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### CLIMATE CHANGE AND MEDITERRANEAN SECURITY

INTERNATIONAL, NATIONAL, ENVIRONMENTAL  
AND HUMAN SECURITY IMPACTS FOR  
THE EURO-MEDITERRANEAN REGION DURING  
THE 21st CENTURY

PROPOSALS AND PERSPECTIVES

*Hans Günter Brauch*

# IEMed.

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# Climate Change and Mediterranean Security

## International, National, Environmental and Human Security Impacts for the Euro-Mediterranean Region during the 21st Century

### Proposals and Perspectives

Hans Günter Brauch\*

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# Executive Summary

As the 20th century ended, the shift in international relations – namely the end of the Cold War – led to a new definition of the concept of international security. From an essentially military focus, it widened and deepened to the extent of integrating a series of new concerns, among them environmental issues and the threat they pose for human security. Climate change progressively became a security issue for Western countries, leading to a necessary change of policies.

Of all the regions concerned about climate change, the Mediterranean is particularly vulnerable, due to temperature increase, precipitation decline, sea-level rise and increase in extreme weather events leading to water and food scarcity and jeopardising the relatively fragile stability of the region. Although the southern shore of the Mediterranean will be severely affected by climate change, its northern shore will also be directly affected by its societal consequences, notably since desertification in the Mediterranean will further intensify the migratory pressure on Europe.

Those dramatic environmental developments pose a number of key threats to international security, such

as a rise in the number of weak states, risks for economic development and international conflicts over resources. It is therefore necessary to address these new challenges in a multilateral and cooperative way.

Spain already has a record of dealing with environmental protection and promoting the concept of environmental security, both inside and outside the Euro-Mediterranean Partnership. Yet the region suffers from a lack of cooperation between the various actors, and a number of Mediterranean dialogues coexist with little interaction, at the Euromed, NATO and OSCE level.

It should therefore be a priority for the Spanish EU Presidency to promote deeper cooperation in assessing climate change and its impacts, as well as in the fields of civil protection and renewable energies. Building on previous Spanish conceptual initiatives, its spearhead should be the launch of a Mediterranean and Human Security Initiative (MEH-SEC initiative) that would allow a balanced economic co-development across the Mediterranean, especially in the agricultural and energy sectors.



# Climate Change and Mediterranean Security

## International, National, Environmental and Human Security Impacts for the Euro-Mediterranean Region during the 21st Century

### Proposals and Perspectives

Hans Günter Brauch

## 1. Introduction:

### Past Spanish Policy and Conceptual Initiatives

Since the end of the Cold War, during its three EU presidencies (1989, 1995, 2002), the government of Spain has promoted closer cooperation between the countries of the European Union and the countries of Latin America and, since 1995, a Euro-Mediterranean Partnership (EMP) with the countries of the Middle East and North Africa (MENA) region. Spanish policymakers and diplomats have also supported both the concepts and policies to achieve environmental and human security through several international initiatives.

In September 2004, at the request of the High Representative of the European Council, Javier Solana, a high-level international task force submitted proposals for a “Human Security Doctrine for Europe”<sup>1</sup> to which the former Spanish Vice-President Narcis Serra (2008, 2009) contributed. On 14 March 2008, the High Representative of the European Council and the European Commission tabled a paper on *Climate Change and International Security* whose key suggestions were incorporated into the Implementation Paper to the European Security Strategy of 2003, approved in December 2008 by the European Council.<sup>2</sup>

During the Spanish Presidency of the OSCE on 30 November 2007, the Foreign Ministers of the OSCE countries adopted the “Madrid Declaration on Environment and Security”.<sup>3</sup> Two months earlier, during the eighth Conference of Parties (COP8) of the UN Convention to Combat Desertification (UNCCD), the 10-Year Strategic Plan and Framework (2008-2018) was adopted in Madrid to enhance the implementation of the Convention. The latter reflects previous Spanish activities to discuss the linkages between “Desertification and Migration” and to address

desertification as a security issue in four workshops between 1994 and 2007.

Building on these previous Spanish and European initiatives and on Spanish environmental and security concerns on the impacts of global climate change and desertification for migration, this report addresses the following related issues for the Mediterranean region from an “environmental” and “human security” perspective:

- by outlining the political, theoretical and conceptual context of the analysis (part 2);
- by reviewing the evolution of the regional political frameworks for the Euro-Mediterranean region from the Barcelona Process to the Union for the Mediterranean (part 3);
- by introducing the European political debate on climate change and international security as reflected in the implementation of the European Security Strategy (part 4);
- by discussing four conflict constellations for the Mediterranean region emerging from possible impacts of climate change due to temperature rise, increase in sea-level, decline in precipitation and increase of extreme weather events on environmental and human security in the Euro-Mediterranean region (part 5);
- by considering the relevance for the Spanish EU Presidency (part 6);
- and by submitting six proposals for policy initiatives during the Spanish EU Presidency (part 7).

1. U. Albrecht, C. Chinkin, K. Dervis et al. (2004); M. Kaldor (2007).

2. Joint paper by the Commission and the Secretary-General/High Representative concerning *Climate Change and International Security* to the European Council, Brussels, 3 March 2008; at: [http://euractiv.com/ 29/images/SolanaCCsecurity%20reportpdf\\_tcm 29-170886.pdf](http://euractiv.com/ 29/images/SolanaCCsecurity%20reportpdf_tcm 29-170886.pdf).

3. Resolution on Environment and Security adopted by the Ministerial Council of the OSCE in Madrid on 30 November 2007 as “Madrid Declaration on Environment and Security”, Organization for Security and Cooperation in Europe. MC.DOC/4/07; at: [http://www.osce.org/documents/mcs/2007/12/28657\\_en.pdf](http://www.osce.org/documents/mcs/2007/12/28657_en.pdf). In the preamble, this declaration noted among the environmental risks, “notably those related to land degradation, soil contamination, desertification and water management.” Spain also tabled an *Action Plan on the Threats and Opportunities in the Area of Environment and Security* that was not endorsed and contained specific recommendations in five areas.





## 2. Political and Conceptual Context: Past Spanish Policy Initiatives

Due to its geographical situation in the Western Mediterranean and its historically close cooperation with countries in North and West Africa as well as with Latin America, Spain has launched many policy and conceptual initiatives that are relevant for both partner regions. This paper will focus only on the implications of issues of global environmental change for the dialogue and cooperation partners in the Mediterranean in the framework of the Barcelona Process for the Euro-Mediterranean Partnership (EMP), launched in 1995 during the second Spanish EU Presidency and of the Union for the Mediterranean (UfM), reinvigorated during the French EU Presidency in 2008. However, several considerations are also relevant for relations between the EU and Latin America.

In the context of a “functional security” concept (Ekengren, 2008) this paper will address two reactive and proactive regional policy response strategies to face and cope with the projected impacts of global and regional climate change during the 21st century which, according to the models assessed by the IPCC (2007), imply that the Mediterranean region will most likely get much hotter and drier than the rest of Europe during this century. The conclusions of the Scientific Conference in Copenhagen in March 2009 indicate that the projected sea-level rise during the 21st century may be much higher (up to 1-2 metres by 2100), which will put the highly populated coastal regions and the fertile deltas (Nile, Po, Rhone et al.) at risk of partly disappearing into the Mediterranean Sea.

Besides the prevailing geophysical natural hazards (earthquakes, volcano eruptions), the hydro-meteorological extreme weather events (droughts, forest fires, heat waves, as well as storms, flash floods and landslides) are projected to increase in number and intensity. However, due to different degrees of

governmental preparedness and societal resilience or social vulnerability and often lacking or insufficient state response capabilities and management experience, the number of killed and affected people has been much higher in North Africa and in the Middle East, while the reported economic and insured damage has been higher in the affected countries in Southern Europe due to a higher degree of insurance and hazard response assistance by national governments and the European Commission.

Of the six key initiatives selected by the Union for the Mediterranean that were adopted by the Euro-med Ministerial Conference in Marseilles on 3-4 November 2008 two are directly relevant for the international security impacts of climate change:

- Civil protection by increasing the cooperative early warning and response capabilities and thus facilitate cooperation among civil and military hazard and disaster response teams in Southern Europe, North Africa and in the Near East.
- Alternative energies – Mediterranean Solar Plan by addressing the cause of global warming, the burning of fossil energy sources and by developing solar thermal electricity systems in North Africa and the Middle East for sustainable energy, as the energy source for desalination and for the export of sustainable electricity to member countries of the European Union as has been suggested by the DESERTEC Foundation and the DESERTEC Industrial Initiative that was launched in July 2009.

This report addresses these regional conceptual issues in the context of the reconceptualization of security that has evolved since 1990 due to a) the end of the Cold War; b) the globalization process; and c) the emerging impacts of issues of global

environmental change, such as i) climate change; ii) land degradation, desertification and drought (DLDD); iii) water scarcity, degradation and stress; and iv) biodiversity loss. These three changes have resulted in a *widening* (e.g., environmental security), a *deepening* (e.g., human security) and a *sectorialization* (e.g., water, soil, food, health, energy, climate security) of the prevailing narrow national military security concept during the Cold War.<sup>4</sup>

These new environmental, human and energy security concepts have been widely used since 1990 – both in policy declarations and decisions – of the European Union and its member countries. These new security concepts have been reflected in many policy initiatives of the Spanish government and are thus relevant for the Spanish EU Presidency.

### **2.1. Past Spanish Initiatives during EU Presidencies (1989, 1995, 2002)**

Since Spain joined the European Union on 1 January 1986, the Spanish government has so far held three presidencies of the European Union:

- from January to June 1989, during the final period of the Cold War;
- from July to December 1995, when Spain launched the Barcelona Process with the Euro-Mediterranean Partnership;<sup>5</sup> and
- from January to June 2002, when Spain submitted several initiatives on Mediterranean policy and on conflict prevention (decisions of the Seville meeting of the European Council).

Spain's first EU Presidency from January to June 1989 coincided with the first signs of the end of the Cold War, the first free parliamentary elections in Poland and with the repression of the student upheaval in Beijing in June 1989. But the European Council in Madrid (26-27 June 1989) focused on the internal reform of the European Community, especially on the dispute between the UK, on the one hand, and France and Germany, on the other, on the introduction of the European economic and currency union.

During the second Spanish Presidency, from June to December 1995, its foreign policy agenda combined European and Spanish interests, especially with regard to launching the European Mediterranean Partnership during a Ministerial Meeting in mid-November 1995 in Barcelona to complement the eastern enlargement of the EU, liberalizing trade relations with Latin America and addressing the security and defence policy of the EU members and the transatlantic relations with the US.

After the efforts had failed to reinvigorate the Barcelona Process with the adoption of the Euro-Med Charter for Peace and Stability during the French Presidency in November 2000 in Marseilles, in June 2001 during the Swedish Presidency, the European Council in Gothenburg submitted a report on the implementation of the *Common Strategy on the Mediterranean Region*. According to the Gothenburg conclusions, two key components relevant for a future conceptualization of Mediterranean security were adopted: a) a strategy for sustainable development, and b) a policy for conflict prevention.

Proposals to combine both policy goals without a regional specification were submitted to the European Councils in Barcelona and Seville (2002). On the Euro-Mediterranean process, at the fifth conference of Foreign Ministers in Valencia (2002), the Valencia Action Plan was approved, which focused in the first basket on “conflict prevention, crisis management and consideration of causes of instability,” and in the second basket they called for “ensuring sustainable development with a high degree of environmental protection.” But environmental security issues and the task to avoid the outcomes of environmental stress were not addressed either at the global or the regional Euro-Mediterranean level.

Unrelated to these three previous EU Presidencies, the Spanish Environment and Foreign Relations Ministries addressed the linkages between desertification and migration and as an issue of Mediterranean security.

### **2.2. Spanish Efforts to Securitize Desertification: Almeria and Valencia Conferences (1994-2007)**

For centuries Spain has faced severe challenges of soil erosion, desertification and drought that have forced many people to leave their rural livelihoods and

4. See the three volumes of the *Environmental Security Handbook for the Anthropocene*: H.G. Brauch, Ú. Oswald Spring, C. Mesjasz et al. (2008); H.G. Brauch, Ú. Oswald Spring, C. Mesjasz et al. (2009); H.G. Brauch, Ú. Oswald Spring, C. Mesjasz et al. (2010).

5. Although the political achievements of the Euro-Mediterranean Partnership (EMP) were far behind expectations from 1995 to 2008 when it was relaunched as the Union for the Mediterranean (UfM), it has intensively been researched. For a bibliography of this author's conceptual contributions on the early phase see: H.G. Brauch, A. Marquina and A. Biad (2000); H.G. Brauch, P.H. Liotta, A. Marquina et al. (2003).

move to the cities or emigrate abroad. Since joining the EU in 1986, but especially since 1995, Spain gradually turned from a country of labour emigration to a country of labour immigration from North and West Africa, Latin America but also from South-eastern Europe.<sup>6</sup>

Since 1994, Spanish soil specialists in cooperation with the Spanish Ministry of the Environment and international organizations (NATO, OSCE, UNCCD) have repeatedly put the analysis of the linkages between “desertification and migration” as well as desertification as a security issue on the international scientific and political agenda.

With four international conferences and workshops in Almería in 1994 on desertification and migration<sup>7</sup> and in Valencia in 2003 on desertification in the Mediterranean as a security issue (Kepner, Rubio, Mouat and Pedrazzini [eds.], 2006), the Spanish government was instrumental in launching a process of securitization of desertification by making DLDD an issue of “utmost importance” requiring “extraordinary coping measures.” Spain held a second workshop in Valencia (2007) on “Water Scarcity, Land Degradation and Desertification in the Mediterranean Region: Environment and Security Aspects” under the joint auspices of the Spanish OSCE Chairmanship and of the NATO Science for Peace and Security Programme.<sup>8</sup>

With the support of the Spanish Ministry of the Environment, Rural and Marine Affairs during the 17th Session of the United Nations Commission on Sustainable Development (UNCSD), the Secretariat of the United Nations Convention to Combat Desertification (UNCCD) launched a study on *Securitizing the Ground: Grounding Security* that systematized past Spanish activities and carried the argument conceptually further by introducing the new concept of “soil security” and calling for proactive scientific and policy initiatives to cope with the societal impacts of desertification, land degradation and drought (DLDD) to avoid them posing human, national and international security dangers.<sup>9</sup>

Securitizing the “ground” refers to two different aspects: a) the land as “territory”, which is a key feature of national sovereignty and refers to the protection of the state (territory, people, political institutions), and b) the land as “soil” which produces the key environmental services, including food for living organisms. While “territorial security” refers to the traditional national security concept, the new sectoral “soil security” concept applies primarily to the economic, environmental and societal dimensions of security. “Soil security” can be analysed from both the perspectives of human and gender security and from state-centred perspectives of local, national, regional and international security.

“Soil security” is threatened by a) the spatial expansion of existing deserts; b) the severe degradation of soils and related fertility and biodiversity losses due to processes of geophysical, wind and water erosion; c) drought resulting in bad harvests and crop yield declines that in developing countries have often triggered severe and extended periods of famine that have affected several billion people during the 20th century and caused the death of millions of people. “Soil insecurity” challenges basic eco-system services, especially food production and food supply, especially for the poor and marginalized population that can no longer afford to purchase food. Resulting drastic food price increases have repeatedly resulted in food riots and hunger revolts in those countries that lacked the financial resources to meet the food security needs of their population or the capacity to effectively distribute food aid to the people most in need and affected by famine.

“Securitizing DLDD” implies that both policy-makers in national governments and in international organizations (UN, EU), programmes (UNDP, UNEP) and environmental regimes (UNFCCC, UNCCD, CBD), networks and knowledge-based epistemic communities succeed in upgrading DLDD issues from environmental, societal, economic and food aid issues to the problems of utmost importance for the highest political levels that launch extraordinary measures to

6. See H.G. Brauch (1997, 1997a, 1997b, 2000-2001); and keynote opening speech by H.G. Brauch at the International Symposium Desertification and Migration, Almería, Spain, 25-27 October 2006 on: *Desertification and Migration, From Almería I to Almería II: Achievements and Policy Tasks*; at: [http://www.afes-press.de/pdf/Brauch\\_Almeria\\_Oral\\_talk.pdf](http://www.afes-press.de/pdf/Brauch_Almeria_Oral_talk.pdf); text of scientific paper, at: [http://www.afes-press.de/pdf/Brauch\\_Almeria%20-final%2018%2010%202006.pdf](http://www.afes-press.de/pdf/Brauch_Almeria%20-final%2018%2010%202006.pdf).

7. J. Puigdefábregas and T. Mendizábal (1995). The second workshop in Almería, Spain, 25-27 October 2006: II International Symposium: “Desertification and Migration” is documented at: [http://www.sidym2006.com/eng/eng\\_ponencias\\_conclusiones.asp](http://www.sidym2006.com/eng/eng_ponencias_conclusiones.asp).

8. See the conference programme at: [http://www.osce.org/documents/eea/2007/11/27982\\_en.pdf](http://www.osce.org/documents/eea/2007/11/27982_en.pdf) that resulted in J.L. Rubio, U. Safriel, R. Daussa et al. (2009).

9. H.G. Brauch and Ú. Oswald Spring (2009); at: [http://www.unccd.int/knowledge/docs/dldd\\_eng.pdf](http://www.unccd.int/knowledge/docs/dldd_eng.pdf); Ú. Oswald Spring and H.G. Brauch (2009); at: [http://www.unccd.int/knowledge/docs/dldd\\_sp.pdf](http://www.unccd.int/knowledge/docs/dldd_sp.pdf); and H.G. Brauch and Ú. Oswald Spring (2010).

face their topical societal and political impacts and cope with their natural and anthropogenic causes (food scarcity due to increased demand as a result of population growth; changes in diet of large populations due to economic development; and soil degradation due to overuse, overgrazing of vulnerable dryland ecosystems). These initiatives have so far not been reflected in the context of the EMP and of UfM activities.

### 2.3. Outlining a Human Security Doctrine for Europe (2004)

The *Human Security Doctrine for Europe* was the result of the Study Group on Europe's Security Capabilities, which was convened by Mary Kaldor at the request of EU Secretary General Javier Solana in 2003.<sup>10</sup> This report called for a fundamental rethinking of Europe's approach to security. Among its key claims and suggestions are: "Human rather than nation-state security should be at the heart of European policy. Instead of defeating enemies or pacifying warring parties, EU missions should focus on protecting civilians, through law enforcement with the occasional use of force. To carry out such missions, the European Union needs an integrated civil-military force of 15,000 personnel, at least one third of whom would be civilians with various professional skills and experiences. [...] The Study Group has developed seven principles for Europe's security policy that apply to prevention, conflict and post-conflict contexts alike and which are intended to guide the actions of high-level EU officials, politicians in the Member States, diplomats, and soldiers and civilians in the field alike. In order to carry out operations based on human security, the EU will need new greater human resources and skills. At present, Europe has 1.8 million people under arms but only a fraction can be deployed in crisis zones. Police and other civilian professionals will also be needed."<sup>11</sup>

While members of the European Commission have repeatedly referred to the human security concept, so far no major initiatives have been taken to implement the policy suggestions made by this study group. At the 17th Japan-EU Summit, on 23 April 2008, both partners included a reference to human security in their joint press statement: "Japan and the EU reaffirmed

their intention to cooperate in the area of human security by promoting this concept in the General Assembly of the United Nations and other international forums, and to pursue dialogue on human security."<sup>12</sup>

During its EU Presidency, Slovenia opened the discussion on human security in the General Assembly on 22 May 2008, noting that human security has "been acknowledged and mainstreamed" into the "2005 EU Consensus on Development", and into its 2007 communication on humanitarian assistance and that several EU mechanisms contribute both to "freedom from fear" (Common Foreign and Security Policy, European Security and Defence Policy, EU Civil Protection Mechanism, Stability Instrument, Crisis Management tools) and "freedom from want" (ECHO, EU Development Cooperation).<sup>13</sup>

From a Spanish perspective, the former Defence Minister and Vice-President of the Spanish government, Narcis Serra, discussed the specific relevance of the human security concept for the Euro-Mediterranean region, arguing that: "The greatest threats come from failed states [...] [where] the civilian population ends up as the main victim of any armed conflict. It is these threats, human rights abuses, extreme poverty, and infectious diseases that now represent the main challenges to the well-being of individual citizens. [...] *A Human Security Doctrine for Europe* establishes five key principles with which all human security operations should comply. The first of these states the primacy of human rights. [...] The second principle is the establishment of a clear political authority. The third espouses multilateralism, or giving priority to the international legal order. The bottom-up approach [...] is the fourth principle for human security operations. Finally, the last principle refers to the need to adopt a regional focus when dealing with crisis. [...] The European Security Strategy adopted in December 2003 does not impose human security, but rather it accepts or enables it. The doctrine of human security facilitates an implementation that is best suited to the Strategy's principles and, in this sense, the Mediterranean represents the greatest challenge for the ESDP. [...] Furthermore, the Mediterranean is the field in which the principles of human security promise to be most effective." These

10. Its members were: Ulrich Albrecht, Christine Chinkin, Kemal Dervis, Renata Dwan, Anthony Giddens, Nicole Gnesotto, Sonja Licht, Jan Pronk, Klaus Reinhardt, Geneviève Schméder, Pavel Seifter and Narcis Serra.

