

5th World Water Forum - Topic 1.2

WATER RELATED MIGRATION, CHANGING LAND USE AND HUMAN SETTLEMENTS

Topic 1.2 of the 5th World Water Forum, “Bridging Divides for Water”
17-18 March 2009, Istanbul, Turkey

Conveners:

United Nations University Institute for Environment and Human Security (UNU-EHS)
Southeastern Anatolia Project, Regional Development Administration (GAP)
UN-Water Decade Programme on Capacity Development (UNW-DPC)

Knowledge No. 4
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UN-Water Decade Programme
on Capacity Development

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**UNITED NATIONS UNIVERSITY
INSTITUTE FOR ENVIRONMENT AND HUMAN SECURITY
(UNU-EHS)**

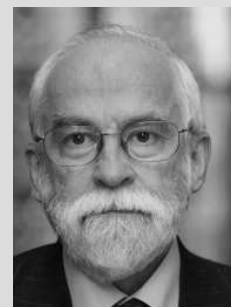
Water - in all its dimensions - affects the ability of people to live and thrive in their environments across the globe. Indeed, water availability and water quality have shaped where people have settled and why people have moved throughout the millennia. Today, water availability and quality continues to be a contributing factor to migration, especially in areas where compounding factors of poverty and vulnerability to natural hazards are present. Failure to secure livelihoods in their original rural habitat is expected to drive millions of vulnerable people to move. It is suspected that most of those on the move from rural areas will head towards urban agglomerations where assistance, income opportunities and infrastructure may be perceived to be more accessible and readily available. This creates an enormous social, health, infrastructure and management challenge for cities, subjecting them to unplanned growth.

Migration pressures are predicted to mount further as the effects of climate change exacerbate and alter existing patterns of water availability and quality.¹ This will have different impacts in rural and urban areas. It is not known how much these various drivers may or may not result in international migration. Nor is the impact of international migration on the state of the environment in areas of origin well known. Furthermore, it is not yet known whether those who migrate first are relatively well off (“those who can migrate, will migrate”) or those who migrate first are those with the greatest direct dependence on environmental quality. Development literature suggests that relatively affluent households have a stronger ability than very poor households to secure their standards of living in the face of change. Empirical research is needed to establish the degree to which migration is a coping mechanism and how migration helps households to secure desired standards of living.

It is important to understand the specific context in which migration takes place, particularly through an examination of the impacts and consequences for water resources management and changing land

1 UNU-EHS research on environment and migration is done as part of a European Commission 6th Framework Programme research consortium (“EACH-FOR”, Environmental Change and Forced Migration Scenarios). This research is carried out together with and with support from the International Organization for Migration.

Forewords



Prof. Janos Bogardi
Director
United Nations University
Institute for Environment
and Human Security
(UNU-EHS)

use patterns as well as growing and declining human settlements. The sessions hosted under Topic 1.2 reflected on rural-rural migration issues linked to water and sought to address the question: “From potential crisis to opportunity: how can we enhance the positive impact of migration to improve water resource management, land use planning and human settlement?” This over-arching question was addressed through three working sessions with different themes. A two-hour plenary session for the final presentation and wrap-up session on the outcomes of the three working sessions were also planned. Each session was divided into one-hour slots and each hour dedicated to a focal problem. The sessions ended with a list of conclusions and recommendations that not only contributed to generating awareness about water related migration, but also created a new momentum toward political commitment and leadership to bridge the divide between the policy development and the scientific approach.

Topic 1.2 Water Related Migration, Changing Land Use and Human Settlement, organized under the theme Global Changes and Risk Management, contributed to developing a better understanding of the process of rural-to-rural, rural-to-urban and cross-border migration in the face of water scarcity and unavailability. We expect to further specify the research agenda of environmental migration through the compilation of this report, which has a history going back about three decades.

The contributions from the Topic 1.2 Water Related Migration, Changing Land Use and Human Settlement during the Fifth World Water Forum held in Istanbul, Turkey from 16-22 March 2009 is a continuation of the process initiated earlier, and is an effort towards the establishment of further initiatives such as the Climate Change, Environment and Migration Alliance and a joint workshop to be organized by UNW-DPC and UNU-EHS in 2010.

I would like to thank the co-conveners of Topic 1.2 Water Related Migration, Changing Land Use and Human Settlement, UNU-EHS, UNW-DPC and the GAP Administration, for their excellent work in organizing the event and managing the task of making it an excellent learning opportunity. Thanks are also due to the moderators, panellists and rapporteurs for their contributions and finally to the editors for compiling this report.

SOUTHEASTERN ANATOLIA PROJECT (GAP) REGIONAL DEVELOPMENT ADMINISTRATION

The Southeastern Anatolia Project (GAP) started life as a water and land resources programme for the Southeastern Anatolia Region, with the main objective of eliminating socio-economic disparities between the region of Southeastern Anatolia and the other regions of Turkey by increasing the income levels and the living standards of the inhabitants. Later it was converted into a multi-sectoral, integrated regional development project, and the Southeastern Anatolia Project Regional Development Administration was established in 1989 to plan, coordinate and monitor its activities. The GAP Administration has adopted a participative strategy to integrate water resources development with sustainable human development.



Sadrettin Karahocagil
President
GAP Regional Development
Administration

The world's largest event in the field of water, the 5th World Water Forum, was held in Istanbul, Turkey from 16-22 March 2009. Under the theme "Bridging Divides for Water", the Forum included over 100 thematic sessions, seven regional sessions, and political processes.

Topic 1.2, "Water-related Migration, Changing Land Use and Human Settlements" was one of the three topics under Theme 1 "Global Changes and Risk Management". Topic 1.2 was organized by the United Nations University Institute for Environment and Human Security (UNU-EHS), the Southeastern Anatolia Project Regional Development Administration, and the United Nations Water Decade Programme on Capacity Development (UNW-DPC).

The world is facing problems such as population growth, increasing migration and urbanization, and changes in land use, which will determine how water resources need to be managed in the future. We believe that this post-World Water Forum report on "Water-related Migration, Changing Land Use and Human Settlements" will play a crucial role in understanding the complex relationships between migration, climate change and environmental degradation. In this report, migration is addressed as an intrinsic component of integrated water resources management.

We sincerely thank UNU-EHS, UNW-DPC, the national and international panellists, the State Hydraulic Works, the World Water Forum Secretariat and the GAP Administration staff for their valuable contributions to this report, and for their invaluable work before, during and after the 5th World Water Forum.

UN-WATER DECADE PROGRAMME ON CAPACITY DEVELOPMENT (UNW-DPC)

It is a great pleasure to present in this report the outcomes of Topic 1.2, “Water Related Migration, Changing Land Use and Human Settlements”, of the 5th World Water Forum, held in Turkey in March 2009. The sessions under Topic 1.2 were jointly organized by UNW-DPC, UNU-EHS and the GAP Administration. Individual experts and organizations working in the areas of environment and human migration came to Istanbul to discuss and share experiences on this issue.



Dr Reza Ardakanian
Director
UN-Water Decade
Programme on Capacity
Development (UNW-DPC)

The main objective of these sessions was to shed some light on an important aspect of human migration that has not yet been given enough consideration and recognition by the international community: the relationship between water scarcity, land degradation and migration. This lack of recognition is aggravated by the fact that little empirical research has been carried out to demonstrate this complex relationship, which has not been translated into specific action by countries. Through these joint sessions, UNW-DPC, UNU-EHS and the GAP Administration were successful in gathering some of the best examples and knowledge available about the impacts of water resources management and changing land use patterns on the growth and decline of human settlements.

We believe that a better understanding of this complex relationship will motivate further research studies on this aspect of migration and will stimulate the development of pilot projects in the most impacted areas. It should also lead to the organization of specific UN-implemented programmes for the development of institutional, organization and individual capacities to deal with water - and environment - related migration, in collaboration with local and international actors.

This publication provides a summary of the intense discussions held in Istanbul around this topic and provides an excellent starting point for deepening the examination of the factors and drivers of human migration in a constantly changing environment.

On behalf of UNW-DPC, I would like to thank the co-organizers of these sessions and all the experts, moderators and rapporteurs that participated in the different panel discussions and who contributed their valuable knowledge, ideas and recommendations.

