

**MEDITERRANEAN COMPONENT
of the EU Water Initiative
(MED EUWI)**

**Strategic Partnership on
Water for Sustainable Development**

Lead Country: Greece

**Climate Change Adaptation and
Integrated Water Resources Management
in the Mediterranean**

Position Paper

DRAFT

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The Mediterranean Component of the EU Water Initiative (MED EUWI)

The Mediterranean Component of the EU Water Initiative (MED EUWI) constitutes an integral part and one of the geographic Components of the overall EUWI. It represents a strategic partnership among all related stakeholders (national, regional and international) in the Mediterranean region, aiming at contributing to the implementation of the water-related MDGs and WSSD targets. It, thus, seeks to make significant progress in poverty eradication and health, in the enhancement of livelihoods, and in sustainable economic development in the Mediterranean and Southeastern Europe, providing a catalyst for peace and security in the region which is a vulnerable and sensitive one from both an environmental and political view point.

MED EUWI is led by the government of Greece (Ministry for Environment, Physical Planning and Public Works and Ministry of Foreign Affairs). The MED EUWI Secretariat within the Global Water Partnership-Mediterranean Secretariat, provides technical support and day-by-day running. The Euro-Mediterranean Water Directors Forum, serving as institutional support of the implementation of MED EUWI, provides advice and guidance on the MED EUWI further development and implementation.

MED EUWI develops its activities through annual work programmes, supported and with the participation of a variety of institutions and stakeholders.

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Climate Change Adaptation and Integrated Water Resources Management in the Mediterranean

Position Paper D R A F T

1. Introduction

The recent Intergovernmental Panel on Climate Change (IPCC) Report makes clear that water is in the eye of the climate change storm. Global warming and a set of complex interrelated changes are predicted to present significant challenges over the next century. To date, much attention has been focused on the dimensions of temperature increase, ice melting and sea level rise. Substantial work has also been done on some of the consequences that affect the entire water cycle including significant changes in rainfall and the risk of more extreme and more intense floods and droughts.

The same IPCC report has also highlighted that “irrespective of the scale of mitigation measures, adaptation measures are necessary.” This implies an integrated approach to climate change that embraces both mitigation, which addresses the drivers of climate change, and adaptation, which considers the measures necessary to respond in order to accommodate such changes.

In this context, the water management will become increasingly difficult because there is general agreement that the supply of and demand for water resources will be substantially affected by climate change.

Whereas our global energy habits are the focus for mitigation, the way water is used and managed should become the focus for adaptation. It is indeed widely predicted that relatively small temperature changes of a few degrees Centigrade will considerably increase variability of average river flows and water availability. According to current IPCC scenarios, i.e., if temperatures rose by 2 to 3° C, this would bring water scarcity to between 1.1 and 3.2 billion people. Hence, even moderate changes in climate will be amplified in the aquatic environment.

If direct and indirect impacts of climate change on the overall water cycle are not well understood and addressed in a responsible way, there is a significant risk that quantity and quality of water supplies provided to the communities of a growing, urbanizing world, will not meet their needs, while the infrastructures built to serve them and agriculture as well as industries that feed and supply them, will prove to be unsustainable.

There are also broader dangers. If we fail to understand the interaction between climate change and water, other climate change strategies may actually aggravate the problems and increase the vulnerability of communities to both natural and manmade calamities.

This is especially true for the Mediterranean, which will be and is already amongst the regions in the world most affected by climate change and where impacts on water resources become immediately visible.

2. In the Mediterranean...

... the consequences of climate change are forecasted to be particularly severe, increasing the already existing water stress in the region, including in Southern and South-Eastern Europe, North Africa and the Middle East.

Phenomena such as recurrent and persistent droughts, high variability in precipitation, serious decrease of soil moisture, river flow decrease, extreme weather events, desertification, etc. are expected to increase significantly in the region and will impact on freshwater availability in terms

of quantity and quality. Other serious effects of warming in the Mediterranean could be sea level rise resulting *inter alia* in land erosion and salt water intrusion in coastal areas, thus in the loss of inhabitable and arable land as well as serious alterations of natural habitats and damages in important ecosystems.

