

CLIMATE CHANGE IMPACTS ON SOCIETY AND EU POLITICAL PROCESS TOWARDS SECURITY IMPLICATIONS*

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Scientific evidence, as well as human testimony exists on climate change. Its implications may affect resource availability, human health, and security, posing a threat to economic development, as well as to social and political stability. Projected climate change is expected to affect European society in all economic sectors, goods and services, with largest impacts coming indirectly from Mediterranean region. Developed countries may succeed with mechanisms, although costly, to deal with these impacts and to minimize the difficulties caused by climate change. Countries that are already facing poverty, social and political instability are expected to be more vulnerable to the negative consequences of climate change. Social innovation is a recommended tool for addressing those consequences.

By the beginning of the new millennium, climate change has been increasingly addressed by EU policy-makers and analysts as a security concern. While climate change impacts have, so far, been of no major concern for the EU environmental policy, security implications of climate change have increasingly become more important for the European Commission. Hence, climate change is being intensively discussed as a human and environmental security issue in European or regional forums. Furthermore, in a world of globalisation, environmental consequences are overcoming the conventional borders. Hence, environmental cooperation and political integration in the framework of climate change are appropriate policies.

Keywords: climate change impacts, security implications, social innovation, EU policy, regional cooperation.

INTRODUCTION

Climate change leads to natural disasters and environmental degradation, which, especially in situations of poverty and population growth, may intensify competition for resources, deterioration of social order and state failure. This way, climate change poses a security risk.

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EU countries are generally aware of the need to adapt to climate change. As a result, national adaptation strategies to reduce vulnerability to climate change impacts and to harmonize action at national, regional and local levels have been elaborated at EU level. Additionally, EU development assistance for climate change to the countries most at risk, mainly Mediterranean ones, is present, highly important and mutually beneficial.

Research problem: this paper discusses the impacts of climate change on society, focussing on the impacts on anthropogenic activities, human health, and on security issues, especially as related to the Euro-Mediterranean and Mediterranean region that are expected to largely affect security in Europe, in this respect. Climate change is seen as a future security challenge, especially when combination with socio-economic trends may catalyze processes, leading to destabilization, conflicts and state fragility in the most affected regions. The role of EU being at the forefront of awareness raising on the implications of climate change among third countries and international organizations is highlighted and considered very important.

The *aim of the study* is to point out the direct and indirect impacts of climate change on society and to highlight the need of adaptation and mitigation measures against it. Climate change impacts on anthropogenic activities, as well as the groups most at risk are identified. Additionally, its potential impacts on deepening the differences between social strata, through the unequal distribution of wealth and access to resources are being considered.

Methodology: the research method is empirical, using qualitative tools. The study is based on critical literature (mainly political) review.

Key results are pointed out as below:

- impacts of climate change on human society and on security field are potentially large;
- undertaking mitigation and adaptation measures to the impacts of climate change is crucial;
- contribution of the EU, with policies and programs targeting climate change is very important;
- Mediterranean countries, being the most affected from climate change, need to strengthen their cooperation with EU in the field.

CLIMATE CHANGE IMPACTS ON SOCIETY

The UNEP/MAP (United Nations Environmental Protection/ Mediterranean Action Plan) Report of 2009¹ noted that during the 20th century, and significantly accelerating since the 70s, South-Western Europe (Iberian Peninsula, South of France)

¹ The State of the Environment and Development in the Mediterranean, 2009.

