Environment between Conflict & Cooperation in the Middle East & North Africa

GREEN WARS?

REPORT OF THE CONFERENCE
2 & 3 NOVEMBER 2007, BEIRUT

HEINRICH BÖLL STIFTUNG
MIDDLE EAST

Environment between Conflict & Cooperation in the Middle East and North Africa

Struggles over natural resources, in particular water, have long held to be among the most important causes for potential inter-state conflicts. Yet, the trans-national and trans-border character of many environmental challenges may also compel otherwise hostile neighbors to a minimum level of cooperation. This two-day conference focused on environmental problems that carry the potential to cause conflicts and mostly require cooperation for sustainable solutions. It seeked to shed light on the high benefits of environmental cooperation between states in the MENA region and the necessity to improve and intensify this cooperation, parallel to showcasing the high costs of inadequate joint actions and of the absence of proper state handling of environmental malaise. The objective was to make visible the risks environmental degradation poses on MENA states but also the great potential it bears for finding a common ground.

CONFERENCE TEAM

Concept and Organization:
Dina Fakoussa

Conceptual Assistance:
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Logistics and Administration:
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1st Rapporteur and Editor:
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PROGRAM

FRIDAY 2 NOVEMBER

- **9:30 – 10:00 Registration**
- **10:00 – 10:30 Welcome Note and Introduction**

LAYLA AL-ZUBAIDI
Director of the Heinrich Böll Foundation, Middle East Office
BERJ HATJIAN
Director General of the Lebanese Ministry of Environment
BARBARA UNMÜSSIG
Member of the Executive Board of the Heinrich Böll Foundation

PANEL A

Water Revisited - From Disputes to Models of Cooperation

This first panel provided examples of cooperation and disputes over water in the MENA region (rivers, seas) and tackled state's environmental rationale and argumentation. Bilateral as well as multilateral agreements and cooperation models were scrutinized and recommendations developed for enhancing joint water management.

Chair
JOHN WATERBURY
President of the American University of Beirut

Speakers
HILMI SALEM
Research Director at the Applied Research Institute, Jerusalem
Water Agreements between Israel and Palestine and the Region's Water Argumentations between Policies, Anxieties and Unsustainable Development

MUNTHER HADDADIN
Former Minister of Water and Irrigation of Jordan and Senior Peace Negotiator in the Middle East Peace Process
The Jordan-Israel Water Agreement – A Model for Other Riparian Parties in the Basin?

YACOB ARSANO
Assistant Professor of Political Science and International Relations at Addis Ababa University
Challenges to Effective Cooperation in the Nile Basin

PANEL B

Multilateral Environmental Institutions and Agreements - Drawing a Balance

The legal dimension of shared water management and water conflict resolution were highlighted in addition to the role of international organizations in promoting cooperation. The panel shed light on the weaknesses and strengths of regional and international cooperation frameworks in the environmental sector and explored the degree of coordination of activities.

Chair
KARIM MAKDISI
Assistant Professor at the Department of Political Studies and Public Administration, American University of Beirut

Speakers
JAKOB GRANIT
Project Director SIWI Projects Stockholm International Water Institute (SIWI)
International Legal Frameworks for Water Management and Development and the Role of International Organizations in Promoting Cooperation and Sustainability

ZIYAD ALAWNEH
Director of Land and Human to Advocate Progress (LHAP) and National Coordinator of the Arab Network for Environment and Development (RAED) in Jordan
The Mediterranean between the "Horizon 2020" Initiative by the EU, UNEP, the World Bank and Arab NGOs and Governments – A Critical Assessment of Multilateral North-South Cooperation to Save the Sea

PANEL C

Land Degradation - Ringing Alarm Bells

The panel depicted the issue of land degradation and showcased the linkage between the deterioration of fertile land and conflicts. Scenarios, consequences of inadequate action and recommendations to halt land degradation were offered.

Chair

ALI DARWISH

President of Green Line Association and IUCN Regional Councilor for West Asia

Speakers

MUNIR SUGHAYYAR

Executive Manager Lebanon Office of the International Center for Agricultural Research in the Dry Areas (ICARDA)

Desertification, Sustainable Agriculture and Security – Lessons Learned

MOHY EL DEEN EL TOHAMI TAHA

Member of the Sudanese Environment Conservation Society (SECS) and the Society's Resource Based Conflict (RBC) Task Force

Land Degradation and Conflict in Sudan

● **Reception**

SATURDAY 3 NOVEMBER

PANEL D

Eco-peace versus Eco-wars

The anatomy of resource wars, environmental peace making and Peace Parks are issues that were raised during the panel. It shed light on current debates challenging the idea of war over water and natural resources. The environment–conflict thesis was scrutinized and the question of whether it is theoretically rather than empirically driven was posed together with the question of whether environment can be a vehicle for trust-building between states that can spill over to other fields.

Chair

BARBARA UNMÜSSIG

Member of the Executive Board of the Heinrich Böll Foundation

Speakers

NILS PETTER GLEDITSCH

Research Professor at the International Peace Research Institute of Oslo

Water and Other Resources - Conflict or Cooperation?

SALEEM H. ALI

Associate Dean for Graduate Education at the University of Vermont and Member of the World Commission for Protected Areas

Building Peace Through Environmental Conservation in the Middle East

PANEL E

Climate Change - Bringing the Nexus Home

This panel explored the consequences of climate change for a region already experiencing rapid environmental degradation and problems, and how this change in climate will add to the severity of present environmental challenges. The linkage between these and potential conflict surfaced together with the urgency to act together.

Chair

JÖRG HAAS

Department Head Ecology and Sustainable Development of the Heinrich Böll Foundation

Speakers

HANS GÜNTER BRAUCH

Free University of Berlin, UNU-EHS, Bonn; Chairman of Peace Research and European Security Studies (AFES-PRESS); Editor of the Hexagon Series on Human and Environmental Security and Peace

Climate Change Scenarios and Possible Impacts for the MENA Region - Hazards, Migration and Conflicts?

MOHAMMED EL RAEY

Professor of Environmental Physics at the University of Alexandria and Consultant to the Arab Academy of Science and Technology

Impact of Climate Change on the Nile Delta Region – An early Warning Analysis

FOUAD HAMDAN

Founder of Greenpeace Lebanon and Former Executive Director of Friends of the Earth Europe

Stopping Climate Change in the Middle East – Ways out of an Unfolding Catastrophe

FRIDAY 2 NOVEMBER

THE FIRST CONFERENCE DAY

The first conference day addressed a wide range of issues in the field of environment between conflict and cooperation. Water – the most popular resource in this context – was on top of the agenda. Examples of cooperation and disputes over the valuable resource in the MENA region were presented in connection with state's environmental rationale and argumentation. Panel B discussed the legal dimension of shared water management and water conflict resolution as well as the role of international organizations in promoting cooperation. It dealt with weaknesses and strengths of regional and international cooperation frameworks in the environmental sector and explored the degree of coordination of activities. The last panel tackled the issue of land degradation and elaborated on conflict generating interlinkages. Different scenarios and consequences of inadequate action were presented as well as proposals to halt land degradation.

INTRODUCTION AND WELCOME NOTES

LAYLA AL-ZUBAIDI

Director of the Heinrich Böll Foundation, Middle East Office

Good morning and a warm welcome to our distinguished international, regional and Lebanese guests and to all of you. We are very honoured to be joined by Dr. Hatjian, Director-General of the Lebanese Ministry of Environment, as well as by Dr. Haddadin, former Minister of Water and Irrigation of Jordan. And I would also like to welcome Barbara Unmuessig, member of the executive board of the Heinrich Boell Foundation in Berlin.

I have to admit that we are surprised and delighted at the same time that we have received such an overwhelmingly positive response to our invitation to Beirut despite the unpredictable, unstable political situation in Lebanon. Thank you very much for coming.

We, at the Foundation's Middle East Office, have been thinking of conceptualizing and organizing such a conference for quite a while, as touching upon the nexus between environment, cooperation and conflict lies at the very core of our program. Many of us know that since the end of the Cold War, traditional security concepts have been broadened to incorporate "non-conventional" threats such as environmental stress. Hence, it is important to analyze the complex relationship between environment and conflict and to identify mechanisms and strategies to avoid further damage and inner and inter-state instabilities, especially in a region as conflict torn as the Arab world. At the same time we should also turn to the other, brighter side of the coin: the potential of environment as a vehicle for cooperation and trust-building. During the research for this conference, we found that struggles over natural resources might cause political friction, but on the other hand we also came across situations where resources are shared and where resource sharing enhances cross-border cooperation. This is already more pervasive than often presumed, for example in the field of water as we will hear in the following panel of the conference. Exploring when such resource cooperation can spill over into other domains such as politics and whether environment can contribute to peace-making are again issues of considerable relevance in this conflict loaded area and therefore will also be tackled and analyzed.

For the conference, we tried to focus on environmental problems that might cause conflicts and mostly require cooperation for sustainable solutions. Two core issues were identified, namely water and land, as the main resources over which conflicts have occurred and are likely to occur in the future due to their paramount importance to life and the development of all societies in the region. In this context, it was essential to address the repercussions of climate change that are expected to exacerbate most environmental problems in the region and that are very likely to add to poverty, migration and social unrest. Actions on national and regional levels are indispensable and current efforts need to be optimized and expanded. I hope that we will witness a vivid and fruitful exchange during the course of these two days that will further stress the urgency for action by all sides.

Before I finish and give the floor to Dr. Hatjian, I would like to thank my colleagues who have in a long process conceptualized and organized this conference: Dina Fakoussa, Corinne Deek, Hiba Haidar, and Eileen Maternowski.

BERJ HATJIAN

Director General of the Lebanese Ministry of Environment

(Speech translated from Arabic into English)

Good morning to all of you. It is quite hard to talk about such a complicated and vast issue in the presence of all those representatives of the Lebanese environmental community. The presence of such significant figures - politicians, ministers, university presidents, and activists in the environmental field makes me quite anxious.

It is indeed a very hard issue to discuss. Therefore, I am going to start following this idea. I will start with a joke about speeches and talks.

There was a university professor who was asked to give speeches in several universities and to bring up various issues related to the environment. It was something similar to what Al Gore has done before producing the movie "An Inconvenient Truth" when he visited numerous universities. So the professor followed this routine: he gets into the car with his driver, arrives at the hall, uses the same transparencies or power point slides and speaks about the same issue. Later on, the driver goes to the professor and says: "That's getting boring; you're repeating the same speech! What would you say if we exchange roles, I'll be the professor and you'll be the driver?" And so it has happened. The driver arrived at one of the universities, talked about the issue and gave the same lecture. He was asked the very same questions by the audience. But one bright student sitting in the back seat asked the professor (driver) a difficult question related to our issue today – the world and the environment. The driver looked at him and said: "You know what: your question is so simple that I'll let my driver who's sitting in the back seat answer it!" A laugh might be the only way to decline wars whether related to the environment or other issues.

There are different types of wars: the first type is humans versus nature, second humans against each other and third wars between humans in the past, humans today and humans in the future. There are different forms of wars: material wars, economic wars, media wars, also philosophical wars related to the environment and other types and forms that we have seen throughout history.

We live in an area - the Arab world or the Middle East - which experienced many wars. I would like to share with you my point of view regarding the reason why this area experiences so many conflicts. We all have read historic or cultural studies and as Winston Churchill said: "The further back I look, the further forward I can see". If we do not read history well, it is going to be really difficult to predict the future. All civilizations we know and read about in history books have emerged from this area or extended to it: Pharaonic Egypt, the Phoenicians, Romans, Mesopotamians, then the Islamic and Arabic civilization, the Ottomans, and other civilizations as well. A Japanese anthropologist once said: "For every civilization to rise there's a forest to wipe."

The entire world economy is based on natural resources. Pharaons took stones from quarries, and then cut trees to move these stones in order to build their civilization and culture. Phoenicians also cut the trees to build ships, and then sailed in the Mediterranean to spread knowledge and trade. Civilizations that have experienced severe wars such as the Roman civilization or Islamic and Arabic conquests cut their trees in order to get energy for dissolving metal, and made weapons for the conquests. We know that Rome, for instance, sent armies down South to Egypt and North Africa. Accordingly, civilization's succession on this land have contributed to the desertification we are suffering from now. We know that the environment has a certain carrying capacity. I think the carrying capacity of this area is very low compared to the societies and number of people living here. Hence, when resources decrease, wars might increase.

Today, the current civilizations of the region are dependent on resources that are found underground. These underground resources are not only supplying the region with its energy needs, but other parts of the world as well. Hence, it is inevitable that conflict over resources in the region will arise. With regard to fresh water, as an example, the problem is with

the philosophical question posed at the World Water Forum: Is water a right or a need? The international community agreed in this World Water Forum that water is rather a need than a right. With this statement that the conference came up with, we deny the idea presented in the Holy Koran: "… And we made every living thing of water" (Koran Sura, *The Prophets*, verse 30).