Introduction of Topic 1.2



Organizers



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UNITED NATIONS UNIVERSITY INSTITUTE FOR ENVIRONMENT AND HUMAN SECURITY (UNU-EHS)

Established by the UN General Assembly in 1973, UNU is an international community of scholars engaged in research, advanced training and the dissemination of knowledge related to pressing global problems. The United Nations University created the Institute for Environment and Human Security (UNU-EHS) to address risks and vulnerabilities that are the consequence of complex – both acute and latent – environmental hazards. It aims to improve the in-depth understanding of the cause-and-effect relationships to find possible ways to reduce risks and vulnerabilities. The Institute was conceived to support policy and decision makers with authoritative research and information. UNU-EHS is supported by the German Federal Ministry of Education and Research and the Ministry of Science and Research of the State of North Rhine-Westphalia, both dedicated to promoting sustainable development and advancing human security. UNU-EHS aims for academic excellence in principal priorities of its programme:

- Vulnerability assessment, resilience analysis, risk management and adaptation strategies within linked human-environment systems; and
- Internal displacement and trans-boundary migration due to environmental push-factors,

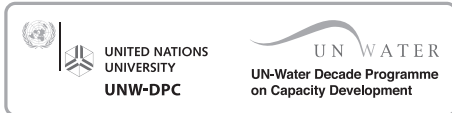
whereby consideration is given to the major drivers such as land degradation, desertification, natural hazard events, gradual man-made and natural environmental and climatic changes and variability, including water depletion and quality deterioration. Preparedness, adaptation and response are the main dimensions along which human security can be strengthened. A special work focus of UNU-EHS is to conduct research on water related hazards along big rivers and on deltas. In addition, on behalf of the United Nations University, UNU-EHS is actively engaged in the activities of the International Flood Initiative (IFI) which focuses on research, information networking, education and training, empowering communities and providing technical assistance and guidance.

SOUTHEASTERN ANATOLIA PROJECT (GAP) REGIONAL DEVELOPMENT ADMINISTRATION

GAP Regional Development Administration (GAP-RDA) was established by Decree-Law No. 388 with a mandate to ensure the rapid development of areas covered by the Southeastern Anatolia Project working under the Prime Ministerial Office. The objectives of GAP Administration are: to rapidly develop areas within the scope of the Southeastern Anatolia Project, to make plans for investments in housing, industry, mining, agriculture, energy, transportation and other related services, to take necessary measures to improve the education level in the region and to ensure coordination among different organisations and agencies involved in these activities. The GAP-RDA conducts research, studies, models and implementation projects in the fields of agriculture, society, environment, culture, tourism and infrastructure to ensure the economic and social development of the Region. In addition, by promoting investment opportunities in GAP, it aims to attract domestic and foreign investment to the Region. It also works to secure projects, loans, technical support and grant funds from other countries and international organisations.



UN-WATER DECADE PROGRAMME ON CAPACITY DEVELOPMENT (UNW-DPC)



The UN-Water Decade Programme on Capacity Development (UNW-DPC) is a joint programme of UN Agencies and Programmes cooperating within the framework of UN-Water. UNW-DPC supports UN-Water in the field of water-related capacity development. It is funded by the German Federal Government and is hosted by the United Nations University in Bonn, Germany.

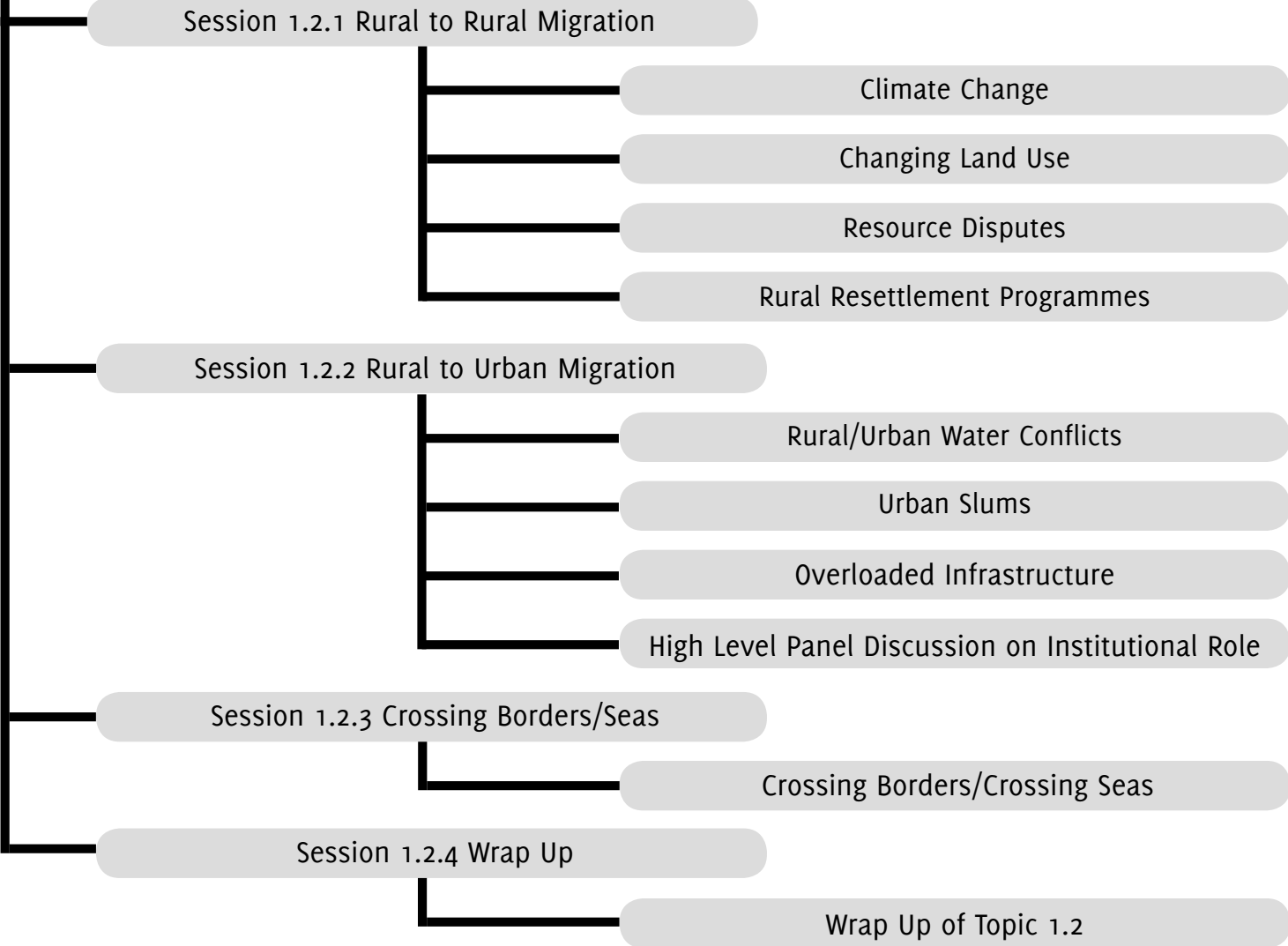
Based on the firm belief that the achievement of the Millennium Development Goals (MDGs) related to water and sanitation is conditional on stakeholders being able to mobilize essential required capacities, UNW-DPC's mission is to enhance the coherence and effectiveness of the capacity development activities of the UN-Water members and partners. By working on the full range of individual, organizational and institutional capacity development, UNW-DPC seeks to strengthen the ability of the UN-Water members and partners to support Member States in achieving these MDGs.

UNW-DPC provides an observatory function that supports UN-Water in assessing capacity development needs, in mapping the existing capacity development activities and in analysing capacity development gaps. UNW-DPC subsequently cooperates with UN-Water members and partners to collate and produce required new knowledge, e.g. by jointly organising expert group meetings and workshops, as well as by compiling publications on cutting edge water-related capacity development issues. Newly produced knowledge then has to be managed and disseminated. UNW-DPC invests in the design and implementation of knowledge management tools, such as the UNW-DPC repository of capacity development activities.

5th WORLD WATER FORUM

Theme 1: Global Changes and Risk Management

1.2 Water-related Migration, Changing Land Use & Human Settlements



DESCRIPTION OF TOPIC 1.2: Water-related Migration, Changing Land Use and Human Settlements

Climate change, land degradation and water shortage, but also floods, poverty, famine and population pressure are amongst the primary push factors of migration.

Topic 1.2 was one of three topics under Theme 1, “Global Changes and Risk Management”, of the 5th World Water Forum held in Istanbul, Turkey in March 2009. The following describes the concept underlying Topic 1.2, “Water-related Migration, Changing Land Use and Human Settlements.”

Climate change, land degradation and water shortage, but also floods, poverty, famine and population pressure are amongst the primary push factors of migration. The question is how they influence migration and human settlement patterns within rural and urban areas, within and across international borders.

Migration can be a problem even in the source countries, and can hinder development in many ways. These include increasing pressure on natural resources, undermining economic growth, and increasing risk of conflicts leading to worsening conditions among the migrant population. Rural problems, if not tackled adequately, could lead to migration and hence increase major urban problems. Mushrooming slums are a clear sign, among others, of our failure to address rural development and sustainability and to regulate rural-to-urban migration. Migration, if managed properly, can be beneficial in both source and target countries (e.g. through remittances, brain circulation, skills and labour mobility). Viewing migration as a beneficial adaptation rather than a problem needs considerable conceptual rethinking.