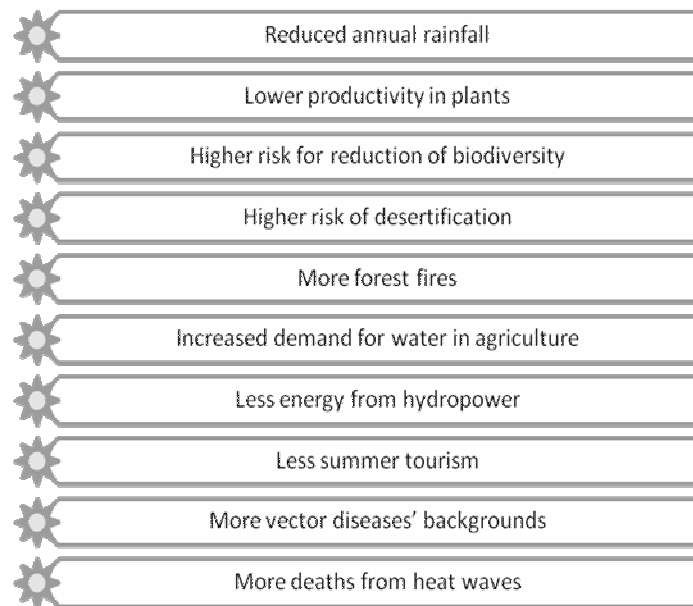
recorded a rise of the air temperature of about 2°C (UNEP, 2010). The temperature increase is more noticeable in winter than in summer, and in minimum rather than in maximum figures. According to the same source, there is reduced rainfall in southern Europe also, in some regions by 20 percent. This report, as well as IPCC report (as cited by Brauch, 2010), predict that in Southern Europe, climate change is expected to worsen conditions in a region already vulnerable to climate variability and reduced water availability, influencing hydropower potential, summer tourism and crop productivity in general.

During the 21st century, in the Mediterranean region, climate experts predict an increase of air temperature of 2.2° C to 5.1°C (Paz et al., 2010), precipitation decreasing with 4 to 30 percent, increased frequency and duration of periods of drought, more frequent and more violent extreme events, such as heat waves, droughts or floods, and rising sea levels. Climate change scenarios in the EU, launched by Acacia project² predict reduced rainfall in Southern Europe until the summer of 2020, more specifically in the central part of Spain from 13 to 14 percent and in northern Greece by 10 percent, whereas by 2025, the Blue Plan³ provides that climate change will lead to “an intensification of extreme weather events” (Brauch, 2010). According to Paz *et al.* (2010), until 2050, the projected reduction in summer rainfall is predicted to be 14 to 20 percent in Greece, 13–15 percent along southern France and 21 to 23 percent along the Spanish coast in the Mediterranean. Furthermore, by the year 2080, reduction of rainfall during summer in Greece is expected to be between 18 to 27 percent, in southern France, between 17 to 20 percent and in Spain, between 27 to 42 percent (Brauch, 2010). According to the latter, the number, intensity and duration of extreme weather events (heat waves, summer droughts, floods in winter) will rise. As a whole, increased risk of droughts in Mediterranean Europe, during the past three decades is expected to continue further during years 2050 to 2080.

In the 21st century, the Mediterranean basin is expected to be one of the “hottest areas” of climate change. Several generations of climate change projections have designed continuously warmer and drier conditions in that region. Summers of the Mediterranean are expected to be much warmer and drier than today, and the projected increase in the intensity and duration of the heat wave, may introduce serious health problems, while high temperatures may also increase the area of influence diseases, such as malaria (Paz et al., 2010). A summary of the anticipated impacts of climate change in the Mediterranean region is given below (EEA, 2010):

² ACACIA – A Concerned Action toward a Comprehensive Climate Impacts and Adaptations Assessment for the EU is a project financed by the European Commission.

³ Blue Plan is developed in the framework of UNEP/MAP (Mediterranean Development Plan for Barcelona Convention) and is functioning for more than 30 years already, in order to realize an environmental regional cooperation.



In the Mediterranean basin, water scarcity is a prevalent problem. According to Paz et al. (2010), the availability of water will decrease as a result of reduced rainfall, especially in the winter season and increased evaporation during hot summer. With the progress of changes in climatic conditions, water demand is expected to increase dramatically, due to the need to expand water, due to increased demand for irrigation water, as well as the need for additional cooling water for power plants. Predictions from the same authors suggest that electricity demand is also expected to increase due to the extended need for air conditioning in public and private environments, the need to obtain potable water from the desalination of sea water, and the expansion of wastewater treatment.

Similarly, agricultural production in this region will be negatively affected by climate change, which means less agricultural land, low production potential and shorter seasons for growth. These developments could further affect food security in the region (Brauch, 2010). It is very likely that European countries have immigration problems associated with the desertification problem in Africa. Africa is the continent most susceptible to climate change, due to its natural risk for desertification and low economic and social capacity adapting to it. Therefore, desertification policies to be implemented in North Africa and in Africa will largely affect security issue in Europe.