11. See: *Europe Needs a Human Security Doctrine – and a New Civil Military Force*; at: [http://www.lse.ac.uk/collections/pressAndInformationOffice/newsAndEvents/archives/2004/Europe\\_needsHumanSecurity\\_Doctrine.htm](http://www.lse.ac.uk/collections/pressAndInformationOffice/newsAndEvents/archives/2004/Europe_needsHumanSecurity_Doctrine.htm). The text is available at: <http://www.lse.ac.uk/Depts/global/Publications/HumanSecurityDoctrine.pdf>, and at: [http://ue.eu.int/uedocs/cms\\_data/docs/pressdata/solana/040915CapBar.pdf](http://ue.eu.int/uedocs/cms_data/docs/pressdata/solana/040915CapBar.pdf).

12. See press statement at: [http://www.deljpn.ec.europa.eu/home/news\\_en\\_newsobj2803.php](http://www.deljpn.ec.europa.eu/home/news_en_newsobj2803.php).

13. See text at: <http://www.un.org/ga/president/62/ThematicDebates/humansecurity/eu.pdf>.

general proposals and their suggested application for the Euro-Mediterranean region have so far not been taken up, either by the EMP or, since July 2008, by the UfM.

#### 2.4. Focusing on Environmental Security: OSCE Madrid Declaration (2007)

Outside the Euro-Mediterranean context, Spanish diplomacy has been one of the major promoters of the concept and of policy initiatives relating to environmental security. During the Spanish OSCE Chairmanship on 30 November 2007, the Foreign Ministers of the OSCE countries adopted the *Madrid Declaration on Environment and Security*<sup>14</sup> (Box 1) that noted among the environmental risks, “land degradation, soil contamination, desertification and

water management, and the environmental impact of natural and man-made disasters.” However, a Spanish paper referring to specific environmental security threats was not unanimously endorsed by the Foreign Ministers of OSCE countries (Box 2). On 10-11 December 2007, Spain held a workshop in Valencia, on “Water Scarcity, Land Degradation and Desertification in the Mediterranean Region: Environment and Security Aspects” under the auspices of the OSCE and of NATO’s Science for Peace and Security Programme.<sup>15</sup>

The *Perception Paper on an OSCE Action Plan on the Threats and Opportunities in the Area of Environment and Security* of the Spanish Foreign Ministry recommended that the OSCE should

**Box 1.** Excerpts from the OSCE’s *Madrid Declaration on Environment and Security* (MC. DOC/4/07 of 30 November 2007); at: [http://www.osce.org/documents/mcs/2007/11/32737\\_en.pdf](http://www.osce.org/documents/mcs/2007/11/32737_en.pdf)

The OSCE Ministerial Council has come to the following conclusions:

1. We highlight the importance of enhancing cooperation in the area of environment and security in the OSCE region.
2. Environmental degradation, including both natural and man-made disasters, and their possible impact on migratory pressures, could be a potential additional contributor to conflict. Climate change may magnify these environmental challenges.
3. Environmental cooperation and the promotion of early warning could be useful tools in diminishing tensions as part of a broader effort to prevent conflict, build mutual confidence and promote good neighbourly relations.
4. The OSCE, within its mandate, financial and human resources and capacity has a potential for widening and deepening its cooperation with other international organizations working in the area of environment and thereby making contributions to deal with future relevant risks and challenges in the OSCE region.
5. The OSCE should consider bringing better focus to its existing activities on environmental matters and utilize more effectively its institutional capacity and its transboundary co-operative arrangements in this field.
6. The OSCE could raise awareness on the potential impact on security of environmental challenges, by using its forum for dialogue and exchange of experiences and best practices and also by integrating these considerations into its activities.
7. We commend the Spanish Chairmanship initiative to make the Madrid Ministerial Council a carbon neutral event and welcome any voluntary carbon offsetting programmes including other OSCE initiatives in this regard.
8. We reaffirm our commitment to improve environmental governance, inter alia, by strengthening the sustainable management of natural resources, especially water, soil, forests and biodiversity.
9. We underline the importance of further implementing the *OSCE Document on Stockpiles of Conventional Ammunition* and the recommendations of the *OSCE Handbook of the Best Practice Guides on Stockpiles of Conventional Ammunition* in all aspects relating to the risks for the environment.
10. We commend the OSCE, in cooperation with relevant international organizations, to support, within existing resources, regional and transboundary cooperation on the rehabilitation of the land contaminated as a result of the Chernobyl disaster both to prevent the radionuclide migration and to promote the natural recovery processes.
11. We note the 2007 Spanish Chairmanship proposal of an action plan on the threats and opportunities in the area of environment and security.

Participating States may further elaborate, if deemed necessary, a common response to environmental challenges, fully taking into account the OSCE mandate and capabilities and focusing on the OSCE’s added value and avoiding duplication.

14. Resolution on Environment and Security adopted by the Ministerial Council of the OSCE in Madrid on 30 November 2007 as *Madrid Declaration on Environment and Security*, Organization for Security and Cooperation in Europe. MC.DOC/4/07; at: [http://www.osce.org/documents/mcs/2007/11/32737\\_en.pdf](http://www.osce.org/documents/mcs/2007/11/32737_en.pdf).

15. See the conference programme at: [http://www.osce.org/documents/eea/2007/11/27982\\_en.pdf](http://www.osce.org/documents/eea/2007/11/27982_en.pdf).

“integrate considerations of environmental challenges, including climate change, into the curricula of OSCE environmental education programmes,” and “discuss the potential link between climate change and security” and “[...] inform the public on questions relating to

climate change and its potential relationship with security, and to incorporate climate change considerations into their long-term security strategies” (Box 2). This Spanish perception paper introduced many proposals from the European Council in Seville (2002).

**Box 2.** Chairmanship’s Perception Paper on an OSCE *Action Plan on the Threats and Opportunities in the Area of Environment and Security* (MC.GAL/8/07 of 29 November 2007)

The OSCE, within its mandate and existing financial and human resources, and taking into account existing initiatives and its comparative advantages, could play a constructive role in strengthening environmental security and cooperation in its region, and in the process contribute to preventing potential conflict and disputes.

**1. Refocusing OSCE institutions and mechanisms on environmental matters**

1.1 The Chairmanship recommends that the OSCE enhance its political dialogue on environment and security issues, where relevant, and where not duplicative of existing efforts.

1.2 The Chairmanship recommends that the OSCE approach on environmental security by fully utilizing existing institutional capacity and support transboundary co-operative arrangements, where relevant and upon request of the participating States concerned.

1.3 The Chairmanship encourages the participating States to pay due attention to the threats and opportunities in the area of environment and security, including by identifying OSCE focal points in their respective governments aimed at contributing to networking in this field. The OSCE focal points could exchange information and co-ordinate joint initiatives, where appropriate, on a voluntary basis.

**2. Raising awareness on environmental challenges, including climate change and its security implications**

2.1 The Chairmanship recommends that the OSCE integrate considerations of environmental challenges, including climate change, into the curricula of OSCE environmental education programmes and in its activities.

2.2 The Chairmanship encourages participating States to make full use of the opportunities the OSCE provides as a forum to discuss the potential link between climate change and security and supports their efforts to promote debate, to inform the public on questions relating to climate change and its potential relationship with security, and to incorporate climate change considerations into their long-term security strategies.

2.3 The Chairmanship urges participating States to consider the possible application of internal environmental policies in the daily operations of the OSCE executive structures.

2.4 The Chairmanship encourages participating States to support reducing the OSCE’s environmental footprint and invites them to consider supporting, through voluntary contributions, carbon-offsetting programmes for OSCE activities. The Chairmanship likewise encourages all institutions, missions and departments of the OSCE to undertake efforts to minimize environmental impacts.

**3. Promoting environmental cooperation as a tool for conflict prevention and confidence-building**

3.1 The Chairmanship encourages the OCEEA, in cooperation with relevant international organizations, to continue to promote environmental security early warning through regular reporting to the Economic and Environmental Committee, upon request of participating States.

3.2 The Chairmanship encourages the OSCE structures to develop proposals, at the joint request of all participating States concerned, in cooperation with appropriate partners and on a case-by-case basis, for specific confidence- and security-building measures addressing environmental factors in a transboundary context.

**4. Improving environmental governance**

**Supporting legal and institutional arrangements**

4.1 The Chairmanship invites participating States to consider ratification and implementation of the UN Convention against Corruption and other international anti-corruption instruments and suggests that the OSCE structures be tasked with supporting them, upon request, and in cooperation with relevant international partners, in their efforts in this respect through capacity-building and training activities.

4.2 The Chairmanship also calls upon participating States to enhance the awareness and prevention of environmental crimes and environmental disasters.

#### Promoting access to information, public participation and justice

4.3 The Chairmanship proposes that, upon request from participating States concerned and with the support of appropriate partners, the OCEEA be invited to organize regional and national awareness-raising events on the importance of access to information, public participation, and access to justice on environmental matters.

#### Strengthening the sustainable management of natural resources

4.4 The Chairmanship recommends that the OCEEA, at the request of participating States, help such States to identify the assistance they require in their efforts to sustainably manage water, soil and forest, where degradation of these resources is taking place, thereby contributing to improving transboundary security and cooperation, and support them in the implementation of existing Multilateral Environmental Agreements to which they are parties, especially with regard to combating land degradation and soil contamination. The Chairmanship furthermore recognizes that the sustainable management of water, soil, forests and biodiversity is a key element in avoiding environmental damage.

4.5 The Chairmanship calls upon participating States to increase their cooperation with organizations involved in promoting sustainable forest management and, in this context, to focus on combating illegal logging and combating wildfires.

4.6 The Chairmanship recommends that the OSCE provide assistance, upon request of participating States and in cooperation with appropriate partners, to the governments concerned in addressing the environmental implications of the extractive industries by facilitating the exchange of best practices and expertise and by supporting the implementation of the principles of the Extractive Industry Transparency Initiative.

### 5. Addressing social and economic aspects of environmental security

#### Addressing the social impact of environmental degradation

5.1 The Chairmanship urges the OSCE, in cooperation with relevant international organizations, to raise awareness on the link between environmental factors and migration and/or internally displaced persons.

5.2 In line with the OSCE Action Plan for the Promotion of Gender Equality, the Chairmanship recommends that the OSCE raise awareness on gender-specific aspects of environmental threats and encourage the involvement of women in efforts to prevent, manage and resolve environmental problems.

#### Addressing the environmental impacts of industrial legacies and man-made disasters

5.3 The Chairmanship encourages the participating States to further implement the *OSCE Document on Stockpiles of Conventional Ammunition* and the provisions of the *OSCE Handbook of the Best Practice Guides on Stockpiles of Conventional Ammunition* in all aspects relating to the risks for the environment posed by the presence of stockpiles of conventional ammunition, explosive material and detonating devices in surplus and/or waiting destruction. The OSCE should continue to support participating States in their efforts in addressing environmental impacts in this regard.

5.4 The Chairmanship urges the OSCE, in cooperation with relevant international organizations, to support, within existing resources, regional and transboundary cooperation on the rehabilitation of the land contaminated as a result of the Chernobyl disaster both to prevent the radionuclide migration and to promote the natural recovery processes.

#### Technology Transfer

5.5 The Chairmanship encourages the OCEEA to continue to facilitate the promotion of technology transfer, including through the organization of events that will enable business-to-business and public-private cooperation in the field of environmentally sound technologies, especially in the area of water management and soil protection, where not duplicative of existing efforts by other international organizations.

#### Promoting sustainable energy policies and practices

5.6 In line with Ministerial Council Decision No. 12/06 on Energy Security Dialogue in the OSCE, the Chairmanship supports sustainable energy practices and policies and encourages further dialogue on environmental aspects of energy security.

#### Reducing the negative impact on the environment of transport activities, including maritime and inland waterways transport

5.7 Bearing in mind Ministerial Council Decision No. 11/06 on the Future Transport Dialogue in the OSCE, the Chairmanship reaffirms its commitment to encourage participating States to consider signing and ratifying international agreements aimed at reducing the negative impact on the environment of economic activities, including transport.

5.8 The Chairmanship encourages the OSCE to facilitate environmental cooperation and efforts to lower risks to the environment and thereby promote security related to maritime and inland waterways and relevant multimodal routes. The OSCE could also continue to support the work within relevant international frameworks.

### 2.5. Proposal for a MEDSEC Initiative

As a consequence of these multiple Spanish initiatives in the framework of the European Union and of the OSCE, after a workshop in Barcelona in March 2009 the MedSec Initiative was proposed by the following potential partners: the CIDOB Foundation in Barcelona, the Barcelona International Peace Resource Center, a project of the City Council of Barcelona, the OSCE, the Center for Environment and Development for the Arab Region and Europe (CEDARE), UNU-EHS, UNEP GRID

Arendal, and the Zoï Environment Network in Geneva.<sup>16</sup>

Based on these conceptual and policy initiatives addressing environmental and human security issues in the Mediterranean, Spain has been actively involved since the end of the Cold War in several proposals for environmental policy initiatives which will be developed below for the Euro-Mediterranean region to be considered by the Spanish EU Presidency in 2010.

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16. For details on this initiative see: <http://www.medsecnet.org>. On 20 November 2009 the MED-SEC Initiative launched its first report on: *Environment and Security Issues in the Southern Mediterranean Region* (Geneva, Zoï Environment Network, 2009).



### 3. EU-Med Region: EU Countries and Mediterranean Partners

#### 3.1. Concepts of the Mediterranean and of the Mediterranean Space

There is no accepted definition of the Mediterranean nor are there any common criteria of the Mediterranean Sea, its space, region, climate or way of life. The Mediterranean is a sea whose shores connect three continents: Europe, Africa and Asia. It is a *region* that once was the centre of the world, the cradle of the civilizations of Egypt, Crete, of Hellenism and the Roman Empire and of three monotheistic religions of Jews, Christians and Muslims.<sup>17</sup> For millennia, the Mediterranean has been a unique geographical space but – except for the Roman Empire – it has been a divided region politically, economically and culturally.

Most authors agree that the “Mediterranean” is characterized by both *unity* and *diversity*, by periods of cooperation and conflict, of tolerance and violent conflicts, by intensive cultural exchange and cultural clashes, of close economic cooperation, interdependence but also by exploitation, unequal exchange and dependence. These contradictions challenge any uncritical application of social science concepts and approaches.

The definitions of the Mediterranean have differed for a) various time periods; b) scientific disciplines; c) based on the conceptual lenses of the scientist that are influenced by national perceptions and traditions; and d) according to specific purposes and goals of the analyst. In order to avoid a total confusion, both definitional and conceptual clarity is essential. There is a consensus that the Mediterranean is a “sea”, a “space” and possibly a “region” with narrow, medium and wider boundaries. Based on this differentiation of the Mediterranean Sea or basin, space and region, three geographical concepts have generally been used:

- The *narrow concept* of the Blue Plan of the administrative units with a Mediterranean coastline,

of the watershed or of the cultivation areas of the olive.

- The *medium concept* of a Mediterranean perspective that includes all countries with Mediterranean coastlines plus Portugal and Jordan.
- The *wide concept* of the Mediterranean that includes the Black Sea, the Red Sea and the Persian/Arab Gulf region, recognizing the ecological, cultural and economic similarities.

Major unifying elements are: a) common ecological features (climate, landscape) and a shared environmental responsibility, which is challenged by urbanisation, demography, and tourism that have contributed to an “environmental crisis”; b) a common history; c) a distinct Mediterranean economy; and d) relatively homogeneous cultures.

While the geographical space remained unchanged for millennia, during the past 5,000 years of human history the spaces of rule were in a permanent flux. Different spatializations due to functional cooperation in different issue areas have emerged since 1990. Empirically, cooperation in the Mediterranean may be analysed for different actors (states, economic, societal organisations) at several *levels of analysis* (international, state, sub-state) for *degrees of intensity* (organisations, regimes, dialogues) and *issue areas*: security and military, political, economic and environmental. The existing institutions of cooperation in the narrow, medium and wide Mediterranean space point to different institutional boundaries (Table 1).

The oldest and only truly pan-Mediterranean regime emerged from the Convention for the Protection of the Marine Environment and Coastal Region of the Mediterranean (Barcelona Convention) of 16 February

17. This section draws on H.G. Brauch (2000-2001: 25-58, 2003).

1976, which entered into force on 12 February 1978. This environmental Barcelona regime is based on several related protocols, and an amendment to the Convention adopted on 10 June 1995. Major steps have been the development of the Mediterranean Action Plan, of the Blue Plan, the setting up as one of nine Regional Seas Programmes, of the

UNEP Coordinating Unit for the Mediterranean Action Plan (MEDU) in 1982 in Athens and, finally in 1995, the establishment of the Mediterranean Committee on Sustainable Development. It was the first regional environmental regime that evolved from the first global environmental summit in Stockholm in June 1972.

**Table 1. Actors, Levels and Issue Areas of Cooperation in the Mediterranean Space**

	Security	Political	Economic	Environmental
State world				
International organisations	UN, OSCE, NATO,	OSCE, EU, Arab League	WB, IMF, EU, UNDP, OECD, AMU	UNEP, MAP
Functional regime	Non-proliferation regime	EMP/UfM ↓	EMP/UfM ↓	Barcelona Convention
Dialogue fora	NATO, Med dialogues	EMP/UfM ↑	EMP/UfM ↑	Mediterranean Committee on Sustainable Development UfM – Civil Protection Initiative and Mediterranean Solar Plan
Economic world	Multinational companies, international chambers of commerce and industry			
Societal world	Civil society and non-governmental (scientific) organisations			

within the EEC, EC and EU and its Mediterranean partners three stages may be distinguished: a) the emerging relationship (1958-79); b) the protocol period (1979-89); and c) the MEDA period (1995-

present) with so far three budget cycles MEDA I (1996-1999) and MEDA II (2000-2006), European Neighbourhood and Partnership Instrument (1.1.2007-31.12.2013; Table 2).