Water resources being already scarce throughout the whole region, in combination with increased water demand due to demographic pressure, urbanisation increase of water in tourism and development needs in general, climate change is likely to lead to further environmental degradation jeopardising directly or indirectly social cohesion, well being and quality of life as well as security in the immediate future (groundwater over-exploitation, insufficient food supply, destruction of ecosystems vital for the health of people and nature).

In North Africa, as more generally in Africa, where vulnerability is very high, climate change impacts on water are projected to intensify challenges that populations are already facing in overcoming poverty and ensuring their livelihoods and development. The situation is expected to increase competition over water resources for agriculture, domestic use, tourism, etc., to aggravate health issues, thus likely to induce massive migrations and creating important risks of conflicts over water in the region and outside. The consequences of climate change that North Africa is likely to suffer are: more and more severe droughts, significant reductions in run-off and stream flow (more than 50%) and less soil moisture, due to decreases in rainfall and higher temperatures leading to higher evaporation, aridity and desertification. It is expected that the already massive extraction of “fossil” water from non-renewable aquifers will continue giving rise to a wide series of secondary problems.

The Middle-East is also predominantly an arid region. Combined to the increasing demand for water due to rapid development and expanding populations and the effects of extreme weather events, water scarcity and unequal distribution will exacerbate competition over water resources in this region, which is already subject to an unstable political situation and conflicting transboundary relations.

Southern and South-Eastern Europe is expected to experience higher climate variability: in addition to already obvious water stress, the occurrence of extreme weather events linked to higher intensity in rain falls is likely to increase while snow fall might decrease in many areas. Economic activities depending on water availability such as agriculture, tourism, industry, energy, forestry but also people’s general well-being are predicted to be significantly affected especially by heat waves, droughts, increasing vulnerability to forest fires, as well as heavy rainfalls and severe floods, the latter causing damage to people, buildings, transport, infrastructure, etc. The expenditure for flood protection works, storm water drains etc. will rise significantly. Social stability and welfare could also be challenged if migratory pressure due to environmental issues from South and possibly East increase.

3. A need for adaptation strategies and actions in the water sector

Although it will be some time before the full extent of the impacts of climate change on water resources become evident and fully understood, it is important that they are addressed sooner rather than later to adapt to a future that many believe has already begun to occur. Moreover, the best way for countries to build the incapacity to adapt to climate change will be to improve their ability to cope with already existing climate variability. Therefore, the need to draw adaptation strategies at the regional and country level and proceed with related actions is eminent. What is at least reassuring is that the measures already planned or in place for the integrated management of water resources are in most cases identical or to the same direction with those needed in order to address the adaptation in climate change.

It is thus important for water managers and water users alike to get to grips with the future that is unfolding. An approach to water resource management that can identify and address the challenges – and uncertainties – is needed. But as important as promoting better, more intelligent, water management, we need to ensure that in all sectors of society, the water challenges are addressed in broader climate change and development strategies.

4. IWRM, a sound response for building resilience

Better water management will be essential if communities are to adapt successfully to climate induced changes in their water resources. The strategies adopted will have to use a combination of infrastructural and institutional measures and to go well beyond what is normally considered as “business as usual”. Critically, they will require major changes in the way agriculture, industry and human settlements in general are managed, thus implying Integrated Water Resources Management (IWRM). The future resilience (or vulnerability) of human communities to climate change related impacts will depend, to a large extent on a combination of measures and on the proper success of implementation of these measures.

IWRM promotes a holistic approach to water management and recognises that there are multiple pathways to building resilience. IWRM seeks to identify, and then to achieve tradeoffs between different water management objectives including environmental sustainability, economic efficiency and social equity. It encourages the structured engagement of communities and sectors impacted upon by water into its management both to seek and promote “win-win” solutions but also to ensure that a better understanding of water constraints and challenges is developed and diffused into the society.

Combining infrastructural and institutional strategies

IWRM involves both infrastructural (hard) and institutional (soft) strategies. Indeed, it is the judicious mix of strategies that offers countries the best chance of coping successfully with climate variability and change, through the use of soft tools that complement infrastructure and help ensure that infrastructural investments work effectively.

To a great extent, resilience with regard to climate change impacts on water will depend on the state of water infrastructure. The armoury of the water manager to address variability and extreme events is not restricted to infrastructural means. As important are the institutional mechanisms that, again more or less formally, help to deal with climate variability and to achieve goals such as water supply for people, industries and farms, to protect communities from flooding while sustaining ecosystems. Integrated water resource management also offers a set of soft tools that are often cheaper, and may be more effective, than its infrastructural tools and can certainly complement infrastructure to ensure that it works effectively.