Assessment Report of Working Group II of the fourth IPCC (2007)⁴ has considered a review of the literature dealing with the Mediterranean region, in terms

⁴ Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change 2007.

of physical effects of climate change up to the 2020s, 2050s and 2100s. Therefore, IPCC Synthesis Report concluded that in Mediterranean Europe, climate change is projected to worsen conditions (high temperatures and drought), and to reduce water availability, hydropower potential, summer tourism and, in general, crop production. Climate change is projected to increase health risks due to heat waves and the frequency of spontaneous fires.

Furthermore, the Copenhagen Climate Science Conference (2009)⁵, in its summary report concluded that:

“...greenhouse gas emissions and many aspects of the climate are changing near the upper boundary of the IPCC forecasts. Many key climate indicators are already moving beyond the patterns of natural variability, in which contemporary society and economy have developed and thrive (...). With no-reduced emissions, many trends in climate will likely accelerate, leading to an increased risk of sudden or irreversible climate shifts.”

Based on the above facts of changing weather conditions and patterns, especially in Southern Europe, as well as relying on the aforementioned climate projections, the need to deal with climate change is deemed essential. The most affected region and, as previously explained, with large impacts in Europe is Mediterranean region. Hence, working on mitigation and adaptation measures in that specific region is an important objective. Meanwhile, according to the Blue Plan (2005):

“Current development trends in the Mediterranean region are still far from what would be required for a truly sustainable development, and environmental situation is a continuing cause for concern”.

The EU, with its development cooperation policies, programs and financing, can play a vital role in helping that region to fight climate change.

Impacts on human system and social innovation

Various studies of UNEP/MAP and the Blue Plan, at the Mediterranean regional level, have often reviewed the selective effects not following the requirements of the IPCC assessments. The report of the Blue Plan Regional Workshop on Climate Change in the Mediterranean (2008) addressed its impact on environment and human health, particularly in the Mediterranean coast, the risk of spread of infectious diseases and health impacts of heat waves (Brauch, 2010). Another focus has been the discussion on the impact of climate change on natural resources, especially water resources, natural hazards and forests, as well as anthropogenic activities (fishing, tourism, agriculture, energy needs). The analysis of UNEP/MAP (2010) ranked changes in water availability, biodiversity and economic activities on which they depend, as well as the implications of these changes on fishery, forests and human health, as the major impacts of climate change.

⁵ Synthesis report of the Climate Change Conference, March 2009.

Besides the effects of climate change, the Mediterranean region is facing the pressure of a growing population. This demographic issue will increase sensitivity to potential impacts of climate change on human security (through sea level rise, reduced water availability, increased salinity of coastal water, eutrophication, reduced crop yields), as well as their impact on human health through heat waves, sudden fires, diseases, air pollution, etc.

According to Paz et al. (2010), increased heat waves are one of the most obvious consequences of climate change. There is an increased human mortality associated with heat waves caused by climate change. Mortality shows a seasonal pattern with an overall peak in winter, but higher peaks arrive in summer, corresponding to heat waves (Paz et al., 2010). Observations in the Mediterranean cities have also shown that heat waves may have a very strong effect on mortality that even increases from 1 to 4 percent for every higher temperature degree. Paz et al. (2010) specify the groups most at risk: the elderly, people with chronic diseases, previously bedridden, those who live alone and the most exposed, such as the ones that live directly under the roof of a building. According to these authors, children are more susceptible than adults to heat waves, because they have not fully developed mechanisms of temperature regulation and are not able to arrange themselves without the help of adults. Furthermore, small children are at higher risk of death, while older children have more stress from heat, because they spend their time playing outside.

Climate change can amplify also some harmful effects of solar UV-B radiation on human health (Paz et al., 2010). For the same UV dose, every 1°C increase in temperature will result in an estimated increase of incidence of skin cancer from 3 to 6 percent. High temperatures and humidity can increase the harmful effects of UV-B radiation on human health, as well as lessen human immunity against infectious diseases and skin cancer (Paz et al., 2010).