It is important to understand the specific context in which rural-to-rural, rural-to-urban and cross-border migration take place, particularly through an examination of the impacts and consequences for water resources management and changing land use patterns, as well as for the growth and decline of human settlements. The interaction between water resource demands, developments in rural areas and migration, the possibilities to improve the living conditions of migrants in mega-cities, and the coping strategies for overloaded infrastructure in urban planning were among the many interesting issues for discussion as part of Topic 1.2: “Water-related Migration, Changing Land Use and Human Settlements”.

In addition, there are several different drivers that lead to different types of migration patterns. Many can be linked to water and its influence on patterns of land use, or natural physical processes. Despite

the fact that the recently concluded Environmental Change and Forced Migration Scenarios (EACH-FOR) project supported by the European Commission has confirmed that causalities do exist, there is still a lack of scientific evidence and quantitative studies to show to what extent these various drivers and ecosystem services may or may not result in international migration. Elaborate quantifications and in-depth case study research still need to be done. Similarly, there is little knowledge about the impact of international migration on the environment in areas of origin.

Furthermore, it is not yet known whether those who migrate first are the relatively well off (“those who can migrate, will migrate”) or those with the greatest direct dependence on environmental quality.

In addition, there are complex interdependencies between climate change, environmental degradation and migration and there is substantial scope and need for synergies in policy and research, interdisciplinary multi-stakeholder collaboration and the development of comprehensive approaches at country level. There is a need to mainstream the environmental and climate change considerations into migration management policies and practice, and also to bring migration issues into the world’s on-going environmental and climate change discourse.

Thus, through different panel discussions and in-depth exploration of various questions and issues, the participants as well as the expert panellists were able to develop a comprehensive understanding of the topic. The following questions guided the general discussion:

- Does migration rectify imbalances, mitigate or increase conflict in rural environments?
- How can the quality of life for people living in informal settlements be improved without breaking their social networks?
- How can investments in the water services in small cities and rural areas serve as a preferred measure to mitigate uncontrolled development of mega-cities?
- What are the impacts of international migration on water management and water services in the source countries of the migrants?
- How can water-related migration challenges be tackled through multi-stakeholder alliances?

There is a need to mainstream the environmental and climate change considerations into migration management policies and practice, and also to bring migration issues into the world’s on-going environmental and climate change discourse.



Format of the panel discussions



The panel discussions within the Topic 1.2 sessions aimed to provide stakeholder responses to key questions and raise awareness about new solutions. Each panel discussion lasted an hour and was facilitated by a moderator who introduced the panellists and asked them specific questions (listed below) to guide the discussion on the topics covered in the session. In their responses the panellists not only referred to their practical experiences, but also provided successful and challenging examples and lessons learned. The audience was also given the opportunity to put questions to the panellists. At the end of each panel discussion, the moderator summarized the main conclusions. The moderators were supported by a team of rapporteurs, who took detailed notes during the panel discussions. The outcomes of the panel discussions documented in this report are taken from those notes.

Outcome of Topic 1.2



Session 1.2.1:

Rural to Rural Migration “Imbalances between Water, Land and People: The Drivers of Rural Migration”

If members of rural communities migrate away, this may reduce some of the demand on scarce water resources, but this does not necessarily solve the water management issues in the source location of the migrant, and the act of migrating can transfer or create new problems at the migrants’ destination.

DESCRIPTION OF THE ISSUE

Since those living in rural areas are often heavily dependent on access to safe and reliable water sources in order to survive and maintain their livelihoods, it is important to know the impact that a) lack of access to water, b) inequitable distribution of water, or c) receiving poor quality water have on rural communities and livelihoods, especially because as rural environments become inhospitable, people may be pushed elsewhere to seek alternative livelihood strategies. If members of rural communities migrate away, this may reduce some of the demand on scarce water resources, but this does not necessarily solve the water management issues at the source location of the migrant, and the act of migrating can transfer or create new problems at the migrants’ destination. Furthermore, conflicts over scarce resources - such as water - can also lead to further migration. Therefore, what may start off as a water challenge can become a humanitarian challenge for those agencies dealing with so-called Internally Displaced Persons (IDPs), refugees and migrants, and/or with conflict resolution.

The panel discussions hosted under this session reflected on rural-to-rural migration issues linked to water and addressed the over-arching question: “How to move from potential crisis to exploring opportunities to enhance the positive impact of migration for improving water resources management, land use planning and human (re)settlement in the rural context?”. The session reflected on the need for capacity development in rural environments to overcome water-related conflicts and inefficient water management.

These issues were discussed in the following four panel sessions that focused on different aspects of this complex problem.

DISCUSSION QUESTIONS

Panel Discussion on “Climate Change”:

1. What adaptation measures can be implemented by various stakeholders in order to reduce out-migration from rural areas as a result of the environmental consequences of climate change?
2. What capacities are needed to implement these measures?
3. Which areas and locations could become more habitable and productive due to climate change? Are they likely to become target destinations for migration?
4. Where can we expect “hot spots” of out-migration to occur?
5. Can insurance be a useful tool to help people cope with the consequences of climate change?

Panel Discussion on “Changing Land Use” :

1. How can spatial planning be an instrument to ensure sustainable rural development and account for the emerging needs caused by rural-rural migration?
2. What measures should be taken to improve the coordination between land use policies and water policies, given the predicted impacts of climate change and mounting demands created by human consumption patterns?
3. Would changes in cropping patterns or agricultural practices suffice to offset or, at least, reduce out-migration?
4. How will out-migration and seasonal migration in rural areas change land use patterns and resource management?
5. How can we take gender considerations into account when discussing rural-rural migration?



Panel Discussion on “Resource Disputes”:

1. What are the political dimensions of water scarcity?
2. Do land and water resource disputes trigger migration?
3. What capacities need to be strengthened to ensure good water governance and sustainable land use at the level of rural communities?
4. Is migration a means to ease conflict potential, or does it occur following “lost disputes”?
5. Does migration ease population pressure in source regions and cause conflict in target regions?
6. How can limited resources be managed to prevent conflicts?



Panel Discussion on “Rural Resettlement Programmes”:

1. What can be done to ensure successful resettlement without stressing water resources and supply? How can people affected be involved in the process?
2. How can micro-credit schemes assist people in resettlement processes?
3. To what extent is resettlement enforced or voluntary?
4. Should resettlement work be limited to the relocation of affected people, or should it also incorporate economic and social rehabilitation and development programmes. If the latter, how?
5. How can we ensure resettlement is done **with** the people and not **for** the people?

SUMMARY OF THE SESSION DISCUSSIONS

Panel discussion on “Climate Change”:

Moderated by Prof. Janos Bogardi (UNU-EHS)

Panellists:

- Mr Ton Bresser (UNESCO-IHE)
- Mr Tim Kasten (UNEP)
- Mr Festus Luboyera (UNFCCC)
- Dr Galina Stulina (SIC ICWC)
- Mr Sergio Zelaya-Bonilla (UNCCD)

Rapporteurs:

- Mr Tolga Erogan (GAP Administration)
- Ms Olivia Dun (UNU-EHS)

Water-related migration and land use change have a direct link with “global risks” such as those aggravated by climate change. Indeed, climate change and climate variability increase the occurrence of natural disasters (floods, droughts etc.) and reduce the availability of reliable water supplies. When livelihoods are stressed or disrupted due to such hazards, people must migrate elsewhere: such initially temporary migration can become permanent migration. This situation undermines the coping capacity of rural people, hence migration is frequently becoming a “must” rather than a “choice”.

Land degradation including desertification and drought is another of the many causes that trigger human migration. Therefore, helping people adapt to climate change in dry lands and rural areas becomes a priority for international organizations and governments in order to limit environmentally induced migration. According to UNCCD, two billion people are exposed in Africa and elsewhere to desertification and severe droughts, and around 60 million people might have to make a decision to leave their livelihood and migrate. In dry lands, and in rural areas in general, migration affects men and women differently. Women usually remain in the villages and have to take on some of the male responsibilities in the absence of their husbands. To date, we still lack data and information to identify a typology of environmental migrants and to assess their ability to adapt to climate variability.



Helping people adapt to climate change in dry lands and rural areas becomes a priority for international organizations and governments in order to limit environmentally induced migration.

On the one hand, migration can have positive aspects; for example, it results in remittances to the migrants' villages and communities; on the other, it can also be a source of tension at the migrants' destinations. In certain cases, well planned and implemented development projects to improve the living conditions in the face of environmental stress can limit inland migration but at the same time attract migration from abroad. This is the case with the deltas of the Aral Sea, where migration from Uzbekistan to Kazakhstan has increased over the years. Hence it is important to understand the issue of migration in relation to climate change and to send a strong message about the need for water management strategies. These strategies need to focus on the improvement of data management, knowledge generation and scenario building for decision-making in the water sector.



