



Faculty of World Economy and  
International Affairs

Master's Programme  
Environmental Economics and  
Sustainable Development

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## *Introduction to Environmental Economics*

### *Part 8: Water Resources & Systems*

#### **Lecture 3: Integrated Water Resources Management (IWRM): background and five key principles**

**EU Water Framework Directive**

**UNECE Water Convention**

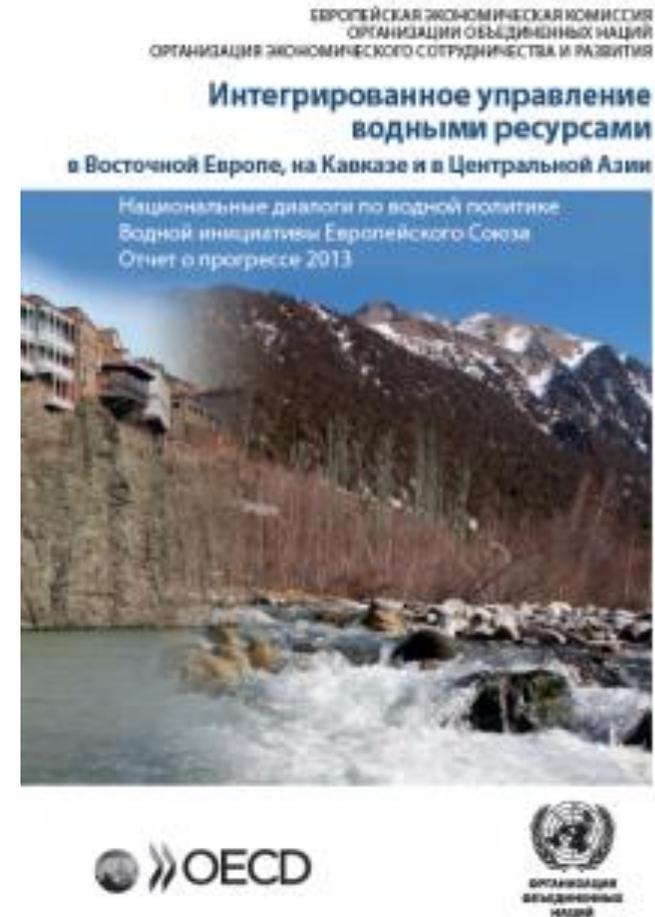
**OECD Council Recommendation on Water**

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## CONTENT

- **International good practices** (good to know & learn lessons)
- **Dublin principles** (a reminder, see Lecture 1)
- **Integrated Water Resources Management (IWRM):** background and five key principles
- **UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes**
- **EU water acquis & the Water Framework Directive**
- **OECD Council Recommendation on Water**





## Knowledge of, & learning from, good international practices is key to a sound management of water resources & systems

They are summarised in a number of internationally recognized principles, policy documents, recommendations and guidelines.

**1. The Dublin Statement on Water and Sustainable Development** (January 31, 1992 in Dublin, Ireland) opened a fundamentally new approach in water resources management.

Remark on Principle 4: water has both: the *economic good* and the *public good* dimensions (see Lecture 2)

### Principle No. 1 (Environmental)

- Fresh water is a **finite and vulnerable resource, essential to sustain life, development and the environment**

### Principle No. 2 (Institutional)

- Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels

### Principle No. 3 (Gender)

- Women play a central part in the provision, management and safeguarding of water

### Principle No. 4 (Instrumental)

- **Water has an economic value** in all its competing uses and should be recognized as an economic good



## IWRM principles: Background

**Background:** the IWRM principles are based on the Dublin Principles, adding details & further elaborating them. At the international level, the IWRM principles are promoted by the **Global Water Partnership (GWP)**, the **OECD** and **UNECE**, and other players

The **key components of the IWRM process** can be further described as follows:

- Managing water resources at the appropriate level (ideally, at the level of river basins, or river basin districts)
- **Managing demand** and **Optimising supply**
- Providing **equitable access** to water resources through participatory and transparent governance and management
- Establishing improved, **integrated & coherent policy**, regulatory and institutional frameworks
- Utilising an **inter-sectoral approach to decision making** (often, we can and should receive multiple benefits from a single intervention – see the case of MPWI, Lecture 2).