**Table 2. Three Phases in the EU-MED Relationship**

Name of period	Emerging relationship	Protocol Period (1-4)		MEDA I, II, European Neighbourhood and Partnership Instrument
		1979-89	1990-95	
Period	1958-79	1979-89	1990-95	From 1995 -
Political framework	Global Mediterranean Policy (GMP) of 1972		New Mediterranean Policy (NMP)	Barcelona Declaration
Cooperation framework	Association agreements (with Cyprus, Malta and Turkey). Trade accords	Cooperation agreements with Maghreb, Mashreq countries and Israel		Euro-Mediterranean Association Agreements (over time replacing Cooperation agreements) EMAAs
Funding framework	Protocols for the countries with Associations agreements	1st-3rd protocol	4th protocol	MEDA Regulations and European Neighbourhood and Partnership Instrument

### 3.2. Environmental Cooperation in the Mediterranean

On 13 February 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 EMP Foreign Ministers. In the EU framework three Ministerial Meetings on the Mediterranean environment took place in Helsinki on 28 November 1997, on 9-10 July 2002 in Athens and on 20 November 2006 in Cairo.

Funding for environmental projects in the Mediterranean has been granted by UN agencies and programmes (UNESCO, ECE, ECA, ESCWA, UNEP, UNDP), by international financial institutions (IFIs): a) by the World Bank; b) the European Investment Bank (EIB) in Luxembourg; c) the Global Environment Facility (GEF), and the European Commission in the Short- and Medium-term Priority Environment Action Programme (SMAP) and by the Life Programme. Since 1995, major funding for joint environmental activities has been provided by the European Union within the European Mediterranean Partnership of the Barcelona Process.

### 3.3. Security Dialogues in the Mediterranean

In the security realm, several security-related dialogues have emerged: a) the Euro-Arab dialogue of EC and Arab League states since 1973; b) the CSCE/OSCE Mediterranean partners for cooperation since 1975; c) the French initiative for a 5+5 dialogue of 1990; d) the Egyptian proposal of 1994 for a Mediterranean Forum for Dialogue and Cooperation; e) the WEU Mediterranean Subgroup, which has ended; and f) the NATO Mediterranean Initiative of 1994.

In late 2009, three Mediterranean security dialogues have co-existed without coordination: a) of the OSCE with its Mediterranean Partners for Cooperation (MPCs); b) NATO’s Mediterranean dialogue with the Mediterranean Cooperation Group; and c) the Barcelona Process aiming at a Euro-Mediterranean Partnership (EMP) launched in November 1995 and reinvigorated as the UfM in 2008 (Table 3). After the transfer of the WEU’s operational activities to the EU, the WEU Assembly has acted as the interim European Security and Defence Assembly providing a forum for political discussion and reflection on the European Security and Defence Policy (ESDP). All four Parliamentary

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## The Barcelona Declaration of 1995 and its successor, the Union for the Mediterranean, are the only multi-issue regime in the making covering most Mediterranean riparian states

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Assemblies have held seminars and submitted reports on Mediterranean security issues.

### 3.4. The Barcelona Process (1995): Barcelona Declaration

After efforts by Italy and Spain (1990-1992) for a Conference on Security and Cooperation in the Mediterranean (CSCM) had failed, the Barcelona Declaration of 1995 establishing a Euro-Mediterranean Partnership (EMP) and its successor, the Union for the Mediterranean (UfM), are the only multi-issue regime in the making covering most Mediterranean riparian states. It is the only politically relevant forum for an increasing pan-Mediterranean functional cooperation on the three baskets aiming at a) a security partnership; b) an economic and financial partnership; and c) a partnership in social, cultural and human affairs.

Which “Mediterranean space” may be more appropriate for dealing with non-military environmental challenges that may be relevant for security policy: that of the Barcelona Convention (1976) or the Barcelona Declaration (1995)? While the “space” of the Convention has focused on the riparian nations to protect the Mediterranean Sea (“environmental space”), that of the Declaration relies on a larger Euro-Mediterranean space as a common area of peace and stability, of shared prosperity and of understanding between cultures and exchanges between civil societies (“political space”). While this environmental space will remain unchanged, the political space has significantly changed due to EU enlargement and the emergence of the UfM. Thus, the “Mediterranean space” used by international organizations, regimes and dialogues depends on their goals, given the lack of commonly accepted geographical and political criteria.

The Mediterranean environment within the natural boundaries of the Sahara desert, Europe and the

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Atlantic Sea does not respect national borders. Within its natural boundaries, the Mediterranean climate implies complex interactions between global climate change and regional impacts that will negatively reinforce ongoing processes of desertification. Both require an analysis of endogenous and exogenous anthropogenic factors. There are common long-term non-military environmental challenges affecting the whole Mediterranean space that will have socio-economic and possibly political or even military consequences for the Euro-Mediterranean area.

While for the analysis of *environmental security* issues only an environmental spatialization of the Mediterranean applies, for a policy of avoiding outcomes emerging from medium-term implications of long-term structural causes of a “survival dilemma” that transgress national borders and environmental boundaries, early and joint action by the countries participating in the wider Euro-Mediterranean space of the Barcelona Process is needed. While the first Barcelona regime (1976) fully reflects the “narrow” definition of the Blue Plan, the political regime of the EMP or UfM is both wider and narrower in scope. Only the European Union has the resources to deal with the long-term environmental challenges the southern and eastern shores have experienced since 1950 and will be confronted with in the 21st century. To cope with these non-military challenges in the Mediterranean, close political and economic cooperation becomes crucial. The EMP and the UfM offers the only political “institution” where competence, legitimacy and resources are present.

Although the environment was among the six priority sectors for cooperation within the Barcelona process (Stuttgart Meeting 1999), the funding for SMAP projects has been limited. The Mediterranean eco-region is confronted with a major contradiction: for the common environmental challenges only highly fragmented institutionalized security, political and economic spaces are available. Presently two pan-Mediterranean political “spaces” exist:

- The Mediterranean environmental regime of the Barcelona Convention (1976), of the Mediterranean Action Plan and of the Blue Plan.
- The multi-issue political regime of the Barcelona Declaration (1995) and the enlarged space of the Union for the Mediterranean (UfM).

Between the environmental regimes and the security dialogues there was little political cooperation and organizational coordination. With the Athens Declaration a closer cooperation between SMAP and MAP and synergies with other organizations, programmes (MAP) and donors (METAP) were encouraged. The Blue Plan secretariat has also analysed many environmental challenges of the 21st century for the MCSD. At the intergovernmental level and in the EuroMeSCo network<sup>18</sup> there has been no conceptual debate on environmental security issues in the Mediterranean until MEDSEC was proposed during 2009.

### 3.5. Towards the Union for the Mediterranean (2008)

Due to the unresolved Middle East conflict, a major breakthrough in the Barcelona process remained stalled. The renewed effort of French President Nicolas Sarkozy to relaunch the EMP as a Mediterranean Union failed due to the opposition of the non-Mediterranean countries that wanted to remain actively involved in Mediterranean politics. With Israel's intervention in Gaza in late 2008, the Union for the Mediterranean (UfM) experienced another severe setback that delayed the implementation in its administrative reforms while the functional cooperation continued with the establishment of a UfM Secretariat in Barcelona.

#### 3.5.1. From the Mediterranean Union towards the Union for the Mediterranean

During his presidential campaign in 2007, Nicolas Sarkozy announced his goal for the establishment of a Mediterranean Union that should consist only of Mediterranean riparian countries. Due to widespread opposition, the initial proposals were modified and, after a meeting with German Chancellor Angela Merkel, it was agreed that the project would include all EU Member States, not just those bordering the Mediterranean, and built upon the existing Barcelona Process. At the beginning of the French EU Presidency, the Mediterranean Union was launched on 13 July 2008 in Paris and soon became known as the UfM.

The new UfM is co-chaired by a EU member state and a country from the MENA region, initially by France and Egypt. The UfM is the framework of multilateral relations between the EU and Mediterranean non-EU countries complementing bilateral relations under the

18. See: <http://www.euromesco.net>.

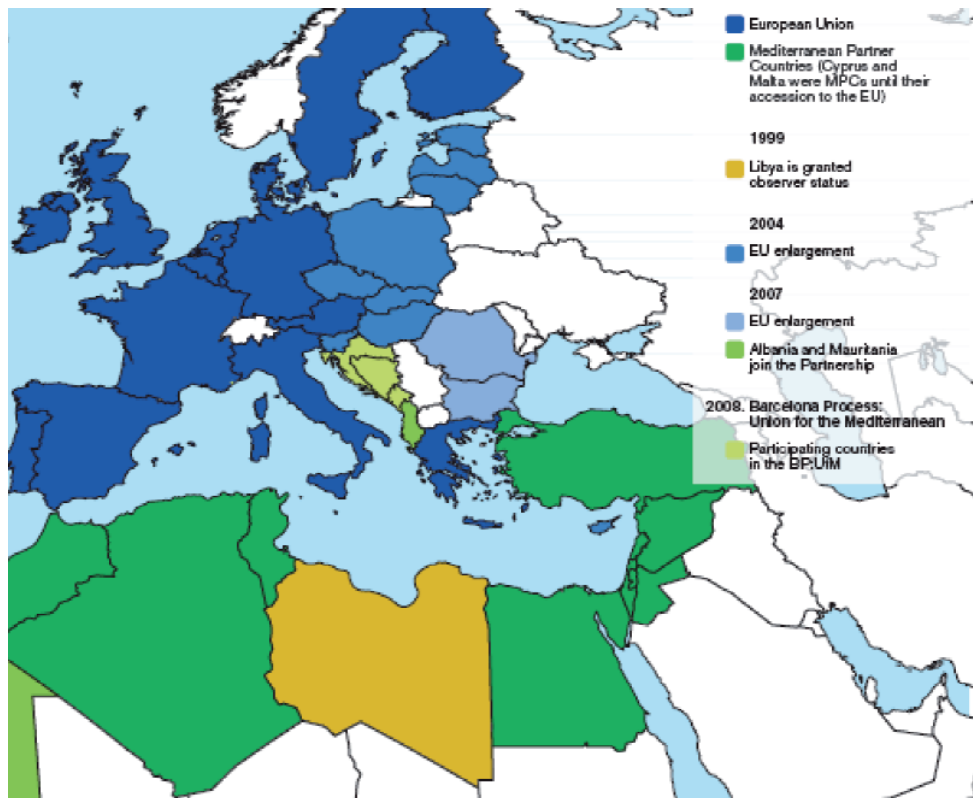
European Neighbourhood Policy (ENP) and the pre-accession framework. Its Secretariat will be established in Barcelona. The UfM builds on the achievements of the Barcelona Process, whose goals and cooperation areas (Political Dialogue, Economic Cooperation and Free Trade, and Human, Social and Cultural Dialogue) remain valid. The UfM enhances the Barcelona Process by a) upgrading the political level of the relationship; b) reinforcing co-ownership with a system of co-presidencies with a Secretariat and a Joint Permanent Committee; c) making these relations more concrete and visible.

At the Paris Summit six priority projects were approved on 1) De-pollution of the Mediterranean; 2) Maritime and Land Highways; 3) Civil Protection; 4) Alternative Energies and Mediterranean Solar Plan; 5) Higher Education and Research – Euro-Mediterranean University; and 6) Supporting Business. On 3-4 November 2008, the Foreign Affairs Ministers agreed in Marseilles on the structure of the UfM and its Secretariat in Barcelona.

According to the European Commission, the funding could come from multiple sources: the private sector, bilateral cooperation from EU Member States, contributions from Mediterranean partners, international financial institutions or regional banks, and the Community budget for the Mediterranean, such as the ENP South regional programmes, the Neighbourhood Investment Facility and the Cross-Border Cooperation instrument, all of them within the European Neighbourhood Policy Instrument (ENPI).

Due to the crisis in Gaza, several UfM meetings were suspended. A Senior Officials meeting on civil protection took place on 16 and 17 June 2009 in Marseilles where it was agreed to build the Euro-Mediterranean Area for Civil Protection by progressively integrating the southern partners into the European Civil Protection Mechanism. Euro-Mediterranean Ministers met on 25 June in Paris to discuss sustainable development issues, such as transport, water, energy and urban development. The Commission has provided or earmarked since July

Figure 1. Member Countries of the Union for the Mediterranean (November 2009)



Source: Med.2009. 2008 in the Euro-Mediterranean Space.

2008 almost €90 million to achieve its goals, in addition to more than €50 million from the European Investment Bank and from the funds of the European Neighbourhood Facility.

### 3.5.2. Marseilles Paper: November 2008 (Horizon 2020 Steering Group: Environment)

At the Conference of the Foreign Ministers of the 43 countries participating in the UfM on 3-4 November 2008 in Marseilles it was decided: "To launch and/or to reinforce a number of key initiatives: De-pollution

of the Mediterranean, Maritime and Land Highways, Civil Protection, Alternative Energies: Mediterranean Solar Plan, Higher Education and Research, Euro-Mediterranean University and the Mediterranean Business Development Initiative." The fields of cooperation for 2009 the Foreign Ministers adopted reflected the three baskets of the Barcelona Declaration. Here only four topics will be noted of which two will be discussed later in more detail: problems related to security, energy, environment and migration.

**Box 3.** Excerpts of the fields of cooperation to be pursued in 2009 by the UfM in the areas of security and environment adopted at the Marseilles Meeting of Foreign Ministers

#### A - Political and Security Dialogue

The political and security dialogue has focused on the following areas:

- a. Regular review of the political situation in the Middle East.
- b. Implementation of the Code of Conduct on countering terrorism. The Ministers agree to build on the recommendations of previous international and regional initiatives.
- c. Deepening of the dialogue on ESDP and crisis management.
- d. At the Paris Summit, the Heads of State and Government underlined their commitment to strengthen democracy and political pluralism through expansion of participation in political life and respect for all human rights and fundamental freedoms.
- e. The Ministers acknowledge that the deepening of regional dialogue on joint cooperation, best practices and exchange of experience in the area of elections has been further pursued at Senior Official level. Ministers agreed that joint cooperation and exchange of experience could be developed on a voluntary basis upon the request of any of the partners.
- f. The Ministers have highlighted the role of the regional Bridge Programme (2004-2008) on Prevention, Mitigation and Management of Natural and Man-made Disasters and laid the foundations for a Long-Term Programme, the Euro-Med Programme for the Prevention, Preparedness and Response to Natural and Man-made Disasters – PPRD (2008-2011).

#### C - Economic and Financial Partnership

##### Energy

Participants at the last Euromed Energy Ministerial Meeting (Cyprus, 17 December 2007) agreed on a Five-Year Action Plan focusing on three main areas: (1) improving harmonisation and integration of energy markets and legislation in the Euromed region; (2) promoting sustainable development in the energy sector; and (3) developing initiatives of common interest in key areas, such as infrastructure extension, investment financing and research and development. Furthermore several initiatives are being implemented such as the Euro-Mashreq gas cooperation, the integration of electricity markets in the Maghreb, the trilateral energy cooperation between the EC, Israel and the Palestinian Authority (including the Solar Energy for Peace Initiative) and cooperation among Euromed energy regulators (Medreg). In this context, a Ministerial Meeting took place on 5 May 2008 in Brussels to discuss enhancing energy cooperation in the Mashreq. Overall progress in the implementation.

##### Environment

The achievements since the Cairo Euromed Environment Ministerial Meeting together with the regional (Euromed) environmental activities and efforts with regard to the Barcelona Process: Union for the Mediterranean should constitute the basis for the Environment Ministerial Meeting which is planned to be held in 2009. The annual meeting of the Horizon 2020 Steering Group will be held along with the meetings of each of the three sub-groups (pollution reduction, capacity building as well as monitoring and research) in addition to meetings for the transfer of know-how.

Studying the process of developing a harmonised maritime policy and promoting a foreseeable maritime strategy for the Mediterranean shall take particular consideration within the Euromed Partnership in 2009 and beyond. A sectoral Euromed working group composed of national experts is clearly needed to formulate the guidelines, visions, priorities, objectives, means of implementation and funding mechanisms of such a policy, taking into account the variances between the Euromed countries. The task should take place in complete coordination and cooperation with both the competent regional and national entities to provide the guidance and technical assistance.

According to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, climate change could adversely affect the environment and human activities in the Mediterranean. Ministers recalled the need to intensify cooperation on climate change through the establishment of a Euro-Mediterranean Climate Change Network to provide the forum for the sharing of information and experience as well as to build relationships in an informal working environment in support of regional efforts to combat climate change. Euro-Mediterranean interaction on climate change may lead to enhancement of capabilities of implementation of projects and programmes of mutual interest.

#### Migration

Ministers recalled that the issue of migration should be an integral part of the regional partnership and its related challenges namely legal migration, migration and development and the fight against illegal migration, as laid down in the agreed conclusions of the 1st Euro-Mediterranean Ministerial Meeting on Migration, Albufeira, 18-19 November 2007, need to be addressed through a comprehensive, balanced and integrated approach. In this regard, some initiatives have begun to be implemented this year with the launching of the regional Euro-Med Migration II Programme (2008-2011).

They underline the commitment to facilitate legal movement of individuals. They stress that promoting orderly-managed legal migration in the interest of all parties concerned, fighting illegal migration and fostering links between migration and development are issues of common interest which should be addressed through a comprehensive, balanced and integrated approach.

#### IV. State of progress in the implementation of projects listed in the Annex to the Paris Declaration

Ministers reviewed the progress made in implementing the priority projects selected by Heads of State and Government in the Paris Declaration.

##### C - Civil Protection

The Prevention, Preparedness and Response to Natural and Man-made Disasters Programme (PPRD) will contribute to the development of stronger prevention, preparedness and response capacities in civil protection at international, national and local level. It will also aim to bring the Mediterranean Partner Countries progressively closer to the European Civil Protection Mechanism and the envisaged European civil protection network against disasters. Furthermore, the joint Civil Protection project on prevention, preparation and response to disasters is one of the main priorities for the region. Therefore the development of the Euromed Programme for the PPRD (2008-2011) is a matter of urgency. The collaboration between the civil protection institutions in the EU member states and the Mediterranean Partner countries for strengthening the cooperation in the field of training and on operational level is suggested.

##### D - Alternative Energies: Mediterranean Solar Plan

The Euromed Expert Group, reporting to the Euromed Energy Forum, met on 7 October 2008, reviewed progress achieved and agreed on future actions, which should further develop the decision of the Paris Summit for the Mediterranean, to launch a Mediterranean Solar Plan focused on market deployment as well as research and development of all alternative sources of energy. An expert workshop organised by Germany in cooperation with France, on the potential and cost of different renewable energy technologies and aspects of a future Master Plan, took place on 28-29 October in Berlin. A conference, organised by France and Egypt in cooperation with Germany and Spain, will convene on 22 November in Paris to discuss financing and project implementation of the Mediterranean Solar Plan. An Immediate Action Plan (IAP) could be agreed to list concrete and pilot projects to be launched in 2009-2010. The aim is to launch three power stations of 20MW in 2009.

With regard to the three areas, to be discussed in detail below, the Commission has financed since July 2008 or was about to launch in July 2009:

- Environment (€22 million for 2009-2010): The Mediterranean Environment Reporting system and activities and projects within the Horizon 2020 programme, aiming at the de-pollution of the Mediterranean by 2020. Promotion of water policies and practices in the Mediterranean region.
- Renewable energies: Studies to identify the effective strategy to develop and implement the Mediterranean Solar Plan and how to support renewable energy in the Mediterranean region. Following the studies, the Commission expects to launch the Solar Plant programme before the end of the year. Feasibility study for a concentrated solar power plant in Tunisia (€1 million from the Neighbourhood Investment Facility). A 200 MW wind farm in the Gulf of El Zayt, Egypt (€1 million from the Neighbourhood Investment Facility).
- Civil protection (€5 million since July 2008): Development and reinforcement of the civil protection in the region by building and strengthening the reaction capacity. Activities are carried out by a consortium led by Italy and with the participation of Egypt, France and the UN; Balkan countries and Turkey also participate.

