross-subsidization and improving resource allocation.
- Best practices for efficient water utilization: **Water quarantining**
- Australia's success lies in the fact that they believe that subsidies are not beneficial to the efficient use of water.
  - This has been substantiated by many of the countries researched throughout our review. The lack of support has forced Australian farmers to become more efficient with their assets, and as such, farmers are not reliant on government support.
  - However, it should be noted that most countries still have WTO commitments that entitle them to subsidize their farmers considerably more than they're doing currently.

This Project is funded
by the European Union

Aus: Lessons learned from MDB

- Water quarantining mistakes
  - irrigation water rights are not considered as “water in use”
  - external, non-user parties are allowed to buy and trade water rights
    - ✓ This “financial investment model” has created a gap between buying & selling of rights.
- More independent and transparent review and audit processes needed: of key decisions, coupled with a reform process allowing actions to be continuously modified and updated based on new information and evidence
- A more holistic approach: a decision-making process that includes explicit consideration of natural and anthropogenic risks and incorporates the participation of all relevant stakeholders, not just irrigators.

This Project is funded
by the European Union

Q&A regarding review of tariffs in Israel & selected case studies

This Project is funded by the European Union

2. Applicability to Israel

This Project is funded by the European Union

Applicability to Israel (1)

Israel challenges	Solutions & further recommendations
Northern Israel 6-year drought & subsequent ecological instability	IS: 2018 plan to connect the Sea of Galilee to the national system and additional desalination plant in Sorek Additional: water quarantine & capped volumes e.g. MDB, Australia could be implemented; ecotax?
Extensive use of groundwater can deplete resources and generate significant negative environmental externalities	(northern) Israel could be more conservative when granting subsidies in this region, as it may disincentivize farmers from using water resources efficiently.
General water shortage (Desalination is currently the backup solution)	Israel could postpone desalinization projects by >20 years by combining demand and supply management.

This Project is funded by the European Union

Applicability to Israel (2): demand & supply

	Demand side	Supply side
Technical solutions	-Establish water resource and water use monitoring systems -Targeted information programme to encourage context-specific water efficient farm practices -Cost-share programmes for efficient pressurised irrigation systems, precision agriculture sensors, or water conservation practices in the region -Support breeding for less water savvy and drought tolerant crops and livestock	-Conduct water supply vulnerability assessment -Targeted investment the development or maintenance of local dams, canals, and irrigation systems -Cost-share programmes into rainwater harvesting or infiltration ponds -Target investment in aquifer storage mechanisms (managed aquifer recharge, aquifer storage and recovery). -Invest in water reuse systems
Institutional solutions	-Regulating agriculture water use in the region or watershed -Setting up a charges for water used that varies with risks -Setting up water transfer or water market mechanisms -Measures favouring a shift away from water intensive crops	-Establishing regional groundwater banks

Source: OECD (2010, 2015a, 2016f); Cooley et al. (2016); Nam et al. (2015); and Ward (2016).

FIGURE 4-1: TARGETED INITIATIVES TO TACKLE AGRICULTURE WATER SHORTAGE RISKS

This Project is funded by the European Union

Applicability to Israel (3)

- As one of the least farmer-subsidized countries globally, Australia found that deregulating the agricultural sector and removing distorted forms of support have encouraged overall growth.
  - Therefore, it is crucial to prioritize what is most pertinent in Israel and find a balance between water conservation, the environment, and the necessary incentives to keep farmers producing sustainably.
- The proper framework of incentives facing farmers includes **increased cost recovery through tariffs and water pricing mechanisms** that encourage water resource-saving, technological innovation and a shift to higher-value agricultural commodity production while providing incentives to reduce pollution.
- In general, farmers' responsiveness to price requires that they have control over the water they take from the irrigation system.
  - But to successfully implement water pricing mechanisms, it is also important for **policymakers** to reflect and be sensitive to the social, environmental and institutional context.

This Project is funded by the European Union

Coffee Break (11:45 – 12:00)

This Project is funded by the European Union

Overview: APPLICABILITY TO AGRICULTURE IN ISRAEL & CONCLUSIONS

12:00-12:45	APPLICABILITY TO AGRICULTURE IN ISRAEL AND CONCLUSIONS
	- ***Discussion of the applicability of the models in Israel and conclusions on the financing mechanisms to be stimulated (30 min).*** *Facilitated by: Dr. Kerusha LUTCHMIAH: Non-Key Expert (NKE), WES (TBD) and/or Ms. Olga SLEPNER, GAWS* - ***Feedback on the selected methods (15 min)*** *All participants*

This Project is funded by the European Union

3. Discussion on applicability to Israel & conclusions on methods

This Project is funded by the European Union

Recommendations (1)