I would like to share with you our environmental accomplishments after the war between Lebanon and Israel in 2006. We have accomplished two little things. The Assembly of the United Nations issued resolution 61/194 in which the environmental damage caused by the Israeli Air Force is condemned, particularly the bombing of "Al-Jiyeh" power station and the oil spill disaster that hit the Lebanese coast. This resolution exists and states that Israel should take full responsibility for its actions.

Also, a recent report of the UN Secretary-General Ban Ki-moon states that the incident was not an accident or mistake, but rather an intentional and deliberate act. Furthermore, the report affirms that "Al-Jiyeh" power station is a civil site that serves all the Lebanese. The Lebanese government has worked hard by all means, especially our consulate in New York, to get this report issued. The report will help Lebanon to carry on defending its case. The Israeli violence against Lebanon in the year 2006, particularly its environmental warfare, is a new type of war that we are witnessing.

Let me end this speech by saying that I am very pleased to participate in such a sophisticated conference organized by the Heinrich Boell Foundation in Beirut and that brings together such a distinguished and diverse group of Lebanese and regional as well as international academics, activists, thinkers, scientists, and media experts.

I wish you all the best for this conferece and your future work. Thank you very much.

BARBARA UNMÜSSIG

Member of the Executive Board of the Heinrich Böll Foundation

Ladies and Gentlemen, dear friends, dear guests,

First and foremost a warm welcome from my side. I perceive myself a bit as a guest and a host at the same time since I am not only responsible for the Heinrich Boell Foundation in Berlin, but also for its offices in the region, including Beirut.

I am very happy to participate in this event put together by our office here in Beirut. I would also like to thank Dr. Hatjian, Director General of the Lebanese Ministry of Environment, for being with us today. This is what the Heinrich Böll Foundation is actually about: to bring civil society and governmental officials together. I hope we will see fruitful interaction between governmental functionaries, social organizations and the scientific community which is very well represented here.

I am equally happy about my extended visit to Lebanon and other neighbouring countries to deepen my knowledge of this country and the region as whole. And I am very aware that this event is taking place just on the eve of the upcoming election on November 12, 2007 and negotiations are currently taking place as a preparation for the Annapolis Conference that will deal with conflict resolution in the region. Lebanon is of particular relevance in this regard. It is my third visit to Beirut since we opened our office here in 2004 and it is my first visit after the devastating war of 2006. Knowing this country a bit through my visits, I was very much concerned about the war between Israel and Lebanon. I was not only worried about the safety of our staff and partners over here, but also because the country as a whole was being affected and destroyed. You are much more affected when personally knowing the country and people, than when watching scenes of bombings, misery and destruction on the television.

Ladies and gentlemen, the global environmental crisis is back on the international agenda! This is definitely good news. I myself participated in the environment and development conference of Rio de Janeiro, and during the 1990s I missed the focus on the interlinkages between development and environment. None of the foreseeable global trends described exactly twenty years ago in the so called Brundtland Report titled "Our Common Future" have improved today. The opposite is rather the case. The current state of the global environment is alarming. The loss of biodiversity seems to be unstoppable, land degradation i.e. the loss of fertile soil continues in a disturbing way, and scarcity and pollution of water threaten the lives of hundreds of millions of people. People are dying because of the lack of drinking water, while polluted water causes serious and often fatal health problems. And last but not least, we are all currently facing the worst impacts of global climate change. Global climate change and its repercussions have reached almost every corner of the world. The poorest in the world are hit hardest - those who have not contributed in any significant way to this problem. Again, this is central to the work of the Heinrich Boell Foundation since we always link environmental issues with justice issues.

Since 1987, annual global emissions of carbon dioxide from fossil fuels have risen by about a third – despite all climate negotiations that have taken place. Coal, oil and gas are still expected to remain the dominant sources of energy for the next two or three decades. This is definitely alarming news. Today, more than ever, there is scientific and visible evidence for the negative impacts of global climate change. Scientists, the media, fortunately some politicians but not enough and a broad range of civil society actors are ringing the alarm bell. They all believe that a two degree of temperature increase would be a threshold for irreversible damage to humankind and nature, which all of us have to work to prevent.

With regards to the Middle East and North Africa region, temperature increases will have serious consequences. The area is already one of the most water stressed regions in the world. The recent United Nations Environment Program (UNEP) report states that the availability of fresh water per capita

declined in the Middle East from 1700 to 907mÑ/ year between 1985 and 2005, and this trend is very likely to continue in the future.

To be concerned about the environment should not be viewed as a luxury in any way. It is a matter of survival, and even strong and efficient economies are dependent on it. Natural resources along with a healthy environment are the major assets of economic and social development. The aim of confronting you with inter-linkages between the environment, fate of societies, justice and democracy is certainly not to present dark and gloomy scenarios, but rather to urge you towards immediate action.

It is predominantly the industrialized countries of the North that cause climate change and hence, they have to act first. Certain steps have already been undertaken. The industrialized countries of the North are aiming to cut down carbon emissions by 60 to 80 percent by the year 2050. However, what I would like to stress here in Beirut is that urgent action is needed everywhere. Unfortunately, governments of the region are overwhelmed with political struggles and consequently do not prioritize climate change. Many of them even deny its existence. Soon, however, dealing with climate change will not remain a luxury, but will become a necessity. Realizing that ignoring environmental issues in the region today will make the Arab world pay an enormous price in the future, will (hopefully) make governments in the region act.

Water scarcity in the region is heavily embedded in inner-state and interstate tensions. The international community can assist partly, but I think it is also the Lebanese government's responsibility to establish an own water treatment scheme, an own sewage system and an own deforestation program. These are matters within your domestic responsibility. Options for action are surely closely linked to political space and democratic participation of the people. So parliaments, civil society actors, the media, the judiciary – they should all work towards holding their government accountable and pushing the government to act in the interest of all people without favouring certain factions over others.

The interconnectedness between the environment, social justice, democracy, and a human and peaceful society in general is fundamental to Heinrich Boell Foundation's conceptual and political framework. This is why I am very glad to be here. This conference will not only highlight regional environmental problems but also search for and discuss sustainable solutions. I wish the conference the best of luck.

PANEL A

WATER REVISITED – FROM DISPUTES TO MODELS OF COOPERATION

Chair

JOHN WATERBURY
President of the American University of Beirut

Speakers

HILMI SALEM
Research Director at the Applied Research Institute/Jerusalem
Water Agreements between Israel and Palestine and the Region's Water Argumentations between Politics, Anxieties, and Unsustainable Development

MUNTHER HADDADIN
Former Minister of Water and Irrigation of Jordan
Jordanian-Israeli Water Agreement: A Model for Other Riparian Parties in the Basin?

YACOB ARSANO
Assistant Professor of Political Science & International Relations at Addis Ababa University
Challenges to Effective Cooperation in the Nile Basin

As the chair of the first panel on water disputes and cooperation, John Waterbury introduced the panel presentations by indicating that the severity of disputes over a river's water may not correspond with the size of the river basin, as is the case with the Nile and the Jordan River Basins. The latter faced several violent conflicts throughout the last century - some of them water-related and some not. Waterbury –himself an expert on the Nile Basin – noted that, in comparison, the Nile has witnessed fewer conflicts. He raised the question whether the increasing pressure on the vast water resources of the Nile Basin will lead to more intense conflicts in the 21st century compared to the past.

HILMI SALEM

Water Agreements between Israel and Palestine and the Region's Water Argumentations between Policies, Anxieties, and Unsustainable Development

Not only is water a sensitive and critical issue for all the parties involved in the Middle-East conflict, it also harbours potential for both, catalyzing or inhibiting the peace process. Thus, resolving the water conflict between Palestinians and Israelis is of vital importance. As guidance to resolving the water conflict of the Jordan River Basin, Salem offered an integrated management scheme involving all the parties in the conflict: Syria, Lebanon, Jordan, Israel, and the Palestinians representing the future State of Palestine. In order to introduce this, Salem presented the Israeli-Palestinian water conflict by referring to the water resources in Israel, the Palestinian Territories and in the Jordan Basin, discussing the existing water agreements between Israel and the Palestinian Authority as well as highlighting the Palestinian water rights in view of international laws and treaties.

In Israel and the Palestinian Territories, surface-, ground-, and run-off water flow constitute the water resources. The only permanent river which can be used as a source of surface water is the Jordan River, the annual discharge of which into the Dead Sea decreased in the last 50 years from 1,300 million cubic meters (MCM) to 100 MCM of high-salinity water of deteriorated quality. The major sources of fresh water supply in Mandate Palestine are aquifer systems (groundwater basins) – 4 of them are located in the West Bank and Gaza Strip.

According to international law, Salem explained, the waters of the basin must be shared among all riparian nations: Palestinians, Jordanians, Lebanese, Syrians, and Israelis. Currently, the latter are the largest beneficiaries of the basin, while the Palestinians do not receive any water from the Jordan River.

"The Jordan-River Basin may be an ideal candidate for promoting a 'basin-wide regional institution' in which all riparian nations are involved. The international community needs to start the process of building such an institution."

Water Status in Israel and the Occupied Palestinian Territories

Salem further described the water situation between Israel and the Palestinian Territories, indicating that Israel is currently utilizing more than 82% of the Palestinian groundwater resources, thus significantly worsening the water-scarcity problem in the area. According to the Israeli Water Commission, the per-capita water consumption by Palestinians is 83 m^3/year compared to about 277 m^3/year for Israelis. Likewise the Israeli share and of the allocated water for the industrial agricultural sectors are disproportionately higher than the Palestinian one. The Gaza-Strip aquifer system, known as the Gaza Aquifer, is the sole water source for the 1.5 million Palestinians living there. Due to over-pumping, the shallow coastal aquifer faces lowering of the groundwater table and severe intrusion of saline-water in many areas. The quality of the aquifer is also affected by the penetration of untreated sewage, pesticides and fertilizers from intensive agricultural activities, which leads to serious health risks for the people living there.

Impacts of the Israeli segregation plan on the Palestinian Water Resources

The Segregation Wall erected around the Palestinian Territories does not only isolate around 100 Palestinian communities but also some of their water resources. North of the West Bank for example, 31 artesian wells have been excluded to the West of the wall. Salem remained certain that "The wall will result in cutting the Palestinians off their water-supply wells or, at least, in imposing more restrictions on the use of such wells."

Water Rights?

Water rights play a fundamental role in discussing the distribution and status of water among Israel and the Palestinian Territories. According to the Israeli-

Palestinian Water Agreement (Oslo II) of 1995, Israel recognizes the Palestinian water rights in the West Bank. However, these rights will not be approved until 'permanent status' negotiations are reached.

In light of the current circumstances, Salem emphasized that the Palestinians are legally a riparian nation to the Jordan-River Basin, with the right to utilize all of their available resources. Furthermore, he referred to various approaches of international law in the context of the Palestinian case. For example, Article 55 of the 1907 The Hague Convention limits the right of the occupying state to utilize water resources of the occupied territories. Thus, Israel's use of Palestinian water resources is illegal.

The Way Ahead

Since the water resources of the Jordan Basin are shared, an integrated management scheme should be aimed for, involving all riparian nations. Therefore, bilateral agreements are not sufficient and do not warrant the protection and sustainable utilization of its resources.

Salem's proposal to approach and overcome the unequal water distribution and its interrelated problems emphasized the need for the governance of the 'principles of international law.' The merit of the proposal is that it addresses the issue of demographic and climatic changes and the potential for water trading between districts and regions. It furthermore provides a basic tool for environmental protection of the water resources and could catalyze Israeli-Palestinian as well as regional cooperation in water and related fields.

Salem acknowledged that realistically, such an approach will not happen overnight. It needs good relations between riparian nations, mutual trust, spirit of cooperation and the framework of various regional projects. While this certainly seems far away, it is even more important to start preparations for such an approach today.

MUNTHER HADDADIN

Jordanian - Israeli Water Agreement: A Model for other Riparians in the Basin?

In the field of Middle Eastern water negotiations, the former Jordanian Minister of Water and Irrigation, Munther Haddadin, is often described as the most experienced water negotiator in the Arab World. In his presentation, he gave a historic tour of the water allocation question in the Jordan River Basin and discussed the Jordanian-Israeli water agreement, but also shared some inside stories on conflicts and cooperation over the basin's water throughout the past 50 years.

Water Conflicts in the Jordan River Basin

Conflicts over the waters of the Jordan River Basin go back to more than a century and are inevitably intertwined with the Arab-Israeli conflict. Water conflicts already became visible in the attempts to find a national home for the Jews in Palestine. After the first Zionist conference in 1897, water plans were addressed in line with plans of the Zionist movement. Some of the plans suggested utilizing the water of the Jordan and Litani Rivers for the development of the western Jordan Valley and for electricity generation or bringing in water from the Mediterranean. The Arab side had its own plans for the development of the Jordan system, providing for outright competition over the Jordan River basin's water from the very beginning.