### 3.5.3. Euro-Mediterranean Cooperation in the Field of Civil Protection

Issues of civil protection have been intensively debated within the European Union as a whole and for the Euro-Mediterranean framework in particular (Brauch, 2002, 2003). Ekengren (2008) interpreted these policy activities as a new area of “functional security” that gradually evolved in response to the earthquakes in Turkey in 1999, to the flood in Germany in 2002, to the tsunami of 2004 and to the forest fires in several Mediterranean countries. The “solidarity clause” in the Lisbon Treaty (Title VII, Article 188R) calls on the EU and its members to “assist a member state in its territory, at the request of its political authorities, in the event of a natural or man-made disaster. [...] The arrangements for the implementation by the Union of the solidarity clause shall be defined by a decision adopted by the

Council acting on a joint proposal by the Commission and the High Representative of the Union for Foreign Affairs and Security Policy. The Council shall act in accordance with Article 15b(1) of the Treaty on European Union where this decision has defence implications. The European Parliament shall be informed.”

The Euro-Mediterranean cooperation in the field of Civil Protection (CP) started in 1998 under the leadership of Italy with two EU-funded programmes: a 5-year Pilot Programme (1998-2004), and the “Bridge” programme (2004-2008).<sup>19</sup> In 1995, “cooperation in the field of natural and man-made disaster prevention was identified as particularly relevant to political and security confidence-building.” The Euro-Mediterranean Meeting of Foreign Affairs Ministers in Lisbon (2007) recognized that the “rising trend in vulnerability to natural and man-made disasters in many parts of the Mediterranean confirms the need for greater safety and security measures to be in place to the benefit of its citizens,” and in Tampere, the Ministers of Foreign Affairs referred to cooperation on civil protection “as an important political measure to strengthen trustful relationships by promoting cooperation and interaction between regional and local authorities, civil population and civil society.”<sup>20</sup>

Bremberg, Driss, Horst, Soler and Werenfels (2009) noted that until early 2009 there was: “No coherent multilateral cooperation mechanism or framework in the Mediterranean region for prevention and/or response measures to natural or manmade disasters. We are instead dealing with several overlapping initiatives, which differ with regard to their members and their degree of commitment. Setting aside the strictly bilateral, we can distinguish between multi-bilateral (European Neighbourhood Policy), sub-regional multilateral (5+5 Initiative), regional multilateral (EMP, since July 2008 Union for the Mediterranean) and international initiatives that go beyond the regional Euro-Mediterranean level (e.g., the INSARAG Network or the EUR-OPA agreement of the Council of Europe). Several of these initiatives can be described as flexible multilateral, in that they include some but not all of the EMP states, be it de jure or de facto.”

These authors suggested an improved coordination to overcome the “multiple overlaps of current frameworks for civil protection cooperation” and the

19. For a critical review see: N. Bremberg, A. Driss, J. Horst et al. (2009) on civil protection: “The global landscape is littered with examples of the devastation caused by man-made and natural disasters. The effects of climate change are evident for all. The Mediterranean region is particularly vulnerable and exposed to such disasters. A joint civil protection scheme on prevention, preparation and response to disasters, linking the region more closely to the EU Civil Protection Mechanism, should, therefore, be one of the main priorities for the region.” Source: [http://www.europa-eu-un.org/articles/en/article\\_8868\\_en.htm](http://www.europa-eu-un.org/articles/en/article_8868_en.htm).

20. N. Bremberg, A. Driss, J. Horst et al. (2009).



creation of synergies between UN, OCHA, Insarag, RELEX, DG Env., MIC, and the activities in the 5+5 framework.

On 21-22 July 2009, the first Euro-Mediterranean Forum on Civil Protection issues was organized in Rome by the Italian Civil Protection Department to launch a new 3-year Euro-Mediterranean Programme on Prevention, Preparedness and Response to Natural and Man-made Disasters (PPRD South) that aims at further improving the results achieved by contributing to the development in the Mediterranean region of a Civil Protection culture based on prevention rather than response.<sup>21</sup>

#### 3.5.4. The Euro-Mediterranean Cooperation on Renewable Energy

Energy was a priority sector of the Euro-Mediterranean Partnership.<sup>22</sup> The 1998 Euro-Mediterranean Conference of Energy Ministers (Brussels) agreed that security of supply, competitiveness and environmental protection are objectives on which the Euro-Mediterranean Partnership in the field of energy should be based. The Euro-Mediterranean Environmental Ministers adopted a framework strategy for environmental integration in the EMP (Athens Ministerial Conference of 10 July 2002), which was endorsed by the following EuroMed Foreign Ministers Conference. On 21 May 2003, Energy Ministers of the EMP reviewed the first Euro-Med Regional Energy Plan (1998-2002) and launched the Second Regional Energy Plan (2003-2006) that focused on the EU's priorities of security of supply, competitiveness and an integrated electricity market, while promoting large-scale Mediterranean transmission infrastructure projects for electricity, gas and oil.

The EuroMed Energy Action Plan (2008-2013) was approved at the EuroMed Ministerial Energy Conference, in Limassol on 17 December 2007. Among its goals is the promotion of renewables and

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## The Secretariat is tasked to explore the feasibility, development and creation of a Mediterranean Solar Plan

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of energy efficiency. Between 2000 and 2008 a total of €55 million were allocated to energy projects and the European Investment Bank granted loans amounting to €2 billion to support energy infrastructure projects. Among the three priorities of the Limassol meeting was the "sustainable development in the energy sector." Among the actions that were approved was the creation of a regional centre of excellence for renewable energy in Cairo. The energy experts group was mandated to address both large-scale grid connected renewable energy power generation and desalination and decentralized power production with renewables. However, the Limassol Declaration lacked any concrete targets to be achieved in the Euromed region, especially in the MENA countries.

At the launch of the Union for the Mediterranean on 13 July 2008, the creation of a Mediterranean Solar Plan (MSP) was one of six key priorities. The Joint Declaration of the Paris Summit for the Mediterranean stated: "The recent activity on energy markets in terms of both supply and demand, confirms the need to focus on alternative energy sources. Market deployment as well as research and development of all alternative sources of energy are therefore a major priority in efforts towards assuring sustainable development. The Secretariat is tasked to explore the feasibility, development and creation of a Mediterranean Solar Plan." It was concluded that "market deployment as well as research and development of all alternative sources of energy are a major priority towards assuring sustainable development" and that the "feasibility, development

21. From July 2008 to July 2009, the European Commission funded €5 million for the "development and reinforcement of the civil protection in the region by building and strengthening the reaction capacity. Activities are carried out by a consortium led by Italy and with the participation of Egypt, France and UN; Balkans countries and Turkey also participate." First Euro-Mediterranean Forum on Civil Protection Issues, 21-22 July 2009, Italian Civil Protection Department, Rome, Italy; at: <http://www.delegy.ec.europa.eu/en/News/644.asp>; *PPRD South Newsletter*, No. 1, June 2009; at: [http://www.delegy.ec.europa.eu/en/News/Pubblicazione-newsletter\\_h5.pdf](http://www.delegy.ec.europa.eu/en/News/Pubblicazione-newsletter_h5.pdf). PPRD South is coordinated by a consortium led by the Italian Civil Protection Department together with the National Civil Protection Authorities of Algeria, Egypt, France and the United Nations Agency for Disaster Risk Reduction (UN/ISDR). Its main activities "aim at developing national and regional risk atlas, organising training workshops, study visits and technical assistance, organising simulation exercises, and improving the information and awareness of Mediterranean populations regarding risk exposure, prevention and response." According to EM-DAT (Emergency Event Database), "over the last 28 years about 25 million people in the Mediterranean region have been affected by natural and technological disasters and the cost of the damages caused by these disasters reach €105 billions. Of these 25 million people, 11 millions were affected by drought, 8 millions by earthquakes and 4 millions by floods. In terms of number of registered disasters in the region, floods account for 36% of the total, earthquakes account for the 15% and droughts for 4%." N. Bremberg, A. Driss, J. Horst et al. (2009).

22. See the proposals by H.G. Brauch (1994, 1996, 1996a, 1997c, 1997d, 2000); E. Rhein (1997: 102-113).

and creation of a Mediterranean Solar Plan” will be examined.

The objective is to reach 20 GW of new renewable energy capacities by 2020 in the region, out of which 3-4 GW would be covered by PV, 5-6 GW by wind and 10-12 GW by CSP. The physical interconnection of Tunisia-Italy and Turkey-Greece would be a prerequisite for the implementation of such a plan. From July 2008 to July 2009, the European Commission funded studies on renewables “to identify the effective strategy to develop and implement the Mediterranean Solar Plan and how to support renewable energy in the Mediterranean region.”<sup>23</sup>

On 28 and 29 October 2008 an expert workshop was held in Berlin that discussed the technologies (wind, CSP, solar thermal) and the draft Mediterranean solar plan developed by France and Germany. On 22 November 2008 a financial conference was held in Paris to define the political and financial framework, to generate interest and support from industry and to identify first pilot projects for 2009 and 2010. It also addressed a long-term perspective for the import of green solar electricity from North Africa to enhance energy security and to help achieve the GHG reduction goals.

The French-Egyptian UfM Co-Presidency wants to develop concrete projects for organizing efficient MSP governance, by involving private and public stakeholders, and the implementation of 20 to 30 projects that will allow UfM members to define and test their policy framework and test new schemes to export green electricity to Europe. The French Environment and Energy Ministry suggested the creation of a technical core group of France, Egypt, Morocco, Spain, Italy, Germany and the European Commission to focus on: i) selection of pilot projects for energy production immediate action plan; ii) discussion of objectives, activities and organisation for other immediate action plans; iii) preparation of the Master Plan terms of reference; and d) work with multilateral and bilateral banks to design a streamlined

financial scheme for MSP projects (WB, ABD, EIB, AFD, KfW...).<sup>24</sup>

Many ideas for the Mediterranean Solar Plan have gradually evolved since the mid 1990s<sup>25</sup> – especially in Germany with the financial support of the German Federal Environment Ministry (BMU), which funded three projects coordinated by the German Aerospace Center (DLR): *Concentrating Solar Power for the Mediterranean Region* (MED-CSP); *Trans-Mediterranean Interconnection for Concentrating Solar Power* (TRANS-CSP) studies, conducted between 2004 and 2006; and the *Concentrating Solar Power for Seawater Desalination* (AQUA-CSP) study, covering aspects of solar desalination and completed towards the end of 2007.<sup>26</sup> According to the DESERTEC Foundation: “Satellite-based studies by the German Aerospace Center (DLR) have shown that, by using less than 0.3% of the entire desert area of the MENA region, enough electricity and desalinated seawater can be produced to meet the growing needs of these countries and of Europe. Power generation from wind energy is particularly attractive in Morocco and in areas around the Red Sea. Solar and wind power can be transmitted throughout the region via High Voltage Direct Current (HVDC) transmission lines, and to Europe with transmission losses up to 15%. The new Union for the Mediterranean, including many countries in MENA, is interested in this kind of cooperation.”

On 13 July 2009, 12 companies signed a Memorandum of Understanding in Munich to establish a DESERTEC Industrial Initiative (DII) with the objective of analysing and developing the technical, economic, political, social and ecological framework for carbon-free power generation in the deserts of North Africa. The DESERTEC concept, developed by the TREC Initiative of the Club of Rome, describes the perspectives of a sustainable power supply for all regions of the world with access to the energy potential of deserts. The founder companies of the DII, whose regional focus is on Europe, the Middle East and North Africa (MENA), will be ABB, ABENGOA Solar,

23. Following the studies, the Commission expected to launch the Solar Plant Programme before the end of 2009; feasibility study for a concentrated solar power plant in Tunisia (€1 million from the Neighbourhood Investment Facility [NIF]); and a 200 MW wind farm in the Gulf of El Zayt, Egypt (€1 million from the NIF). Source: [http://www.europa-eu-un.org/articles/en/article\\_8868\\_en.htm](http://www.europa-eu-un.org/articles/en/article_8868_en.htm).

24. See for details: *Mediterranean Solar Plan*; <http://www.miraproject.eu/workgroups-area/workgroup.wp3/wor-king-documents/cairo-energy-workshop-2009/Annex%204.3%20Mediterranean%20Solar%20Plan%20Presentation%20English.pdf/view>; [http://www.ambitalia.org.uk/MSP\\_conference/MSP\\_Lorec.pdf](http://www.ambitalia.org.uk/MSP_conference/MSP_Lorec.pdf).

25. J. Nitsch and F. Staiß (1997); H.G. Brauch (1994, 1997); G. Knies, G. Czisch and H.G. Brauch (1999); see for a survey of these early studies: [http://www.afes-press.de/html/pdf/DESERTEC\\_publications\\_Eng.pdf](http://www.afes-press.de/html/pdf/DESERTEC_publications_Eng.pdf).

26. For an overview on selected studies, see: <http://www.desertec.org/en/concept/studies>; for a summary, see: F. Trieb, W. Krewitt and N. May (2009) and a brief presentation and podcast in German by F. Trieb at: [http://www.afespressbooks.de/html/hexagon\\_04\\_PressConf\\_Presentations.htm#stuttgart](http://www.afespressbooks.de/html/hexagon_04_PressConf_Presentations.htm#stuttgart).

Cevital, Deutsche Bank, E.ON, HSH Nordbank, MAN Solar Millennium, Munich Re, M+W Zander, RWE, Schott Solar and Siemens: "Among the DII's main goals are the drafting of concrete business plans and associated financing concepts, and the initiating of industrial preparations for building a large number of networked solar thermal power plants distributed throughout the MENA region. The aim is to produce sufficient power to meet around 15% of Europe's electricity requirements and a substantial portion of the power needs of the producer countries. All of the DII's activities will be aimed at developing viable investment plans within three years of its establishment. The initiative's clear focus on implementation is set out in the DII Principles for all future DII shareholders."

The DESERTEC II project intends to implement many goals of the UfM's Mediterranean Solar Plan with the aim of achieving greater energy security in the EU/MENA countries, offering development opportunities due to substantial private investment, safeguarding the future water supply in the MENA countries by utilizing excess energy in seawater desalination plants, reducing carbon-dioxide emissions and thus making a significant contribution to achieving the climate change targets of the European Union and of the German Federal Government.

On 30 October 2009, the DII, was established as a GmbH (limited liability company) under German law by the group of founding members consisting of twelve companies and the DESERTEC Foundation. Its work focuses on a thorough analysis and the establishment of a framework for investments to supply the MENA region and Europe with power produced using solar and wind energy sources. The DII shareholder appointed Paul van Son as CEO of the DII, who has about 30 years experience in the European energy industry in Germany and the

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## The DII intends to collaborate closely with the Mediterranean Solar Plan that aims to create a new balanced North-South relationship based on the promotion of sustainable energy projects

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Netherlands with renewable energy and energy efficiency programmes.

The DII intends to collaborate closely with the Mediterranean Solar Plan that aims to create a new balanced North-South relationship based on the promotion of sustainable energy projects. Both initiatives – the MSP as a political initiative and the DII as a private industry initiative – share similar goals and can therefore mutually support each other. Other companies will join the DII to ensure broad-based support from the EUMENA society. DII headquarters will be located in Munich. All DII signatories agreed on the need for efficient climate protection measures.

Civil protection against climate-induced hydro-meteorological hazards addresses the impacts of extreme weather events whose number and intensity has increased due to climate change and is projected to increase further during this century. On the other hand, the Mediterranean Solar Plan and the DESERTEC Industrial Initiative focus on its causes, the global warming due to the burning of hydrocarbons. They offer an alternative for a green and sustainable energy system that would grant the economies of Arab oil exporting countries an alternative source of income *après le pétrole*.



## 4. EU Political Context: Climate Change and International Security

Except for the EU paper on climate change and international security and its incorporation into the implementation paper of the European Security Strategy of December 2008, neither the Spanish conceptual initiatives nor the political framework of the EMP or of the UfM have addressed this linkage between global environmental and climate change and its multiple security implications.

### 4.1. Securitizing Climate Change and Its Societal and Political Impacts

#### 4.1.1. Climate Change Becomes a Security Issue

Since the year 2000 climate change has increasingly been addressed by policy-makers and analysts as a danger and concern that poses multiple international, national and human security issues. The year 2007 is the turning point in the securitization of climate change due to several developments: a) the publication of the fourth IPCC assessment report; b) the first debate on this linkage in the UN Security Council on 17 April; c) the publication of the WBGU report on Security Risk Climate Change (2007) during the German G-7 and EU Presidency; and d) the awarding of the Nobel Peace Prize to the IPCC and Al Gore (Brauch, 2009). In June 2009 the UN General Assembly for the first time adopted a non-binding resolution on climate change as an international security problem (A/Res/63/281, 11 June 2009) requesting other Member States to address this linkage and requesting the Secretary-General of the UN to submit a report on this linkage.<sup>27</sup>

#### 4.1.2. Climate Change as an International, National and Human Security Danger and Concern

Since 2002 climate change has been intensively discussed as an international, national, human and environmental security issue. It also poses multiple threats, challenges, vulnerabilities and risks for many sectoral security concepts such as water, soil, food, health and livelihood security. 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. 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).

#### 4.1.3. Four Possible WBGU Conflict Constellations for Hotspots of Climate Change

Based on a report on *Security Risk Climate Change of the German Advisory Council on Global Change* (WBGU, 2007, 2008) that was released to the G-8 summit, the German government proposed an EU strategy paper on the security impacts of climate change. In June 2007 the European Council instructed Javier Solana and the European Commission to draw up a report on the security side of climate change, which was submitted on 10 March 2008 to the EU Council of Ministers, and to the European Council on 13-14 March 2008. From a state-centred international security perspective, the WBGU report 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. But a positive development is also possible if the international community recognizes climate change as a threat to humankind and soon sets the course for the avoidance of dangerous anthropogenic climate change by adopting a dynamic and globally coordinated climate policy."<sup>28</sup>

27. See the submission of states at: [http://www.un.org/esa/dsd/resources/res\\_docugaecos\\_64.shtml](http://www.un.org/esa/dsd/resources/res_docugaecos_64.shtml), and for the report of the UNSG at: [http://www.un.org/ga/search/view\\_doc.asp?symbol=A/64/350](http://www.un.org/ga/search/view_doc.asp?symbol=A/64/350).

28. See for details the WBGU website at: [http://www.wbgu.de/wbgu\\_jg2007\\_engl.html](http://www.wbgu.de/wbgu_jg2007_engl.html), where several expert studies are also available for download at: [http://www.wbgu.de/wbgu\\_jg2007\\_kurz\\_engl.html](http://www.wbgu.de/wbgu_jg2007_kurz_engl.html), and the full report is at: [http://www.wbgu.de/wbgu\\_jg2007\\_engl.pdf](http://www.wbgu.de/wbgu_jg2007_engl.pdf).

The report refers to probable new conflict constellations 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 trigger national and international distributional conflicts and intensify problems already hard to manage such as state failure, the erosion of social order, and rising violence. In the worst-affected regions, this could lead to the proliferation of destabilization processes with diffuse conflict structures. These dynamics threaten to overstretch the established global governance system, thus jeopardizing international stability and security.”