In order to face these negative impacts of climate change, adaptation and mitigation measures need to be taken. In this framework, *innovation* is often seen as an essential tool for addressing climate change. While *technical* innovation alone may not be sufficient, a greater focus on *social* innovation could yield benefits if integrated into considerations of policy development related to climate change (Bergman et al., 2010). Social innovation focus could be put on new institutions and new practices. Although government policy on innovation is generally focused on technical and commercial activities, there are clearly policies in place that aim to achieve social goals and support social innovation (Bergman et al., 2010), as it is the case with the EU policies. European Commission's long-term budgets (2014–2020) are very much in line with positive strategies to promote social innovation, in particular, the use of innovative financial instruments and proposals to tackle major societal challenges, such as climate change. European Commission has even adapted a strategy called “Innovation Union” and has been the initiator of a project called “Social Innovation Europe” that will cover the years

2011–2015⁶. Actually (March, 2014), the second European Innovation Convention is going on. As this agenda moves forward, Europe will be well placed to become a world leader in the field of social innovation. In this concern, Mediterranean countries may profit from the EU technical and/or financial assistance to develop tools towards climate change.

SECURITY ASPECTS OF CLIMATE CHANGE AND EUROPEAN APPROACH

In general, EU countries are aware of the need to adapt to climate change. As a consequence, eleven EU Member States have adopted a national adaptation strategy in spring 2010. At the European level, the EU White Paper on Adaptation⁷ 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.

Until recently, climate change in the Mediterranean, has been of no major concern for the environmental policies of the EU, even within the Euro – Mediterranean Partnership and the Union for the Mediterranean. On the other hand, the discussion on the security implications of climate change regarding Euro-Mediterranean region, is becoming ever more interesting for the EU, and the DG for External Relations has even initiated the process of the EU guidelines on the safety impacts of climate change.

The main pillars of EU environmental policy for the Mediterranean, within Horizon 2020⁸ activities and indirectly related to climate change are: a) projects to reduce the most significant pollution sources, b) capacity building measures to help neighbouring countries create national environmental administrations, c) use of Commission's research budget to develop and share knowledge about environmental issues. However, Horizon 2020 program for the first phase (2007–2013) did not even once refer specifically to climate change (Brauch, 2010). On the other hand, the Communication from the Commission to the Council and the European Parliament – Establishing an Environment Strategy for the Mediterranean, in 2006⁹, referred once to climate change, in the context of continuous research carried out under the Research Framework Programs 5 and 6, while addressing issues of water and accidental marine pollution, as well as climate change impacts on water. Furthermore, climate change and biodiversity loss are included as global environmental threats, in this Communication, within a thematic program for sustainable management of natural resources.

⁶ EC Innovation Union homepage. Available online http://ec.europa.eu/research/innovation-union/ic2014/index_en.cfm [Accessed March 2014].

⁷ [COM (2009) 147 final] White Paper, Adapting to climate change: Towards a European framework for action.

⁸ Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness.

⁹ Communication [COM (2006) 475 final] from the Commission of 5 September 2006.

During the Third Euro-Mediterranean Environmental Ministerial, of the 20th of November 2006, its Cairo declaration only once referred to climate change, welcoming an EU initiative establishing a strategy for the Mediterranean environment. According to the Cairo Declaration, the aforementioned strategy of the European Commission is an approach for environmental cooperation in the region during the coming years, through sectors such as climate change, desertification and biodiversity.

In the implementation paper (2008) of the European Security Strategy (2003) the 27 countries of the European Council concluded that natural disasters, environmental degradation and competition for resources exacerbate conflict, especially in situations of poverty and population growth (Brauch, 2010). The consequences are economic, political and humanitarian. The aforementioned report of March 2008 by the High Representative and the Commission, described climate change as a 'threat multiplier'. The European Council also noted that climate change could lead to disputes over trade routes, maritime zones and resources previously untapped.

A literature review of the Directorate General for External Relations, (as cited by Brauch, 2010), states that climate change impacts in the Middle East and North Africa (MENA) are expected to converge on the socio-economic processes that will lead to lack of water and food, resulting in declining employment opportunities and potential economic drop. Climate change is also likely to exacerbate the differences, particularly between social strata, through the unequal distribution of wealth and access to resources. This summary considers a future security challenge, when the combination of climate issue and socio-economic trends will reach the limits of criticism, catalyzing processes that lead to state fragility. Crisis events, such as sudden lack of food may cause violent disorder and if not treated properly, can destabilize countries and increase public support for extremist groups. Given the geopolitical situation in MENA, it could cause global consequences.

The DG for External Relations review argued that the two main sources of wealth, income and employment in the MENA region that are oil and agriculture will be reduced. Climate change is likely to reduce agricultural production due to heat stress and reduce the availability of water for irrigation. Unresolved contradictions for water (in Israel, Palestine, the Nile basin) and high sensitivity to rising food prices have resulted in violent conflicts in North Africa since 1970, and most recently, in 2008.