In 1953, Israel started to build the National Water Carrier - its major water project - to transfer Jordan water to the arid south. Haddadin explained that the Israelis attempted to tap water in the demilitarized zone between Syria and Israel. The Syrians fired from the Golan and the United Nations intervened. This happened against the backdrop of an emerging Cold War, with the United States concerned that this instability coupled with the Palestinian refugee problem, could pave the way for communism in the strategically important Middle East.

In light of this and considering the need to have Israel accepted in the region, the US dispatched a special envoy to the region: Eric Johnston.

Water Diplomacy

In 1953, Ambassador Johnston came to the region equipped with a water allocation plan, also known as the Unified Plan, for the development and utilization of the Jordan basin. He talked to officials of all riparian countries as well as Egypt.

The final outcome of the negotiations was to be presented to the Arab League Council. Before doing so, Ambassador Johnston met with President Nasser of Egypt over dinner in Nasser's house on October 8, 1955. Before dinner, Nasser called in the Head of the Arab Technical Committee of the Arab League who briefed the President on the final outcome. He said the final outcome is the way to go. Nasser said, "But what about the Syrian and the Lebanese attempt to come up with something else?" "Well, it does not make any sense." Over dinner, Johnston asked Nasser, "Are you going to lobby for the plan and make it work?" Nasser said, "It will go".

"I want to tell the audience about the falsehood of slogans saying that the 1967 war was a water war. There is nothing which can be more wrong than that. There were clashes, but those were actions based on other factors. When you look at the documents and the minutes of meetings before the war took place, you will see that water was nowhere considered as a factor of war. Above all, in the UN resolution 242 that ended the war, water is not addressed. If water was the cause, it would have been addressed."

In late 1955, after many rounds of talks, the Arab Technical Committee of the Arab League recommended to accept the final outcome of their negotiations with Johnston despite deep reservations. A few weeks later, the Council of the Arab League declined to accept this recommendation. It was a political decision based on the premise that a unified plan with Israel would imply the recognition of Israel by the Arab states before the problems of refugees and borders are resolved.

Nevertheless, as Haddadin emphasized, the Unified Plan became a cornerstone of US-policy concerning the development and use of the Jordan water resource. Moreover, infrastructure projects in the region were launched on that basis.

Middle East Peace Negotiations

At the beginning of bilateral negotiations on water between Jordan and Israel in April 1992, Jordan proposed the following: "We are prepared to pick up from where we agreed in 1955 to the compromise formula under the Unified Plan. Failing that, we are afraid we will have to disregard all our past commitments and start from the very beginning."

The negotiations started and lasted until October 17 of 1994. Haddadin highlighted that the water negotiations were bilateral, between Jordan and Israel only. It was agreed that the outcome of negotiations will have no impact on the riparian shares in the basin, especially those of the Palestinians. Apart from this, the negotiations addressed neither Syria's conduct on the Yarmouk, nor the specific share of the West Bank, to which H.M. King Hussein had severed administrative and legal ties in 1988. Finally, Jordan received additional water over and above what was stipulated in the Unified Plan.

Criticisms Targeting the Israeli-Jordanian Water Negotiation

In the end, Munther Haddadin addressed the criticism targeting the water agreement in the Israeli-Jordanian peace treaty, in particular the unsolved question of the Palestinian share and the debatable benefit for the Jordanian side. Haddadin rejected them as politically motivated. He straightened out that Jordan was not negotiating on behalf of the Palestinians and that Syria has taken a good part of the Jordanian water shares in the Yarmouk.

Haddadin pointed to three shortcomings in the implementation of provisions put down in the water annex of the peace treaty. First, additional water allocated to Jordan from an Israeli desalination plant was not supplied; second, the swap of winter water in the Yarmouk for summer water from Lake Tiberias, which is not properly interpreted; and third, the rehabilitation of the Lower Jordan River. Haddadin underlined that joint efforts are needed to rehabilitate the river and that this will occur when all riparians participate and the entire system is looked at closely and equitably.

YACOB ARSANO

Challenges to Effective Cooperation in the Nile Basin

Ten countries, one shared water resource and abundant opportunities for regional cooperation - but the hydropolitics of the Nile basin are far from being harmonized. Yacob Arsano, professor of political science and international relations, looked into the challenges of cooperation in the Nile basin, particularly the tensions between upstream and downstream countries of the Nile River. Despite the fact that the river binds its riparian countries and societies together, national interests on the utilization, management and protection of the waters could not yet be harmonized. The challenges for cooperation on the Nile are manifold and range from environmental and economic to legal and security issues. In addition to that, the Nile Basin Initiative (NBI), which aims at joint development and management of the basin among all riparians, can only be considered an interim venture as long as a permanent agreement and a basin-wide institution are missing. Therefore, Arsano called for prospects to overcome the challenges and to recognize the indispensable arena for cooperation and regional integration provided by the Nile basin.

Hydropolitics on the Nile

While state boundaries have been defined and redefined, the endowment with shared and transboundary waters constitute one of the Nile basin's major features. The basin comprises ten riparian countries – one third of Ethiopia, a substantial expanse of Sudan, a long and cultivated corridor of Egypt, all of Uganda, parts of Kenya, Tanzania, Burundi, Rwanda, Congo Democratic Republic (CDR) and Eritrea. The lion's share of the total flow, namely eighty-six percent, originates in the Ethiopian highlands.

Historically, hydropolitics in the Nile basin have constituted a dilemma. Avowedly driven by national interests, riparian countries have often aspired to unilateral and conflicting approaches, which consequently led to disputes and tense hydropolitical relations among co-riparians. Arsano pointed out that the chance for regional security most probably depends on the states' ability and political will to establish a common security architecture, using the shared resource as a pivotal factor. In an attempt to mitigate the hydropolitical challenges and enhance cooperation as well as mechanisms for shared benefits of the resource, Yacob Arsano revealed that the riparians of the Nile will have to deal with environmental, economic, legal/institutional and security challenges in a sustainable manner.

Challenges

At first, Arsano introduced the environmental challenge for cooperation on the Nile. Severe consequences of environmental degradation and resource scarcity do not respect national boundaries and inevitably, they will affect all parties of a shared water resource in one way or another.

As water has gained increasing attention in the last decades, consensus was reached on the need for an integrated water resource management as a precondition for socio-economic development and conflict resolution. A basin-wide or holistic approach needs to replace the nationally confined and fragmentary approaches. In the case of the Nile basin, uncontrolled erosion in the upstream countries has already created severe problems in the downstream riparians. Hence, there is urgent need for environmental security awareness, safeguarded through collaborative efforts of states in establishing shared regimes. In Arsano's opinion, the Nile Basin Initiative, established in 1999, can be taken as an interim venture with a potential to emerge as a basin-wide institution.

With regard to the economic challenge, none of the ten riparian countries base their economic development on unified planning. Economic planning has been nationally based and technocracy oriented. Thus, the water demand in one country is not aligned with the supply system of another. Since economic planning is fragmented, aspired economic

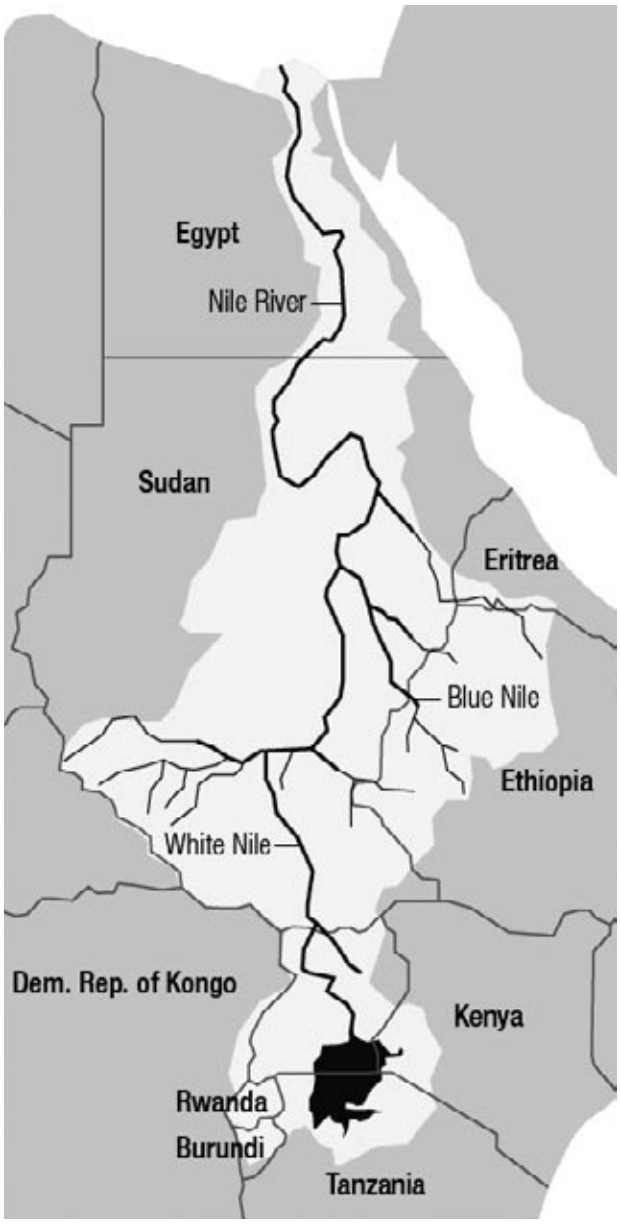
development on the basis of available and shared water resources has not been achieved.

Furthermore, the legal and institutional setting constitutes another challenge for cooperation. Although several agreements were signed in the context of the Nile waters, they failed to include all riparian states and privileged Egypt. Most of the water agreements were reached between the colonial powers who did not consider the upstream countries to have national interests of their own. Therefore the legal and institutional arrangements in the basin have neither provided cooperation nor basin-wide harmonizing activities. Horizontally, the Nile basin countries came together in the Nile Basin Initiative and while its framework agreement is still being negotiated, the use, management and protection of the Nile waters remain without a regulatory mechanism.

Arsano describes security as a fourth challenge. Again, tensions between upstream and downstream riparians as well as the nature of prevailing hydropolitics determine the absence of a common security architecture in the basin.

"We have to realize one thing: not religion, not culture, not ideology unifies the Nile Basin and the ten riparian countries, but water."

In conclusion, Arsano pointed again to the pivotal role the Nile plays for the ten riparian nations, connecting them with each other, to the need for cooperation in all of the four challenges and finally, to the Nile Basin Initiative, which he described to play a catalytic role in handling the geopolitical, environmental, economic and regulatory challenges.



IN THE PANEL DISCUSSION

The discussion contained questions addressing all three panellists. Yacob Arsano was asked if he could verify reports claiming that Ethiopia is building a series of dams in order to use the Nile water for own purposes. Arsano assured that the dams being built in Ethiopia have been planned since the 1950s and do not threaten the water allocated to Egypt.

A question concerning the need for a more efficient use of water was addressed to Munther Haddadin. He was asked why instead of big dams, more investment is not focused on efficient use of water and activities in support of this. Agreeing, Haddadin elaborated on measures taken in the Jordan Valley such as converting the irrigating areas to pipe irrigation networks and the widespread use of drip-irrigation systems on farms.

A third question brought up the criticism of the Jordan River negotiations between Israel and Jordan and asked for a more self-critical assessment by Haddadin. Salem noted that the Palestinians were never involved in water-related negotiations. Haddadin's answer referred again to the fact that the negotiations were bilateral only, not involving Syria or the Palestinians. Furthermore, Haddadin explained that with respect to its agreement with the Palestine Liberation Organization, the Jordanian leadership imposed a ban on the Jordanian side in the bilateral negotiations: Jordan was to deal with its own concerns only and was not entitled to step over a red line and speak on behalf of the Palestinians. Haddadin stressed that he tried to convince the Jordanian King that Jordan is in a more powerful position to speak on behalf of the Palestinians concerning their water rights, but Haddadin's attempts were in vain.

A last question addressed possible references to water in the Oslo Accords. Hilmi Salem responded that there is a very brief mention of water in the Oslo Accords, which the Palestinian negotiators at the time are to be blamed for. He underlined that the Palestinians are not allocated their fair share in the Johnston plan. He accused Israel of opposing joint water management, "They will never give the water management to the Palestinians because it is a very strategic issue for Israel."

PANEL 13

MULTILATERAL ENVIRONMENTAL INSTITUTIONS AND AGREEMENTS – DRAWING A BALANCE

Chair

KARIM MAKDISI

Assistant Professor at the Department of Political Studies and Public Administration, American University of Beirutt

Speakers

JAKOB GRANIT

Project Director SIWI Projects Stockholm International Water Institute (SIWI)

Water Resources - Promoting Cooperation, Development and Sustainability

ZIYAD ALAWNEH

Director of Land and Human to Advocate Progress (LHAP) and National Coordinator of the Arab Network for Environment and Development (RAED) in Jordan

The Mediterranean between the "Horizon 2020" Initiative by the EU, UNEP, the World Bank and Arab NGOs and Governments – A Critical Assessment of Multilateral North-South Cooperation to Save the Sea

JAKOB GRANIT

Water Resources - Promoting Cooperation, Development and Sustainability

Why do states cooperate over water resources and how can international financing institutions promote such processes of cooperation? Granit's presentation glanced at the evolution of international legal frameworks and principles of water sharing and looked intensively at arguments for cooperation, particularly in regard to the countries involved. To illustrate tools that further these kinds of dialogs, he introduced two examples – the Nile River and the Baltic Sea. Finally, he concentrated on the role international financing institutions (IFIs) play in promoting cooperation and presented certain key issues and lessons learned.