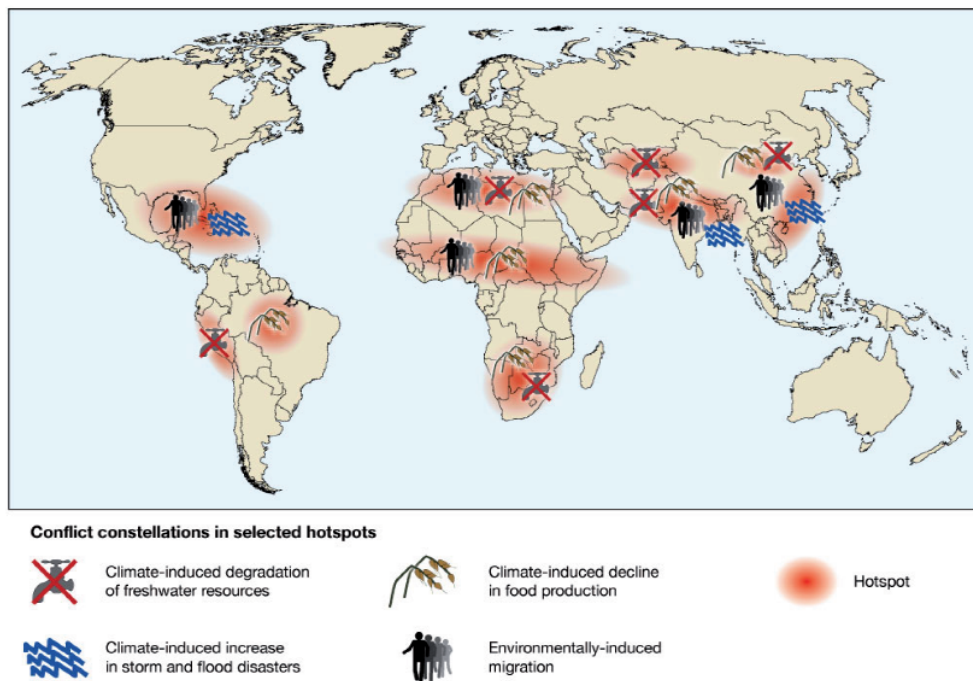
The WBGU identified four conflict constellations “as typical causal linkages at the interface of environment and society, whose dynamic can lead to social destabilization and, in the end, to violence”: a) climate-induced degradation of freshwater resources; b) climate-induced decline in food production, c) climate-induced increase in storm and flood disasters; and d) environmentally-induced migration. The WBGU identified several regional hotspots in North Africa, the

Sahel zone, Southern Africa, Central Asia, India, Pakistan and Bangladesh, China, the Caribbean and the Gulf of Mexico and in the Andean region and Amazonia (Figure 2).

The WBGU referred to “six key threats to international security and stability which will arise if climate change mitigation fails”: 1) possible increase in the number of weak and fragile states as a result of climate change; 2) risks for global economic development; 3) risks of growing international distributional conflicts between the main drivers of climate change and those most affected; 4) the risk to human rights and the industrialized countries’ legitimacy as global governance actors; 5) triggering and intensification of migration; and 6) overstretching of classic security policy.

Whether these conflict constellations and social crises will occur depends on the increase of global average temperature by the end of this century. Thus, in the WBGU’s view, “climate policy [...] becomes preventive security policy, for if climate policy is successful in limiting the rise in globally averaged

Figure 2. Regional Hotspots and Security Risks Associated with Climate Change



Source: WBGU (2008). Reprinted with permission.

surface temperatures to no more than 2°C relative to the pre-industrial value, the climate-induced threat to international security would likely be averted.” But – the WBGU Report further argued – if the mitigation efforts fail: “Climate-induced security risks will begin to manifest themselves in various regions of the world from around 2025-2040. The key challenge is to take resolute 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 constellations 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 (Brauch, 2002, 2006-2007, 2009).

#### 4.2. European Union on Climate Change as an International Security Issue

In June 2007, the German EU Presidency requested the Secretary-General of the Council and the High Representative on External Affairs, Javier Solana, and the European Commission to prepare a joint paper on *Climate Change and International Security* that was submitted in March 2008. This issue was then integrated in the implementation paper of the *European Security Strategy* (ESS) in December 2009. In 2009, the DG External Relations of the European Commission launched a roadmap process to analyse the linkages between climate change and international security in more detail.

##### 4.2.1. Joint Paper of the High Representative and the European Commission (2008)

The request “to discuss the potential link between climate change and security” was taken up in a joint report on *Climate Change and International Security* (S113/08, 14 March 2008)<sup>29</sup> by the High Representative and the European Commission to the European Council that sees “climate change [...] as a threat multiplier which exacerbates existing trends, tensions and instability” that “threatens to overburden states and regions which are already fragile and conflict prone.” They include “political and security risks that directly affect European interests.” It further claims that

“in line with the concept of human security, it is clear that many issues related to the impact of climate change on international security are interlinked requiring comprehensive policy responses.” It “focuses on the impact of climate change on international security and considers the impact of these international security consequences for Europe’s own security, and how the EU should respond.” And it “concludes that it is in Europe’s self interest to address the security implications of climate change with a series of measures: at the level of the EU, in bilateral relations and at the multilateral level, in mutually supportive ways.”

The EU paper lists seven major international security threats posed by climate change: i) conflict over resources; ii) economic damage and risk to coastal cities and critical infrastructure; iii) loss of territory and border disputes; iv) environmentally-induced migration; v) situations of fragility and radicalization; vi) tension over energy supply; and vii) pressure on international governance. It discusses several geographical examples where these threats may materialize: a) Africa; b) Middle East; c) South Asia; d) Central Asia; e) Latin America and Caribbean; and f) Arctic. Based on this analysis the EU policy paper concluded that: “The active role of the EU in the international climate change negotiations is vital and must continue. The EU has demonstrated leadership both in international negotiations [...] with its far-reaching decisions on domestic climate and energy policies. [...] The recommendations below should be complemented by further studies and followed up by coherent EU action plans, aiming at addressing the different dimensions of the responses required to address the impact of climate change on international security in a comprehensive and effective manner. The upcoming examination of the implementation of the European Security Strategy [...] should take account of the security dimension of climate change.”

The report recommended specifically: a) to enhance capacities at the EU level (build up knowledge, assess the EU’s own capacities, improvement in the prevention of and preparedness for early responses to disasters and conflicts). Possible actions could include:

- Intensifying EU capacities for research, analysis, monitoring and early warning and Watch Lists including the Institute for Security Studies, the EU Satellite Centre (EUSC), the EU Joint Situation

29. Joint paper by the Commission and the Secretary-General/High Representative concerning *Climate Change and International Security* to the European Council, Brussels, 3 March 2008; source: [http://euractiv.com/29/images/SolanaCCsecurity%20reportpdf\\_tcm\\_29-170886.pdf](http://euractiv.com/29/images/SolanaCCsecurity%20reportpdf_tcm_29-170886.pdf).

Centre (SITCEN), the EU Network of Energy Correspondents (NESCO), the Global Monitoring for Environment and Security and Joint Research Centres. Monitoring and early warning needs to include in particular situations of state fragility and political radicalisation, tensions over resources and energy supplies, environmental and socioeconomic stresses, threats to critical infrastructures and economic assets, border disputes, impact on human rights and potential migratory movements.

- Further building up EU and Member State planning and capabilities including civil protection and the use of crisis management and disaster response instruments (civil and military) to contribute to the response to the security risks posed by climate change.
- Commissioning further work to look, region-by-region, in more detail at what the security implications are likely to be and how they will affect EU interests.

For the international level, the EU should use its “multilateral leadership to promote global climate security,” which may “become a positive driver for improving and reforming global governance.” It lists among possible actions:

- Focusing attention on the security risks related to climate change in the multilateral arena; in particular within the UN Security Council, the G-8 as well as the UN specialized bodies (among others by addressing a possible need to strengthen certain rules of international law, including the Law of the Sea).
- Enhancing international cooperation on the detection and monitoring of the security threats related to climate change, and on prevention, preparedness, mitigation, and response capacities. Promoting the development of regional security scenarios for different levels of climate change and their implications for international security.
- Considering environmentally-triggered additional migratory stress in the further development of a

comprehensive European migration policy, in liaison with all relevant international bodies.

With regard to the “cooperation with third countries” the paper calls for “revisiting and reinforcing EU cooperation and political dialogue instruments, giving more attention to the impact of climate change on security.” The paper argued that “this could lead to greater prioritization and enhanced support for climate change mitigation and adaptation, good governance, natural resource management, technology transfer, transboundary environmental cooperation (inter alia water and land), institutional strengthening and capacity-building for crisis management.” The paper recommends as possible actions:

- Further integrating adaptation and resilience to climate change into EU regional strategies (for example Northern Dimension, European Neighbourhood Policy, EU-Africa Strategy, Barcelona Process, Black Sea Synergy, EU-Central Asia Strategy, Middle East Action Plan). Special attention should be given to the most vulnerable regions and potential climate security hotspots. The Global Climate Change Alliance between the EU and the most vulnerable developing countries should be built upon.
- Developing an EU Arctic policy based on the evolving geo-strategy of the Arctic region, taking into account, i.a., access to resources and the opening of new trade routes.
- Examining the security implications of climate change in dialogue with third countries including through the sharing of analyses.

Thus, the European Union has taken up the conceptual and political debate on the *securitization* of climate change in the UK and in Germany, and thus the European Council has become a major securitizing actor in translating the scientific messages into concrete policy proposals that will lead to action in the years to come.<sup>30</sup> The report of Javier Solana and of the European Commission specifically addressed Africa and the Middle East:

- Africa: “Africa is one of the continents most vulnerable to climate change because of multiple

30. A. Bounds: “Climate Change Poses ‘Security Risk’”, *FT.Com*, 3 March 2008; I. Traynor: “EU Told To Prepare for Flood of Climate Change Migrants”, *The Guardian*, 10 March 2008.



stresses and low adaptive capacity. In North Africa and the Sahel, increasing drought, water scarcity and land overuse will degrade soils and could lead to a loss of 75% of arable, rain-fed land. The Nile Delta could be at risk from both sea-level rise and salinisation in agricultural areas while 12 to 15% of arable land could be lost through sea-level rise in this century with 5 million people affected by 2050. Already today, climate change is having a major impact on the conflict in and around Darfur. In the Horn of Africa reduced rainfall and increasing temperatures will have a significant negative impact on a region highly vulnerable to conflict. In Southern Africa, droughts are contributing to poor harvests, leading to food insecurity in several areas with millions of people expected to face food shortages. Migration in this region, but also migration from other regions through Northern Africa to reach Europe (transit migration) is likely to intensify. In Africa, and elsewhere, climate change is expected to have a negative effect on health, in particular due to the spread of vector-borne diseases further aggravating tensions.”

- Middle East: “Water systems in the Middle East are already under intense stress. Roughly two-thirds of the Arab world depends on sources outside their borders for water. The Jordan and Yarmuk rivers are expected to see considerable reduction in their flows affecting Israel, the Palestinian territories and Jordan. Existing tensions over access to water are almost certain to intensify in this region leading to further political instability with detrimental implications for Europe’s energy security and other interests. Water supply in Israel might fall by 60% over this century. Consequently, a significant drop in crop yields is projected for an area that is already largely arid or semi-arid. Significant decreases are expected to hit Turkey, Iraq, Syria and Saudi Arabia and thus affect stability in a vitally strategic region for Europe.”

On 13 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 well-being, not just in Europe but beyond. Moreover, it will reshape the geopolitics of the world in which we live,

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## The region that will be most affected during this century will be the Mediterranean region and most particularly the MENA countries

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with important consequences for peace and security.”<sup>31</sup> They pointed 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.”

### 4.2.2. European Council: Implementing ESS with regard to Climate Change (December 2008)

The Report on the *Implementation of the European Security Strategy – Providing Security in a Changing World*, of 11 December 2008 by the EU’s High Representative on External Affairs, Javier Solana, 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. [...] Natural disasters, environmental degradation and competition for resources exacerbate conflict, especially in situations of poverty and population growth, with humanitarian, health, political and security consequences, including greater migration. 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.”

### 4.2.3. EU Roadmap Process on Climate Change and International Security

At the request of the DG External Relations of the European Commission, Adelphi Consult produced a

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31. British Embassy Berlin: *Europe Has To Rise to the Security Challenges of Climate Change*, joint contribution by Foreign Secretary David Miliband and German Foreign Minister Frank-Walter Steinmeier, 13 March 2008; at: <http://www.britischembassy.de/en/news/items/080313a.htm>.

survey of studies on the regional security implications of climate change as part of the EU Roadmap process on climate change and international security, which summarizes the many recommendations with regard to awareness-raising, further research, stakeholder dialogue, capacity-building, policy priorities, priority regions and international system development and they suggested additional research on South-East Asia, Indian Ocean and Pacific Island states in Southwest Asia and Middle America (Maas and Tänzler, 2009).

Several regional scenarios focusing on sub-regions in Central America, in Southwest and Southeast Asia as well as in the Indian-Pacific region are to be completed by December 2009. However, 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 will be the Mediterranean region and most particularly the MENA countries.

## 5. Climate Change Effects and Security Impacts for the Mediterranean

Climate change will have multiple direct and indirect physical and human or societal effects that pose multiple security dangers and concerns (Figure 3). Thus, humankind, international society and business, as well as the community of states and international organizations, will be faced with a new challenges to their well-being and survival that may be more severe than any security threat, challenge, vulnerability and risk the world of states experienced during the past five centuries and especially since the two world wars and the pandemics during the 20th century. Peer-reviewed research assessed by the IPCC (1990, 1995, 2001, 2007) leaves no doubt that during the 21st century humankind will face many new environmental security challenges that may pose fundamental new problems for the survival of individuals, states and global policy actors.

While in the 20th century and especially since 1945 the “security dilemma” of states prevailed in the analysis of international relations, since the end of the Cold War this state-centred security perspective has changed due to a *widening* (from military and political to economic, societal and environmental security), *deepening* (from national and international to human, gender and global security) and *sectorialization* (energy, water, food, health and livelihood climate security) of the security concept (Brauch et al., 2008, 2009, 2010).

The state-centred “security dilemma” (Herz, 1950; Booth and Wheeler, 2008) has been resolved for the evolving “security community” (Deutsch et al., 1957; Adler and Barnett, 1998) in Europe with the expansion of the EU from 15 to 27 Member States. With the end of the Cold War, it has neither globally nor regionally been overcome for the MENA countries, rather the arms races have intensified in

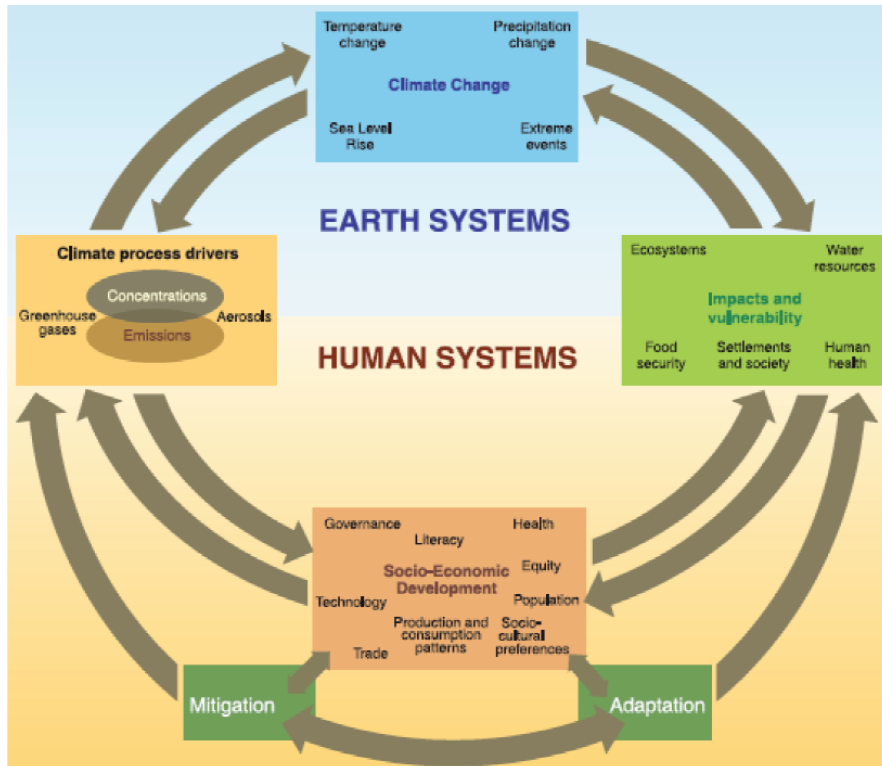
other parts of the world, e.g., between Iran and the Arab Gulf states and between Israel and its Arab neighbours.

A new human-centred “survival dilemma” has emerged that seriously affects a part of humankind living in poverty in the South (Brauch, 2000, 2004, 2008). 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 lacking resources for adaptation and mitigation measures as well as an insufficient state capacity for implementation (Oswald Spring, 2008).

These new environmental security challenges humankind faces in the 21st 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 defence departments, also involves ministries and agencies responsible for environment, development, science and technology as well as economic policies and measures to adapt to these new challenges and to mitigate against their impacts.

The new global non-military security dangers and concerns in the Anthropocene, and the reconceptualized security concepts have already resulted in a new global, regional, international and national “soft” security agenda. The threefold contextual changes, with a) the end of the Cold War; b) with globalization; and c) with the emerging new security challenges in the Anthropocene, require an international peace and security policy that differs

Figure 3. Schematic Framework of Anthropogenic Climate Change Drivers, Impacts and Responses



Source: IPCC (2007c). Permission was granted by the IPCC.

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 combine the two goals of a sustainable development pattern with the vision of a sustainable peace (Brauch and Oswald Spring, 2009).

**5.1. Physical Effects of Climate Change**

With regard to the Mediterranean, Working Group 2 of the fourth IPCC Assessment Report (2007), as well as the Synthesis Report, offered the following assessments of the peer reviewed literature pertaining to the Mediterranean region that is only analysed in the context of three sub-regions: a) Southern Europe; b) North Africa; and c) West Asia. What have been the physical impacts that have been projected until 2020, 2050 and 2100? The IPCC *Synthesis Report* (2007c: 50) concluded that: “In Southern Europe, climate change is projected to worsen conditions (high temperatures and drought) in a region already vulnerable to climate

variability, and to reduce water availability, hydropower potential, summer tourism and, in general, crop productivity. Climate change is also projected to increase the health risks due to heat waves and the frequency of wildfires.”

With regard to Africa as a whole the IPCC *Synthesis Report* (2007c: 50) noted that Africa will be most severely affected “because of low adaptive capacity and projected climate change impacts” and the IPCC assessment referred to these general projected impacts:

- “By 2020, between 75 and 250 million people are projected to be exposed to increased water stress due to climate change.
- By 2020, in some countries, yields from rain-fed agriculture could be reduced by up to 50%. Agricultural production, including access to food, in many African countries is projected to be severely compromised. This would further adversely affect food security and exacerbate malnutrition.

- Towards the end of the 21st century, projected sea-level rise will affect low-lying coastal areas with large populations. The cost of adaptation could amount to at least 5 to 10% of GDP.
- By 2080, an increase of 5 to 8% of arid and semi-arid land in Africa is projected under a range of climate scenarios (*high confidence*)."

According to the IPCC's assessment "new studies confirm that Africa is one of the most vulnerable continents because of the range of projected impacts, multiple stresses and low adaptive capacity." With regard to Asia, the IPCC's (2007c: 50) assessed projections are as follows:

- "By the 2050s, freshwater availability in Central, South, East and South-East Asia, particularly in large river basins, is projected to decrease.
- Coastal areas, especially heavily populated megadelta regions in South, East and South-East Asia, will be at greatest risk due to increased flooding from the sea and, in some megadeltas, flooding from the rivers.
- Climate change is projected to compound the pressures on natural resources and the environment associated with rapid urbanisation, industrialisation and economic development.
- Endemic morbidity and mortality due to diarrhoeal disease primarily associated with floods and droughts are expected to rise in East, South and South-East Asia due to projected changes in the hydrological cycle."