- Removing distorted forms of support : Funding should address and avoid exacerbating the challenges, e.g. water security, food security, climate change, biodiversity conservation and social inclusion. Reforming potentially harmful water support, encouraging irrigation cost-recovery and boosting innovation is essential for proper investment in agricultural water.
- Policymakers are key: to provide the right environment for investment and ensure that investments are sustainable in the long term, reducing cross-subsidies while still ensuring sufficient finance to the agricultural sector. The environmental policy needs to be consistent with sustainable progress, and the water policies must mitigate future water challenges.
  - ✓It is necessary to integrate planning and management of water infrastructure and investment projects to identify synergies to reduce trade-offs between water users.
  - ✓Investments should ensure water availability for all users and uses, including the environment.
- "Sustainable Management of Water Resources in Agriculture" encourages agricultural water consumption decrease.
  - ✓farmers should pay the O&M costs for water and their share of the capital costs of water infrastructure -> to be added to water tariffs.
  - ✓Incentivize water-saving irrigation techniques

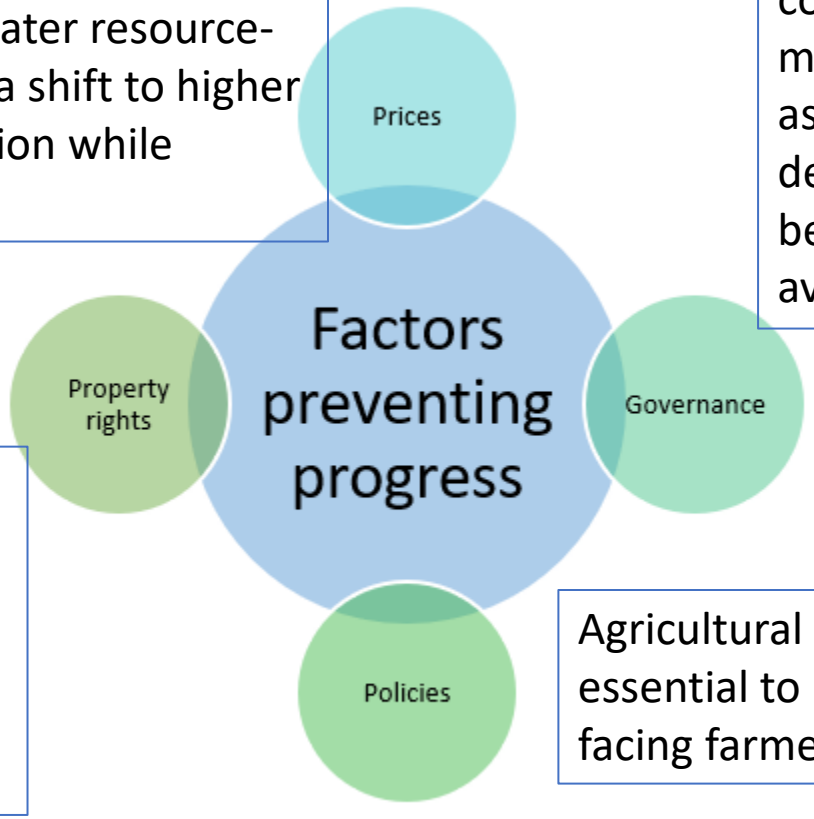
This Project is funded by the European Union

Recommendations (2)

Water and Environment Support
in the ENI Southern Neighbourhood region

Increased cost recovery through tariffs & water pricing mechanisms that encourage water resource-saving, technological innovation, and a shift to higher value agricultural commodity production while incentivizing reduced pollution.

The governance of water policies should be coherent across different scales of decision-making: farm -> aquifer & river basin, as well as national and international levels. Policy design should also consider the interactions between different water uses and policies to avoid conflicting incentives to farmers.



Water withdrawals & rights allow discharge into water bodies from agricultural activities and need to be better defined. Limits are usually imposed on water rights, e.g. withdrawal from aquifers.

Agricultural support and energy subsidies reform is essential to provide the proper framework of incentives facing farmers.

FIGURE 2-1: FACTORS PREVENTING PROGRESS IN OECD COUNTRIES

This Project is funded by the European Union

4. Feedback on the selected recommendations

This Project is funded by the European Union

5. Wrap up

This Project is funded by the European Union

Overview:
CLOSURE AND EVALUATION

Water and Environment Support
in the ENI Southern Neighbourhood region

13:45-14:10	CLOSURE AND WORKSHOP EVALUATION
	- ***Closure (5 min)*** *Ms. Olga SLEPNER, WES Focal Point and Prof. Michael SCOULLOS, WES Team Leader* - ***Meeting evaluation form (10 min)*** *All participants*

This Project is funded by the European Union

Evaluation form

Water and Environment Support
in the ENI Southern Neighbourhood region

Please take a few moments to evaluate the workshop.

Thank you for your contribution!!!

LDK CONSULTANTS LDK Consultants Global EEIG

This Project is funded by the European Union

Lunch

This Project is funded by the European Union

For more information:

Water and Environment Support
in the ENI Southern Neighbourhood region

This Project is funded by the European Union

Water and
Environment Support
in the ENI Southern Neighbourhood region

Thank you for your attention!