

# Linking Integrated Water Resources Management with Adaptation to Climate Change

Vasiliki Karageorgou

PhD in European Environmental Law

Lecturer at the Panteion University

Athens, Greece

# Introductory Remarks

- The world is facing changes at a faster rate than ever seen before.
- Changes, such as population growth, migration, urbanization, land-use changes and climate change will have significant impacts on the way water resources need to be managed in the future.
- Climate change will impact significantly the hydrological cycle and water resources worldwide.

# Impacts of climate change on water availability

- Changes in water availability and quality are expected to have significant impacts on key economic activities, such as agriculture, energy and industry
- Such changes will also influence the broader dynamics of the national economics
- Conclusion** : Just as climate change **mitigation** is being addressed through a series of fundamental changes in the way that societies produce and use their energy, **adaptation** will be addressed in part through a series of fundamental changes in the way societies manage and use their water resources

# Adaptation as a policy response to climate change

- Addressing climate change requires two types of response described under the keywords **mitigation and adaptation**
- **Adaptation** is defined as “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploit beneficial opportunities” (IPPC Report 2001, Climate Change: Impacts, Adaptation and Vulnerability)



# Legal Framework for adaptation

- Adaptation within the framework of UNFCCC
- -Art. 4 par. 1 b (facilitating adaptation)
- -Art. 4 par. 3 (finding new and additional financial resources for financing adaptation)
- -Art. 4 par.4-(developed country Parties to UNFCCC are committed to assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting the costs of adaptation to those adverse effects)
- -Art. 4 par.1 b and par. 8 and 9- establishing an obligation for the elaboration of National Adaptation Plans
- Three mechanisms for financing adaptation

# Linking adaptation with vulnerability

- Society' s exposure to climate change and its capacity to adapt are closely related to the nature and level of its development
- Adaptation must focus on those mostly in need, mainly the most vulnerable communities.
- Defining vulnerability by adopting certain methods and criteria constitutes a central element for any efforts for the elaboration of adaptation strategies
- -Prioritizing adaptation to the most vulnerable is also regarded as a human rights obligation, because climate change will adversely affect many people in securing their basic economic and social rights, such as the right to food and the right to the water

# The need for a strategic approach for adaptation

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- The adaptive capacity of the societies is not only closely linked to their level of development but it also depends heavily on the development choices. Even in developed countries, certain patterns of development can expose the citizens to ever-higher levels of climate risk (choices for unsustainable agricultural practices).
- Piecemeal adaptation cannot be successful. A strategic approach is needed, in order to ensure that timely and effective adaptive measures are taken, ensuring coherency across sectors and levels of governance

# The need for a strategic approach for adaptation

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- Adaptation concerns and priorities must thus be integrated across the full breadth of economic and development decision-making and streamlined into sectoral policies, such as agriculture, energy and industry
- One of the most important cross-cutting issues on which adaptive action should focus on, is water
- Water is a key part of the problem but also a key part of the solution

# IWRM as the suitable policy and legal approach for embedding adaptation

- Definition: Integrated Water Resource Management (IWRM) is a process which promotes the coordinated development and management of water, land and related resources in order to maximize the resultant **economic** and **social** welfare in an equitable manner, without compromising the sustainability of vital ecosystems (Global Water Partnership)



# Legal Framework for IWRM at International and Regional Level

Certain elements of the IWRM can be found in the following legal instruments:

- The UN Convention for Non-Navigational Uses of International Watersources. It codifies many principles of customary law for management and protection of shared water resources
- The UNECE Convention on the Protection and Use for Transboundary Waters and International Lakes- The Convention provides a sound legal framework for cooperation on shared water resources within the UNECE region. It places specific emphasis on the eco-system approach and the river-basin management
- The Water Framework Directive constitutes an innovative piece of environmental legislation. It is an all encompassing attempt to protect and manage Europe' s resources in a sustainable way.



# Central Principles and Directions of IWRM

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- The basic elements of IWRM model included mainly in the regulative concept of the UNECE Convention and the EU Water Framework Directive are the following:
- 1) The adoption of an integrated approach of all water-related aspects in terms of regulation, planning and governance
- Fragmentation in water legislation must be surpassed and a coherent and comprehensive framework must be set up
- The water legislation must be compatible with laws related to other natural resources, such as land laws or laws for management and protection of other natural uses (forests, biodiversity)
- 2) The establishment of an administrative system that ensures the implementation of the integrated approach in the water management and pursues a high level of coordination among all the agencies involving in this field

# Central Principles and Directions of IWRM

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- 3) The choice of the river basin district as the organizing unit of water management-This management level ensures that a water source is not treated in a piecemeal manner but in a holistic approach as a natural ecosystem. As water management has to be carried out on the basis of the hydrological boundaries, cross-institutional or even international cooperation in the case of transboundary waters is required
- 4) The participation of the stakeholders and the public in the planning process as well as in the decision-making processes for water issues
- 5) The protection of all kind of water (surface water, groundwater)-This is mainly relevant for WFD
- 6) The recognition of the economic value of water.