There is so far no systematic and regionally integrated scientific assessment of the physical climate change impacts for the whole Mediterranean and especially for the MENA region. However, several research projects, conferences and recent publications have covered selected impacts.<sup>32</sup> The Copenhagen Climate Science Conference of March 2009 in its *Synthesis Report* concluded: "Recent observations show that greenhouse gas emissions and many aspects of the climate are changing near the upper boundary of the IPCC range of projections. Many key climate indicators are already moving beyond the patterns of natural

variability within which contemporary society and economy have developed and thrived. These indicators include global mean surface temperature, sea-level rise, global ocean temperature, Arctic sea ice extent, ocean acidification, and extreme climatic events. With unabated emissions, many trends in climate will likely accelerate, leading to an increasing risk of abrupt or irreversible climatic shifts."

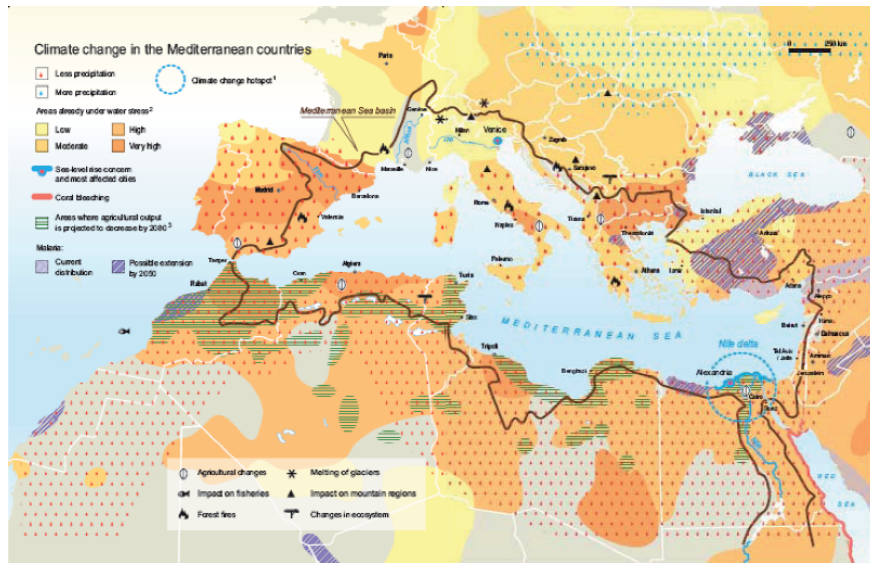
The conference report of a regional seminar organized by the Plan Bleu Regional Activity Centre in October 2008 on climate change in the Mediterranean considered it: "Essential to develop a Mediterranean ocean-atmosphere regional climate model, taking into account the change in sea surface temperature. [...] the CIRCLE MED research initiative on water management in coastal sectors has allowed farmers to share their experiences and to develop their know-how. [...] Similarly, the CIRCE project, which brings together 62 research institutions to evaluate and envisage the physical impacts of climate change on the environment, their implications for society, the economy and the adaptation strategies, should be yielding its preliminary results during the first regional evaluation of Mediterranean climate change within the first half of 2009. [...] The SESAME project (Southernmost European Seas: Evaluation and Modelling of Ecosystem Change), seeks to work out the way in which the changes in hydro-climate characteristics have influenced the evolution of the zooplankton over the last 50 years in the northern Mediterranean region."

The conference report further suggested that: "Priority action should [...] be to start [...] to conduct work on adaptation and emissions reduction, without awaiting better resolution of the models. At the same time, many scientific and technical challenges would need to be taken up if one were to have reliable regional information on the potential impacts of climate change. 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."

The consensus among the participating experts was that the: "Resolution of the models should be in the range of 1 to 2 km within the ten years [...] However, these

32. See the RICARME project and the *Report of the Regional Seminar on Climate Change in the Mediterranean*, Plan Bleu Regional Activity Centre, Le Pharo, Marseilles (France), 22-23 October 2008; UNEP/MAP, *State of the Environment and Development in the Mediterranean* (Athens: UNEP/MAP, 2009: 13-28).

Figure 4. Climate Change in the Mediterranean Countries



Source: MEDSEC (2009).

efforts are costly and cannot substitute for political debate. Accordingly, the refining of the models should be accompanied by the production of more qualitative climate change monitoring indicators.”

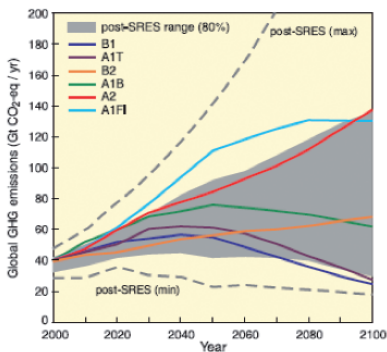
Copenhagen failed to agree on stringent constraints on GHG emissions, the possibility of a “dangerous climate change” is more likely during this century, which will pose multiple security dangers and concerns.

5.1.1. Projected Temperature Increase

Depending on the assumptions of the global circulation models assessed by the IPCC, the level of increase in greenhouse gas emissions (Figure 5) and the temperature increase (Figure 6) differ greatly. There is a wide consensus among climatologists that a global increase in temperature of 2°C is virtually certain, of up 4°C is possible and up to 6°C cannot be excluded if business as usual trends continue. As the COP 15 in

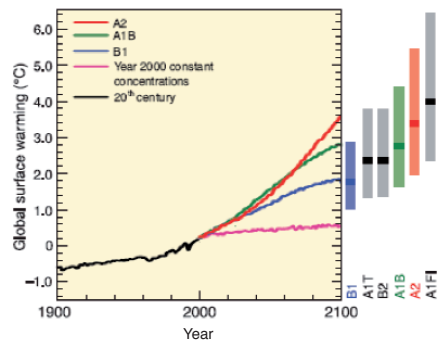
The UNEP/MAP report of 2009 on the *State of the Environment and Development in the Mediterranean* noted that: “Over the 20th century and with a clear acceleration since 1970, South-Western Europe (the Iberian Peninsula, South of France) recorded an increase in temperature of almost 2°C. The same increase can also be noticed for the North of Africa [...] The rise in temperature is more marked in winter than in summer and for the minimum rather than the maximum figures.”

Figure 5. Projected Range of Increase of GHG Emissions until 2100



Source: IPCC (2007c).

Figure 6. Projected Ranges of Temperature Increase until 2100



Source: IPCC (2007c).

With regard to future trends, the UNEP/MAP report claimed: “By the end of the century, the average annual temperature increase is likely to be between 2.2°C and 5.1°C for 2080-2099, compared with 1980-1999. The probability of temperatures rising by between 3 and 4°C is estimated at 50%. The expected rise in surface temperature varies from one region to the next – in the Sub-Saharan regions it could well be as much as 4°C in summer. On the other hand, on the northern shores, the rise is likely to be more marked in winter, at around 3°C. Nonetheless, this overall rise in temperature could well hide some local falls in temperature relating to changes in air mass. [...] The greatest rises in temperature [...] are likely to be recorded in the Mashreq (Palestinian Territories, Jordan, Lebanon, Syria and Iraq). Higher temperatures should thus produce summers with an increasing number of very hot days.”

### 5.1.2. Projected Sea-Level Rise

The population in coastal cities of the Mediterranean region has grown between 1950 and 2000 from 25 to 70 million and it has been projected to rise up to 90 million by 2025. In Southern Europe the coastal population doubled between 1950 and 2000 from 20 to 40 million and it will probably stabilize at this level by 2030, while it is projected to rise in the MENA region from 40 to 50 million between the year 2000 and 2030. This will most seriously affect the deltas of the major rivers, most particularly the Nile Delta (Brauch, 2002: 80-83). The UNEP/MAP report (2009: 17) noted, based on satellite monitoring, “between January 1993 and June 2006 [...] an obvious East-West differentiation, with a clear trend towards a sea-level rise in the Eastern Mediterranean.”

The projections on the average sea-level rise have been disputed in the preparation of the IPCC’s AR4, which could only agree on an average increase during the 21st century of 18-59 cm. Rahmstorf referred to recent studies of an observed average increase of the sea-level by 1.6 mm/year between 1961 and 2003 and 2.5 mm/year between 2003-2008.<sup>33</sup> Depending on the achieved GHG stabilization level and an increase of the global mean temperature between 2°C and 4°C according to the IPCC chairman Pachauri,<sup>34</sup> the global sea-level above pre-industrial from thermal expansion may rise between 0.4 and 2.4 metres. In the Nile delta, according to Sherif and

Singh (1999; WBGU, 2006: 45) “an increase of 50 cm would imply that the salty water would intrude about 9 km into coastal aquifers.” Without protective countermeasures, a sea-level rise of 50 cm would affect in the administrative districts of Alexandria and Port Said about “1.5 million people” (El-Raey et al., 1999; El-Raey, 2010; Brauch, 2002; WBGU, 2006: 48).

### 5.1.3. Projected Changes in Precipitation

According to the IPCC *Synthesis Report* (2007c: 30), from 1900 to 2005 trends have been observed in precipitation levels in many large regions “whereas precipitation declined in the Sahel, the Mediterranean, Southern Africa and parts of Southern Asia.” The IPCC (2007c: 50) projected that “in Southern Europe, climate change is projected to worsen conditions (high temperatures and drought) in a region already vulnerable to climate variability, and to reduce water availability, hydropower potential, summer tourism and, in general, crop productivity.” Furthermore, changes in precipitation and temperature lead to changes in runoff and water availability that is projected (IPCC, 2007c: 49) to “decrease by 10 to 30% over some dry regions at mid-latitudes and dry tropics, due to decreases in rainfall and higher rates of evapotranspiration. There is also high confidence that many semi-arid areas (e.g., the Mediterranean Basin, Western United States, Southern Africa and North-Eastern Brazil) will suffer a decrease in water resources due to climate change. Drought-affected areas are projected to increase in extent, with the potential for adverse impacts on multiple sectors, e.g., agriculture, water supply, energy production and health. Regionally, large increases in irrigation water demand as a result of climate changes are projected.”

In addition, climate change will affect “Mediterranean-type ecosystems because of reduction in rainfall; and tropical rainforests where precipitation declines.” The UNEP/MAP (2009: 13) report on the *State of the Environment and Development in the Mediterranean* noted that “rainfall [...] has [...] diminished in Southern Europe. In the Mediterranean, some regions to the South have recorded a 20% drop in rainfall. The trend is less even as far as North Africa is concerned.”

According to a precipitation trend analysis by the Potsdam Institute on Climate Change Impacts (PIK)

33. S. Rahmstorf: “Sea Level Rise”, Copenhagen Climate Science Conference, 10-12 March 2009; at: <http://climatecongress.ku.dk/speakers/ste-fanrahmstorf-plenaryspeaker-10march2009.pdf>.

34. R. Pachauri, keynote speech at the conference of the German Foreign Ministry in Freiburg, 6-7 November 2008, on “Climate Change as a Security Threat”; at: <http://www.freiburg-konferenz.de/downloads/R.K.Pachauri.pdf>.

for 1975-2004, precipitation dropped between 0-20% in Southern France and in the mountainous regions of Central Italy rose by 10%. But in Northern Italy precipitation dropped by 20-40%, along the Ligurian coast by 20-30% and in Southern Spain up to 20%.

According to the scenarios of the Acacia project, the precipitation in Southern Europe will decline until 2020 in summer in parts of Central Spain by 13-14% and in the Northern part of Greece by 10%. Up to 2050 the projected summer precipitation will drop in Greece by 14-20%, in Southern France by 13-15% and along the Spanish Mediterranean coast by 21-23%. By the year 2080 the decline in summer precipitation in Greece will be between 18-27%, in Southern France between 17-20% and in Spain between 27-42%. According to the A-2 scenario of the Acacia project, a decline of summer precipitation is projected for Spain amounting to 51-73% and to Greece by 41-52%.<sup>35</sup>

According to the data of the Acacia project for parts of the Atlas mountain region in North Africa, precipitation may decline in summer until 2020 by 20-25%, until 2050 by 31-49% and by 2090 by 47-75%. The precipitation trend maps of PIK for 1975-2004 indicated an increase between 0-30% for the Moroccan Atlantic coast and in the northwest of Egypt of 10-20%. However, according to these data, precipitation declined along the Moroccan and Algerian coast by 0-30% and in Tunisia and Libya by 20-40%.<sup>36</sup>

#### 5.1.4. Projected Increase in Climate-Induced Natural Hazards

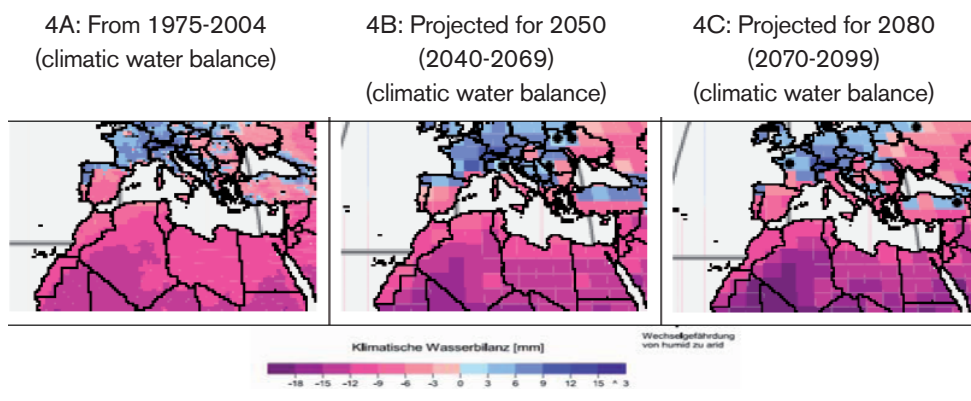
According to the IPCC *Synthesis Report* (2007c: 50): “Climate change is expected to magnify regional differences in Europe’s natural resources and assets. Negative impacts will include increased risk of inland flash floods and more frequent coastal flooding and increased erosion (due to storminess and sea-level rise). [...] By the 2080s, many millions more people than today are projected to experience floods every year due to sea-level rise. The numbers affected will be largest in the densely populated and low-lying megadeltas of Asia and Africa while small islands are especially vulnerable (*very high confidence*).”

The number, intensity and duration of extreme weather events (heat waves, summer drought, floods in winter) will also increase. Up to 2025 the Blue Plan expects that climate change will lead to an “intensification of extreme weather events.” The danger of droughts has increased in this region during the past three decades and it is projected to further rise until 2050 and 2080 (Brauch, 2006-2007).<sup>37</sup>

#### 5.2. Impacts of Climate Change on the Human System

On the global level, the first four assessment reports of the IPCC have evaluated the peer-reviewed scientific literature on the multiple impacts of global climate change, most particularly on fresh water resources and their management (IPCC, 2007c, chap. 3), on ecosystems, their properties, goods and

Figure 7. Potential Drought Danger in Southern Europe and North Africa



Source: WBGU, 2006.

35. Data are based on a presentation by Martin Parry: “Impacts of Climate Change on Agriculture in Europe”, Informal Meeting of EU Agriculture and Environment Ministers, London, 11 September 2005, at: <http://www.fco.gov.uk/Files/kfile/Parry.pdf>.

36. The data by the Potsdam Institute on Climate Change Impact Research (PIK) were made available to the author in summer 2006 as background information for the preparation of the expert study for the WBGU; see H.G. Brauch (2006-2007, 2010).

37. This author’s expert study for the WBGU (Brauch, 2006-2007) also refers in detail to issues of soil erosion, degradation and desertification (Brauch, 2010) as well as water scarcity and the impact of water scarcity and soil infertility on a decline of agricultural crop yield and a drop in the self-sufficiency of the MENA countries with cereals and its impacts on food insecurity in the MENA region.



services (chap. 4); on food, fibre and forest products (chap. 5); on coastal systems and low-lying areas (chap. 6), on industry, settlement and society (chap. 7); and on human health (chap. 8). From a regional perspective the assessment of the impacts on the Mediterranean are covered under the continents for North Africa (chap. 9), West Asia (chap. 10) and Southern Europe (chap. 12).

On the regional Mediterranean level various studies of the UNEP/MAP and the Blue Plan reviewed often selective impacts not following the requirements of the IPCC assessments. The report of the regional seminar of the Blue Plan on climate change in the Mediterranean (2008) addressed the impact on the environment and human health, most particularly the vulnerability of Mediterranean coasts that are to take the more drastic sea-level rise into account, on the migration of ecological niches and shift of invasive species in the Mediterranean, on the risks of spreading of infectious diseases and on the health impacts of heat waves, such as the one of August 2003 when between 35,000 and 70,000 people died in Central and Southern Europe. Another focus was on the discussion of the impact on natural resources, especially on water resources, on natural risks and on forests as well as on anthropogenic activities (fisheries, tourism, agriculture, energy needs).

The UNEP/MAP (2009: 17-21) analysis listed among the major climate change impacts “water availability, biodiversity and the economic activities on which they depend” and the implications of these projected changes on fisheries, on risk-prone forests also due to an increase in the number and intensity of forest fires, tourism and on human health. But both recent reports as well as the previous extensive studies of the Blue Plan (Grenon and Batisse, 1989; Benoit and Comeau 2005) did not discuss the implications of climate change on crop yields and food production as well as on the declining self-sufficiency rates in cereals for the MENA region countries (Brauch, 2006-2007, 2010).

A recent report on environment and security issues in the southern Mediterranean region does briefly discuss the “pressures on water, agriculture, desertification” but it does not meet systematic requirement of an authoritative IPCC assessment (MEDSEC, 2009).

Do these physical impacts of climate change, directly or indirectly through the effects on the human system, pose objective security dangers or are these effects perceived as subjective security concerns by the Mediterranean states and by those countries participating in the Barcelona Process and in the new Union for the Mediterranean?

Figure 8. Climate Change Impacts on Agriculture and Fisheries



Source: MEDSEC (2009).

Figure 9. Climate Change and Desertification



Source: MEDSEC (2009).

### 5.3. Impacts of Climate Change for Mediterranean Security

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, with humanitarian, health, political and security consequences, including greater migration.” This decision was based on a report of the High Representative and Commission presented in March 2008 “which described climate change is a ‘threat multiplier.’” The European Council also noted that “climate change can also lead to disputes over trade routes, maritime zones and resources previously inaccessible.”

However, these concerns have not yet been mainstreamed into the six priority projects of the Union for the Mediterranean (Box 3). During the third Euro-Mediterranean Ministerial Conference on the Environment on 20 November 2006, its Cairo Declaration 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.” 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.

The Communication from the Commission to the Council and the European Parliament – Establishing an Environment Strategy for the Mediterranean (SEC(2006)1082/\*COM/2006/ 0475 final) of 2006 only once referred to climate change in the framework of ongoing and completed research under the 5th and 6th 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.

A literature synopsis for the DG External Relations on regional security implications of climate change (Maas and Tänzler, 2009: 4) 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. [...] Climate change is likely to worsen divisions, particularly those running along social divisions and unequal wealth distribution and resource access. 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 synopsis 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." The unresolved water disputes (Israel, Palestine; Nile river basin) and the high sensitivity to food price hikes that resulted in violent conflicts in North Africa since the 1970's and most recently in 2008. In some countries the introduction of nuclear energy as a climate change adaptation measure could result in increasing threats of proliferation (National Intelligence Council, 2008).

While climate change impacts in the Mediterranean have so far been no major concern of EU environment policy, especially in the framework of the EMP and the UfM, the discussion on the security implications of

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## In some countries the introduction of nuclear energy as a climate change adaptation measure could result in increasing threats of proliferation

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climate change pertaining to the Euro-Mediterranean region have increasingly become a concern for the DG on External Relations that launched the EU roadmap process on the security impacts of climate change.