Evolution of Principles

Since there is no international water law in existence at the moment that one could adopt, Granit emphasized the evolution of principles, from sovereignty principles such as the Harmon Doctrine to the Helsinki principles and the 1997 UN Convention on the Law of the Non-navigational Uses of International Watercourses, which has not yet been fully adopted. Important to note is a trend towards including more groundwater issues in such principles. On the other hand, he introduced binding frameworks such as the European Union's Water Framework Directive & Marine Directive, which are laws and indicate a big policy change. Likewise progress is being made in the Southern Africa Development Community and the East African Community.

The four key principles that promote good water governance in shared aquatic systems are equitable and reasonable use, the avoidance of significant harm, the need for prior notification as well as data and information sharing and transparency. Granit acknowledged that each aquatic system is unique and stakeholders will always develop their own management regime, like in the case of the European Union (EU).

Why should states cooperate over shared water?

The answer to this question features several arguments. The public good argument indicates that a shared water resource is a regional public good, which cannot be adequately addressed by one state acting alone and therefore needs to be managed by different parties together. As typical public good issues in water resources, Granit specified flood and drought protection as an example, increased biodiversity and conservation, improvement of water quality and even peace and regional stability.

"Sustainable management of transboundary water resources represents in itself a regional public good."

Another argument comes from the economic side. A number of studies by the World Bank show that there is a strong correlation between GDP and the variability in rainfall, especially in those societies where storage capacity is limited. The argument on sharing the benefits from cooperation needs to be taken into consideration. Granit underlined that there is a trend in the international debate amongst riparians to see how they can move from a "just sharing" of water volumes towards sharing the benefits of what they produce or save in their river basins, including environmental (improved water quality), direct economic (hydropower production) or indirect economic benefits, such as regional integration.

From a global perspective, Granit presented a model of cooperation continuum ranging from positions of dispute characterized by unilateral action, to an approach where coordination followed by cooperation is taking place and ideally in the end, in some cases, a phase of joint action. He revealed that there is no river basin in the world where full joint action or integration occurs – most cases fall somewhere within the spectrum.

A tool to promote investment in management and development

A practical example of how cooperation can be supported comes from the Strategic/Sectoral Social and Environmental Assessment (SSEA) of Power Development Options in the Nile Region. Six upstream countries agreed to jointly explore options of cooperation and integration, and used water power networks as a starting point. Despite being extremely time consuming, the rationale to undertake that form of cooperative assessments lies in facilitating sound decision-making with the aim of reducing investment costs, promoting cooperation and improving acceptance and transparency by including stakeholders beyond the government sector. Finally, the studies are a tool for potential financiers to assess their development support.

Strategic conclusions drawn from this indicate that the development of regional power generation and electricity trade would improve productivity and promote economic growth, while an independent development approach would be more costly, have greater negative impacts on the environment and achieve less electricity security.

Promoting Cooperation and Development - Two Illustrative Cases

In order to illustrate his points, Granit discussed two examples of water related cooperation, namely the Nile Basin Initiative (NBI) and the Baltic Sea Basin Cooperation.

He introduced the NBI and its characteristics. Remarkably, the ten countries within the initiative first agreed on a shared vision – a process which took them two years. The resulting vision statement contains the principles Granit mentioned in the beginning of his presentation. Although the NBI is not a permanently legal framework, it provides a starting point for the countries to come together as well as for outside partners to support it.

The case of the Baltic Sea Basin is of particular interest because it is not scarcity but quality of water which is problematic in the Baltic region. As Granit pointed out, the fall of the iron curtain has "unified" the sea once again but shed light on the severe environmental problems of the Baltic Sea. Today, the Baltic enjoys not only a common vision but also the opportunity of reasonable political stability and joint management frameworks such as the EU-proposed Baltic Sea Strategy.

The Role of International Finance Institutions (IFIs)

The role of international institutions is to promote regional, country, and sector analysis dialogue, provide technical assistance and knowledge, and to act as financing instruments. The World Bank, EU and others have supported both example cases in terms of technical assistance and know-how. Granit underlined that working with IFIs in the cooperation process is even more important due to the fact that they can provide necessary outside investment.

Lessons Learned from Cases

In his wrap-up, Granit referred to some common features of success for processes of cooperation such as having a clear, shared vision the countries can agree upon. Furthermore, joint identification of constraints, threats and challenges, joint analysis of common solutions, the existence of a regional institution or framework to work with and transparency and trust building are essential.

Challenges in these cooperation experiences are to sustain the political and public support, the engagement of beneficiaries and flexibility. Finally, granit stressed that it takes a very long time to create such cooperation. Therefore, the time issue should not be underestimated and should be carefully communicated.

ZIAD ALAWNEH

The Mediterranean between the "Horizon 2020" Initiative by the EU, UNEP, the World Bank and Arab NGOs and Governments – A critical Assessment of Multilateral North-South Cooperation to save the Sea

With a perspective from the South, Ziad Alawneh assessed whether all the agreements, conventions and programs that have been implemented in the Mediterranean since 1972 have been able to protect the Mediterranean Sea. He spoke about the Mediterranean itself and elaborated on international and regional efforts of its environmental protection. He concluded that despite a full record of engagement and commitment, not much progress has been achieved to save the Mediterranean.

"Programs targeting the Mediterranean have been upgraded, changed and altered according to politics, and consecutive governments often reversed or totally neglected initiatives and projects by their predecessors, which led to a continuity and sustainability deficit. This is one of the main impediments to breakthroughs in saving the Mediterranean sea in our region."

The Mediterranean

There are 150 million people living on the Mediterranean coast, but all in all, the sea unites and binds 435 million people, almost as much as the European Union counts itself. Additionally, 200 million tourists come to the region yearly, generating around 2.5 million cubic meters of waste water in addition to 3.8 billion from the people living on the coast. Alawneh referred to a report by WWF stating that 80% of this wastewater gets discharged into the sea untreated. The resulting costs of environmental degradation of the coast are very high: 1.5 billion Euros a year for Algeria or 5.1 billion for Egypt, which would constitute 6.4 percent of its GDP.

Manifold Efforts

The efforts to approach the environmental problem in and around the Mediterranean are numerous. Alawneh presented a selection of these, such as the 'Mediterranean Action Plan' (MAP), which was created three years after the Stockholm Summit in 1972 by the United Nations Environment Program (UNEP). MAP involves 21 countries and is a key regional mechanism for cooperation on environmental protection and sustainable development for the Mediterranean.

Twenty years later, the 'Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal Areas of the Mediterranean' (MAP Phase II) was designed, taking into account the achievements and shortcomings of the MAP in the context of recent developments. This new plan arose as a response to the RIO Summit in 1992 which focused on development and environment.

The 'Barcelona Convention for Protection against Pollution in the Mediterranean Sea' from 1976 was a regional convention to prevent and diminish pollution of the sea from ships, aircrafts and land-based sources. It is the main body that brings together all of the initiatives and Mediterranean countries and the European Union as well as the Mediterranean Commission for Sustainable Development (MCSD) formed in 1996. The convention operates within its framework as an Advisory Body, where civil society participates on equal footing.

More international and regional efforts

Alawneh then addressed efforts of the World Bank in collaboration with the EU within the 'Mediterranean Environmental Technical Assistance Program' (METAP), which identified hot spots in the region and created mechanisms such as the MedEcomedia Network for journalists contributing to the protection of the Mediterranean.

The 'Horizon 2020' is a new initiative, which was endorsed in Cairo at the 3rd Euro Ministerial meeting in 2006, with the aim of tackling the top sources of pollution in the Mediterranean by 2020. Here, Alawneh underlined that by means of this new mechanism, it becomes clear that despite the

existence of initiatives such as Barcelona or METAP, not much has been achieved.

From the Arab side, efforts to protect the Mediterranean include the 'Arab Initiative for Sustainable Development', the 'Tunis Declaration' in 2002 preparing for the Johannesburg Summit, as well as the 'Arab Network for Environment and Development.'

The major problem is political

In his conclusion, Alawneh stressed that due to the absence of democratic systems in parts of the Mediterranean region, which inhibits open discourse on grievances, the region is still facing the same environmental problems. A greater problem is the lack of political will to implement protection measures, thwarting many international and regional efforts.

> *"If governments were as dutiful about honouring agreements as the law-abiding citizens of their countries, the Mediterranean Sea would be a healthier, more diverse and more prosperous sea. Many of the commitments that politicians have signed should have long been implemented, but effectively little or no action has been taken."*

Further challenges are limited financial resources, low political priority given to the environment, poor cooperation between the various actors as well as the current political situation of the region. In Alawneh's opinion, the latter is one of the core issues to be solved before progress can be made. Finally, he recommended more financial assistance and suggested to strengthen dialogue and ownership, mechanisms to enhance coordination, as well as transferring, adapting and applying experiences made in the EU.

IN THE PANEL DISCUSSION

Before the audience addressed their questions to the panellists, the chair of the panel, Karim Makdisi, remarked that Granit's technical but positive view opposed by Alawneh's "Southern" and more negative view with emphasis on politics, clearly showed that the problems of cooperation are not simply technical but also political. He asked the panellists how to overcome such conditions. Granit's response stressed the problem of reiterating that politics are guiding all our decisions and actions. He referred to the NBI, where a commitment from the highest level exists. However, the crucial part starts from there to tackle the actual processes instead of waiting for them to be tackled by the political elite.

Questions raised by the audience included the issue of media awareness. It was stated that journalists should be trained to report environment-related issues in a language that can be easily understood by the general public. Granit agreed that there was a need for more efforts to train journalists in covering environmental topics, especially in tailoring the message to the audience. Alawneh stated that censorship hinders transparent reporting. Since politics are the priority of the media and not environment, it is very hard to convince editors to publish articles related to the environment.

Another question addressed Alawneh's experiences of working in civil society and whether there is a possibility to open up a political space to hold governments more accountable. In his response, Alawneh described the relation between his NGO and his government as a soft one, the main aim being to sustain operation. He compared it to the relation between critical European countries and the US: "You have to retain a minimum of diplomacy in order to pass the message through. If you become too critical, they will do everything to shut you down, and then you're paralyzed." Since the Jordanian government is not really democratic and most of its programs are driven by donors, they cannot - as an NGO - be confrontational towards the government but need to find a balanced relationship.

PANEL C

LAND DEGRADATION – RINGING ALARM BELLS

Chair

ALI DARWISH

President of Green Line Association and IUCN Regional Councilor for West Asia

Speakers

MUNIR SUGHAYYAR

Executive Manager Lebanon Office of the International Center for Agricultural Research in the Dry Areas (ICARDA)
Desertification, Sustainable Agriculture, and Security – Lessons Learned

MOHYEL DEEN EL TOHAMI TAHA

Sudanese Environment Conservation Society (SECS)
Land Degradation and Conflict in Sudan

After climate change, land degradation is the second major challenge facing the global environment today, said Ali Darwish, chair of the panel on 'Land Degradation – Ringing Alarm Bells.' He introduced the subject matter by emphasizing that on one hand, land degradation – the loss of fertile land – is partially caused by climate change. Scientific studies indicate a rise of sea levels that will cause floods, while other areas will face droughts. On the other hand, agricultural practices, human activities and mismanagement of water are also causes, leading to shortages of food and fibres, creating a potential for competition and conflict.

In this context, Darwish highlighted how current global economic trends and neoliberal policies, which rely on the control of natural resources and on pre-emptive wars can be other human causes of land degradation as seen for example in South Lebanon with cluster bombs, land mines in former Yugoslavia, or depleted uranium in Iraq. This type of intentional activity renders valuable land useless.

MUNIR SUGHAYYAR

Desertification, Sustainable Agriculture, and Security – Lessons Learned

Before expanding on the numerous causes and impacts of desertification, Munir Sughayyar underlined the ecological transition our world is undergoing, in which desertification is emerging as a major challenge. In this context, he called attention to the poverty trap and the link between poverty, conflict and security. Further, Sughayyar presented ICARDA's (International Center for Agricultural Research in Dry Areas) work of supporting sustainable agriculture, food security and local communities to reduce the potentials for conflicts.

Causes of Desertification

Explaining the causes of desertification, Sughayyar focused on man-made desertification and listed the following: overgrazing, deforestation, intensification of agricultural production, salinization, urbanization, pollution, and conflict. He emphasized that desertification is caused by a combination of multiple social and biophysical factors rather than a single variable. Thus, desertification has several dimensions including biodiversity, soil and water resources, food production and even security. According to the recent Millennium Ecosystem Assessment report, desertification threatens over 41 percent of the earth's land area, while dry regions are the most vulnerable.