## Five IWRM principles

### Principle 1. Basin management

Implementation of the principle of basin management and the involvement of interested stakeholders allows taking due account of the natural characteristics of the water resources and facilitates their efficient management, while overcoming the challenges of complex coordination between different administrative entities.

### Principle 2. Intersectoral and vertical coordination of water management

Managing water use is a complex challenge that needs to take into account different water users with different interests. Horizontal coordination between all relevant sectors, such as drinking water supply, irrigated farming, power generation, industrial uses and recreation, as well as protection of ecosystems, is therefore vital.

### Principle 3. Transparency and public participation

Every person and a large number of institutions and sectors are water users, and therefore in principle stakeholders in water management. The development of public participation in water resources management is a difficult challenge. What is required is not just to inform all the relevant stakeholders, but to actively engage them and take their views duly into account.

Source: <https://unece.org/environment-policy/publications/integrated-water-resources-management-eastern-europe-caucasus-and>



## Five IWRM principles – cont.

### Principle 4. Ensure sustainability of water resources use, including the protection of ecosystems

While water is a renewable resource, water cannot be seen only as a resource to satisfy human needs in the short term only. Water is unevenly distributed across regions, in some of them water resources are scarce. In other cases, water quality is deteriorating. Climate change may lead to additional challenges with regard to the availability and quality of water resources. Such concerns need to be taken into account in water resources management and be reflected in national strategies for water and adaptation to climate change. The sustainability of water and water-related ecosystems must be key objectives in the management of water resources.

### Principle 5. Financial stability of water management and the use of economic instruments

The protection and use of water resources should be carefully managed. There is a need for stability in the institutions responsible for water resources and in water policy implementation to maintain the availability of water resources for multiple uses at present and in the future. Among other things, **this requires sufficient financing** for water governance, water infrastructure and the provision of water services. Water demand management should provide strong economic incentives for water conservation and protection, and promote water savings.

**Four key principles for sustainable financing of water resources management** have been identified (OECD, 2012): the Polluter Pays principle; the Beneficiary Pays principle; Equity; and Coherence between policies impacting the water sector.

Some **well-designed economic instruments**, such as water tariffs and pollution charges, have already been developed to implement these principles (for details see Lecture 5, upcoming).

Source: <https://unece.org/environment-policy/publications/integrated-water-resources-management-eastern-europe-caucasus-and>



## UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (the Water Convention)

The Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) is a unique international legal instrument and intergovernmental platform which **aims to ensure the sustainable use of transboundary water resources by facilitating cooperation**. Initially negotiated as a regional instrument (in the UNECE region), in 2016 it had been opened up for accession to all UN Member States. (Russia is a Party to the Water Convention). (It is a useful instrument to prevent water conflicts)

The Protocol on Water and Health, jointly serviced by UNECE and WHO-Europe, is a unique legally binding instrument aiming to protect human health by better water management and by reducing water-related diseases. The Protocol provides a practical framework to translate into practice the human rights to water and sanitation and to implement SDG 6.

(It would be great to briefly present & discuss the instruments at seminar 1 – volunteer(s)?)

Source: <https://unece.org/environment-policy/water>





## EU water acquis

The EU *water acquis* includes the following EU Directives:

- **Water Framework Directive** (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy)
- **Urban Wastewater Treatment Directive** (Directive 91/271/EEC concerning urban waste-water treatment)
- **Drinking Water Directive** (Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption)
- **Directive on Environmental Liabilities** (Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage)
- Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the **protection of groundwater against pollution and deterioration policy**
- Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the **management of bathing water quality**
- **Floods Directive** (Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks )
- **Directive on Priority Substances** (Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water)
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 **on waste**

**Sources:** [Water Framework Directive](#), [Floods Directive](#), [Urban Waste Water Treatment Directive](#), [Drinking Water Directive](#), [Bathing Water Directive](#), [Marine Strategy Framework Directive](#), [Nitrates Directive](#) and <https://eur-lex.europa.eu/legal-content/EN> and Annex A in Деревяго И.П, Дубенок С.А (2020)

(Again, it would be good to briefly present & discuss the instruments at seminar 1 – volunteer(s)? )



## Water Framework Directive (WFD)

The WFD states: *Water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such.*