### 5.3.1. Discussion of Four Conflict Scenarios

The German Advisory Council on Global Change (WBGU, 2008) in its report *World in Transition – Climate Change as a Security Risk* argued that "climate change will overstretch many societies' adaptive capacities" which "could result in destabilization and violence, jeopardizing national and international security." But "climate change could also unite the international community, provided that it recognizes climate change as a threat to humankind and soon sets the course for the avoidance of dangerous anthropogenic climate change by adopting a dynamic and globally coordinated climate policy." If states fail to act early and proactively, climate change may trigger "numerous conflicts between and within countries over the distribution of resources, especially water and land, over the management of migration, or over compensation payments between the countries mainly responsible for climate change and those countries most affected by its destructive effects." The report argued that "climate changes amplifies mechanisms which lead to insecurity and violence" affecting specifically countries in transition, those with weak governance structures, and poor countries affected by resource scarcity (land, water, food) and often with high population growth. These local or national conflicts may spill over and destabilize neighbouring countries "through refugee flows, arms trafficking or combatant withdrawal." The social impacts of climate change can thus transcend borders and expand "the geographical extent of crisis and conflict regions."<sup>38</sup>

To address the possible linkages between climate change and conflict, the WBGU identified "four conflict constellations in which critical developments can be anticipated as a result of climate change and

38. WBGU press release: "Report 'Climate Change as a Security Risk' – Climate Change Threatens International Stability and Security", Berlin, 6 June 2007; at: [http://www.wbgu.de/wbgu\\_jg2007\\_presse\\_engl.html](http://www.wbgu.de/wbgu_jg2007_presse_engl.html). The full report can be downloaded at: [http://www.wbgu.de/wbgu\\_jg2007\\_engl.pdf](http://www.wbgu.de/wbgu_jg2007_engl.pdf).

which may occur with similar characteristics in different regions of the world." These "conflict constellations" were "defined as typical causal linkages at the interface of environment and society, whose dynamic can lead to social destabilization and, in the end, to violence." All four are relevant to the Mediterranean and the MENA region, which the WBGU referred to as one of the major "environmental hotspots."

### 5.3.1.1. Conflict Constellation 1: Climate-Induced Degradation of Water

The MENA region is already one of the regions with high water scarcity and severe drought. Due to the projected population growth and the precipitation decline in the region, the access to safe drinking water and to green water for agriculture will further worsen. "This dynamic," the WBGU argues, "triggers distributional conflicts and poses major challenges to water management systems in the countries concerned." Both in the MENA region and in the Nile river basin "the countries which will suffer the greatest water stress are generally those which already lack the political and institutional framework necessary for the adaptation of water and crisis management systems. This could overstretch existing conflict resolution mechanisms, ultimately leading to destabilization and violence."

### 5.3.1.2. Conflict Constellation 2: Climate-Induced Decline in Food Production

In the MENA region the self-sufficiency rate in food and especially cereals has been declining rapidly since the 1960s and it is projected by the FAO to drop rapidly until 2030 and 2050. Climate change and bioenergy development will affect food security in its "four dimensions – availability, accessibility, stability and utilization." Globally, with: "Global warming of 2-4 °C, a drop in agricultural productivity is anticipated worldwide. This trend will be substantially reinforced by desertification, soil salinization or water scarcity. In [...] North Africa [...], the areas suitable for agriculture are already largely exploited. This may well trigger regional food crises and further undermine the economic performance of weak and unstable states, thereby encouraging or exacerbating destabilization, the collapse of social systems, and violent conflicts."

This situation will become even more dramatic in the 10 countries in the Nile River Basin that are already severely affected by a vicious circle of repeated

droughts, hunger and famine and that connect the militarily strong downstream country Egypt with the less powerful upstream countries which are already seriously affected (Brauch, 2002, 2006, 2007).

### 5.3.1.3. Conflict Constellation 3: Climate-Induced Increase in Drought and Flood

This third conflict constellation has also severely affected the Mediterranean region that has been confronted with drought throughout history. When the precipitation comes in autumn, it often comes in intensive flash floods that cause a high number of casualties, affected people and economic damages in many MENA countries due to the higher degree of social vulnerability (Brauch, 2003, 2003a). Both on the global and regional Mediterranean level an increase of the number and intensity of natural hazards has been projected that may affect "many cities and industrial regions in coastal zones." However, in the Mediterranean these extreme weather events may be less likely to become a direct trigger of violent conflicts.

### 5.3.1.4. Conflict Constellation 4: Climate-Induced Increase in Migration

Migration from the MENA region to the European Union has already become a major issue of domestic or internal security and of the intergovernmental policy coordination on justice and home affairs. In some cases, massive environmentally-induced migration has increased: "The likelihood of conflict in transit and target regions. It can be assumed that the number of environmental migrants will substantially rise in future due to the impacts of climate change. [...] The increase in drought, soil degradation and growing water scarcity in combination with high population growth, unstable institutions, poverty or a high level of dependency on agriculture means that there is a particularly significant risk of environmental migration occurring and increasing in scale."

Transboundary environmental migration prevails as South-South migration, but Europe will face increased migratory pressure from Africa, and Western and Southern Asia, most at risk from climate change. Figure 11 shows the present main migration roots between and via the MENA countries to the European Union. Globally, regionally and in the host countries there are no reliable international statistics on environmentally and climate-

Figure 10. Migration to Europe



Source: MEDSEC (2009).

induced migration as environmental factors do not entitle a migrant to gain a refugee status. Interviews with migrants from source and host countries are too small to permit generalizations.

Throughout history massive movements of people have occurred as a result of the natural variability of the climate primarily in cold periods (in climate pessima), e.g., in Europe between the fifth and eighth century AD. Even though the environmentally forced migration cannot be quantified it has become a reality that will become more urgent due to climate change, water scarcity, degradation and stress as well as to soil degradation, desertification and drought.

Elsewhere, this author has distinguished between five migration scenarios in the framework of the environmental dimension of human security (which take the migrant as a referent object of analysis) and five on the environmental dimension of national security (Brauch, 2006-2 007).

### 5.3.2. Assessment of Security Impacts from Different Security Perspectives

Besides migration, the physical and societal effects of climate change may pose many other security threats, challenges, vulnerabilities and risks for the

Mediterranean region that may be analysed from the perspective of international and Mediterranean security in the framework of the UfM, of the national security of riparian Mediterranean countries, whether source, transition or host, as well as for the affected human beings (human security). Last but not least, the aforementioned physical effects and their impacts on human systems also produce various environmental security impacts for the region, the states and the peoples.



## 6. Considerations of Relevance for the Spanish EU Presidency

For addressing the many projected and possible security implications of climate change in the Euro-Mediterranean region, several proposals will be developed below for the Spanish EU Presidency in 2010 in the framework of two of the six priority programmes of the Union for the Mediterranean (UfM): on civil protection and on the European Solar Plan. Both proposals will be presented in the context of the new security debate to which the Spanish Foreign and Environment Ministries have made major conceptual contributions with regard to:

- Addressing the linkage between desertification and migration in two Almería symposia (1994, 2006), and putting desertification in the Mediterranean as a security issue on the agenda of NATO and OSCE in workshops in Valencia (2003, 2007) and launching the soil security concept by the Spanish Environment, Rural and Maritime Affairs Ministry during the 17th session of the UN-CSD in New York in May 2009.
- Introducing the environmental security concept in the Madrid Declaration on Environment and Security during the Spanish OSCE Presidency on 30 November 2007.

In addition, the former Spanish Foreign Minister who launched the Barcelona process in 1995 and the High Representative of the European Council, Javier Solana, requested or submitted two additional major conceptual innovations by:

- Requesting a “Human Security Doctrine for Europe” in September 2004 in Barcelona.
- Submitting a paper on “Climate Change and International Security” on 14 March 2008, which was approved by the European Council.

These four conceptual innovations provide the conceptual context for the following proposals to be considered by the Spanish Foreign Ministry for the Spanish EU Presidency.

the 1990s, the number of people in the world who are illiterate has increased from 1.2 billion to 1.5 billion.

There are many reasons for this. One is that the population of the world is growing so fast that the number of people who are illiterate is increasing. Another reason is that the quality of education is so poor that many people who are literate are unable to read and write.

There are many ways to reduce the number of illiterate people in the world. One way is to improve the quality of education. Another way is to provide more opportunities for people to learn to read and write.

It is important to reduce the number of illiterate people in the world because illiteracy is a major barrier to economic and social development. People who are illiterate are unable to read and write, which makes it difficult for them to find jobs and to improve their lives.

There are many organizations that are working to reduce the number of illiterate people in the world. One of the most well-known is the United Nations Educational, Scientific and Cultural Organization (UNESCO). UNESCO has a program called the Global Education First Initiative (GEFI) that is focused on reducing the number of illiterate people in the world.

There are many other organizations that are also working to reduce the number of illiterate people in the world. These organizations are working in many different ways, such as providing education, training, and resources to people who are illiterate.

It is important to continue to work to reduce the number of illiterate people in the world. This is because illiteracy is a major barrier to economic and social development, and it is important to provide everyone with the opportunity to learn to read and write.

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## 7. Proposals for the Spanish EU Presidency

### 7.1. Proposal 1: Launching of a Mediterranean Environmental and Human Security Initiative (MEH-SEC) within the Union for the Mediterranean

During the summit of the heads of state of the Union for the Mediterranean on 7 June 2010 in Barcelona, a new Mediterranean Human and Environmental Security Initiative (MEH-SEC) could be launched to address the manifold challenges posed by global environmental and climate change for the security in the Euro-Mediterranean region. This MEH-SEC Initiative should combine the regional soft security approach of the Barcelona Process and of the Union for the Mediterranean with ideas of the “human security doctrine for the European Union” (2004) and the environmental security approach of the Madrid Declaration on Environment and Security of the OSCE (2007).

According to the Intergovernmental Panel of Climate Change (IPCC, 2007), the Mediterranean will be affected most by global climate change becoming hotter and drier. The policy messages of the Scientific Climate Conference of Copenhagen in March 2009 were even more dramatic stating that the “climate system is already moving beyond the patterns of natural variability” and “temperature rises above 2°C will be very difficult [...] to cope with, and will increase the level of climate disruption through the rest of the century.” A sea-level rise of 1 metre during this century puts Mediterranean coastal zones and millions of people living in deltas at risk.

The Mediterranean is already severely affected by climate change, water stress, *desertification, land degradation and drought* (DLDD). The heat wave of August 2003 was a major natural hazard in Europe, killing between 35,000 and 70,000 persons. The number and intensity of droughts, forest fires, storms and flash floods has increased in Spain, Greece, Turkey and in many MENA states.

In December 2008, the European Council adopted a report on the implementation of the European Security Strategy of 2003 noting that “natural disasters, environmental degradation and competition for resources exacerbate conflict, especially in situations of poverty and population growth, with humanitarian, health, political and security consequences, including greater migration.” The EU stressed that “we have enhanced our conflict prevention and crisis management, but need to improve analysis and early warning capabilities.” This means that “we must step up our work with countries most at risk by strengthening their capacity to cope.”

Since the 1980s migration trends have fundamentally changed. Spain, Italy, Greece, and also Turkey have shifted from states of emigration to countries of immigration and transmigration. The stream of distressed migrants across the Sahara and the Mediterranean has increased and will intensify. The trends of projected climate change impacts, hydro-meteorological hazards and their effects on declining crop yields and food supply in the MENA pose challenges for international, regional, national and human security. The European Council has acknowledged that climate change will severely affect the Middle East.

At the Paris Summit of 13 July 2008, which launched the Union for the Mediterranean, the states shared “the conviction that this initiative can play an important role in addressing [...] climate change and desertification, with the view of promoting sustainable development.” The representatives of the 43 participating governments stressed: “The importance of strengthening food security, especially taking into account the consequences of climate change on food crops.” They adopted, among others, two policy initiatives on civil protection dealing with both geophysical and man-made natural disasters and launched the Mediterranean Solar Plan.

The Marseilles Meeting of the Euro-Mediterranean Ministers of Foreign Affairs in November 2008 agreed that “climate change could adversely affect the environment and human activities in the Mediterranean.” The ministers “recalled the need to intensify cooperation on climate change through the establishment of a Euro-Mediterranean Climate Change Network to provide the forum for the sharing of information and experience [...] to build relationships [...] in support of regional efforts to combat climate change.” The Horizon 2020 Steering Group addresses “questions of mitigation/adaptation to climate change, biodiversity protection and conservation of the Mediterranean seabed.” But these policy declarations lack a sense of urgency.

Since the 1990s, migration across the Mediterranean was a driver for the Barcelona Process and for the Union for the Mediterranean. But many reactive policy measures could neither turn the tide nor did they address the root causes of why millions of people are on the move.

There is a need for a proactive securitization of climate change in the Mediterranean in terms of international, national, environmental and human security. This security threat is posed by human energy consumption since the Industrial Revolution, especially since the 1950s.

A securitization of dangers posed by global environmental change, climate change, water stress and DLDD does not imply a militarization of the environment but calls for a demilitarization of security. The solutions for achieving climate, water and soil security in the 21st century are not offered by the military but by the ingenuity of scientists and the willingness of political elites to establish policy frameworks for a proactive coping with the projected climate change impacts, thus avoiding potential violent conflicts. The Mediterranean is a fault line of political, economic, societal and environmental insecurity that pushes or pulls hundreds of thousands of distressed migrants to Europe.

A more ambitious, forward-looking strategy for an economic co-development across the Mediterranean is needed in the framework of a “survival pact” that links “virtual water” and “virtual sun”. Virtual water refers to the water embedded in food imports with which the food

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There is a need for a proactive securitization of climate change in the Mediterranean in terms of international, national, environmental and human security

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needs of MENA countries have been met. How will a growing population be able to afford these imports once their major source of foreign income, oil and gas, is exhausted?

This may be achieved by an inter-regional strategy of sustainable co-development in the Mediterranean where the complementarities of food and energy are obvious. The demand for food in the South can be satisfied by importing food (“virtual water”). In the North, the demand for energy can be satisfied by importing, in addition to hydrocarbons (oil and gas), renewable energy such as electricity and hydrogen (“virtual sun”).

This perspective requires a fundamental change in political thinking by overcoming notions of food self-sufficiency in the South and for energy supply security in the North, and a complex interdependence between the agricultural and energy sectors of EU and MENA countries. A “survival pact” requires a long-term strategy of political and economic cooperation on commodities that are crucial for human and economic survival. This perspective requires mutual trust and confidence among its partners. Thus, a North-South strategy of confidence and partnership-building measures and projects is needed to achieve the longer-term goal of an interregional Euro-Mediterranean survival pact.

Such a long-term initiative requires a sense of urgency in the mind of policy-makers. This idea requires a strategy that is delinked from the Middle East conflict. A policy framework for promoting such a long-term strategy could be a new Mediterranean Environmental and Human Security Initiative (MEH-SEC), modelled after the ENVSEC initiative of OSCE, UNDP, UNEP, with NATO as an observer, for Central Asia, the Caucasus and the Balkans. This MEH-SEC initiative should, beside the OSCE, UNDP, UNEP, FAO, WMO, and IPCC, also include the Secretariat of the Union for the Mediterranean (Barcelona Process) to avoid policy

competition and guarantee funding. Its task should be knowledge-based and it could initially aim at five additional projects or policy initiatives:

- Proposal 2: Requesting a Special Report by the IPCC to assess the knowledge on climate change impacts for the Mediterranean (including societal and security impacts).
- Proposal 3: Assessing environmental and climate-induced migration and the multiple causes of distress migration across the Mediterranean in close cooperation with existing institutions and developing proactive knowledge-based policy initiatives for alternative livelihoods of the people in drylands.
- Proposal 4: Building on existing initiatives on civil protection by moving gradually from disaster response activities towards disaster preparedness by developing joint research projects on both geophysical and hydro-meteorological hazards.
- Proposal 5: Promoting regional centres of excellence on the challenges posed by climate change but also on the potentials of energy efficiency and renewable energy sources for sustainable water desalination in the Euro-Mediterranean region but also involving researchers and scholars from the Nile Basin countries.
- Proposal 6: Creating political frameworks for both long-term industrial strategies and projects that link both regions closer together, such as the DESERTEC Industrial Initiative but also to encourage small-scale bottom-up initiatives of municipalities and villages in the MENA region.

These small-scale functionally-oriented partnership building projects should provide the scientific knowledge for understanding the multiple security dangers posed by the impacts of *global environmental change* (GEC) and climate change but also the potential for a pro-active functional scientific cooperation.

Within the framework of a MEH-SEC initiative, all relevant conceptual activities of the different DGs of the European Commission and the Council dealing with the Mediterranean region and addressing human and environmental security dangers and concerns

should be horizontally coordinated with a clear policy goal to develop an integrated strategy for addressing the security implications of regional climate change, desertification and water stress as well as the direct humanitarian effects due to increased climate related hazards and mutual needs for an uninterrupted supply for food and sustainable energy.

The MEH-SEC Initiative should develop a joint policy agenda that enables proactive policies for coping with *short-term effects* (natural hazards such as drought, heat waves, forest fires, as well as flash floods), *medium-term impacts* (on precipitation, water stress, desertification, agriculture through declining crop yields, climate induced people's movements) and coping with *long-term consequences* (sea-level rise in deltas and coastal regions) of climate change in the Euro-Mediterranean region by developing joint adaptation and mitigation capacities.

## 7.2. Proposal 2: Assessment of Climate Change Impacts in the Mediterranean

The first four IPCC assessment reports (1990, 1995, 2001, 2007) covered the assessment of climate change impact research only in the regional context of Africa, Asia and Europe. Therefore, no integrated research assessment exists for the whole Mediterranean region that also addresses the huge knowledge gaps for many MENA countries, compared with higher resolution models and more detailed climate change impact studies for Europe as a whole.

On 28 October 2009, the European Union, besides its 27 member countries, became an observer of the Intergovernmental Panel on Climate Change (IPCC), which permits representatives of the European Commission to introduce proposals. After consultation with the 43 Member States of the Union for the Mediterranean, the European Commission may propose a special report of the IPCC's three working groups on assessing:

- The physical basis of climate change research for the whole Mediterranean region thus combining Southern Europe, North Africa and the Middle East.
- The impacts and vulnerabilities of different sectors of human activity for climate change.

- The national efforts for adaptation and mitigation against short-, medium- and long-term physical impacts and societal consequences of climate change.

As no similar systematic regional assessment exists for the Mediterranean region such a report could become an important policy instrument for addressing knowledge gaps and research needs, thus enhancing European research activities and fostering research cooperation with partners from the Euro-Mediterranean region. At the same time, it would offer an independent scientific assessment of the outcome of many cooperative research projects on climate change in the Mediterranean.

The scope of this independent science assessment should not be limited to the physical effects but should include the research on the societal effects and on the possible security implications during this century.

### **7.3. Proposal 3: Assessing Environmental and Climate-Induced Migration and Developing Alternative Livelihoods for People in Drylands**

There are a few research institutes and projects that address migration issues with a regional focus on the Mediterranean but none deals in a systematic way with issues of environmentally- and climate-induced migration within the Euro-Mediterranean region.

At the European University Institute in Florence, since 2004 Philippe Fargues has directed the Euro-Mediterranean Consortium for Applied Research on International Migration (CARIM). Its Mediterranean migration reports (2005, 2006-2007, 2008-2009) address the demographic, economic, legal, political and social dimensions of migration but they do not analyse environmental factors that may cause, trigger or affect migration. The Mediterranean Migration Observatory (MMO), at Panteion University in Athens, focuses primarily on Greece.