Increasing resilience and developing adequate human and technical capacities for the communities to cope with and to adapt to climate variability can only be achieved once a clear assessment of the existing and future needs has been carried out. Such an assessment must necessarily deal with uncertainties. Initiatives such as building robustness in farming activities to help overcome difficult periods, and establishing insurance mechanisms could support the farmers when they are affected by severe floods or droughts. The problem here is to evaluate which sector, state or private, should be responsible for the insurance mechanisms and at which stage. It is therefore important to work first at the grass roots level to identify needs, before working at the political level to implement the adaptation measures.

Adaptation measures must be implemented while considering their implications at the local, national and international levels

Migration can be seen as an adaptation measure in itself, but it is also a sign of lack of human ability to adapt to its setting. In the context of human migration, adaptation measures must be implemented while considering their implications at the local, national and international levels and involving different stakeholders (political and social) at each level. The Intergovernmental Panel on Climate Change, through its assessment reports on climate change using scientific, technical and socio-economic information, can play an essential role in the evaluation and assessment of the causes of climate and water induced migrations.

Thus, there is a need to create the political will within governments to work towards the development and implementation of adaptation

measures aimed at mitigating climate induced migration. However, we can only develop the “political will” once there is “awareness” about the relationship between climate change and migration. Besides, if today it is important to make a distinction between “migration” and “environmentally induced migration”, we need to take the additional step of bringing migration into the water nexus within the rural context.

Panel discussion on “Changing Land Use”:

Moderated by Prof. İlhami Bayramin, Ankara University, Turkey

Panellists:

- Dr Zafar Adeel (UNU-INWEH)
- Mr Rudolf Cleveringa (IFAD)
- Dr Parviz Koochafkan (FAO)
- Mr José Luis Luege Tamargo (CONAGUA), Mexico
- Prof. Ahmet Nuri Mermut, Harran University, Turkey

Rapporteurs:

- Ms Fusun Gulmez (GAP Administration)
- Ms Xiaomeng Shen (UNU-EHS)

There is growing competition between different water users, especially between agriculture and other economic sectors (industry, hydropower, domestic use). Many countries are experiencing water scarcity for the first time in their recent history while environmental and urban demands for water are also escalating. Land degradation, desertification and droughts as well as changes in land use patterns are also crucial issues and major causes of migration.

Before discussing the effects of land use change on potential migration, we need to understand the inter-linkages between the economic activities involving land use and the social structure of communities depending on these activities. For instance, in many cultures it is difficult and challenging to bring women into the discussion and the decision-making process concerning water and land management. In many cases men migrate, leaving women in charge of economic activities such as farming, in which they were previously not sufficiently involved at the decision level. Therefore, specific policies need to be developed to address both the roles of women and of men in view of potential male migration.



We need an understanding of the inter-linkages between the economic activities involving land use and the social structure of communities depending on these activities.

Traditional farming does not always provide economic solutions in a world subject to continuous evolution and change. In some parts of China and Tunisia, experiments are being conducted with alternative economic activities related to the land, such as the development of eco-tourism in rural areas. These activities have reduced significantly the pressure on ecosystems and natural resources, and have increased local wealth by creating new sources of income. In Jordan another successful example of eco-tourism can be found in a scheme run by the local villagers, in which local products are produced without electric power (aquaculture) and in line with water conservation schemes. In China too, the switch from goat farming to chicken farming in some areas has significantly reduced water consumption. Farmers need additional technical and organizational support to adapt their production methods to changes in land use, as these examples of innovative approach demonstrate.



In developing countries, there is hardly any significant investment in agriculture and rural areas, although land and water management systems exist in many rural setups. Moreover, lack of maintenance due to labour shortages resulting from out-migration of young people often leads to the collapse of the traditional and indigenous agricultural and irrigation systems. Hence, targeted investments in rural areas are necessary to provide opportunities for the people to remain in their areas. To this end, rural-oriented government development policies are essential to limit out-migration

In order to bridge divides, those sharing a resource should be encouraged to cooperate before disputes occur, rather than waiting until conflict has broken out before seeking a solution.

If those affected by these challenges are not included in the political discussions, it is difficult to understand the real situation and assess possible solutions. Migration is not a negative phenomenon per se; rather it can be considered as a basic adaptation strategy, and can in some cases be the best way to deal with environmental pressure and change. The world was already facing a food crisis in 2008 and in view of the volatility of the situation this should serve as an early warning of what is yet to come.

Panel discussion on “Resource Disputes”:

Moderated by Prof. Janos Bogardi (UNU-EHS)

Panellists:

- Mr Mohamed Ait Kadi, General Council of Agricultural Development, Turkey
- Mr Tim Kasten (UNEP)
- Prof. Jon Martin Trondalen, COMPASS, Switzerland
- Prof. Pieter van der Zaag (UNESCO-IHE)
- Mr Wasim Wagha, DAMAAN Development Organization, Pakistan

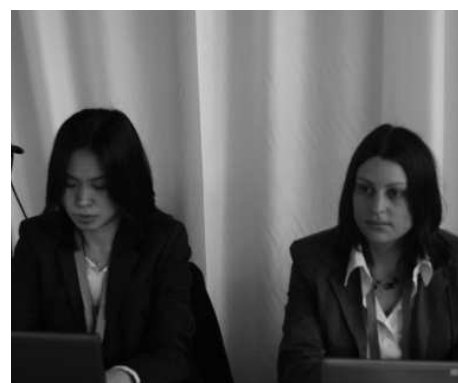
Rapporteurs:

- Mr Tolga Erogan (GAP Administration)
- Ms Olivia Dun (UNU-EHS)

Water conflicts are avoidable. When such conflicts reach a certain scale, for example where transboundary water resources are concerned, there is a need for diplomacy and for cooperation tools and mechanisms to be used at the policy-making level. In order to bridge divides, those sharing a resource should be encouraged to cooperate before disputes occur, rather than waiting until conflict has broken out before seeking a solution.

The management of water resources in many cases involves a great deal of conflict management. Control over water resources is often linked to decision-making power. Hence, there may be negative impacts that can cause both intra- and inter-national conflicts about access to water. To avoid such conflicts, sound political management is required. Water management should be streamlined into all policies, including macro-economic policies. Multi-stakeholder dialogue at regional and international levels should be expanded and include indigenous groups and women’s groups. Migration, in its socio-economic dimension, should be considered as part of Integrated Water Resources Management (IWRM) strategies.

An increase in agricultural productivity and the resulting increase in income as a result of the rational use of water help to ease tensions between water users. The diversification of the rural economy including the development of small rural towns, and the development of a new thinking about rural development options to include the socio-economic dimension of migration, all need to be considered by governments



Addressing water conflicts at the local level could help prevent their potential escalation at the national or international level.



and by donors. Addressing water conflicts at the local level could help prevent their potential escalation at the national or international level. There is a need to build the capacities of rural communities at the local level to use water more efficiently, and to facilitate their active involvement as stakeholders in the water management and governance processes. This panel discussion could have been entitled “Resource collaboration” instead of “Resource disputes”.

It is also necessary to look at the interdependencies between the water resource and the socio-ecosystem in place in order to study the links between migration and water scarcity. Sometimes it is not only a matter of securing water for people, but also of securing water for food production.

There are often several alternatives for solving water issues, but governments usually opt for the construction of dams to increase water availability. Alternatives to large dams (which often lead to the displacement of local populations) should be evaluated at initial planning stage. Those affected by dam construction should be consulted in the planning and decision-making process. Hydro-diplomacy should be considered as an essential component of water conflict resolution techniques, and may involve well informed stakeholders and policy-makers who are responsible for achieving consensus.

There will always be problems such as social exclusion associated with migrants. So there is a need for conflict resolution research and more investment in developing people’s capacity to adapt to new social and economic conditions.

Panel Discussion on “Rural Resettlement Programmes”:

Moderated by Dr Reza Ardakanian (UNW-DPC)

Panellists:

- Mr Mohamed Ait Kadi, General Council of Agricultural Development, Turkey
- Prof. Xiaotao Cheng, Research Center on Flood and Drought Disaster Reduction of the Ministry of Water Resources of P.R. China
- Prof. Birsen Gokce, Sociological Association, Turkey
- Mr Turan Hazar, Turkey
- Mr José Luis Luege Tamargo (CONAGUA), Mexico

Rapporteurs:

- Ms Fusun Gulmez (GAP Administration)
- Ms Humaira Daniel (UNU-EHS)

Over the past 60 years more than a hundred million people have been displaced by dam construction and other water development projects. Without proper water resources planning, many problems will arise, such as social marginalization due to population resettlement. More than 25 million people in China alone faced massive migration due to dam construction, and moved from one rural area to another. At the beginning of the 1950s more than 90 per cent of people in China lived in rural areas, but between 1950 and 1990 the population increased from 600 million to 1 billion, and people began to settle in retention areas. However, following the great flood of 1998, 2.5 million people had to be relocated in the course of flood prevention measures, which consisted largely of creating lakes in rural areas.

