

SECURITY IMPLICATIONS OF CLIMATE CHANGE IN THE MEDITERRANEAN AND EU POLICY RESPONSE

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**Climate Change and its Impacts**

During the last century, an accelerated climate change has occurred due to increase in global air mean temperature that has been raised by 0.6°C, while the average temperature in Europe by nearly 1°C. Climate experts predict that this global change (warming) will accelerate with the rising of global temperature by nearly 1.4 to 5.8°C by 2100, and temperatures in Europe by 2 to 6.3°C [7].

Global warming is mainly caused because of rising up of greenhouse gases (GHGs) emitted into the atmosphere from human activities. The atmosphere plays the role of the glass walls in a greenhouse. Although much of these GHGs exist naturally, since the industrial revolution in the 18-19<sup>th</sup> century, human activity has produced them in ever-increasing quantities. As a result, their concentration in the atmosphere is higher now than at any time in the past 420.000 years [6].

Nowadays, scientific evidence exists that the main cause of climate change is human activity. Hence, even those who until a few years ago were not convinced that humans have an impact on climate now accept that this is happening [1]. Testimony of that are accelerated climate change influences on Earth's surface temperature, the amount and timing of precipitation, the melting in wide range of snow and ice, and rising sea levels, freshwater availability and quality, and related to that, the spread of water borne diseases. Storms and floods are happening more frequently, spring is coming sooner, flowers bloom faster and birds migrate earlier than expected. Hence, from a socio-economic perspective, climate change can affect resource availability, human health, food production and security [6].

These changes pose a threat to economic development, social and political stability, as well as will cause human suffering; climate change will cause natural disasters, food shortages and displacement of populations. In addition, the impact of climate change will reinforce in a significant mass the already existing threats to the point where they can cause instability and violent conflicts [1].

Climate change may influence directly and indirectly to changes in disease burden patterns. These changes occur because of global developments, increased migration and rapid urbanization, but also because of border security, health care standards, and climate change impacts *per se*. On the other hand, major climate related issues such as degradation of freshwater resources, decline in food production, cyclones, storms and food disasters, and sea

level rise are known as environmental factors that may cause migration. Migration in turn increases the opportunity for diseases to spread rapidly between populations. It may also cause the re-introduction of infectious diseases to the areas where they have been eradicated or reduced [6].

The responses to the threats posed by climate change may differ importantly depending on the ability of countries to cope and to adapt to changing negative impacts of climate. Developed countries shall succeed with mechanisms, although costly, to deal with these impacts, including population movement from areas of risk, adaptation of agriculture and industry, as well as other general tools to minimize the difficulties caused by climate change to society, economy and political system. Countries that are already facing poverty, social and political instability, will be much more sensitive to the negative consequences of climate change, because on the one hand, they do not hold a lot of tools to fight climate change and on the other they already suffer from a variety of threats that will be exacerbated by climate change, including droughts, land degradation, desertification, diseases, and so on.

However, there is much of uncertainty for these drivers, on what the impact of climate change will be and on how will environmental regulation develop in this concern. The major impacts of climate change may become visible after some decades and they are expected to become more important for the latter part of the 21-st century [7]. Projected climate change is expected to affect the European society almost in all economic sectors, ecosystem goods and services, and biodiversity. Parts of the pronounced consequences are expected in the Mediterranean basin. According to climate projections, by 2050, some areas of the Mediterranean are expected to have suitable climate for vector and parasite of malaria.

The main consequences of climate change in Europe include an increased risk of floods, droughts, threats to economic sector, loss of biodiversity and threats to human health. In addition, the suitability of some regions for tourism may decline during the summer months, especially in the Mediterranean.

The consequences of climate change are expected to vary considerably in Europe, with largest impacts in the Mediterranean basin. Increased mean air temperature and decreased water availability are expected to further exacerbate the vulnerability to drought and forest fires.

Box: Projected impacts of climate change for the Mediterranean region

Decrease in annual precipitation	Increased water demand for agriculture
Lower crop yields	Less energy from hydropower plant
Higher risk of biodiversity loss	Less summer tourism
Higher risk of desertification	More vector borne diseases
More forest fires	More deaths by heat waves

Source [6] with modifications

UNEP has recently published the Global Environmental Outlook [10], stating that climate change will have significant long-term impact on human welfare and development. This will hinder efforts to meet the basic needs of development, such as those identified in the Millennium Development Goals adopted at the United Nations Millennium Declaration, following the Millennium Summit of the United Nations in 2000.