### Article 1: Purpose

The purpose of this Directive is **to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater** which:

- (a) prevents further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems;
- (b) promotes **sustainable water use** based on a long-term protection of available water resources;
- (c) aims at enhanced protection and improvement of the aquatic environment, *inter alia*, through specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances;
- (d) ensures the progressive reduction of pollution of groundwater and prevents its further pollution, and
- (e) contributes to mitigating the effects of floods and droughts

and thereby contributes to:

- the provision of the sufficient supply of good quality surface water and groundwater as needed for sustainable, balanced and equitable water use,
- a significant reduction in pollution of groundwater,
- the protection of territorial and marine waters, and
- achieving the objectives of relevant international agreements....

(Sources: [EUR-Lex - 02000L0060-20141120 - EN - EUR-Lex \(europa.eu\)](#) and Annex A in Деревяго И.П., Дубенок С.А (2020))



## Water Framework Directive (WFD) -2

Overall, the WFD envisages achieving a set of ENV objectives (quite a long list) set in Article 4 (*inter alia*, they envisage protecting water resources from pollution, and achieving, by certain deadline, good or higher ENV status of all water bodies), based on the following:

- **comprehensive (integrated) management** of all water resources and water-related ecosystems;
- managing water resources **at the level of river basins (basin districts)**;
- **water pricing**, based on the polluter pays, beneficiary pays, and full costs recovery principles (including ENV & resource costs) to provide incentives for economic, more efficient water use and water savings, water conservation and protection and for reducing water pollution ;
- **stakeholder engagement** in water management;
- **policy co-ordination and coherence**; and
- **optimising water legislation and regulation**, based on the WFD

(Sources: <https://eur-lex.europa.eu/legal-content/EN> and Annex A in Деревяго И.П, Дубенок С.А (2020))



## OECD Council Recommendation on Water

The Recommendation captures the main messages that derive from the past OECD work since early 1970ies on providing policy guidance on water to OECD members and non-OECD countries, covering a wide range of issues including:

- water quantity and quality management;
- the management of water-related risks;
- pricing and financing water services and infrastructure; and
- Water governance.

(Source: <https://www.oecd.org/environment/resources/Council-Recommendation-on-water.pdf>)

Recommendations are not legally binding, but there is an expectation that Members and non-Members having adhered to the Recommendation will do their utmost to fully implement it. Central and subnational authorities can use the Recommendation as a reference to assess and possibly review their policies which contribute to water resource management and water security.



## OECD Council Recommendation on Water - 2

Concerning:

### Managing water quantity

it RECOMMENDS that Adherents manage water quantity at the appropriate scale and, depending on the availability of water resources, through the combination of:

Water demand management policies at national or sub-national levels of government,

The promotion of water use efficiency to alleviate pressure on all surface and groundwater resources, especially where water is scarce and competition between sectors intensifies, whilst taking into account the need for groundwater recharge and environmental flows

Water allocation regimes that define a sustainable resource pool

Collective management approaches

Improved knowledge of water use and sustainability limits, and improved monitoring of water resources and uses, watershed conditions, ecosystems health and the interconnections between surface and groundwater

### Improving water quality

It RECOMMENDS that Adherents prevent, reduce and manage water pollution, from all sources (diffuse and point sources), in surface and ground waters and related coastal ecosystems, while paying attention to pollutants of emerging concern (e.g. nano-plastic), as well as foster coherence between water and sectoral policies



## OECD Council Recommendation on Water – 3

### Managing water risks and disasters

It RECOMMENDS that Adherents manage water risks and disasters in a co-operative way, adopt and regularly review a water risk management policy as an element of an all-hazards approach to country risk governance.

To that effect, Adherents should: 1. Prepare for water-related disasters; 2. Improve policy coherence across climate change adaptation, water management, land management, spatial planning, ecosystem and biodiversity protection and disaster risk reduction. 3. Take into account the specificities of water risks related to: (i) cities; and (ii) climate change for agriculture.

### Ensuring good water governance

It RECOMMENDS that Adherents enhance the effectiveness and efficiency of, and trust and engagement in water governance, taking into account the specificities of governance for groundwater management (see 12 OECD Principles for Good Water Governance).