Resettlement planning is therefore necessary, but such plans should be sustainable and participative and be included in the economic development agenda of the country. When conceiving resettlement programmes, the focus should be on human development needs, and the people consulted before decisions to resettle them are made. People should be asked how they would like to be moved and where, and ideally villagers should be relocated close to the area from which they have been displaced. Efforts should be made to make rural areas attractive for tourism, and to develop alternative economic activities that will create employment for the displaced people.

Another concept discussed in this panel that could help to activate the economy of displaced communities was micro-finance. Relying solely on governments to invest money in rural development is not sufficient. Farmers and villagers should be given the chance to invest their own money and make their own decisions on where and how these investments should be made for their own benefit. More research and awareness of the functioning and challenges of micro-finance are needed, as well as an evaluation of the political aspects involved. One challenge, however, remains. Namely to ensure that micro-credit reaches and assists the rural community. One can judge if a policy is good or bad only by assessing how many people accept it.



When designing resettlement programmes, the focus should be on human development needs, and the people consulted before decisions to resettle them are made.

MAIN CONCLUSIONS OF THE SESSION

Political consequences

- If people are expected to remain in their native areas, much more attention (and funding) needs to be given to rural development.

Economic considerations

- In a rural context the environment (ecosystem) is “economy”. Water is an essential but not the only factor for securing rural livelihoods.



Social factors

- There is no such thing as a “water migrant” per se.
- Out-migration of young men from rural areas puts enormous pressure on the women left behind; women often migrate under more complex conditions than men. They have a high burden of care and therefore migrate as part of that responsibility.
- “Brain drain” should be transformed into “brain circulation”.

Technologies involved

- Improved agricultural productivity, water saving technologies, crop diversification should be further developed.

Environmental factors

- Environmental deterioration, land degradation and loss of soil fertility, overpopulation and the change of climatic conditions have a strong influence on livelihoods and migration.

Legal implications

- Both water rights and customary law are essential to ensure a sustainable use of water resources. International water law and water sharing agreements have an impact on rural livelihoods and potential migration as a result of lack of water.

RECOMMENDATIONS AND PROPOSALS

Recommendations

- Latent conflicts should be addressed and resolved before escalation.
- Fragile states should be helped to secure the livelihoods of their own citizens.

Proposals

- Strong appeal to donor agencies and governments to reprioritize rural development.
- Sustainable development should be conceived with the people and not for the people. Implement stakeholder dialogues.
- Send strong message about water and adaptation to mobilize the political will of governments.
- Migration should be incorporated into integrated water resources management approaches and drought risk management (there is no need to develop new programmes each time).
- Women often migrate under more complex conditions than men. Women should receive training in order to obtain skilled work.

Session 1.2.2:

Rural to Urban Migration “Rural Migrants in Urban Slums: Dreams Fulfilled or the Beginning of a Nightmare?”

It is evident that most of those on the move from rural areas head towards urban agglomerations and often end up concentrated in slum areas.

DESCRIPTION OF THE ISSUE

Insecure livelihoods drive millions of vulnerable people to move from their rural habitat to other rural set-ups as well as to urban settlements. It is evident that most of those on the move from rural areas head towards urban agglomerations and often end up concentrated in slum areas. This situation places unanticipated pressures on existing urban infrastructures and creates further social, health, infrastructure and management challenges in cities that are often already subject to unplanned growth.

The panel discussions in this session explored the implications of rural exodus to cities. The interaction between water resource demands, developments in rural areas and migration, ways to improve the living conditions of migrants in mega-cities, gender dimensions and coping strategies for overloaded infrastructures in urban planning were also main issues for discussion in this session. The panel discussions also focused on how to turn urban crises into development opportunities, how to plan ahead to better cope with migration pressure, urban slums and life quality of migrants, how to manage water and sanitation services more effectively in rapidly expanding urban areas, and how to provide opportunities to link different elements within the urban sector. The session also helped identify the human and technical capacities that need to be developed in order to provide an adequate water supply and effective sanitation services for new influxes of migrants, and identified the environmental, political, economical and social consequences of rural-to-urban migration on populations.

In addition, this session also included a high-level panel discussion. The idea was to highlight the position and perspective of institutional/state actors. In contrast to the other panel discussions where the different panellists were requested to speak in their professional/personal capacities, the experts on the high level panel represented the position of their respective organizations. These panellists emphasized the challenges, opportunities and role of institutions in tackling the questions raised under Session 1.2.2 and, more broadly, the issues of Topic 1.2.

DISCUSSION QUESTIONS

Panel Discussion on “Rural/Urban Water Conflicts”:

1. To what extent is the failure to secure sustainable rural livelihoods and water services contributing to uncontrolled urbanization?
2. In what ways does rural-to-urban migration contribute to or ease conflicts over appropriate water use, distribution and management in both rural and urban contexts?
3. Does urban growth always negatively affect rural livelihoods and resource availability?
4. Does irrigation agriculture prevent migration, enable reverse migration (urban-to-rural migration) or lead to further water conflicts?
5. How can we take gender considerations into account when discussing rural-urban migration?



Panel Discussion on “Urban Slums”:

1. What is required in order to provide low-cost safe water supplies and effective sanitation services in urban slums?
2. How might slums with adequate sanitation services become more attractive destinations for rural and urban migrants?
3. What gender-sensitive considerations need to be taken into account in terms of water infrastructure planning in urban slums?
4. How can we capitalise on existing social networks of those people living in informal settlements in order to improve planning about future migrant influxes and provide effective services and infrastructure in urban slum communities?

Panel discussion on “Overloaded Infrastructure”:

1. How do we balance water demands between the private sector, public need and unanticipated needs of increasing migrant numbers?
2. Should regional development policies give more emphasis to medium scale cities to avoid the uncontrolled development of mega-cities and increasing pressure on water resources?
3. How could remedial actions be financed?
4. How can the capacities of different stakeholders be strengthened to cope with unplanned rapid urbanization, projections, financial need, development models, industrial needs and manufacturing needs?



High-Level Panel Discussion on Institutional Role:

1. How can the links between water issues and migration be tackled from the perspectives of your institution?
2. How strong is the “water imprint” in migration decisions?
3. How can capacity development and cooperation in transboundary water management have an effect in reducing migration across borders?

SUMMARY OF THE SESSION DISCUSSION

Panel discussion on “Rural/Urban Water Conflicts”:

Moderated by Asst. Prof. Azime Tezer (ITU), Turkey

Panellists:

- Ms Chizoba Chinweze, Chemtek Associates Ltd, Nigeria
- Ms Kuntala Lahiri-Dutt, The Australian National University, Australia
- Prof. Boshra Salem, University of Alexandria, Egypt
- Dr Alberto Tejada-Guibert (UNESCO- IHP)

Rapporteurs:

- Dr José Luis Martin Bordes (UNW-DPC)
- Mr Tolga Erogan (GAP Administration)

In rural areas, the lack of access to water for irrigation in agriculture can influence rural-to-urban migration when farming activities are no longer productive. In Nigeria, the northern part of the country is facing reduced precipitation and drought due to climate change impacts. This results in a decrease in food production and forces those farmers dependent on rain-fed irrigation systems to migrate to the southern part of the country in search of work. This also causes social and cultural changes as women and children remain in their home areas in the north. The farmers return to the north during rain periods to resume their agricultural activities. Rural migrants in the urban setting of the Lagos Metropolis are also contributing to the increased demand for water in an area where groundwater resources are already being overexploited.

Under-prioritization of rural development in political agendas is an underlying cause of rural out-migration. However, in some countries such as Egypt the government is trying to counter-balance the situation in the rural areas by establishing sub-urban areas around the main big cities, which can attract reverse migration.

Also, as emphasized in previous panel discussions, the situation of women - both those who remain in the rural areas and those who migrate to the cities - is a response to more complex conditions. Women remaining in the villages carry a heavy burden of responsibility and may eventually themselves migrate. In some countries, it is culturally



In rural areas, the lack of access to water for irrigation in agriculture can influence rural-to-urban migration when farming activities are no longer productive.

Good water governance is also crucial to reduce water-related conflicts

difficult for women to be recognized as heads of the household; in Indonesia, for example, census returns always assume that the head of household is male. Households headed by women are often time-poor, and micro-credit programmes are frequently no help to them. Another social problem is that many women who migrate from rural areas to cities find they have lost their accustomed social networks.

Today, rural and urban areas compete for access to water, creating a sub-conflict about how to satisfy the needs of both. Water scarcity and increasing stress on water resources are factors that can trigger conflicts about water-related migration. An example is ethnic conflicts that arise when people from areas downstream move upstream due to lack of water, causing disruption of livelihoods. A similar situation can arise when rural migrants move to cities. As previously emphasized, there is a need to understand the linkages and interdependencies between social and environmental systems (so-called socio-ecological systems) in order to assess the conflict potential.