In the Mediterranean particularly, when addressing potential water shortages, as much attention should be given to managing demand as to increasing supply, by introducing more efficient technologies as well as simply promoting a culture of conservation. This is going to be particularly important since overall water availability will decline in the region.

In all this, it is important to recognise that many of these challenges are not new and are certainly not the product of climate change alone. Thus the changing lifestyles and dietary patterns associated with growing affluence will, arguably, have an even greater and more immediate impact on the water environment.

There are multiple challenges confronting communities and countries that seek to “climate-proof” themselves, in the sense of increasing their resilience to the effects of climate change, by managing their water resources more intelligently. As always, poorer countries will face the greatest challenges. Addressing them will require strong, and well informed, leadership as well as effective strategies and institutions.

Intelligent and robust institutions to coordinate responses and support decisions

A key challenge is begin to orient water managers, as well as their partners in key water use sectors, to the potential impact of the emerging new climates. Intelligent and robust institutions are needed that can go beyond managing water on a day to day basis to identify water use trends, areas vulnerable to climate change and opportunities to respond as best possible to the emerging challenges.

Designing the technical responses based on enhanced water knowledge

The design of appropriate water infrastructure and complex management arrangements needs more than technical capacities. It must be guided by sound information about the water resource, which is often lacking in the region.

Financing climate-proofing in the water sector

To support enhanced management that climate change will need tomorrow – and climate variability requires today - a more strategic and better prioritized approach to funding is required. The current global focus is on the short-term - immediate poverty priorities such as basic water supply and sanitation and “bankable” activities such as hydropower and industrial water supply. Yet there is a great risk if not a real likelihood that, without effective long term water management, these current activities will prove to be unsustainable.

Many poorer countries cannot even manage their current climate variability, not because the strategies needed are unclear but because the means to implement them are lacking. The challenge of “climate-proofing” the future requires that adequate funds are allocated today for water resource management of today and tomorrow. This implies the use of various other economic instruments (i.e. water pricing, enforcement of the “polluter pays” principle, etc.).

Moreover, since poorer countries are incurring costs imposed on them by the action of richer countries, funding of adaptation in the water sector needs to be taken up in the broader development finance discussions.

5. Coping with future challenges: a role for the MED EUWI

The wider context...

Recognizing the seriousness of the climate crisis, the EU has also engaged in climate change policies, encouraging immediate action not only for mitigation but also for adaptation, since it has been made clear that global warming and climate change are yet to a certain degree unavoidable. In its Green Paper (June 2007), the EU Commission has warned Member States that failing to give an early response could force them into reactive un-planned adaptation, which will prove more costly, and acknowledged that climate change impacts and resulting adaptation needs influence EU relations with third countries.

The EU Commission has identified Southern Europe and the entire Mediterranean region as being among the most vulnerable areas especially in matters of climate change impacts on water, which will make them even more prone to water scarcity and drought. It has presented a Communication (July 2007) in the related field that stresses the importance of sustainable water demand management including water-saving policies and water efficiency optimisation throughout Europe.

The EU, as the largest provider of Official Development Assistance (ODA), has also taken a lead role in international development efforts and ambitious commitments. In this context, the EU has highlighted the strong links between climate change and poverty and it has also been suggested that dialogue and partnerships on adaptation should be enhanced with developing countries, which need to face the impacts of climate change in addition to their development burden. This was reiterated at the G8 Heiligendamm Summit in June 2007, where adaptation was again recognized as a priority area for cooperation with developing countries.

Moreover, the EU Common Foreign Policy and Security Policy could play an important role in reinforcing the EU's capacity to prevent and deal with conflicts arising over access to natural resources, including water, and natural disasters accentuated by climate change, as well as their potential consequences such as forced migration and internal displacements of persons.

In this context, the EU will continue to promote adaptation within the UN Framework Convention on Climate Change (UNFCCC). Inclusion of adaptation measures in geographical programming is therefore to be strengthened in the framework of the 2004 EU Action Plan on Climate Change

and Development, under the Environment and Natural Resources Thematic Programme. Further cooperation and dialogue with developing countries in this issue could be promoted through the building of a Global Climate Change Alliance (as proposed in the EU Commission's Communication of 18 Sept. 2007). Close links should in particular be developed with Africa through an Africa-EU Partnership on Climate Change, taking into account major related international instruments such as the UN Framework Convention on Climate Change (UNFCCC) and the UN Convention on Combating Desertification (UNCCD).