According to the latest UNDP report on human development [17], "*Environmental degradation and climate change affect physical and social environment, knowledge assets and behavior. Dimensions of disadvantage can interact, compounding adverse impacts - for example, the intensity of health risks is higher where water and sanitation are inadequate, deprivations that often coincide.*"

### International Policy on Climate Change as a Security Issue

Since the year 2000, climate change has increasingly been addressed by policy-makers and analysts as a danger and concern. During 2002, climate change has been intensively discussed as an international, national, human and environmental security issue. It was agreed that it poses multiple threats, challenges, vulnerabilities and risks for many security concepts of different sectors, such as water, soil, food, health, and livelihood security. Anyhow, in year 2007, there occur several developments in relation to the security aspect of climate change. These included the publication of the fourth IPCC assessment report, the first debate on this relation in the UN Security Council, the publication of the WBGU (German Advisory Council on Climate Change) report on Security Risk of Climate Change during the German G-7 and EU Presidency, and the awarding of the Nobel Peace Prize to the IPCC and Al Gore [2].

While the European policy debate in the UK, Germany, Sweden and in the European Union addressed climate change primarily as an international security issue, the US policy debate since 2004, but most particularly since 2007 focused on climate change as a national security issue, most particularly on the threat it would produce for US national security and how it would affect the military and its operations (*ibid.*). Based on a report on Security Risk Climate Change of the WBGU that was released to the G-8 summit [17], the German government proposed an EU strategy paper on the security impacts of climate change.

In June 2009, the UN General Assembly for the first time adopted a non-binding resolution on climate change as an international security problem requesting other Member States to address to this issue and requesting the Secretary-General of the UN to submit a report on it [16].

Climate change has been analysed from a *human* security perspective by the Global Environmental Change and Human Security programme (GECHS) and it was addressed during the Greek Presidency of the Human Security Network (2007, 2008) and by the Friends of Human Security at the UN (2008, 2009) [2].

Going back to the WBGU report, in March 2008, the European Commission prepared and submitted to the EU

Council of Ministers and to the European Council a report on the security aspect of climate change. From a state-centred international security perspective, the WBGU report [17] argued that: "*Without resolute counteraction, climate change will overstretch many societies' adaptive capacities within the coming decades. This could result in destabilization and violence, jeopardizing national and international security to a new degree.*"

The abovementioned report refers to probable new conflict groups due to sea-level rise, storms, and floods that may threaten coastal cities and industrial regions. While the WBGU considered climate-induced inter-state wars unlikely, it argued that climate change could generate national and international conflicts and intensify the already existing problems, such as state failure, the deterioration of social order, and rising violence. In the worst-affected regions, this could lead to destabilization processes with spread of conflict structures. These developments threaten to damage the established global governance system, thus jeopardizing international stability and security.

The WBGU identified four conflict groups, whose dynamic can lead to social destabilization and, in the end, to violence all of which are climate-induced. It also mentioned six key threats to international security and stability that will arise if climate change mitigation fails [17]. The main threats are: increase in number of weak and fragile states, risks for global economic development, for growing international conflicts, human rights, as well as intensification of migration.

In the WBGU's view, climate policy is also a preventive security policy, for if climate policy is successful in limiting the rise in globally averaged surface temperatures to no more than 2°C in relation to the pre-industrial value, the climate-induced threat to international security would likely be avoided. On the contrary, if the mitigation efforts fail, according to the WBGU report, climate-induced security risks will begin to manifest themselves in various regions of the world from around 2025-2040. Hence, the key challenge is to take determined climate policy action within the next 10-15 years, in order to avert the socio-economic distortions and implications for international security that will otherwise intensify in subsequent decades.

Three of the above conflict groups, as identified by the WBGU are highly relevant for the Euro-Mediterranean region: a) climate-induced degradation of freshwater resources; b) climate-induced decline in food production; and c) environmentally-induced migration; while the fourth, d) climate-induced increase in storm and flood disasters, has affected many countries of the Western and Eastern Mediterranean, especially during autumn and winter [2].

In March 2008, the British Foreign Secretary David Miliband and the German Foreign Minister Frank-Walter Steinmeier argued in a joint article that climate change "*threatens our prosperity and wellbeing, not just in Europe but beyond. Moreover, it will reshape the geopolitics of the world in which we live, the region that will be most affected during this century will be the Mediterranean region and most particularly the MENA countries* (Middle East and North

Africa) with important consequences for peace and security.” [13].

The two distinguished politicians led to three key initiatives within the EU and globally: 1) “to intensify our efforts to meet the new security risks triggered by climate change”; 2) “to address an increasing number of global natural disasters such as storms, floods, and droughts in the future”; and 3) “to consider now how climate change will affect the strategic context of European foreign and security policy in the years to come.”