Impact of Desertification

Desertification affects all aspects of life, invariably linking environment and livelihood. A threat which aggravates desertification and endangers food security is climate change. The rise of temperatures and its effect on hydrological cycles are an enormous burden to agriculture. Sughayyar referred to the recent report of the Intergovernmental Panel on Climate Change (IPCC), which suggested that the severest impacts will be felt in West Asia, North Africa and Sub-Saharan Africa. He underlined that the crop varieties grown today are not likely to survive in the changed climate of tomorrow.

Desertification also leads to serious food deficits. Here, Sughayyar cited as an example the grain gap in 1997, where a lack of 51 million tons of grain affected 30 countries in Central and West Asia as well as North Africa. Even if per capita consumption remains constant, this deficit will reach 80 million tons by 2025. He projected that unless huge investments are made to combat desertification and promote sustainable agricultural development, food security is likely to deteriorate further with the increasing threat of desertification.

The Link between Poverty, Conflict, and Security

Addressing the issues of conflict and security in relation with desertification, Sughayyar discussed the proportion of people being caught in a poverty trap of declining agricultural productivity, degrading soils and food insecurity.

Referring to Darfur as an example where drought is a contributing factor to the conflict, Sughayyar noted that the poverty trap might transform into a conflict-poverty trap, since scientific studies suggest that there is a link between food security, poverty and conflict. In this sense, countries with a low per capita GDP are more likely to experience war or conflict. Consequently, he pointed out that although numerous ethnic, social and governance factors influence the war-poverty link, agricultural and developmental deprivation are also important factors.

Pathways out

To stem the tide and find ways out of the poverty trap and resource degradation, Sughayyar drew attention to the specific advantages of dry areas such as plentiful sunshine and a long growing season. With good investment in research and efficient management of natural resources, dry areas can be highly productive, with Egypt serving as a good example.

"ICARDA's mission is to contribute to the improvement of livelihoods of the resource poor in dry areas. This is achieved by enhancing food security and alleviating poverty through research and partnerships to achieve sustainable increases in agricultural productivity and income, while ensuring the efficient and more equitable use and conservation of natural resources."

Another issue in this context dealt with ICARDA's mandate extension to provide support to rebuild agricultural research in countries affected by conflict, such as Afghanistan, Iraq and Lebanon. These efforts are based on the hypothesis that technological change in agriculture leads to improved food and nutritional security, reduced poverty, better livelihood and sustainable use of natural resources and ultimately, according to Sughayyar, to fewer conflicts.

Since socio-economic and policy dimensions are critical for new technologies, ICARDA's Mashrek and Maghreb project integrates policy makers, researchers, as well as the local communities in order to strengthen the link between research and policy.

Lessons Learned

In conclusion, Sughayyar highlighted that ICARDA's experiences in rehabilitating agricultural research in war-torn countries are manifold and comprehensive of socio-economic considerations, coordination of support, ex-seed to germ plant conservation, restoring capacities of national institutes, broad partnerships, community bonds and codes of conduct.

MOHY EL DEEN EL TOHAMI TAHA

Land Degradation and Conflict in Sudan

Darfur and Sudan as a whole have recently developed a subtext of conflict over resource competition and land degradation. In his presentation, Taha pinpointed the link between conflict in Sudan and land degradation by elaborating in detail on the conflict between pastoralists as traditional producers and farmers. After a short introduction on the Sudanese environment in a social context, he drew a map of the conflict and discussed the complexity of interrelating issues. Further, he gave insights into the theoretical debate on land degradation and conflict, discussed reasons for natural resource conflict and related symptoms of land degradation to conflict. Finally, Taha addressed the case of Darfur, which plays a significant role in this debate, before he closed with some recommendations for the challenge of sustainable national resource management.

On Sudan

Sudan is the largest country in Africa and in the Arab world and ranks the ninth largest country in the world. Characterized by its climatic, ecological and economical diversity, the vast majority of the country's population is poor. More than 60% of Sudan's population lives in rural areas and depends entirely on the natural environment. In the past decades, Sudan has suffered a number of long and devastating droughts. Taha underlined that these have undermined food security and are strongly linked to conflicts and the related human displacement.

Mapping the Conflict in Sudan

Currently, conflict is recognized as a major cause of poverty and risk in Sudan. Its magnitude and socioeconomic, political, ecological and security costs indicate that the conflict is pervasive in nature. Taha marked the major problems in present-day Sudan with the Crisis in Darfur: the conflict in the East and the escalation of conflict over water around the Hamadab and Kajbar Dams in Northern Sudan. Further, he referred to local level conflicts in the rainfed lands between pastoralists and farmers – related to the expansion of mechanized farming – and the disputes over the implementation of the Sudan Comprehensive Peace Agreement.

"Rights to land and access to resources were founded on the concept of customary tribal homeland, which constituted the most important aspect of traditional land tenure in Sudan. The system follows historically derived tribal territorial rights initially constituted during the successive indigenous kingdoms of pre-colonial Sudan and reinforced through considerable legislations during the British colonial administration."

Land Degradation and Conflict: a Theoretical Debate

In light of this, Taha elaborated on important theoretical background to the analysis and understanding of resource-based conflicts from the political economy approach through Salih (1999) and Peet and Watts (1996). They focus on the structural analysis of power differentials and the related political and economic interests of the various actors in a conflict, which resulted in the analysis of conflict in terms of greed and grievance. Taha underlined that in marginal environments, such as the rainfed lands of Sudan, where environmental conditions continuously shape and reshape land use, natural and ecological factors cannot be ignored or neglected in the analysis and understanding of resource-based conflict.

Reasons for Natural Resources Conflict

Potential reasons for conflicts over natural resources can be indicated through the fact that natural resources are part of a shared physical and social space, subject to increasing scarcity and their use often has great symbolical meaning. Here, Taha explained that land is not just a material resource

people compete over, but it is also part of a particular way of life, an ethnic identity, linked to a set of gender and age roles. Such symbolic dimensions of natural resources lend themselves to ideological, social, and political struggles or even manipulation.

In a further step, Taha focused on the symptoms of land degradation in Sudan, and related them to conflict. According to him, the main symptoms include: rainfall variability, which is insufficient and highly variable; drought, which other countries in the Sahel belt also suffer from; desertification, illustrated by an estimated 50 to 200 km southward shift of the semi-desert to desert boundary; mechanized farming – a main factor behind the conflict in Sudan and lastly deforestation, which is estimated to be occurring at a rate of over 0.84 percent per annum.

The Case of Darfur as a Conflict over Natural Resources

Darfur is a region in West-Sudan with a total area of 550,000 kmÇ and international boundaries with Libya, Chad and the Central African Republic. The colonial boundaries cut across the human frontiers of ethnic and linguistic groups. The population, totalling around 5.9 million persons (2001), consists of a multitude of different ethnic groups of Arab and Non-Arab origins. About 80% of the population live in rural areas and on dry cultivation and pastoralism.

During the past four decades, Darfur witnessed drastic environmental changes such as the Sahelian drought phenomena and increasing fluctuation in the amount of precipitation with an overall sharp decline. On the one hand, the human and livestock populations are increasing, while on the other hand the natural environmental resources are deteriorating.

The conflict-ridden region faces violent resource-based conflicts between herders and farmers, with far-reaching impacts on economy, society and politics. Taha noted that traditional rules regulating competition have collapsed and arms now support new de facto rules. Moreover, he added that the conflict is now progressively acquiring ethnic and cultural dimensions with a heavy presence of militias.

Ways Forward

In the end, Taha concentrated on the challenges contemporary Sudan is facing and presented some recommendations. One major challenge is the construction of a social environment conducive to peace building and conflict management. In order to make peace-building work, a sustainable management of the country's natural resources is required, which in turn is part of the solution for achieving social stability, sustainable livelihoods and development in the country. Therefore it will be necessary to deeply embed a comprehensive understanding of environmental issues in the policies, plans and programs of the Sudanese Government and its international partners, such as the United Nations. Furthermore, Taha demonstrated that this would improve the effectiveness of international assistance and ensure a 'do no harm' to Sudan's environment.

IN THE PANEL DISCUSSION

Since Taha's presentation was still resonating, the first questions concerned Sudan. It was indicated that from an Arab point of view, Darfur is a tribal conflict, while Europeans define it as a racial conflict between Africans and Arabs. Hence, the question asked, what is the real issue of the Darfur conflict? Taha restated that the conflict was based on resource scarcity, with other additional factors. While being transformed into an Arab/Zurga conflict, the core remains a dispute over badly managed resources, which escalated and transformed into various other types of conflicts.

In response to a question for useful instruments in addressing conflicts inside a country, Taha referred to Darfur, where he suggests bringing civil society together with international and tribal leaders to bridge the gap.

Lebanese audience members raised a question concerning lessons learned from Sudan that could be applied to problems of globalization of agriculture and its implications in Lebanon. Sughayyar explained that before the civil war, Lebanon used to be the regional leader in the agriculture sector, a position that was lost after the war. Nowadays, Lebanese agricultural products are facing fierce competition from neighbouring countries with comparatively lower production costs. This trend, Sughayyar indicated, is likely to worsen if the government does not subsidize agricultural production in the future. As an alternative to boost the industry, he suggested a concentration on those products for which Lebanon can affirm a comparative advantage.

A last question raised the issue of sustainability of agriculture in dry lands, asking for an alternative. Sughayyar explained that the main problem in dry lands is simply the lack of water. Therefore, the best solution is to develop drought resistance in the crops used, while teaching the farmers to use the available water more efficiently is equally important.

SATURDAY 3 NOVEMBER

THE SECOND CONFERENCE DAY

The second day of the conference in Beirut dealt with two core issues in the context of environment between conflict and cooperation: The first panel discussed the actual potential of wars over resources as well as the potential of the environment as a peace-making tool such as through Peace Parks. The second panel revealed the consequences of climate change for a region already experiencing rapid environmental degradation and problems. It addressed how the change in climate will add to the severity of present environmental problems.
Having these two well known and internationally highly debated topics brought to the Middle East made their discussion very much a political one but underlined the urgency to act together and the need for exchange and communication in the region.

PANEL D

ECO-PEACE VERSUS ECO-WARS

Chair

BARBARA UNMÜSSIG

Member of the Executive Board of the Heinrich Böll Foundation

Speakers

NILS PETTER GLEDITSCH

Research Professor at the International Peace Research Institute of Oslo (PRIO)

Water and Other Resources - Conflict or Cooperation?

SALEEM H. ALI

Associate Dean for Graduate Education at the University of Vermont and Member of the World Commission for Protected Areas

Building Peace Trough Environmental Conservation in the Middle East

As chair of the Panel, Barbara Unmüssig opened the morning session of the second conference day by raising the provocative question: "Are we moving towards eco-wars or eco-peace?"

With the goal of giving an insight into conflicts caused by the misuse of resources or the competition over them and to tackle the question of environmental peace-building with regard to the Middle East region, Panel D led to a fruitful and political discussion.

The debates challenging the hypotheses of resource, especially water wars were also addressed and elucidated in the context of the climate change debate.

The second part dealt with aspects of environmental cooperation, where different environmental peace building mechanisms were discussed and conditions for their success elaborated. Asking for the prerequisites of conflict prevention and conflict resolution in the Middle East region brought up an even tougher question about the capability of environmental peace-making in the Middle East.

NILS PETTER GLEDITSCH

Water and Other Resources - Conflict or Cooperation?

Before approaching the reality of eco-violence and the myth of water wars, the conflict expert Gleditsch gave an overview on conflicts in general. There are two main empirical results to be announced in the field of conflict research: First, internal conflicts such as civil wars are numerically dominant compared to international and interstate conflicts considering the last 60 years. Secondly, since the end of World War II, violent conflicts are declining. But one might ask: Are conflicts becoming more violent? An evaluation of data on the number of battle deaths over the entire 20th century shows a declining trend. This encouraging news could mean that in spite of all the violence going on, the world is in general moving towards a more peaceful environment.

"There are many examples of environmental cooperation, certainly the whole development of the law of the sea, river authorities and joint hydroelectric projects such as the project on the border river between Norway and the Soviet Union, which was actually undertaken during the Cold War when the two countries were in opposing military alliances. Yet they were able to agree on a practical project to use this river to gain hydroelectric power. Cooperation tends to cut across conflict boundaries and sharing major resources creates webs of interdependence that may actually extend the area of cooperation."

In light of this, Gleditsch posed the core question of his presentation: Could eco-violence reverse the trend and create a less peaceful world in the future? In order to approach this question, he presented the theoretical background of the subject matter and discussed the complexity of scarcity, environmental degradation and conflict as well as the potential for violent conflicts over water. He also addressed the one eco-violence scenario that has gained most credibility lately, climate change, and posed the question whether climate change is a security matter.