Since the beginning of the 2000s, climate change is increasingly addressed by policymakers and analysts as a matter of concern. Climate change started to be discussed in relation to international, national, human, and environmental security¹⁰. The international forums concurred that this issue presents numerous threats, challenges, vulnerabilities and risks to the safety concepts of different sectors, such as water, food, health, security and livelihoods (Brauch, 2010).

¹⁰ On 2002, the European Commission recommended "strategies for protecting the environment and ensuring sustainability" to be incorporated into an action plan that was adopted in April 2002, in Valencia, at the sixth meeting of Euro Mediterranean Partnership Foreign Ministers.

In 2007, there were some developments regarding the safety aspect of climate change. These include the publication of the fourth assessment report of the Intergovernmental Panel on Climate Change (IPCC), the first debate on this in the Security Council of the UN, the publication of the report of the WBGU (German Advisory Council on Climate Change) on the security risk of Climate Change during the G-7 and the German Presidency of the EU, and the award of the Nobel Prize to IPCC (Brauch, 2010). While political debate in European Union addressed climate change primarily as a matter of international security, American political debate since 2004, but especially since 2007, focused on climate change as a matter of national security, particularly on the threat that would cause to the U.S. national security and how it would affect the military and its operations.

Based on a report on security risk of climate change of the WBGU that was issued at the summit of G-8 (WBGU, 2008), the German government proposed an EU strategy paper on the security implications of climate change. Following the WBGU report, in March 2008, the European Commission prepared and submitted to the EU Council of Ministers and to the EU Council of Europe a report on the security aspects of climate change. From an international perspective of the state-centred security, the WBGU report argued that:

“Climate change will overstretch many societies’ adaptive capacities..., (which)... could result in destabilization and violence, thus jeopardizing national and international security”.

The WBGU report referred to new groups of potential conflict due to increased sea level, storms and flooding, which could threaten coastal cities and industrial regions. While WBGU considered less likely inter-state wars driven by climate, it argued that climate change could generate national and international conflicts and intensify existing problems, such as state failure, deterioration of social order and increasing violence. In the most affected regions, this process can lead to destabilization processes and conflicts with extended criminal structures. These developments threaten to undermine the established system of global governance, thereby threatening international stability and security.

WBGU identified four groups of conflict, the dynamics of which can lead to social instability and, finally, to violence that are caused by climate. It also highlighted six key-threats to international security and stability that would arise if the mitigation of climate change fails (WBGU, 2008). The main threats are: increased number of weak states, risks for global economic development and international conflicts, breach of human rights, and intensification of migration.

In WBGU’s view, climate policy is also of a security prevention policy, because if climate policy is successful in limiting the growth of global average surface temperature of no more than 2°C compared to the pre-industrial value, climate-induced threats to international security will likely be avoided. On the contrary, if mitigation efforts fail, according to the WBGU, security risks driven by climate will begin to manifest in different regions of the World, over the years 2025–2040. Therefore,

the main challenge is to take specified measures of climate policy within the next 10–15 years, in order to avoid distortions and socio-economic implications for international security that would otherwise be intensified in later decades.

Among the conflict groups identified by WBGU as above, three are very important for Euro-Mediterranean region: a) degradation of freshwater resources driven by climate, b) the decrease of food production caused by climate, and c) forced migration due to environmental problems, and fourth d) increased storms and flooding disasters induced by climate has affected many countries of Western Europe and Eastern Mediterranean, especially in autumn and winter time (Brauch 2010).

In March 2008, British Foreign Secretary – David Miliband and German Foreign Minister Frank – Walter Steinmeier argued, in a joint article, that climate change “threatens our prosperity and well-being not just in Europe but beyond. Moreover, it will reshape the geopolitics of the world in which we live, with important consequences for peace and security” (Steinmeier and Miliband, 2008).

The two prominent politicians have led to three major initiatives within the EU and globally: 1) “to intensify our efforts to meet the new security risks caused by climate change”, 2) “to address a growing 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 policy and security in the coming years” (Steinmeier and Miliband, 2008).