*EU Climate Change Security Strategy and Diplomacy*

The Report on the Implementation of the European Security Strategy – *Providing Security in a Changing World*, of December 2008, by the EU’s High Representative on External Affairs, Javier Solana [9] noted that without mentioning the term climate change the EU’s European Security Strategy – *A Secure Europe in a Better World*, approved in December 2003 - “Already identified the security implications of climate change. Five years on, this has taken on a new urgency. [...] Climate change can also lead to disputes over trade routes, maritime zones and resources previously inaccessible. We have enhanced our conflict prevention and crisis management, but need to improve analysis and early warning capabilities. The EU cannot do this alone. We must step up our work with countries most at risk by strengthening their capacity to cope. International cooperation, with the UN and regional organisations, will be essential.”

In a meeting of the Council of the European Union on EU Climate Diplomacy, in 2011, climate change is recognized as a global environmental challenge and development and a threat to global prosperity, growth and stability. The EU has been at the forefront of raising awareness on climate change implications with third countries and international organization. Anyhow, developing a global and future comprehensive framework engaging all major economies through multilateral and national action, in order to pass into a safe and sustainable low carbon economy and society is considered essential [5]. There is necessity for the EU to contribute now, in order to reduce the systemic risks resulting from climate change before the breaking of crisis.

The Council underlined also the need to further step up climate diplomacy efforts to address climate change in all political levels and to strengthen the voice of the EU and call on all the EU actors to contribute to this direction and to continue and intensify our respective efforts to assist developing countries in institutional efforts and their capacity building to address climate change.

Concerning the security aspect, Council confirmed that “EU will continue to raise global awareness of security risks and threat multiplier nature of climate change, particularly in vulnerable regions”.

*The evolving Security Concept and the need for Development Assistance in the South*

The security perspective has changed from a state-centred security concept that had prevailed in the analysis of international relations during 20<sup>th</sup> century, to an evolving “security community” in Europe with the expansion of the EU from 15 to 27 Member States. This happened through

widening from military and political, to economic, societal and environmental security, and also deepening from national and international to human, gender and global security, as well as and specification (energy, water, food, health and climate security) of the security concept [2]. As a result, a new human-centred security concept has emerged that more seriously affects the part of the world living in poverty in the South. Climate change will affect the countries and people in the South more seriously due to a higher number of severe and intensive hazards, a high degree of social vulnerability resulting from poverty and lack of resources for adaptation and mitigation measures, as well as an insufficient state capacity for implementation.

A survey of studies on the regional security implications of climate change, as part of the EU roadmap process on climate change and international security summarizes the recommendations with regard to awareness-raising, further research, capacity-building, policy priorities, priority regions and international development assistance needed to address primarily to the region that will be most affected during this century by the physical and societal impacts of climate change that will most likely also pose security dangers and concerns - the Mediterranean region and most particularly the MENA countries.

These new environmental security challenges humankind faces in the 21<sup>st</sup> century cannot be solved by traditional and power-based security strategies, policies and measures. They require a shift from a unilateral national security concept to a cooperative and multilateral approach to security. The response to these new manifold challenges requires an extended security approach which, besides the foreign and defense departments, also involves a wide variety of government agencies responsible for environment, development, science and technology, and economy, in order to adapt to the new challenges and to mitigate against their impacts.

The new global non-military security dangers and concerns, and the evolved security concepts have already resulted in a new global, regional, international and national “soft” security agenda. The contextual changes with the new emerging security challenges in the Anthropocene require an international peace and security policy that differs fundamentally from the cooperative security and peace policies during the Cold War that aimed to overcome the global bipolar systemic and power conflict with a common security policy. Such a new international peace and security policy for the Anthropocene should sustain the goal of a sustainable development in a sustainable peace [2].

**Climate Change policy IN and FOR the Mediterranean**

During the Third Euro-Mediterranean Ministerial Conference on the Environment, on 20 November 2006, its Cairo Declaration although only once, referred to climate change, welcoming an EU initiative for a “Communication establishing an environment strategy for the Mediterranean that outlines the approach of the European Commission regarding its environmental cooperation in the region for the coming years across a range of sectors such as climate change, desertification and biodiversity.”[3]

The Communication from the Commission to the Council and the European Parliament – Establishing an Environment Strategy for the Mediterranean of 2006 [8], only once referred to climate change in the framework of ongoing and completed research under the 5<sup>th</sup> and 6<sup>th</sup> Research Framework Programmes “*addressing water issues under the EU Water Initiative’s Mediterranean component and those covering accidental marine pollution, marine and coastal research and climate change impacts.*” Furthermore, “*global environmental threats such as climate change and biodiversity loss*” are identified in this Communication within a thematic programme for sustainable management of natural resources.

With regard to the Mediterranean, Working Group II of the fourth IPCC Assessment Report (2007), offered an assessments of the peer reviewed literature pertaining to the Mediterranean region concentrating in its three sub-regions: a) Southern Europe; b) North Africa; and c) West Asia. According to this Report [11], in Southern Europe, climate change is projected to worsen conditions, reducing water availability, crop productivity, hydropower potential, and summer tourism, as well as increasing the health risks due to heat waves and the frequency of wildfires. Although there is no regional integrated scientific assessment of the physical climate change impacts for the whole Mediterranean, several research projects, conferences and recent publications have covered some of them.