Good water governance is also crucial to reduce water-related conflicts. Three main options are available to improve rural livelihoods and limit migration to urban areas: increasing agricultural productivity, diversifying rural economies (in particular the development of small rural towns, which has been explored as a buffer for migration towards mega-cities), and mainstreaming water management into macro-economic policies.



Panel discussion on “Urban Slums”:

Moderated by Dr André Dzikus (UN-HABITAT)

Panellists:

- Mr Robert Gakubia, Water Services Regulatory Board, Kenya
- Ms Kuntala Lahiri-Dutt, The Australian National University, Australia
- Ms Aygül Fazlıoğlu (GAP Administration)
- Prof Kalanithy Vairavamoorthy (University of Birmingham)

Rapporteurs:

- Dr Charlotte van der Schaaf (UNW-DPC)
- Ms Fusun Gulmez (GAP Administration)

Migrants to urban areas include women and children who do not have equal access to health services and education. Often those who move from rural to urban areas are not well educated and have limited access to job opportunities. Immigrants frequently move to squatter settlements in small urban areas, which are usually overcrowded slums lacking basic services. Water supply and sanitation are a major problem in most of the slums that are a result of informal migration, as there is no formal provision of water or water infrastructure (Water Services Regulatory Board, Kenya). Hence, an enormous amenity gap in water and sanitation can drive people out of these settlements in rural areas into urban areas. Although regulation in slums is difficult, an effort should be made to bridge the gap between slum planners and urban planners to bring some basic services to the populations.

Water supply and sanitation are a major problem in most of the slums that are a result of informal migration, as there is no formal provision of water or water infrastructure

Slums should be included in innovative solutions, which should be generated by their disadvantaged inhabitants with the support of the existing networks that sustain livelihoods. Solutions that are self-driven certainly have the most potential for successful implementation. Unplanned slum areas affect and aggravate the problems of the cities (pollution, floods), but the valuable contribution of slums and those who live in them to the economy of the cities should be recognized.

Panel discussion on “Overloaded Infrastructure”:

Moderated by Mr Marc Baltes (OSCE)

Panellists:

- Prof. Xiaotao Cheng, Research Center on Flood and Drought Disaster Reduction of the Ministry of Water Resources of P.R. China
- Asst. Prof. Nilgun Gorer Tamer, Gazi University, Turkey
- Mr Emre Tepe, Istanbul Technical University, Turkey

Rapporteurs:

- Dr Matt Hare (UNW-DPC)
- Ms Humaira Daniel (UNU-EHS)

The rapid process of urbanization with increasing populations and declining availability of resources is adding significant pressure to the world's capacity to deal with urban crisis. Migrant flows from rural areas to the cities are not an unprecedented phenomenon, but we are still unable to define accurately the patterns and dimensions of urban



Development planning should integrate both rural and urban areas when it comes to addressing the issue of urbanization and infrastructure development.

migration. The current infrastructure in big cities is overloaded, and existing urban plans cannot cope with urgent water demands. Many countries in the Middle East, including Jordan and Israel, are trying to find ways to meet the challenges posed by water scarcity, but these solutions (such as desalination or purchase of water) are generally very costly.

Urban water issues still need to be prioritized by governments and urban political authorities, especially when long-term solutions are required. In order to reduce future pressure, the capacity of infrastructures in small and medium-sized cities must also be addressed. The example of China illustrates this issue: China is fundamentally an agricultural country, but it is also experiencing rapid urbanization and is suffering from an overstretched infrastructure. Many people are moving from the countryside to work in factories in urban areas. Countries facing rapid urbanization should share their experiences.

Development planning should integrate both rural and urban areas when it comes to addressing the issue of urbanization and infrastructure development. Funds to develop these infrastructures should ideally come from within the country itself, but seeking financial support and investors for development projects is usually difficult. In the light of this challenge, more donors should be sought.



High Level Panel Discussion on “Institutional Role”:

Moderated by Prof. Janos Bogardi, Director, United Nations University Institute for Environment and Human Security (UNU-EHS)

Panelists:

- Dr Reza Ardakanian, Director, UN-Water Decade Programme on Capacity Development (UNW-DPC)
- Dr Philippe Boncour, Head of the International Dialogue on Migration Division in the Migration Policy, Research and Communication Department, International Organization for Migration (IOM)
- Mr Luc Gnacadja, Executive Secretary, United Nations Convention to Combat Desertification (UNCCD)
- Mr Sadrettin Karahocagil, President, Southeastern Anatolia Project Regional Development Administration (GAP Administration)
- Ms Margareta Wahlstrom, UN Assistant Secretary General for the International Strategy for Disaster Reduction (UN/ISDR)

- Mr Hama Arba Diallo, Chair, global Water Partnership (GWP) West Africa

Rapporteurs:

- Dr José Luis Martin Bordes (UNW-DPC)

- Ms Xiaomeng Shen (UNU-EHS)

Empirical research indicates that internal migration and/or cross-border migration to neighbouring countries is hard to avoid when certain extreme natural conditions such as floods, land and environmental degradation, food and water insecurity and climate change-related impacts occur (IOM)¹. Those in charge of planning or regulating migration flows need to consider many questions, for example: will people remain near their place of origin or will they move far away? When cities are unable to absorb more migrants, how can the quality of life of slum dwellers be improved? In the light of increasing risks and social tensions, will environmental migration be temporary or permanent? (UNU-EHS)



Migration is both a consequence and a driving force of development. There is a need for a more integrated approach that pays greater attention to sustainability. We need to find alternative ways to provide water, but also to improve land management. The first step is to improve the condition of the land ecosystems, the second is to improve the water-retaining capacity of the soil and thus enable more food to be grown. In order to improve land ecosystems, it is necessary to improve the livelihood of the inhabitants and provide them with alternative land use options.

We need to recognize water-related migration as a human security issue; still not enough is known about how people make the decision to leave their homes and move to where water is available. Although international agencies propose coping strategies, more information still needs to be collected by those institutions involved in migration issues to identify the right adaptation mechanisms when faced with water scarcity (UN/ISDR).

We need to recognize water-related migration as a human security issue; still not enough is known about how people make the decision to leave their homes and move to where water is available

The source, destination and transit countries need help not only at the

² The acronyms in the brackets represent the statement expressed by the representative of the respective institute. The acronyms are explained in the list of abbreviations.

national level but also at the regional level to cope with migration issues. Different institutions need to coordinate and cooperate both at the country level and on a transboundary scale (GWP). The international community has the responsibility for accelerating implementation of the guidelines that have been recommended by climate change and water experts.



Institutions need to work in an integrated manner to achieve sustainability, and incorporate the economic, social and human development dimensions into their projects (GAP Administration). Improving and adapting ecosystems to achieve global benefit can reduce forced environmentally-induced migration. Water and land can only be managed in an integrated manner at the level of the hydrological unit (UNCCD).

The impacts of climate change will depend on physical conditions and the capacity of countries and communities to adapt. In some cases, it is not the most vulnerable who will migrate. For example in Ghana, north-south migration declined during drought and the food crisis. The negative impacts of water-related migration, both as a human and a security issue, can only be limited if migration strategies are well-planned to include for example advance considerations about future settlements, the organization of temporary labour activities, and the rational use of scarce water resources with adapted technologies.

More effort should be invested in specific research such as collecting best case water-related migration information to provide guidelines for action in similar situations around the world

Individual and institutional capacity development is a way to tackle water issues and migration more competently (UNW-DPC). There is a need to increase awareness and capacity development among governments, policy-makers, managers and other stakeholders. More effort should be invested in specific research such as collecting best case water-related migration information to provide guidelines for action in similar situations around the world.

MAIN CONCLUSIONS OF THE SESSION

Political consequences

- Development of “rural cities” to reduce migration pressure on mega-cities, improvement of life quality in rural areas to reduce out-migration.

Economic considerations

- Remittance help to improve lives of those left behind (women, elderly and children).
- Micro-finance and micro-credit are helpful but cannot solve all the problems of migration.

Social factors

- Slum dwellers do not identify with the city as their new “home”.
- Increasing rural-to-urban migration of women has social impacts in the source areas.

Environmental factors

- Over-exploitation of water resources increases environmental pressure in the source areas of migration.

Legal implications

- Water supply for immigrants from rural to urban areas has to be ensured through appropriate legal frameworks.



RECOMMENDATIONS AND PROPOSALS

Recommendations

- Strengthen capacity development, especially for women; improve rural livelihoods; and regulate seasonal migration to urban areas to maximize benefit for rural people.
- Turn urban crisis into urban development.

Proposals

- “Rural cities” as a new concept to make rural life more attractive and to reduce pressure on mega-cities.