The report *on the implementation* of the European Security Strategy of 2008, by the EU High Representative for Foreign Affairs – Javier Solana (CEU, 2008) noted that the European Security Strategy of the EU – A secure Europe in a better world, adopted in December 2003, *without mentioning the term climate*, already identified the security implications of climate change. According to Solana (CEU 2008), five years later, this issue had taken on a new urgency, because although conflict prevention and crisis management had expanded, analysis and early warning capabilities need to be improved. Solana stipulates that EU cannot do it alone; it needs to accelerate its work with the countries most at risk by strengthening their capacity to cope.

At a meeting of the European Union Council on Climate Diplomacy in the EU, in 2011, climate change is recognized as a global environmental challenge of development and a threat to global growth, prosperity and stability. The EU has been at the forefront of raising awareness of the implications of climate change with third countries and international organizations. However, the development of a comprehensive global framework in the future, by engaging all major economies through national and multilateral action, in order to move to an economy and society of low carbon, secure and stable, has been seen as essential (CEU, 2011). This meeting stressed the need for the EU to contribute now, in order to reduce systemic risks resulting from climate change, before the outbreak of the crisis.

The Council also stressed the need to further enhance diplomatic efforts to address climate change and climate policy at all levels, to strengthen the EU’s

voice and call on all EU actors to contribute in this direction, as well as the need to continue and intensify its efforts to assist developing countries to address climate change. Regarding the safety aspect, the Council confirmed that “the EU will continue to raise awareness about global security risks and threat-multiplying nature of climate change, particularly in vulnerable regions”.

CONCLUSION

Climate change impacts on society are obvious, especially in the Mediterranean part of it. Social, economic and political problems associated with them pose a permanent threat to European society and EU borders. Climate projections, in case no measures are foreseen, seem really pessimistic, globally and regionally. Hence, mitigation measures need to be carried out in order to lessen the impacts of climate change. Similarly, adaptation measures are worth to be taken against the unavoidable impacts of climate change. Furthermore, climate policies may include social innovations, in particular new practices and new financial instruments, in order to alleviate the consequences of climate change, especially on fragile societies.

EU and the majority of EU countries, being aware of the need to adapt to climate change, have adopted policies and taken some action at different policy levels towards reducing vulnerability to climate change. This adaptation is integrated into environmental and other related EU policy fields – such as those concerning water, biodiversity, and resource efficiency. Additionally, EU policy on climate change is evolving, in respect to its security aspect. The EU political process for climate change and international security focuses to the region that will most likely be affected by the impacts of climate change and may present risk and security concerns for EU: Mediterranean. Cooperation in the field of environment is a growing area within the bodies of the European Union, and environmental issues of the Mediterranean have been treated with priority under the Euro-Mediterranean Partnership. In this concern, Mediterranean countries and society may benefit from EU assistance involving awareness raising, research, capacity building, and policy development.

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În privința schimbării climatice există atât dovezi științifice, cât și mărturii umane. Implicațiile acesteia se răsfrâng atât asupra disponibilității resurselor, cât și asupra sănătății oamenilor și securității, fiind o amenințare la adresa dezvoltării economice, ca și la adresa stabilității politice și sociale. Această schimbare climatică se așteaptă că va afecta societatea europeană în toate sectoarele economiei, de bunuri și servicii, cu cel mai mare impact venind în mod indirect dinspre regiunea mediteraneeană. Prin anumite mecanisme, costisitoare, țările dezvoltate pot

face față acestor schimbări și pot minimaliza dificultățile generate de ele. Inovația socială este unul dintre mecanismele adresate acestor consecințe.

De la începutul noului mileniu, schimbarea climei a fost considerată din ce în ce mai mult, de către analiști și artizani ai politicilor sociale, ca fiind o chestiune de securitate. Deși impactul schimbării climei nu a fost, până acum, o preocupare majoră pentru politicile de mediu ale UE, implicațiile în domeniul securității au devenit din ce în ce mai importante pentru Comisia Europeană. Astfel, schimbarea climei a devenit un subiect intens discutat ca o chestiune privind securitatea mediului și a oamenilor la forumurile regionale și europene. Mai mult, într-o lume a globalizării, consecințele la nivel de mediu trec peste convențiile de frontiere. Astfel, cooperarea în domeniul mediului și integrarea politicii în cadrul instituțional al schimbării climatice sunt politicile ce trebuie urmate.

Cuvinte-cheie: *impactul schimbării climatice, implicații la nivelul securității, inovare socială, politici UE, cooperare regională.*

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