In view of the up-coming Bali Conference of the Parties to the UNFCCC (3-14 Dec. 2007) and related post-2012 climate commitments, the EU Commission has also reaffirmed its commitment to support adaptation strategies and contribute to relevant efforts of the international community during the Conference on "International Solidarity for a Strategy on Climate Change in Africa and the Mediterranean Region" that took recently place in Tunis (18-20 Nov. 2007).

In the Action Plan adopted at the Tunis Conference and supported by the EU, the following actions have been recognized as necessary for the successful management of water resources in the countries of the region: improved data collection and monitoring systems; promotion of technology transfer for analysis, risk assessment and adaptation of the infrastructure needed for managing water resources; development of water saving and re-use programmes. This can only be achieved with the help of developed countries, based on the principle of common but differentiated responsibilities.

With regard to neighbouring countries, it has been proposed that "climate-proofing" measures/projects be supported by the European Neighbourhood Partnership Instrument (ENPI), in the framework of the European Neighbourhood Policy. The ENPI could also serve as a financing source for initiatives under the Africa-EU Partnership on Climate Change,

The potential role of the EU Water Initiative – Mediterranean Component (MED EUWI)

Climate change will make even more urgent the need for equitable and sustainable management of water resources, which is crucial for poverty alleviation in parallel to the needed support to fast growing economies and social demands in the regions. Thus, the objective of the EU Water Initiative (EUWI)¹ and its Regional Components need to be expanded appropriately in order to provide adequate assistance in meeting the vast challenges of climate change.

As recognized, improvement in water resources management will require the active involvement of and concertation between all interested parties. This implies better governance, real dialogue and cooperation among all stakeholders at all levels, more effective sharing of knowledge, better technology and adequate resources. It will only be possible to ensure sound management of water resources - and hence minimize conflicting relations due to competition over these as well as reduce vulnerability / enhance resilience in general - in a climate change context, if the issue is well understood by all players and addressed in a structured, efficient way. For instance, promotion of the safe use of non-conventional water resources (eg. use of properly treated domestic effluents in agriculture) will require considerable progress at all relevant fronts and coordination of many different sectors and actors.

Based on these, it is recognized that there are several barriers to water sector adaptation to climate change that threatens efforts undertaken and progress achieved by the countries in meeting MDGs and WSSD targets, including (i) climate change risks is not sufficiently taken into account within sectoral policies and investment frameworks, (ii) existing climate information, knowledge and tools are not directly relevant for supporting adaptation decisions and actions and (iii) national capacity to develop sectoral adaptation responses remains weak.

The Mediterranean Component of the EU Water Initiative (MED EUWI), as an active promoter of IWRM in the Mediterranean region and due to its catalytic scope, is a suitable framework and a

¹ The EU Water Initiative was launched in the aftermath of the 2002 World Summit for Sustainable Development in Johannesburg (WSSD) as a contribution to the achievement the Millennium Development Goals (MDGs) and WSSD targets for drinking water and sanitation. More info in www.euwi.net

competent partner for assisting the design of cross-sector climate change adaptation policies linked with water in the region. Through its well established contribution to the promotion of National Policy Dialogues on IWRM and WSS, the MED EUWI could further assist in the mainstreaming of such adaptation or “climate-proofing” policies into national IWRM and WSS plans.

Aiming primarily to strengthen water-related institutions to deliver their role in the climate change agenda, MED EUWI in collaboration with national and regional partners, could assist countries:

- to evaluate climate change risks in national development strategies and plans related to water resources,
- to screen and design adaptation standards, strategies and related measures in national IWRM and WSS plans,
- to identify financing requirements with regards to climate-proofing of water policies and plans and enhance donor coordination,
- to design and build adaptive capacity to climate change and reduce vulnerability to climate change of high-risk sectors related to water.

In order to organise its intervention on these and as a first step in 2008, MED EUWI will elaborate a related ‘Concept Note on linkages between national Climate Change adaptation measures and national Integrated Water Resources Management planning, in the Mediterranean’.