DESCRIPTION OF THE ISSUE

International migration is a crucial part of the world's economic, social and political fabric. Millions of people crossing borders over land or by sea are an important element of international relations, as well as changing economic, social, cultural, and even political landscapes. The International Migration Report 2002, issued by the United Nations Population Division, states that around 175 million people currently reside outside the country of their birth. It is estimated that each year, the world's more developed regions receive about 2.3 million migrants from less developed regions, accounting for two thirds of their population growth.

There are several different drivers that lead to different types of migration patterns. Many can be linked to water and its influence on patterns of land use or natural physical processes. It is not known to what extent these various drivers lead to international migration. Nor is the impact of international migration on the state of the environment in areas of origin well known. Furthermore, it is not yet known if those who migrate first are relatively well off ("those who can migrate, will migrate") or those if who migrate first are those with the greatest direct dependence on environmental quality.

The main purpose of this session was to discuss whether water stressors can be a trigger for international migration. This can create not only positive solutions for water management but also illegal cross-border movement. The panel discussions within this session explored the main drivers that motivate people to migrate across borders and seas. In addition, the contribution of migrants towards local development in source countries through the sending of remittances was also discussed. The potential of legal instruments that facilitate migration circulation and result in a positive impact on local people in their homelands was discussed. Migration processes were also examined within a transboundary basin management context.

SESSION 1.2.3:

Crossing Borders/ Seas "Over Land, Over Seas: Does Water Accessibility Drive Cross-Border Migration?"

There are several different drivers that lead to different types of migration patterns, many can be linked to water and its influence on patterns of land use or natural physical processes

DISCUSSION QUESTIONS

Panel Discussion on “Crossing Borders/Seas”:

1. In what way could environmental degradation and climate change impacts, such as lack of water, trigger cross border migration?
2. How can unsustainable water use be a push and/or pull factor for migration?
3. Does one’s “water culture” change in a new cultural setting?
4. How can limited resources be equitably shared between migrants and the indigenous population? What are the consequences of circular migration and repatriation on water services?
5. What are the gender and social implications of overseas labour migration?
6. What role do remittances play in improving water availability/management “back home”? Which role do diasporas play in development?
7. From brain drain to brain circulation: can water resource management, water supply and sanitation encourage development and knowledge transfer processes?
8. How can trans-country migration be legalized/controlled and made a circulation of manpower, know-how and funds, rather than illegal and risky migration which causes brain drain?
9. How does the movement of young males impact on labour, soil conservation and water harvesting back home?



SUMMARY OF THE SESSION DISCUSSIONS

Panel discussion on “Crossing Borders/Crossing Seas”:

Moderated by Prof. Houria Tazi Sadeq (EHTP), Morocco and Dr Philippe Boncour (IOM)

Panellists:

- Dr Vahid Alavian , The World Bank
- Mr Marc Baltes (OSCE)
- Mr Ahmed Bugri, Marsa Open Centre, Malta
- Ms Humaira Daniel (UNU-EHS)
- Mr Ignacio Sanchez Cohen (INIFAP), Mexico

Rapporteurs:

- Ms Xiaomeng Shen (UNU-EHS)
- Dr Charlotte van der Schaaf (UNW-DPC)

Migration is an ancient adaptation measure and integral part of human civilization. Migration to distant regions or even across borders generally occurs as a result of extreme situations. In some African regions, long-term droughts (up to eight years in some cases) and water scarcity have led to the collapse of all community-based livelihoods, forcing people to move.

It is difficult to single out drivers for migration due to climate change, but economic reasons are a clear factor for migration. The capacity to adapt to climate change depends on the robustness of national economies, but it also depends on the historical and cultural approaches to adaptation that have been previously experienced in a region. Internal migration is an easier solution in some areas, whereas the migrant population in others may be more inclined to cross borders. Considering that most migrants start illegal activities and build poor dwellings in the receiving countries, knowledge and capacity should be transferred to poor rural areas to help potential migrants remain in their places of origin. New questions emerged during the discussions in this panel session, for example: How can legal migration be facilitated? How can illegal smuggling of migrants be avoided? How can regional cooperation be strengthened? There is still a need for transition countries, receiving countries and source countries to strengthen their institutions to address the flux of migration.



Considering that most migrants start illegal activities and build poor dwellings in the receiving countries, knowledge and capacity should be transferred to poor rural areas to help potential migrants remain in their places of origin



The economic push and pull factors of migration have already been recognized. However, there are still discrepancies concerning the definition of the environment and human security concepts and therefore consolidated estimates of the true volume of environmental migration are limited.

Studies carried out by the World Bank indicate that there will be large number of people migrating due to economic reasons, but also due to water scarcity, drought and environmental degradation. Migration to larger cities has reached saturation level and now trends indicate that migration flows are directed towards medium-sized cities and ultimately towards crossing borders. Small towns lack the infrastructure to cope with an influx of new inhabitants, and therefore adapted spatial planning tools and forward-studies are needed to assess the future organization of cities. There is also a need to conduct more research to study and assess the impact of the financial crisis on migration-based livelihoods.

Small towns lack the infrastructure to cope with an influx of new inhabitants, and therefore adapted spatial planning tools and forward-studies are needed to assess the future organization of cities

Cross-border migration usually occurs in areas which are endangered by climate change and environmental degradation, such as in the drylands. For example, in some parts of Pakistan and Afghanistan, drylands are very labour-intensive and require regular maintenance, but people are deciding to sell their land and migrate. Moreover, regions affected by political instability face even more challenging situations. There is a lack of research interest due to other political priorities, but proper documentation of water and migration issues is very much needed.

Knowledge of cultural and traditional contexts is important in order to enhance our understanding of people and their motives for moving. People live within artificially created national boundaries, which prevent them from moving freely within natural boundaries such as river basins. There are many parts of the world where shared cultural norms exist and hence communities are culturally bounded. It is also vital to consider that water can divide but can also unite. In such situations people should be allowed to move within a natural system without boundaries in order to adapt to environmental change.

Migration is also an issue of serious concern for national and human

security in some countries. Security issues need to be understood in order to reduce social vulnerability and help migrants. On the one hand, environmental migrants not only have to leave their lands and livelihoods, but in the process may become illegal migrants and face imprisonment when legal protection is not granted and human rights are not respected. On the other hand, this “illegal migration” has become an essential national security issue in some countries. The role of states should be not only to protect their citizens, but also to tackle global problems and maintain good relations with neighbouring countries in order to ensure human security.

There is no legal recognition and protection framework for environmental migrants forced to cross borders following natural disasters. The framework of the United Nations legal instruments needs to be augmented to protect those who migrate under environmental stress. We need to look at the migration issue in a broader context and analyze the root causes to enable us to establish a comprehensive security approach that respects human rights. Addressing poverty is one of the keys to understanding the specific context in which migration occurs.

We are facing a situation in which expertise to address migration challenges is still lacking, development and humanitarian needs are at stake, and communities tend to take a narrow view on the potential benefits of migration. Capacity development and empowerment are the tools by which the improvement of livelihoods of those who stay behind can be achieved and at the same time can improve the chances of migrants.

The role of states should be not only to protect their citizens, but also to tackle global problems and maintain good relations with neighbouring countries in order to ensure human security.



MAIN CONCLUSIONS OF THE SESSION

Political consequences

- There are discrepancies between the human security and state security concepts.
- Diplomacy can help migrants. Migration may lead to new mutually beneficial links (“migradiplomacy”).

Economical considerations

- Need to assess the impact of financial crisis on migration based livelihoods.
- Economic push factors need to be effectively addressed to ensure better migration management in the future.
- It is cheaper to address the issue at the source rather than trying to develop programmes to facilitate reverse migration.



Social factors

- Demystify the borders! The natural living space is the river basin, within which people should be able to move freely.
- Spatial planning and rural development initiatives are important to prevent migration.
- Indigenous knowledge of water related migrants should be preserved and documented.

Environmental factors

- Look beyond the negative impacts of environmental and disaster migration.
- Dry-lands and areas prone to land degradation and droughts are particularly vulnerable to environmental cross-border migration.

Legal Implications

- There is no legal recognition and no international protection framework for emergency migrants forced to cross borders by natural disasters and environmental degradation.

Land and water rights matter.

- Empowerment and capacity development of communities and their local institutions will have a positive impact in limiting migration.

RECOMMENDATIONS AND PROPOSALS

Recommendations

- Governments should initiate diplomatic processes to assist migrating populations.
- Need to assess the consequences of the financial crisis.
- Address migration at all levels of sovereignty, and consider human rights and the personal rights of migrants.
- Invest more in capacity development programmes that are specially designed to improve environmental and livelihood conditions.

Proposals

- Further develop specific research programmes to better estimate, assess and define the relationships and interdependencies of environmental/water migration.
- The international community should revise some of the policies that are triggering cross-border migration.