An example is a regional seminar organized by the Plan Bleu Regional Activity Centre, in October 2008, on climate change in the Mediterranean, whose report suggested that: “*Priority action should [...] start [...] to conduct work on adaptation and emissions reduction, without awaiting better resolution of the models. To improve current simulations, the Mediterranean countries should continue to develop advanced interdisciplinary research programmes [...], which would help build confidence in the results of the scientific models and arouse the interest of political decision makers.*” [12]

Among the key pillars of the EU’s environmental policy for the Mediterranean in the framework of the activities of Horizon 2020 are: a) projects to reduce the most significant pollution sources; b) capacity-building measures to help neighbouring countries create national environmental administrations; c) using the Commission’s research budget to develop and share knowledge of environmental issues; and d) developing indicators to monitor the success of Horizon 2020, climate change has not been specifically emphasized. The timetable of Horizon 2020 for the first phase (2007-2013) does not even once refer to climate change.

While climate change impacts in the Mediterranean have so far been no major concern of EU environment policy, especially in the framework of the Euro-Mediterranean Partnership and the Union for the Mediterranean, the discussion on the security implications of Climate Change and Mediterranean Security, and the introduction in some countries of nuclear energy as a climate change adaptation measure have increasingly become a concern for the DG

on External Relations that launched the EU roadmap process on the security impacts of climate change.

A literature outline for the DG External Relations on regional security implications of climate change [2] reviewed recent reports on the six target regions mentioned in the Commission Report, of which the MENA region is of special interest: “*In the Middle East and North Africa, climate change impacts will converge with socioeconomic processes leading to water and food scarcity, resulting in decreasing employment opportunities and potential economic downturns. [...] Crisis events such as sudden food shortages may trigger violent riots and – if left unaddressed – could destabilise states and increase public support for extremist groups offering viable alternatives. Given the geopolitical currents in MENA, this could have global repercussions.*”

This outline argued that “*the two major sources of wealth, income and employment in the MENA region, oil and agriculture, will diminish*”, and that “*climate change will likely decrease agricultural output due to heat stress and reduced available water*”. The review sees a future security challenge “*when the combination of converging climate and socio-economic trends will reach critical thresholds, catalysing processes that lead to state fragility*” [2]. The unresolved water disputes, the high sensitivity to food price hikes that resulted in violent conflicts in North Africa since the 1970’s and most recently in 2008, and the introduction in some countries of nuclear energy as a climate change adaptation measure could result in increasing threats of proliferation.

#### **ADAPTATION IN EUROPE AGAINST CLIMATE CHANGE IMPACTS IS URGENTLY NEEDED**

Even if European and global emission reductions and mitigation efforts over the coming decades prove successful, adaptation measures will still be necessary to deal with the unavoidable impacts of climate change. Adaptation measures include technological solutions (‘grey’ measures); ecosystem-based adaptation options (‘green’ measures); and behavioural, managerial and policy approaches (‘soft’ measures). Practical examples of adaptation measures include early warning systems related to heat waves, drought and water scarcity risk management, water demand management, crop diversification, coastal and river flood defenses, disaster risk management, economic diversification, insurance, land use management, and enhancing green infrastructure.

These need to consider the degree to which vulnerability to climatic change differs across regions and economic sectors, as well as across societal groups — especially the elderly and low-income households, both of which are more vulnerable than others. Furthermore, many adaptation initiatives should be undertaken not as stand-alone actions, but embedded within broader sectoral risk reduction measures, including water-resource management and coastal defense strategies.

The costs of adaption in Europe can potentially be large — and may amount to billions of Euro per year in the medium and long term [6]. However, economic assessments of the

cost and benefits are subject to considerable uncertainties. Nevertheless, assessments of adaptation options have suggested that timely adaptation measures make economic, social and environmental sense, as they may reduce potential damages very significantly and pay off many times compared to inaction.

In general, countries are aware of the need to adapt to climate change and eleven EU Member States have adopted a national adaptation strategy in spring 2010. At a European scale, the EU White Paper on Adaptation is a first step towards an adaptation strategy to reduce vulnerability to the impacts of climate change, and complements actions

at national, regional and even local levels. Integration of adaptation into environmental and sectoral policy domains — such as those related to water, nature and biodiversity, and resource efficiency — is an important aim.

However, the EU White Paper on Adaptation recognises that limited knowledge is a key barrier and calls for a stronger knowledge base. To address related gaps, the creation of a European clearinghouse on climate change impacts, vulnerability and adaptation is foreseen. This aims to enable and encourage the sharing of information and good adaptation practices between all stakeholders.

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