# Legal references for linking adaptation with IWRM

- The UNECE Convention on the Protection and Use for Transboundary Waters provides no explicit reference for climate change and its consequences to water resources
- The Water Framework Directive does not set any explicit obligation for adaptation to climate change-Though, it provides the framework for introducing climate change impacts into water management and river basin planning
- Measures to cope with these impacts should become part of the Programmes of Measures
- The EU Flood Risk Management Directive provides a useful framework to take into account the climate change effects in the assessment and management of risks (Article 4)

# Incorporating adaptation elements in the legal and institutional framework based on IWRM

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- Question: How adaptation elements could be incorporated into relevant water laws, policies and institutions at national level?
- **-The ultimate objective is to make water legislation climate-proof**
- Approaching the answer : The first step for the incorporation of adaptation elements is to assess the existing water legislation vis à vis the capacity to support adaptation  
Since the effects of climate change remain uncertain, legal frameworks should be flexible enough to respond to any projected or unforeseen change. These relate mainly to the legal provisions for water allocation (for example, the periodic review of water allocations)
- Flexibility in terms of addressing unexpected changes to water availability should also be an integral component for transboundary water agreements



# Incorporating adaptation elements in the legal and institutional framework based on IWRM

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## ■ **Intelligent Institutions**

- Another key challenge relates to the establishment of "intelligent institutions" from the local to transboundary level.
- Institutions for water management should go beyond managing water on day to day basis to identify water use trends, areas vulnerable to climate change and opportunities to respond as best as possible to the emerging challenges
- A participatory approach is also recommended regarding the **modus**, by which water institutions should deal with all the actors involved, from the individual citizens to local authorities and from the stakeholders of the various sectors to the policy makers at international level

# Incorporating adaptation elements in the legal and institutional framework based on IWRM

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- Embedding adaptive elements into water policies should be build upon a variety of instruments that are already used or can be used.
- These legal instruments, policies and strategies aim at influencing water demand, so as to match demand to the supply, to achieve efficient and sustainable use of a scarce resource and to achieve balance among competing uses
- These instruments can be referred as follows :
  - 1) Quota –Setting an upper limit to the amount of water that can be used for a certain purpose



# Incorporating adaptation elements in the legal and institutional framework based on IWRM

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- 2) A transparent permit system for water withdrawals that enables the orderly allocation of a scarce resource and provides for checks and balances between the profit of the permit seeker and the interests of the general public.
- Licenses should be subject to monitoring and issued for a limited period of time
- For integrating adaptation elements into allocation procedure, it is crucial to define priority water uses and to find appropriate ways to implement prioritization
- 3) The creation of a water market, where stakeholders can buy and sell water rights. Its effective function requires at least a strong regulatory framework and effective monitoring mechanisms in place
- When designing such an instrument, the dimension of the water as a public and social good has to be taken into account

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# Incorporating adaptation elements in the legal and institutional framework based on IWRM

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- 4) Economic instruments such as pricing policies, charges, subsidies, grants, product charges, tax differentiation, tax allowances and other incentive-based measures aim to stimulate the water allocation to certain preferred uses or to make undesirable behavior less attractive
- 5) A system for ensuring compliance with the relevant provisions or terms (penalties)
- For encouraging efficient water use, soft informational instruments are also important - Education, capacity building and communication aiming at increasing awareness and improving understanding for climate change impacts, should also be an integral part of any adaptation strategy

# The specific role of economic instruments

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- Among different legal instruments aiming at increasing efficient water use, economic instruments can play a central role
- They can provide incentives for inducing behavior changes regarding water use
- The design of economic instruments (user fees, waste charges and pricing policies) applied in the water legislation is based on the implementation of the cost-recovery principle and the user/polluter pays principle
- The Water Framework Directive is the first legal instrument at least at regional level that integrates **economics** into water management and water policy. The cost recovery principle is clearly recognized as a guiding principle for water pricing (Art. 9)

# The specific role of economic instruments

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- The cost recovery principle requires that prices for water services include not only investment and operational costs but also environmental and resource costs. The recovery of environmental costs should also include the costs of coping with and adapting to climate change impacts
- The implementation of the cost recovery principle, when designing pricing policies, must not come in contradiction with the dimension of water as a public and social good
- (See for example the Preamble No.1 of the WFD-Water is not a commercial product like any other, but, rather, a heritage which must be protected, defended and treated as such)
- The recently adopted human-rights approach, namely the recognition of a right to water, which also includes **affordability** to water services, requires that the social dimension of water should be strongly taken into account, when designing pricing policies.



# Concluding Remarks-1

- 1. Water resources are under high pressure due to climate change
- 2. Enhancing water governance capacity (policies, laws and institutions) constitutes a prerequisite for coping with the unavoidable effects of climate change on water resources
- 3. Water law must form the backbone of IWRM, which involves planning at river-basin level, strong inter-sectoral cooperation, public participation and prioritization of water uses.



## Concluding Remarks-2

- IWRM is deemed as the most appropriate regulatory approach not only for achieving sustainable water management but also for embedding adaptive elements into the legislative framework
- 4. Certain options for making water legislation “climate proof” can be the inclusion of specific provisions addressing both quantity and quality availability, the periodic review of water allocations and the introduction of criteria regarding the flexible prioritization of water uses



# Concluding Remarks-3

- 5. Setting well-functioned institutions from the river-basin to transboundary level is crucial in implementing effective adaptation in the field of water management
- 6. Water ignores boundaries (water as an international resource). The duty of states to cooperate becomes even more imperative under uncertain circumstances. Transboundary water agreements should also be “climate proof”