Entering the debate on eco-wars and eco-violence, the two opposing camps cannot be ignored: On the one hand, there are the ones predicting eco-wars now and in the future, claiming that most prominent water resources will replace oil as a flashpoint for violent conflict. On the other hand, there are those who doubt that there has been a war over water in modern times.

More systematically, Gleditsch distinguished between five schools of thought in the eco-conflicts debate, of which the Neomalthusian discourse - arguing that resource scarcity leads to conflicts - can be described as dominant. There are however, a number of objections to the Neomalthusian discourse, for example economic objections, indicating that resources can be substituted by technological innovations, or political objections, arguing that democracy encourages peace and responsible environmental performance.

However, there is one exception, which provides systematic empirical proof for the Neomalthusian model with regard to shared rivers and conflict. It argues that sharing a river approximately doubles the risk of militarized conflict between riparian states, controlling for other variables leading to conflict. Yet this is only true for small-scale conflicts, not wars. Most importantly, sharing a river also encourages cooperation in trade and joint membership in intergovernmental organisation.

Hence, sharing a major resource like an international river may lead to both conflict and cooperation, while conflict might also drive cooperation.

But what about climate change?

Having recently emerged as the most probable and most credible eco-violence scenario, climate change may or may not be perceived as a security matter, depending on how one defines security. Gleditsch distinguished three different positions. The first argues that physical consequences of climate

change such as the rise of sea-levels can have social consequences like extensive environmental migration. This allows for climate change to be labelled a 'security threat' by an extended definition. In this context, Gleditsch pointed out that climate change has gained the UN-Security Council's attention for the first time only in April 2007.

The second position sees climate change as an 'added burden' to countries that are already in trouble. The IPCC report supports this notion – though not systematically – in the chapter on Africa, where it is argued that many African countries suffering from poverty, corruption, conflict etc. are also likely to be adversely affected by climate change.

Thirdly, climate change can be seen as a cause of armed conflict. This position has been promoted recently by politicians, NGOs, and the Nobel Committee in its award to Al Gore and the IPCC this year, despite cautious studies from defence and environmental agencies. In general, Gleditsch stated that the whole argument lacks backing from peer-reviewed research. Consequently, he combined empirical data from recent years – rising temperatures and declining number of conflicts – to conclude that so far there is no clear evidence of climate change fostering more conflicts.

In his conclusion, Gleditsch stressed climate change as both a major challenge and a security issue, which has the potential to exacerbate problems in poor and conflict-riddled areas. Finally, Gleditsch called for more research on climate change and conflict, hoping that the IPCC's fifth assessment report will include the issue of conflict.

IN THE DISCUSSION

The discussion was vivid and broad. Two points were debated repeatedly: the possibility of water conflicts in the Middle East region and the issue of climate change as a security threat.

Asked for his predictions of future water conflicts particularly in the Middle East, Gleditsch stressed not being an expert on the region and answered broadly, emphasising that although some potential remains for water conflicts, this is beyond what can be predicted. Therefore, cautiousness in over-estimating conflicts is advised, as it may turn out that cooperation gets the upper hand.

Concerning climate change, an audience member argued against it being a security issue, since it leads to adaptation. Referring in this context to the Nobel Committee, Gleditsch pointed out that it had a double justification for giving this year's Nobel Peace Price to Al Gore and the IPCC. One being its use of an extended concept of security, which he considers justified, especially with regard to climate change's unpredictability, making it as risky as the potential for war. The other justification being the Committee's argument that climate change will lead to armed conflicts, which Gleditsch strongly questioned.

SALEEM H. ALI

Building Peace through Environmental Conservation in the Middle East

What exactly is eco-cooperation and how can the environment serve as a peace-building tool? Those were questions Saleem H. Ali tackled in his presentation on environmental peace-building, arguing that environmental narratives help to build cooperation among adversaries, presenting several illustrative and on-the-ground efforts of environmental peace-building and giving future prospects for the establishments of peace-parks.

Water Narrative Example
Israeli: "Water concerns us because we suspect there are heavy metals inside the water."
Palestinian: "The scarcity of water is a major problem for us. And all the water is controlled."

Background on environmental peace-making

Considering different environmental security pathways, Saleem H. Ali focused on scarcity, asking initially how cooperation between communities can be achieved under the condition of scarcity. The pathway goes from awareness of the particular scarcity to fear of depletion and needs to be reframed psychologically, as any kind of conflict escalation is essentially behavioural and therefore psychological.

Moreover there are three points to consider when moving along the pathway from scarcity to eco-cooperation: first of all, 'distributional cooperation over a necessary resource' such as water is conceivable. Citing the Jordan Water negotiations as an example, Ali indicated that the necessity of a resource provides a self-correcting mechanism, which eventually will lead to cooperation. Secondly, since common interests are not always given and cannot be enforced, there is cooperation over 'common aversion of diminished environmental quality.' Here Ali emphasized that diverging interest but a common aversion can just as likely lead to cooperation. 'The coordination in crisis as catalyst of lasting cooperation' is the third pathway, which has been studied actively after the Tsunami of 2004 and the Kashmir earthquake, showing that after environmental crises, cooperation can be catalyzed at least for the short term.

"Often I give my students the following example: You are at an intersection of two cars going in two different directions. They have diverted interests but what leads them to cooperate is a common aversion, which is getting into a car crash."

Environmental narratives

Moving on towards the subject of environmental narratives, Ali presented an empirical study from the 'University of the Middle East Project' to give some insights about the narratives of trained environmental professionals in the region. The Project was established in 1997 by a group of expatriates with the ultimate objective of using knowledge as a peace-building tool. The study revealed a significant convergence between Israelis and Palestinians in the way personal environmental awareness is developed; both sides identified water as their predominant environmental concern, though the Israeli side had a very technical perception of water, while it was much more a political issue for Palestinians.

Arguing in a tentative conclusion that environmental education can be used as a tool for peace-building, the study also conceded that it is necessary to move beyond the narrative of the environment as "low politics" and security as "high politics." Ali's statement in this regard went even further and concluded that even if the cause of a conflict is not environmental, the environment can be used as a peace-building strategy due to its characteristics of psychological connection and common aversion.

Current efforts and future prospects

Current endeavours in the field of environmental

peace-building in the region include the transboundary efforts of Friends of the Earth Middle East (FoEME), the joint environmental education initiatives of the Arava Institute and the Red Sea Marine Peace Park. The latter refers to the area of the Gulf of Aqaba, declared as a Peace Park, where people can co-operate using science as the main unifying factor.

As prospects for the future, Ali presented the Golan Heights Peace park effort. Even though it might sound like a "pie in the sky" according to Ali, some valuable progress has been made lately. Initiated long ago by Robin Twite of the Israeli and Palestine Center for Research and Information (IPCRI), it was discussed in an April 2007 meeting between a Syrian-American negotiator and the chairman of the Knesset Foreign Affairs and Defence Committee. A plan suggested that Syria would be the sovereign in all of the Golan, while Israelis could visit the Park freely without visas. Nevertheless, Ali indicated that even though the plan is not a "pie in the sky," it needs strong leadership like most big transformations in history.

Referring to his miscellany "Peace Parks: Conservation and Conflict Resolution," in which he compiled several case studies of existing parks and proposals for new ones, Ali underlined the need to consider the strategic advantage to both sides in environmental peace-building. Moreover he proposed to get the environment on the negotiator's agenda, develop an environmental education curriculum for religious schools and to work on strengthening diverse societies in the region, because "it is all do-able!".

IN THE PANEL DISCUSSION

Introducing the round of questions and answers, Barbara Unmüssig highlighted the importance of Saleem H. Ali's message by stating that whether in a resource-related conflict or not, there is always the chance to use environment as a path for conflict resolution.

In the subsequent debate, the issue of environment, in particular the idea of peace parks in the Middle East as a tool for peace-building, divided the audience into those who deemed the idea feasible and those who remained rather sceptical. The latter argued that the concept itself will eventually be co-opted by the stronger side and expressed big doubts about the success of the environmental cooperation concept before key political questions are solved. Others defended the approach by saying that it prepares the ground for the day the region faces peace and is worth a try against all speculation and suspicion. Ali furthermore criticised the assumption that peace is a prerequisite to environmental cooperation, because it assumes the environment to be in some way residual. He urged for cautiousness and sensitivity to all concerns of misuse by the people working on the issue of environmental peace-building.

In light of this, the Golan Heights Peace Park effort was also subject of an intense debate. One side feared that Israel would mainly be interested in acquiring more land. The other side including Ali again underlined that the current efforts are not ignoring the occupation issue, but rather addressing it by means of a different pathway to resolving it.

What became clear was that environmental cooperation in the Middle East is only possible to a certain extent. If countries are in a state of war, their people cannot have contact with each other even though they participate in international projects – it would be illegal. Therefore, initiating transboundary environmental cooperation always has to take political dynamics into consideration first. Fouad Hamdan pointed to Greenpeace Mediterranean as an environmental organisation in the region which has worked on trying to bring Israelis and Arabs together for joint work. The office in Beirut was according to Hamdan a political mine-field. After the Oslo agreement, the spirit was high and the working environment harmonious but this changed after Rabin's killing. Hamdan explained that the office is still active but on a very low key because activists from Lebanon were accused of being Zionist agents and once conflicts with Israel erupted there were internal tensions and divisions inside the office. Hamdan finally stressed his believe in projects like Greenpeace Med and that they prepare the ground for the day when there will be peace but he went on to say that they have their extreme limitations and are dangerous even for the people working on them.

Another topic was raised by the question of what kind of mechanism could be engaged in internal conflict. Ali assured that the same dynamics of environmental cooperation can also be used in internal conflicts, though the kind of jurisdiction changes from inter-state, to inter-county or -community. Nils Petter Gleditsch added that cooperation and other forms of peaceful resolutions are very common in internal conflicts over resource distribution. Many countries are facing conflicts of interests between different internal regions when it comes to sharing water. He referred to Spain as an example. In Spain, periodic problems of droughts and water scarcity are not uncommon, but the arising conflicts are not resolved by fighting. The problem occurs in countries where adequate conflict resolving institutions do not exist the way they do in Spain. In those cases, scarcity can very well lead to violence between different groups, where the government either prefers to stand on the side lines because of dividing group tactics or is too weak to intervene and settle the conflict.

PANEL E

CLIMATE CHANGE – BRINGING THE NEXUS HOME

Chair

JÖRG HAAS

Department Head Ecology and Sustainable Development of the Heinrich Böll Foundation

Speakers

HANS GÜNTER BRAUCH

Chairman of Peace Research and European Security Studies
Climate Change Scenarios and Possible Impacts for the MENA Region – Hazards, Migration and Conflicts?

MOHAMMED EL RAEY

Professor of Environmental Physics University of Alexandria
Impact of Climate Change on the Nile Delta Region – An Early Warning Analysis

FOUAD HAMDAN

Founder of Greenpeace Lebanon and Former Executive Director of Friends of the Earth Europe
Stopping Climate Change in the Middle East – Ways out of an Unfolding Catastrophe

Opening the panel, Jörg Haas designated the topic of climate change as the "mother of all environmental crises," linked to other crises discussed in the conference such as the water crisis and land degradation.

Climate change must therefore be addressed jointly with other crises, where important choices are to be made: Either fighting the water scarcity through desalinisation plants fired by fossil fuels that exacerbate climate change or deciding for concentrated solar power, which Haas highlighted as the single most important power source for the future of the Middle East region. Another choice to be made addresses the increasing summer heat: using more air-conditioning adding to the already very high energy demand, or deciding to build with traditional desert architecture, reducing greatly the need for artificial cooling.

Equally important is how countries position themselves in the global battle against climate change, of which the Arab region will be by all projections one of the worst affected. Therefore, Haas called for more recognition of climate change as a matter of national interest for the Arab countries and for an intensive involvement in the global effort against climate change, instead of derailing the international process like the big oil producer Saudi Arabia is doing.

HANS GÜNTER BRAUCH

Climate Change Scenarios and Possible Impacts for the MENA Region – Hazards, Migration and Conflicts?

In his presentation on climate change in the MENA region, Brauch presented a grim picture for the region: Climate change will affect the Mediterranean much more than Central and Northern Europe. The Middle East and North Africa (MENA) will get much hotter, precipitation will decline and sea levels will rise, affecting coastlines. Furthermore, weather related hazards such as droughts and flash floods will increase while crop yield will decline. Brauch underlined that these challenges require cooperation not only among the MENA countries but also with Europe due to their potential security implications.

Not only environmental but also social impacts are to be expected, requiring policy responses from reactive to proactive for the region.

But first of all, Brauch addressed the issue of global environmental change as a potential cause of conflict since it poses new threats, challenges, vulnerabilities and risks for global and human security and survival. Importantly, it is a threat that cannot be solved with military force. Arguing from an environmental and human security perspective, Brauch stressed that environmental degradation, climate change and natural hazards do pose a security threat, but not in military terms. The impacts and societal outcomes of climate-related natural hazards for example are related to social vulnerability, keeping in mind that those causing climate change are not necessarily the victims. With regard to policy, he distinguished between reactive – postponing the burden onto the next generations – and proactive responses – reducing emissions or shifting energy consumption from fossil to renewable sources such as solar energy.