### Ensuring sustainable finance, investment and pricing for water and water services

It RECOMMENDS that Adherents set up measures for the sustainable financing of water services, water infrastructures, water resources management and protection of water-related ecosystems.

To that effect, Adherents should: 1. Consider the following **four principles** for financing water resources management: Polluter Pays, Beneficiary Pays, Equity and Coherence between policies that affect water resources. 2. Aim for the greatest social returns to investment. 3. Consider diversifying revenue streams and tapping into new sources of capital, where needed and in line with policy objectives. Further,

It RECOMMENDS that Adherents **consider establishing pricing instruments where appropriate and applicable... Considering transaction costs**, including administrative costs, when designing pricing instruments and revenue management schemes



## THANK YOU FOR YOUR ATTENTION!

### Literature

UNECE & OECD (2014), *Integrated Water Resources Management in Eastern Europe, the Caucasus and Central Asia. European Union Water Initiative National Policy Dialogues progress report 2013*

OECD (2012), *A Framework for Financing Water Resources Management*, OECD Studies on Water, OECD Publishing, Paris, 2012)

OECD (2016), *OECD Council Recommendation on Water*

Дервяго И.П., Дубенок С.А. (2019), *Экономические инструменты управления водными ресурсами и объектами, и водохозяйственными системами в Республике Беларусь*, Минск, БГТУ, 2020 (ISBN 978-985-530-837-0 )

КЭУ (2023), *Экономические инструменты управления для устойчивого развития водного хозяйства и повышения уровня водной безопасности* (есть в библиотеке НИУ-ВШЭ)



## Preparing for Seminar 1

### Mode of work:

- prior to the seminar: students (volunteers) prepare 3-4 presentations (10-12' each)
- at the seminar: the students deliver their presentations, each followed by Q&A and brief discussion

### Topics for discussion at seminar 1:

- **OECD Council Recommendation on Water** (pls focus on its governance, institutional and regulatory, economic and financial dimensions)
- **IWRM and EU WFD principles** (pls focus on stakeholder engagement; cost recovery & financing)
- a short overview **systematising causes and describing cases of water conflicts between states and ways to regulate the conflicts**, bases on the principles of the Water Convention/international water law.
- **Multi-Purpose Water Infrastructure (MPWI)**: services it provides; externalities; options for development & trade-offs (refer to country cases, incl. Sharda MPWI in Kazakhstan, or the Hoover Dam & Lake Mead in the USA).



## Background Documents for Seminar 1

EC (2000), Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy

+ Annex A in: Дервяго И.П., Дубенок С.А. (2019), *Экономические инструменты управления водными ресурсами и объектами, и водохозяйственными системами в Республике Беларусь*, Минск, БГТУ, 2020 (ISBN 978-985-530-837-0 )

OECD (2016), *OECD Council Recommendation on Water*

OECD (2018), *Strengthening Shardara Multi-Purpose Water Infrastructure in Kazakhstan*  
<https://www.oecd.org/countries/kazakhstan/strengthening-multi-purpose-water-infrastructure-in-shardara-mpwi-kazakhstan-9789264289628-en.htm>)

OECD (2017): Environment Working papers No. 115: *Managing Multi-Purpose Water Infrastructure*

OECD (2012), *A Framework for Financing Water Resources Management*, OECD Studies on Water, OECD Publishing, Paris, 2012)

UNECE & OECD (2014), *Integrated Water Resources Management in Eastern Europe, the Caucasus and Central Asia. European Union Water Initiative National Policy Dialogues progress report 2013*



## Background Documents for Seminar 1 - cont

**Convention on the Protection and Use of Transboundary Watercourses and International Lakes,**  
<https://unece.org/environment-policy/water/about-the-convention/introduction>

**On water conflicts:**

[Causes of Water Conflict: Past Wars and Future Predictions – World Water Reserve](#)

[\(1\) \(PDF\) Water Conflicts in Central Asia: Some Recommendations on the Non-Conflictual Use of Water \(researchgate.net\)](#)

[Water Conflicts in Central Asia: Some Recommendations on the Non-Conflictual Use of Water \(hidropolitikakademi.org\)](#)

[The water and energy conflict in Central Asia | War Resisters' International \(wri-irg.org\)](#)