Two symposia at Almería (1994, 2006) addressed the linkage between desertification and migration. At the second Almería Symposium (2006) various proposals were made for establishing an international research centre on the linkages between soil erosion, desertification and migration in the Euro-Mediterranean context, for developing alternative livelihoods for people

in drylands by using sustainable renewable energies. As desertification and migration had its greatest impact in Spain, it was suggested to set up such a research body in Almería to analyse these linkages in cooperation with the Plataforma Solar de Almería (PSA) in Almería, a leading research centre on solar thermal technology development.

The transformation of Almería from a poor province of labour emigration to a region of immigration due to the small-scale plastic agriculture (García Lorca, 2010) could be an ideal location for a Euro-Mediterranean training centre on creating small-scale alternative livelihoods in drylands and for developing knowledge for small-scale solar thermal installations for desalination of brackish and salty water in cooperation with the existing PSA.

### **7.4. Proposal 4: Cooperation on Civil Protection in the Euro-Mediterranean Region**

At the initiative of Italy, civil protection was added as an area of cooperation among disaster response agencies with the goal “to build the Euro-Mediterranean Area for Civil Protection by progressively integrating the southern partners into the European Civil Protection Mechanism.” Civil protection has been made a priority area of the UfM that aims at the Prevention, Preparedness and Response to Natural and Man-Made Disasters Programme (PPRD) to enhance the collaboration between civil protection institutions in EU Member States and Mediterranean Partner Countries in the field of training and on the operational level.

Within the European Union, civil protection gradually evolved as a new “functional security” area (Ekengren, 2008) among the EU Member States that was coordinated by the DG Environment in response to various natural hazards (earthquake in Turkey in 1999; Elbe flood in Germany, 2002; forest fires in Greece and Spain). With the solidarity clause of the Lisbon Treaty, this new task was further upgraded. Various international crises resulted in the creation of new EU agencies, such as the Centre for Disease Prevention and Control and the European Maritime Safety Agency (EMSA).

Building on present and planned activities and depending on the interest of the partner institutions from MENA countries, the cooperation on civil protection in the Euro-Mediterranean could be

gradually expanded to facilitate joint research, capacity-building and training of civil protection officials and practitioners to enhance the monitoring of droughts and the early warning of impending hydro-meteorological hazards.

Gradually, the focus should expand from short-term disaster response, to disaster preparedness and disaster prevention activities with regard to rapid disaster response for rapid onset disasters, such as earthquakes, volcano eruptions and tsunamis and hydro-meteorological events (storms, floods, forest-fires) and slower-onset extreme events (droughts) and long-term changes (sea-level rise). A goal should be to reduce the high social vulnerability of the poorest people in the MENA countries by improved early warning systems and technical and administrative capabilities and capacities that permit a rapid response.

The activities on civil protection may result at a later stage in the establishment of one or several joint training centres in Southern Europe, North Africa and in the Near and Middle East that could benefit from a research centre that could combine the monitoring of droughts, forest fires and sea-level rise based on the most modern methods (e.g., remote sensing, long-term weather forecasts) and the assessment of best practice in rapid disaster response to encourage improvements in the effectiveness of national disaster response forces and to ensure effective cooperation with outside rescue and assistance teams.

To move from disaster preparedness to disaster prevention requires a long-term institutionalization to systematically monitor, analyse and assess the changes in the number and intensity of natural climate-related hazards in the Euro-Mediterranean region. This requires the active involvement of meteorologists, weather experts, agricultural specialists who can advise farmers in their adaptation to drought and landscape and city planners in the development of adaptation and mitigation measures for flash floods, landslides and water and wind erosion of agricultural land.

As the number and intensity of hydro-meteorological hazards in the Euro-Mediterranean region has significantly increased since 1950 and most particularly since 1975 (Brauch, 2003, 2003a) and is projected to increase

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## The cooperation on civil protection in the Euro-Mediterranean could be gradually expanded to facilitate joint research, capacity-building and training of civil protection officials and practitioners

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further during this century resulting, for example, in more frequent heat waves such as the one of August 2003, this requires a preparedness of the social and medical system of all countries (e.g., doctors, hospitals etc.).

In moving from disaster response to disaster prevention a wide variety of national and international agencies, humanitarian assistance organizations and the research community would have to be involved in the MENA region. This functional cooperation among practitioners, public officials, assistance teams and experts from many different professions and scientific disciplines may be able to enhance the performance to the benefit of the affected people, reducing social vulnerability and the number of killed and affected and the economic damage.

### 7.5. Proposal 5: Mediterranean Solar Plan and DESERTEC Industrial Initiative

Several Arab countries in the MENA heavily rely on their national income from the export of fossil energy sources (primarily on oil and gas), while a few other countries have already shifted from oil and gas exporting to importing countries and several other countries rely totally on imports of fossil fuels (Brauch, 1997c, 1997d). Due to their geographical location in the sun belt they have very high solar intensity, especially in the deserts that cannot be used for agricultural purposes. For many decades, visionary natural scientists have suggested using this technical potential for a sustainable energy generation to reduce the emissions from the burning of hydrocarbons (Nitsch and Staiß, 1997; Knies, Czisch and Brauch, 1999; Brauch, 1994, 1997c, 2000).

As long as oil and gas were relatively cheap there was no economic incentive for the coastal regions and sun intensive drylands to invest in the development of various renewable energy sources, especially in wind power and

in solar energy (thermal, photovoltaic and solar concentration technologies) for the generation of electricity and hydrogen and for the desalination of brackish and seawater for both “blue” (drinking) and green (agricultural) water.

For nearly two decades energy system specialists of the DLR in Stuttgart have suggested supplying a part of Germany’s electricity demand by importing electricity from solar energy installations from Southern Spain and from the Sahara desert via long-distance high-voltage direct currents (HVDC). These conceptual ideas were developed further in three research projects funded by the German Federal Environment, Nature Protection and Nuclear Safety Ministry.<sup>39</sup>

These conceptual and technical ideas resulted in the Trans-Mediterranean Renewable Energy Cooperation (TREC) concept that was endorsed by the Club of Rome under the leadership of HRH Prince Hassan bin Talal. Since 2003, the experts involved in the TREC project have developed the DESERTEC concept. On 13 July 2008, with the establishment of the Union for the Mediterranean, the EU Solar Plan was chosen as one of six key projects and developed further during the meeting of the foreign ministers of the 43 participating countries in November 2008.

For two decades, the Spanish research establishment CIEMAT and the energy department of DLR have closely cooperated in the development of solar thermal technologies and since 2006 they have been built in different locations of Andalusia (Seville, Granada). Based on long-term Spanish policy initiatives in the Euro-Mediterranean region, on its technological leadership and its geographical location, during its Presidency of the European Union the Spanish government may launch an initiative to create a long-term geopolitical cooperative framework where the development of sustainable energy sources will aim at simultaneously achieving various policy goals by:

- Reducing the greenhouse gas emissions in the energy and transport sectors by first developing a political framework for a long-term Euro-Mediterranean survival pact that links two commodities that are essential for life and work: sustainable food and energy production.

- Relying on the European commitment to reduce its GHG emissions by 2020 by at least 20% and possibly even 30% and until 2050 by at least 50%.

- Sharing these new technologies with the countries in the EU-MENA region by building up centres of excellence but also establishing technical training centres to create a local expertise to install and maintain renewable energy systems, thus creating an economy of scale.

- Focusing these activities initially on those countries that lack fossil fuels (Morocco, Jordan) or whose reserves are rapidly declining (Tunisia, Egypt) but also increasingly on those countries (e.g., Algeria) that rely primarily on fossil exports to assist them in the needed mid- and long-term transformation of their energy system.

- Taking into account the severe water scarcity in the Nile river basin, which will become more severe due to the dual impact of continued high population growth rates and the impacts of climate change.

- Helping Egypt to reduce its high dependence of some 95% on the water resources of the river Nile with the gradual build-up of desalination plants based on renewable energy sources, thus reducing one of the causes that may lead to conflict.

Thus, a geopolitical Spanish sustainable development initiative may not only reduce the probability of violent domestic or regional conflicts over the access and control of water and food but, by alternatively developing livelihoods for the people living in the drylands of the MENA region, the environmentally-induced migration pressure may also be reduced.

Such a longer-term oriented Spanish initiative to create a political framework within the UfM could be developed building on the technical activities within the EU Solar Plan by creating a stable economic and geopolitical environment that facilitates the massive investments foreseen in the framework of the DESERTEC Industrial Initiative.

### 7.5.1. Mediterranean Solar Plan

Among the goals that were considered in spring

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39. For an overview, see F. Trieb, W. Krewitt and N. May (2009).

2009 in the framework of the EU's Mediterranean Solar Plan are:

- Expansion of renewable energy systems for electricity generation (Wind, CSP, PV) and grid infrastructure with a perspective of exporting "green electricity" to Europe.
- Creation of appropriate framework conditions to secure stable investments and a sustainable development.
- Development of the Master Plan Study and approval of first projects.

An official of the German Federal Ministry<sup>40</sup> referred to these tasks on the governmental level: a) keeping the momentum for achieving the goal; b) keeping continuity for the MSP development; c) enhancing active involvement; d) diversifying work and responsibilities; e) bringing transparency into the process and results; and f) ensuring broad backing and acceptance. In February 2009, he listed among the most urgent tasks the development of 1) projects (criteria, next steps); 2) master plan study (terms of reference, responsibilities, realisation); 3) discussion about new elements of MSP (such as IAPs on efficiency, infrastructure, technology transfer); and 4) strategy paper (finalizing and distribution).

A German technical expert distinguished two phases for the development of the Mediterranean Solar Plan. During the first phase (2009-2011) several economic and technological pilot projects are programmed and during the second phase (2011-2020) the large-scale development is planned.<sup>41</sup> The work on the Master Plan Study started in early 2009 and aims to outline concrete steps for the development of: a) solar thermal power plants; b) solar photovoltaic; c) other renewable energy installations; and d) export of electricity to the EU along with local energy needs, e.g., for water desalination. The study will be a coordinated effort involving relevant administrations from member countries, the European Commission,

industry, utilities, transport system operators, potential investors and financing institutions. One goal of the Master Plan Study is to develop a road map detailing the phases, activities and precise timeline for the implementation of the Mediterranean Solar Plan. The work is prepared by an informal working group consisting of experts from the governments of Egypt, France, Germany, Italy, Morocco, Spain and the European Commission (as observer).

As an outcome of the first Ministerial Meeting on sustainable development programmes on 25 June 2009 in Paris, the following were announced: a) technical workshops on environment, transport, energy and sustainable urban development, and b) an energy workshop about MSP with participants from 22 UfM Member States, the EC and US representatives plus multilateral and national financial institutions. Furthermore, MSP documents were released and it was announced that the KfW, EIB and AfD earmarked about €5 billion for renewable energy and energy efficiency projects for the next 5 years.<sup>42</sup>

But according to the Euro-Mediterranean Energy Market Integration Project (MED-EMIP), there are strategic differences of opinion among the partners. Although the main financing institutions (the European Development Fund, the European Investment Bank, the development bank KfW and the World Bank) have shown their interest in the plan, investing €5 billion over ten years, this only represents 8% of the overall cost of €60 billion. The MED-EMIP also highlights the fact that at the start, the financing institutions and the owners of the solar panels had imposed conditions intended to permit the development of a real market.

The 3rd European Renewable Energy Policy Conference<sup>43</sup> on 16-17 November 2009 in Brussels addressed obstacles and business opportunities due to public-private partnerships. Political obstacles add to these strategic and financial challenges.<sup>44</sup> During the planned summit of the Union for the Mediterranean on 7 June 2010 in Barcelona, the Spanish EU

40. R. Christmann, Division Research and Development in the Field of Renewable Energies, BMU: *Union for the Mediterranean – Mediterranean Solar Plan*, at: [http://www.erec.org/fileadmin/erec\\_docs/Events\\_Documents/EUSEW\\_MSP\\_13\\_Feb\\_2009/MSP\\_Ralf\\_Christmann-panel\\_2.pdf](http://www.erec.org/fileadmin/erec_docs/Events_Documents/EUSEW_MSP_13_Feb_2009/MSP_Ralf_Christmann-panel_2.pdf).

41. K. Hoyer-Klick, DLR: *Union for the Mediterranean – Mediterranean Solar Plan*; at: [http://www.eurec.be/files/Oldenburger%2028th%20July%202008/07\\_Union%20for%20the%20Mediterranean.pdf](http://www.eurec.be/files/Oldenburger%2028th%20July%202008/07_Union%20for%20the%20Mediterranean.pdf).

42. R. Christmann, BMU: "Mediterranean Solar Plan – Strategy, Governance and Progress", Paris, 25 June 2009; at: [http://www.ambitalia.org.uk/-MSP\\_conference/Christmann\\_MSP.pdf](http://www.ambitalia.org.uk/-MSP_conference/Christmann_MSP.pdf).

43. See the programme at: [http://www.erec.org/fileadmin/erec\\_docs/2009Conference/docs/3rd%20European%20renewable%20Energy-%20Policy%20Conference%20FINAL%20PROGRAMME.pdf](http://www.erec.org/fileadmin/erec_docs/2009Conference/docs/3rd%20European%20renewable%20Energy-%20Policy%20Conference%20FINAL%20PROGRAMME.pdf).

44. M. Malhère: "Mediterranean Solar Plan – Project Faces Strategic and Financial Problems", *Europolitics*, No. 20 October 2009; at: <http://www.europolitics.info/sectorial-policies/project-faces-strategic-and-financial-problems-art251878-14.html>.

Presidency could advance these initiatives by developing a longer-term policy framework for the development of public-private partnerships, such as the DESERTEC Industrial Initiative.

#### 7.5.2. DESERTEC: From Vision to Reality

The Mediterranean Solar Plan could offer a policy framework for the development of the DESERTEC concept that describes: “The perspective of a sustainable supply of electricity for Europe (EU), the Middle East (ME) and North Africa (NA) up to the year 2050. [...] A close cooperation between EU and MENA for market introduction of renewable energy and interconnection of electricity grids by high-voltage direct-current transmission are keys for economic and physical survival of the whole region. [...] Adequate policy and economic frameworks for their realization must be introduced immediately. The role of sustainable energy to secure freshwater supplies based on seawater desalination is also addressed. [...] A central criterion for power generation is its availability at any moment on demand. [...] The challenge of future electricity supply is to find a mix of available technologies and resources that is capable of satisfying not only the criterion of ‘power on demand’, but all the other criteria for sustainability too. The DESERTEC White Book describes a scenario of electricity demand and supply opportunities by renewable energy in the integrated EU-MENA region up to the middle of the century, and confirms the importance of international cooperation to achieve economic and environmental sustainability.”<sup>45</sup>

The DESERTEC Foundation is to contribute to the realization of this concept and it works “for creating a global alliance to ensure security of energy supplies, to promote economic development, and to stabilize the world’s climate.” The DESERTEC Industrial Initiative (DII) was launched on 13 July 2009 in Munich with the goal: “To analyse and develop the technical, economic, political, social and ecological framework for carbon-free power generation in the deserts of North Africa.” Their planning entity includes the DESERTEC Foundation.

Among the DII’s main goals are the drafting of concrete business plans and associated financing concepts, and the initiating of industrial preparations for building

a large number of networked solar thermal power plants distributed throughout the MENA region. The aim is to produce sufficient power to meet around 15% of Europe’s electricity requirements and a substantial portion of the power needs of the producer countries. All of the DII’s activities will be aimed at developing viable investment plans within three years of its establishment. The initiative’s clear focus on implementation is set out in the DII Principles for all future DII shareholders. Besides the business opportunities for the companies, there are other economic, ecological and social potentials:

- Greater energy security in the EU-MENA countries.
- Growth and development opportunities for the MENA region as a result of substantial private investment.
- Safeguarding the future water supply in the MENA countries by utilising excess energy in seawater desalination plants.
- Reducing carbon-dioxide emissions and thus making a significant contribution to achieving the climate change targets of the European Union and the German Federal Government.<sup>46</sup>

The DESERTEC project aims to install thermal energy plants in the Sahara desert for an estimated cost of €400 billion. On 31 October 2009, DESERTEC GmbH (limited liability company) was established, whose long-term goal is “to satisfy a substantial part of the energy needs of the MENA countries and meet as much as 15% of Europe’s electricity demand by 2050.” Its shareholder meeting appointed Paul van Son as CEO of the DII. The DII plans to cooperate closely with the Mediterranean Solar Plan (MSP). In the near future further companies from different countries will join the DII as shareholders or partners to ensure broad-based support from the EU-MENA society.<sup>47</sup>

Both initiatives, the Mediterranean Solar Plan (MSP) of the UfM and the DII of the private sector, could become conceptual components of a far more ambitious EU-MENA Survival Pact linking together two essential commodities: food or “virtual water” and sustainable solar energy or “virtual sun”.

45. See summary of the DESERTEC project; at: <http://www.desertec.org/en/concept/summary>.

46. Press release – Munich, 13 July 2009: “12 Companies Plan Establishment of a Desertec Industrial Initiative”; at: [http://www.desertec.org/fileadmin/downloads/press/09-07-13\\_PM\\_DII\\_english.pdf](http://www.desertec.org/fileadmin/downloads/press/09-07-13_PM_DII_english.pdf).

47. See 30 October 2009, press release, “Joint Venture DII Established and Ready To Take Up Work”; at: <http://www.desertec.org/en/press/press-releases/091030-01-formation-dii-gmbh>.



### 7.6. Proposal 6: EU-MENA Survival Pact: Linking “Virtual Water” and “Virtual Sun”

The concept of a survival pact outlines an interregional perspective of sustainable co-development by linking these two commodities, where both partners either have a surplus or are in need. Both commodities are indispensable for human survival and for the economy. This proposal suggests an inter-regional framework for a strategy of sustainable co-development for the Mediterranean where the economic gap between North and South has widened. For no other contact region is the complementarity of both commodities as obvious. The growing demand for food (especially for cereals) in the South can be satisfied by importing food as “virtual water”. In the North, the demand for energy can be satisfied by importing both hydrocarbons (oil and gas) and in the future also renewable sources of energy, e.g., electricity and hydrogen or the “virtual sun”, as part of a mutual sustainable development scheme.

However, this perspective requires a fundamental change in political thinking by overcoming notions of food self-sufficiency (in terms of food security) in the South and for energy supply security in the North. It necessitates a complex interregional interdependence between the agricultural and energy sectors of the EU (European Union) and of MENA countries. The concept of a “survival pact” requires a long-term strategy of political and economic cooperation on commodities that are crucial for human and economic survival. No such perspective is realistic without a level of mutual trust and confidence among its partners.

“Virtual sun” is the sun embedded in forms of renewable energy that can satisfy the energy demand (desalination of water) and can be exported to the North as electricity via long-distance cables (from Morocco to Spain and from Tunisia to Italy) and as hydrogen in existing gas pipelines. The MENA countries have a high potential for solar energy, both as solar thermal and photovoltaic. A major constraint in the North has been the thinking in terms of energy supply security since the oil shocks of the 1970s and 1980s that energy can be used as a weapon to “strangulate” the economies of the North.

Solar electricity for solar home systems, solar village systems, or as part of hybrid energy systems, can satisfy the rapidly growing electricity needs of the MENA countries by using their largest renewable source – the sun. It would thus extend the lifespan of available fossil energy reserves that have been projected to decline during the next 10 to 50 years.

The MEH-SEC Initiative suggested above could offer a political mechanism which, besides the 43 countries of the UfM, also involves relevant UN institutions (e.g., UNEP, UNDP, WMO). The proposal of a Euro-Mediterranean survival pact offers a long-term strategic perspective to cope with the multiple security implications in a proactive way by outlining a strategy of a long-term economic interdependence by making it impossible for either side to use energy or food as a weapon and by moving jointly towards a sustainable development path.



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