Global Climate Change Scenarios and Impacts for the MENA Region

"Annual mean temperatures in Europe are likely to increase more than the global mean. Seasonally, the largest warming is likely to be in Northern Europe in winter and in the Mediterranean area in summer. Minimum winter temperatures are likely to increase more than the average in Northern Europe. Maximum summer temperatures are likely to increase more than the average in Southern and Central Europe. Annual precipitation is very likely to increase in most of Northern Europe and decrease in most of the Mediterranean area. In Central Europe, precipitation is likely to increase in winter but decrease in summer. Extremes of daily precipitation are very likely to increase in Northern Europe. The annual number of precipitation days is very likely to decrease in the Mediterranean area. Risk of summer drought is likely to increase in Central Europe and in the Mediterranean. The duration of the snow season is very likely to shorten, and snow depth is likely to decrease in most of Europe."

Source: IPCC, WG I, Regional Climate Projections (AR4, vol.a, p.850)

In drawing up climate change scenarios for the MENA region and their different impacts, Brauch based his argumentation mainly on the most recent reports by the 4th IPCC assessment. He acknowledged that there is no climate impact assessment for the Mediterranean and MENA region itself. Still, all of the four IPCC reports indicate a likely global temperature increase between 2 and 4 degrees, a sea-level rise between 18-59 cm, as well as impacts on hydro-meteorological natural hazards by the end of the 21st century. In conclusion the message is clear: the Mediterranean gets hotter and dryer and there will be more extreme weather events such as droughts and heat waves.

Referring to the Stern Report, Brauch specified the different impacts of climate change for the MENA region, such as declining crop yields in the whole region, less water in the Mediterranean, extensive damage to Coral Reef ecosystems and a decline in biodiversity. In the long term, there might be a rising intensity of storms, forest fires, droughts, floods and heat waves.

Regarding the main social impacts for the MENA region until the year 2050, Brauch drew a picture of migration and conflicts due to major demographic changes and climate change affecting the supply side of water, stressing soils (desertification) and harvests. The tremendous impacts might pose a "survival dilemma" for affected people and force the most vulnerable to migrate to the cities or to other countries.

What do we need?

Brauch called for a shift from reactive to proactive responses to climate change and singled out public awareness as the primary challenge. The major task lies in the hands of the universities to educate the next generation. Furthermore there is a need for a proactive Euro-Mediterranean Climate Partnership and for sustainable co-development.

In his conclusion, Brauch emphasised the absence of a military option for the non-discriminatory challenge of climate change, which affects all regions in the world. His policy proposal for the MENA region aligns Brauch with the European experience. According to Brauch, European leaders such as Jean Monnet or others like Michael Gorbachev made it possible to break deterrence and overcome the cycle of violence with their ideas and new ways of thinking. New ideas matter in the fight against climate change, too, and a major shift in how we think about security is essential to achieve a cooperative security that includes an environmental dimension. Driven by this, Brauch suggested two future proposals for the region: A common assessment of global environmental change with regard to the region by scholars of all the countries concerned, for example through a potential EU-sponsored GEC Research Centre in Cyprus; secondly the establishment of a technical university in the Gulf of Aqaba, bringing together experts in desalinization and solar energy to work jointly on solutions.

IN THE DISCUSSION

Brauch urged the discussion to remain realistic regarding the threats posed by climate change. The questions and comments concentrated on a debate on the United States and its disregard of the Kyoto Protocol as well as doubts regarding the idea of a big "green" push through something like a Middle Eastern version of the Marshall Plan.

Consequently, Brauch elaborated on his idea of learning from the European experience. He considered it a duty for the EU to take a lead in building stable and long-term structures in the region to facilitate the functional cooperation of experts. He mentioned the German Technical University in Cairo as a good example for experts from the South training the next generations. There is a need for technical solutions to be developed in the South and for big companies to move to the South, although this requires a state of stability. Last but not least, Brauch stressed again: knowledge, technical expertise and stability as preconditions for exploiting the tremendous potential for wind and solar power for local and regional development.

MOHAMMED EL RAEY

Impact of Climate Change on the Nile Delta Region – An Early Warning Analysis

Offering a slightly different approach in his presentation on the "Impacts of Climate Change on the Nile Delta Region," the physical scientist Mohammed El Raey focused more on physical aspects of the problem. His presentation centred around three main points: he argued for the need of adaptation to climate change in the Middle East region, addressed vulnerabilities of various sectors, especially the coastal sector, and pleaded for developing institutional capabilities and crisis management for proper adaptation in Egypt and particularly the Nile Delta Region.

Some introductory facts about Egypt showed that the country contributes less than 0.6% of the world's greenhouse gases. However, although Egypt signed the Kyoto Protocol and is now fighting climate change by adopting cleaner production mechanisms, a reduction or elimination of its greenhouse gas emissions would not free Egypt from having to deal with their consequences. Therefore, Mohammed El Raey acknowledged the importance of mitigation, but underlined that the actual problem lies in adapting to the impacts of climate change.

Impacts of climate change in Egypt

But what are the impacts of climate change in Egypt and what are their implications? Like other MENA countries, Egypt faces serious problems in three major fields: water resources, agricultural resources and coastal zones, of which the latter are the most affected.

Egypt's coastal zones – now facing the threat of rising sea levels – already suffer from manifold problems including highly populated economic centres like Alexandria and Port Said, increasing human activities, a shortage of institutional capabilities as well as land subsidence, erosion and accretion. The circulation patterns are expected to change, affecting fishing activities. The impact of sea-level rise and salt-water intrusion can already be felt in many areas and will be aggravated by climate change. Moreover, there is uncontrolled urban development putting pressure on the coastal zones.

For instance, the potential impacts of a sea level rise of 50 cm in 50 years would have tremendous socio-economic implications for the city of Alexandria: 1.5 million people in this low-elevation region would be affected, about 195,000 would lose their jobs and over a million low-income people would have to move away from the area. In light of this, Mohammed El Raey called for an assessment of further indirect economic and health losses due to salt water intrusion, soil salinisation and loss of land productivity, as well as potential cultural and world heritage losses.

The increased frequency and severity of dust storms poses another problem that will burden the productivity and health of the region. The impacts would be felt in all other sectors of development, leading to rising unemployment, increasing poverty and migration of the unemployed. In this regard, he referred to the clear message of the Stern Report: the poorest countries and the poorest people will suffer earlier and the most.

Facing the challenges

El Raey made alarming comments about a lack of knowledge and information concerning impacts of climate change on coastal fronts and harbours in the Sinai, on Lake Nasser or on the River Nile. Similarly, not much is known about effects of salt water intrusion in groundwater and the impacts of climate change on lake ecosystems and fisheries or on coral reefs in the Red Sea – one of Egypt's main tourism sites.

Egypt is limited in its reduction of greenhouse gases. It lacks clear identification of vulnerable sites and sectors and proactive adaptation, such as building regional models, enforcing Environmental Impact Assessments and developing institutional capabilities for implementation and follow up.

"There are so many large scale projects, for instance the Toshka Project near Lake Nasser, where the impact assessment has not been carried out. We recommend that an impact assessment that takes climate change into account be always included in any national project."

Concluding, El Raey highlighted the need for institutional development that fosters monitoring and enforcement of already existing laws and regulations. A regional institute for crisis management should be established, oriented towards climate change; national capacities for adaptation need to be built up and planning must be done to accommodate the impact of migration from low-lying and vulnerable areas. Lastly, he underlined the necessity for adopting strategic assessment, consisting of a climate change component and a program to create job opportunities in non-conflict areas.

IN THE DISCUSSION

A question from the audience was how controlling illegal water extractions would help to control the effect of salt water intrusion and land subsidence. In his answer, Mohammed El Raey said that some of the wells in an area of salt water intrusion were followed up but he pointed to the need for enhanced awareness on water abstractions to prevent subsidence as well as on salt water intrusion in order to cultivate salt tolerant plants.

A comment from the audience dealt with the impression that Egypt seems to be the only country in the region actually doing research on the issue of climate change and its effects, while most other countries lack even the most basic research on the impacts of climate change. El Raey admitted that this might be true. Nevertheless, Bahrain as well as Lebanon and Syria have already submitted studies on the issue.

FOUAD HAMDAN

Stopping Climate Change in the Middle East – Ways out of an Unfolding Catastrophe

Subsequent to the scientific knowledge accumulated in the previous presentations, Fouad Hamdan presented some action-oriented approaches to fighting climate change. Pointing out an attitude of denial towards the matter in the Arab world as one of the core problems, he also stressed positive initiatives in the region. Nevertheless there is an alarming path towards nuclear energy pushed by certain interests challenging the highly needed solar revolution in the Arab world.

What climate change?

According to Hamdan, the majority of Arab officials tend to respond with denial when it comes to the subject of climate change and CO2 emissions within their region. They rather attenuate climate change as a Western plot to sell new technologies and to demonize Arab oil and push Arabs into poverty. Hamdan considers these attitudes the core of the problem, together with a lack of knowledge among Arab leaders about the causes of climate change, actions needed and about the fact that there still can be a booming Arab economy after the Oil Age. However, a defensive reaction to keywords like 'climate change' or 'cut CO2 emissions' is comprehensible in a region of political and economic problems as well as visible and omnipresent pollution. Particularly the subject of climate change does not seem predestined to gain the public awareness necessary for it to be addressed on a high political level.

> *"So try to tell people here in the Arab world: Yes, we have Climate Change and CO2 emissions, which you cannot see, cannot feel, and cannot touch but which will affect you in one way or another soon. It is a bit difficult."*

Still, Hamdan knows Arab leaders cannot ignore the scientific facts on economic and social impacts of climate change and need to act; otherwise Arab societies will pay a bitter price.

Some positive initiatives

In contrast, a few visionary Arab leaders have accepted that climate change is happening, as a positive initiative in Abu Dhabi shows, where the will to deal with climate change exists alongside a course ensuring economic feasibility. In 2006, as the first major oil-producing nation, Abu Dhabi embraced clean and renewable energy technologies by launching the so called "Masdar Initiative."

Masdar is a private company established by the Emirate with a start capital of 500 million US dollar to invest in clean and renewable energy technologies. With the concept being to develop and sell, rather than to buy and import, their key objective is to position Abu Dhabi as a top research and development centre in the region, as well as to help diversifying its economy for the post-oil age. Masdar City is the idea of the first zero-CO2 emission and zero-waste city in the world with the use of solar power plants, a waste recycling and composting system. The first stage of the prospective car-free city will be built in 2009.

But what lies behind this initiative? Fouad Hamdan explained Abu Dhabi's plans by figures illustrating that the developments planned by the Gulf real estate sector would lead to a 100% increase in waste production, water and energy consumption as well as CO2 emissions. Thus, Abu Dhabi addresses sustainability issues now, having realized that the region's infrastructure will not be able to match growth projections and existing infrastructure will lead to a bottleneck.

Another positive initiative can be found in Cyprus, where the Greek Orthodox Church plans to invest 234 million US dollar in a factory for photovoltaic solar panels. The simpler and less technological solar heaters – basic devices collecting solar energy to heat water for domestic use – are common sight in Cyprus and Israel, covering 90 percent of all homes and required by law. Israel also plans a large solar energy plant in the Negev Desert by 2012, modelled

on the world's largest solar energy plant in California built in 1990 by an Israeli company.

The Wrong Path

In the midst of the climate change debate, there is one serious worry: nuclear energy seems to be celebrating its revival, of which Hamdan warned as "the wrong path." Using the climate crisis to push for reconsideration, the nuclear industry builds up its position. Hence it is not surprising that Egypt, Morocco and Algeria want to go nuclear. Even though France is signing deals with some Arab countries and promising support, Hamdan doubted that any Western Nation would seriously consider selling nuclear technology to an Arab nation.

"Nuclear power is definetly a waste of money. Egypt now has plans for a 1000 MW nuclear station near Alexandria. Building a solar power plant will cost up to one million US dollars per MW. Building a nuclear power plant is estimated at least at 1.5 million US dollars per MW, one and a half time more, and these are the conservative estimates."

Despite political realities, the popular line of argument is that nuclear power is cheap, CO2-free and safe. Hamdan pointed out facts of serious concern and argued otherwise. Remembering Chernobyl and other incidents, nuclear energy is by far the most dangerous form of energy production. During normal operation, radioactive materials are discharged into the air and water. Even more risky is the long-term storage and treatment of radioactive waste, which still has no solution, meaning that underground nuclear waste storage will cause huge problems for future generations. This makes nuclear energy not only extremely expensive, but also not a single nuclear power plant was ever built without massive subsidies, while costs of decommissioning and waste storage generally do not enter calculations. Hamdan also pointed to the risk of nuclear power plants as a potential target for violent groups and denied the rumour of nuclear power being CO2 emission-free, considering all the emissions during uranium mining, transportation, plant construction and the later decommissioning and waste storage. Given all this, a nuclear power plant constitutes almost as much CO2 emissions as a modern gas fired power plant.

Solar revolution

In light of all this, Hamdan argued for a different solution that the Arab world has to offer, using the huge potential of the sun: a solar revolution. Predicting only a few decades before the oil reserves run out, he called on the Arab nations to diversify their economies and shift massive investments towards energy efficiency methods and clean technologies such as solar energy technologies like Photovoltaic (PV) or Concentrated Solar Power (CSP). A strategy for the Arab world could begin with lowering the output of oil, keeping more underground for future generations and simultaneously opting for solar energy production for its own consumption and export. Hamdan referred to "Solar (R)Evolution," a recent report by Greenpeace underlining the fact that the Middle East is blessed with enough renewable energy resources like solar and wind to cover its own needs as well as to export electricity.

Hence, Hamdan gave a clear message to reverse the fear of a future economic disaster for the Arab oil-producing countries by pointing to the imminent historic chance of solar power. The remaining question is: Are Arab leaders prepared to develop and diversify their economies in a sustainable way while relying much less on oil? Hamdan warned that time is running out and the Arab world has to take action fast.

IN THE PANEL DISCUSSION

"FEED-IN TARIFF is an incentive structure which encourages the adoption of renewable energy through governmental legislation. Regional or national electricity utilities are obliged to buy electricity generated from renewable sources such as solar, wind power, biomass and geothermal power at above market rates. The higher price helps overcome the cost disadvantages of renewable energy sources."

In the discussion, several remarks questioned the feasibility and implementation of Hamdan's vision of a solar revolution despite admitting its high potential in the region. One question addressed the maintenance problems of solar energy plants with regard to sand storms; another one the problem of peak power and storage. Hamdan assured that special kinds of trucks exist to clean the solar cells on a regular basis. Nevertheless he acknowledged that solar power plants cannot be constructed on sand dunes, only on flat and stable areas like the deserts of Syria, Jordan and many areas in the Gulf region – still enough area for own production and export.

Addressing the question of peak hours, Hamdan suggested three possibilities: the potential of wind energy in the Arab world, the use of a minimum amount of fossil fuels like gas in peak hours and the future technology of hydrogen compression, which, although still in need of further development and investment, will make solar energy storable. Munther Haddadin added a fourth possibility: regional cooperation among countries with different peak hours. Brauch indicated other technologies combining Photovoltaics with CSP, though still in an early development stage.

In this context, Brauch argued again for cooperation with the EU to set up research institutes or technical universities in the region, to enable knowledge transfer especially in green technologies. Though Germany has invested a lot in wind power making it competitive in many places, Brauch argued that the Red Sea is likely to compete due to its high wind intensities. Therefore, investment in local knowledge should be an essential part of a comprehensive development scheme.

During the debate about clean energy, the issue of energy efficiency was raised. Hamdan cited an example from the Arab world, where the use of air conditioning has become routine without much consideration for its need. Abandoning the use of normal energy-wasting light bulbs in favour of energy efficient bulbs, like Australia has done, is another option. Hamdan argued that the potential to safe energy in the Arab world is huge, even if applying only half of the available technology. Therefore he suggested increasing the cost of energy in order to make people save energy.

Hamdan sees the biggest challenge to a shift towards renewable energies in centralised, mainly state-owned energy companies. Policies are needed to support the decentralised production of renewable energy, where anybody can produce and sell energy. Hamdan referred to the German Feed-In Tariff introduced in 1998 and imagined that every single roof in the world could and should have a solar power plant feeding into the system.

Wael Hmaidan of Indyact – League of Independent Activists, which is initiating an Arab Climate Campaign, questioned Abu Dhabi's progressive approach. He doubted that any Arab country will make a real contribution to combat climate change as long as it doesn't reflect in their climate policy. For the post-Kyoto process, he criticised the Arab world for lacking a position on climate change and stated that Arab climate policy is controlled by Saudi Arabia, Kuwait and to a certain extend by the United Arab Emirates, who hinder climate negotiations. For him, this is related to the security issue in the region and political dependencies. If there was political will, the Arab region could take a strong position on climate issues and play an important role in finding innovative solutions.

Following on from the issue of policy, Layla Al-Zubaidi addressed the role of Arab civil society and asked what donors can do to support civil society in the field of climate change. Hamdan expanded on the link between awareness and policy shown in his presentation by underlining the need to communicate information in a smart way. In his opinion, plenty of studies on the impact of climate change already exist. They only need to be collected, translated and communicated in the right way. This is highly important because both understanding and fear of climate impacts are a precondition for reaching a strong climate policy. Why does Sweden, for example, have one of the strongest laws on climate change policies? Because, as Hamdan argued, 99% of the Swedish know about the impacts of climate change. In the Arab region the opposite is the case. He suspects that there is almost a decision to not make the public understand the impacts of climate change. Therefore, Hamdan called for communicating and spreading the information and for the regional media to assist in overcoming the current knowledge gap to pave the way for a strong climate policy in the Arab World.

FINAL WRAP-UP

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I would like to thank all of you for your interesting contributions and input, which led to lively and sometimes heated but certainly fruitful discussions.

I will attempt to present a brief wrap-up of the discussions by mainly recalling some of the core issues and questions raised, including those that remained open.

First and for the matter of clarity, a clear differentiation was necessary regarding the different forms and manifestations of the environment-conflict-nexus. There are conflicts that erupt over natural resources; there are cases where conflicts lead to resource scarcity and/or the accidental destruction of resources; and there are conflicts witness to economic warfare where natural resources are deliberately targeted and destroyed. This conference focused on the first format, namely conflicts that occur over natural resources or that are ignited among other factors by those very ones. In this context, caution was demanded regarding the terminology used. Is the term "conflict" or "dispute" more appropriate? This opened up another related and for decades controversially debated issue: the hypothesis of so-called "water wars". The question of whether there ever were or will be "water wars" was raised and most of the participants agreed that they have not materialized yet in the form they had been often predicted. A journalist from the audience jokingly but rightfully asked whether the term "water wars" would have had such high recurrence also in the media if the two words did not start with alliteration. Munthir Haddadin on his side questioned the adequacy of the "water wars" hypothesis by reiterating his influential quote that we are talking about with "wars that in reality never were." As the title of the conference included the terms "Green Wars?" in an attempt to provoke a discussion and expand it to go beyond the water dimension, the title was debated and subjected to controversy.

The discussion continued with the "hype" around alleged environmental wars, especially when it comes to this region, but without having supporting and grounded empirical evidence. Nevertheless, scientific studies including those presented by speakers on the panel on climate change, have proven that climate change will add to the severity of existing resource and environmental problems worldwide, including the MENA region. The repercussions of climate change and the scenarios we are provided with are quite disturbing: floods, droughts and fresh water shortages. These might jeopardize livelihoods and lead to unrest and displacement. The mere probability of such destabilizing scenarios and tension-loaded situations if not classical military confrontations, should ring the alarm bells and lead governments and civil society actors in the region to take preventive steps.

At the core of the discussions during the first day lay also the issue of the potential of shared resources for cooperation rather than the gloomier, often inaccurate picture of them solely constituting conflict factors. We heard that technically there seems to be sufficient assistance and expertise that can support countries sharing resources in developing comprehensive usage and development schemes. Very often the main impediment is the lack of political will to cooperate due to different reasons (political, economic, social etc.) and even if this is secured, there is another related thorny issue of justice and asymmetrical power relations. Some participants raised the point that if we want to talk about effective cooperation, then we have to address negotiating power. The Palestinian-Israeli case of trans-boundary water management served as a notable case. It seems difficult to talk about fair and efficient inter-state negotiations where one side, very simply put, has no state and therefore less negotiating power at its disposal. Related to this, the linkage between democratic participation, distribution of resources, and likelihood of conflicts over resources needs to be further explored especially in a region with severe democracy deficits as the Middle East and North Africa.

Another set of questions addressed inner-state conflicts vs. inter-state conflicts. Although we have

witnessed an increasing number of inner-state conflicts in the region as well as the emergence of sub-state conflict actors, there is still a lack of effective mechanisms to ensure the cooperation over resources in such a context. Sub-state conflict actors were not really tackled directly in the conference, but they were present in the contributions and discussions – for example the militias in Sudan that were mentioned. Iraq was not dealt with in the conference, but the interlinkage of resource conflicts and civil war has certainly high relevance in Iraq. Perhaps we can also conceive of the mentioned Lebanese real estate investors and the problem of land confiscation as a problem of sub-state conflict actors.

The case of Darfur in Sudan unveiled a further set of questions related to the many intertwined and complex causes of conflicts and hence the recurring failure to identify root causes of conflicts, and to the entitlement to resources with special attention given to symbolic meanings of natural resources for a given people, their way of life and identity. Those subjects represent such a vast research field that they could hardly be adequately addressed during this conference. Nevertheless, in this framework, Darfur was a very illustrative example. The discussion raised some questions that remained open, for example the differing perception of the conflict in the European and Arab media: is it a tribal or ethnic conflict? Is it a political conflict or one related to natural resources? Is it a conflict related to climate change or is it rather a conflict entangled in this web of aforementioned factors? Related is the question of how entitlements to resources and resources themselves are defined: as rights, needs, or commodities? This, in turn, raises a number of questions of the cultural and social entitlements to resources, a fascinating dimension worth deeper analysis in the region. In this context, Mohyel Deen El Tohami Taha mentioned the erosion of traditional conflict resolution mechanisms with respect to resources and environmental disputes, which deserve more attention.

The second day delved deeper into the issue of environment as a cooperation vehicle and concrete proposals were made on how and under which circumstances/preconditions environment can be used as a tool for conflict resolution. Regarding the motivation behind cooperation in general, the issue of common interests vs. common aversions was raised. Given the fact that states very often have opposing interests, what might lead them to, nevertheless, cooperate is the identification and realization of a common aversion. Here, avenues for cooperation can surface. Then the question was debated whether the environment can be used as a tool for cooperation and conflict-resolution even in conflicts where environment was not the source of the conflict. In this context, Peace Parks and their shortcomings and advantages were thoroughly debated. An intense discussion followed on the question whether cooperation in the environmental field in the form of Peace Parks can help to solve highly politicized conflicts that were caused by occupation and expulsion, or whether such projects rather perpetuate injustices and would eventually be misused. As concrete examples from the Arab world are largely lacking, the question remained open but deserves further exploration.

Another paramount question pointed at the role of civil society including the media in the region and whether they are really capable of creating public awareness and of instigating constructive public debates which in turn can influence governments, policies and eventually push for change. It was stressed that there is an urgent need, for example, for the training of journalists in environmental journalism in order to enable them to report properly and informed on environment related issues and also in order to break some of the misperceptions of the nature of conflicts in the region as well as abroad. How the role of civil society actors including the media can be ameliorated and optimized needs to be further analyzed and explored, as it is of course a crucial role and solid information and knowledge hubs and disseminators are major pillars of any effective and comprehensive environmental and climate change policy. Especially during the panel

on climate change, an important question that remains to be discussed was how transparent public discourse can emerge and how regional Arab climate policies can be developed despite political dependencies within the region and the obviously strong negotiation power of big oil-producing countries such as Saudi-Arabia.

Finally, there is always some controversy about the question whether the environment matters to people in the region or whether it is a "luxury" topic, overshadowed by other, more urgent problems. Allow me to briefly give you my thought on this. Of course, in a region that is as conflict-ridden as the Arab world, people often have other urgencies on their mind than to protect the environment. However, I believe that we can only suppose that the environment does not matter to people here if we continue working with a concept of environment that is alienated from people's life. When we talk about the supposed "gap" between environmental awareness in the "West" and here in the region, then we neglect that a considerable portion of the population here lives on the environment. They often simply talk about it in a different manner. When farmers here delve into discussions about rainfall, orchards, trees and animal diseases, then this of course represents not only a high degree of implicit knowledge, but also environmental awareness. For us it then becomes a question of translating abstract knowledge produced by experts, research bodies, NGOs and donor organizations about, for example, global and complex phenomena such as climate change, into a language that people can relate to in their daily life and that allows for a linkage to their immediate concerns. This should be our job and responsibility as civil society actors. Even the Lebanese public was astonished how many farmers in South Lebanon lost their lives during the Israel-Lebanon war of summer 2006 because they were not willing to leave their lands and animals upon which their livelihoods depend. Bearing this in mind it would be cynical to generally claim that it is the Arab citizen who is not concerned by environmental issues.

I will leave it here with this note. I wish to extend my gratitude to all speakers and moderators, our board, and to the audience. I also would like to thank our patient interpreters and rapporteurs.

As you certainly have noticed, the conference was not gender-balanced. Almost all of the speakers and moderators were males. This was not intentional; many female speakers declined the invitation due to different reasons. However, all the brains who conceptualized this conference, thought through it and organized it, were women. Here, I would like to thank my colleagues again: Dina Fakoussa and Corinne Deek for conceptualizing, Hiba Haidar for taking care of organization and logistics, and Eileen Maternowski for initial scientific input.