SESSION 1.2.4:

Wrap-up and the Way Forward

Both in rural and urban areas, the access to water and legal frameworks to regulate it are important to guarantee the basic needs of agriculture, livelihoods and basic human rights such as water supply and sanitation

Moderated by Prof. Janos Bogardi (UNU-EHS)

Panellists:

- Prof. Birsen Gokce, Sociological Association, Turkey (wrap-up of Rural to Rural Migration Session)
- Dr Reza Ardakanian (UNW-DPC) (wrap-up of Rural to Urban Migration Session)
- Dr Philippe Boncour (IOM) (wrap-up of Crossing Borders/Seas Session)
- Mr Jacob Mabusetsa Lenka, Transformation Resource Centre, Lesotho

Rapporteurs:

- Ms Xiaomeng Shen (UNU-EHS)
- Dr Matt Hare (UNW-DPC)

Climate change and climate variability increase natural disasters and reduce reliable water supplies, thus undermining the coping capacity of rural people, making migration a must rather than a choice. Migration should be addressed on every scale and at all levels. To date, no reliable estimates or quantitative data exist about the dimension of environmental migration vis-à-vis economic or security migration, therefore more research on the special link between environment degradation and migration is urgently needed. Moreover, we have to recognize and acknowledge the “culture of migration” as an intrinsic feature of human existence.

Both in rural and urban areas, the access to water and legal frameworks to regulate it are important to guarantee the basic needs of agriculture, livelihoods and basic human rights such as water supply and sanitation. In areas suffering from water scarcity and land degradation, the chances of facing environmental migration are higher. Therefore, sufficient attention should be given by donor agencies and governments to rural development in national plans and international cooperation programmes, including the implementation of adapted legal frameworks and regulation mechanisms. Such development programmes should be conceived in consultation with the population of the areas concerned and should include dialogue with stakeholders. Legal frameworks should also consider latent local and even trans-national conflicts that may emerge due to unequitable access to land and water resources, or be caused by social and ethnic confrontation due to migration. These potential conflicts should be prevented by all available legal, diplomatic,

institutional and cooperation tools and mechanisms, before they become acute.

Unsolved economic, social and environmental problems in rural areas may, by triggering migration to the cities, also have an impact in urban areas. In particular, social problems and unrest may arise in slums around big cities where basic needs for a dignified human existence are not met. Some countries are testing the development of rural cities, as an attempt to improve livelihood and reduce migration pressure on large cities. Some solutions to improve local development include micro-finance and micro-credit programmes, but even if they are helpful they cannot alone solve all the problems related to migration.



Migration is not an unprecedented phenomenon and there is no doubt that it will continue and that the number of migrants will increase in the coming years. Development and resettlement plans need to be prepared in advance to ensure a coordinated and efficient response to provide new migrants with good living conditions and opportunities for work and education. At the same time, the current discrepancies between the concepts of human security and state security should be overcome, and a new perception of the value and positive impacts of migration instilled into the minds of politicians and policymakers. Specific programmes for the development of the capacities of individuals and institutions to deal with water- and environment-related migration are needed in the countries of origin as well as in the transition and recipient countries. Capacity development also means empowerment of communities to improve the livelihoods of those who stay, and to provide better chances and opportunities for those who migrate.


Current discrepancies between the concepts of human security and state security should be overcome, and a new perception of the value and positive impacts of migration instilled into the minds of politicians and policymakers

Annexes



Wrap-up of Topic 1.2 in Theme 1 “Global Change and Risk Management


TOPIC 1.2
Water-related Migration, Changing Land-use and Human Settlements
Session 1.2.1 Rural to Rural Migration



Major issues to be bridged

- We want people to remain in their areas, yet not enough attention is given at present to rural development in national plans and international cooperation.
- Climate change and climate variability increase disasters and reduce reliable water supplies thus undermine the coping capacity of rural people, so migration has become a must rather than a choice.
- Outmigration of young men creates enormous pressure of women left behind.
- Water is essential, yet not the only factor to secure rural livelihood. There is no “water migrants” per se.

TOPIC 1.2
Water-related Migration, Changing Land-use and Human Settlements
Session 1.2.1 Rural to Rural Migration



Actions / initiatives to help the bridging process

- Strong appeal to donor agencies and governments to reprioritize rural development initiatives.
- Fragile states should be assisted to secure livelihood for their own citizens.
- Sustainable development should be conceived with the people but not for the people. This can be achieved by stakeholder dialogues.
- Latent local conflict should be addressed and maybe resolved before escalation.

TOPIC 1.2

Water-related Migration, Changing Land-use and Human Settlements

Session 1.2.1 Rural to Rural Migration



Sound bytes

- In the rural context, environment is economy.
- The food crisis of 2008 could be seen as an early warning what may come.
- Land and water rights matter; entitlements are powerful disincentives to migrate.

TOPIC 1.2

Water-related Migration, Changing Land-use and Human Settlements

Session 1.2.2 Rural to Urban Migration



Major issues to be bridged

- Cities attract migrants, yet most end up in squatter settlements
- Turn urban crises into urban development
- Public water services vs. informal water services would improve slums
- Micro finance and micro credit are helpful but can not solve the mega problems of migration

TOPIC 1.2

Water-related Migration, Changing Land-use and Human Settlements

Session 1.2.2 Rural to Urban Migration



Actions / initiatives to help the bridging process

- Rural cities as a new concept to improve livelihood and release migration pressure on mega cities.
- We know migrants will come, so we should plan for it.
- Improve the efficiency of urban water services.

TOPIC 1.2

Water-related Migration, Changing Land-use and Human Settlements

Session 1.2.2 Rural to Urban Migration



Sound bytes

- One billion slum dwellers worldwide demonstrate that unsolved rural problems lead to urban problems.
- There is nothing like slum romantics. People deserve a dignified life.

TOPIC 1.2

Water-related Migration, Changing Land-use and Human Settlements

Session 1.2.3 Crossing Borders/Seas



Major issues to be bridged

- Demystify borders: the natural living space is the river basin
- Look beyond the hot spots concerning environmental and disaster migration; Myanmar was never on the screen of anyone
- The impact of financial crisis on migration based livelihoods is unassessed, but the outlook is gloomy

TOPIC 1.2

Water-related Migration, Changing Land-use and Human Settlements

Session 1.2.3 Crossing Borders/Seas



Actions / initiatives to help the bridging process

- Resolve the discrepancies between the human security and state security concepts
- Rich countries like those of the European Union should actively revise fishery policies which is triggering trans-boundary migration
- Capacity building is empowerment which improves livelihoods of those who stay behind and provide better chances for the migrants themselves

TOPIC 1.2

Water-related Migration, Changing Land-use and Human Settlements

Session 1.2.3 Crossing Borders/Seas



Sound bytes

- Human history is the history of migration.
- We have to acknowledge the “culture of migration” as an intrinsic human feature

TOPIC 1.2

Water-related Migration, Changing Land-use and Human Settlements

Session 1.2.4 WRAP UP



- Micro finance and micro credit are helpful but can not solve the mega problems of migration
- Establish legal recognition to protect environmental emergency migrants who have to cross borders to seek refuge when disasters occur in their country
- Migration is to be addressed at all scales
- There are no consolidated estimations of environmental migration, more research is urgently needed
- Water-related triggers for migration do not act in isolation
- Consider migration in the climate change, environmental and disaster debates

Annex: Biographies of Panellists and Moderators

Dr **ADEEL**, Zafar serves as Director at United Nations University International Network on Water, Environment and Health (UNU-INWEH), where he has the overall responsibility for the direction, organization, administration and programmes of the institute. Dr Adeel is an environmental engineer with post-graduate degrees from Carnegie Mellon University and Iowa State University. Dr Zafar Adeel has experience in a variety of water and environmental issues, including monitoring and control of water pollution, water management in dry areas, solutions to industrial environmental problems, modeling of environmental systems and environmental policy formulation.



Mr **AIT KADI**, Mohamed is currently President of the General Council of Agricultural Development. This Council is a high level policy think tank of the Ministry of Agriculture, Rural Development and Fisheries in Morocco. He has also served as acting Secretary General of the Ministry. Previously, as Director General of the Irrigation Department, he was in charge of the development and implementation of the National Irrigation Program. He is author of numerous publications in the fields of agriculture, rural development, irrigation and water management.



Dr **ALAVIAN**, Vahid serves as the Water Advisor at the World Bank where he is responsible for advising on complex investments in the water sector, leading dialogues on water resources management with major World Bank clients, and for helping implement the Bank's water resources strategy. He has more than 30 years of experience in the water sector through work with international financial institutions, governments, donor agencies, private sector, and academia.



Dr **ARDAKANIAN**, Reza was appointed as the Founding Director of the UN-Water Decade Programme on Capacity Development (UNW-DPC) in August 2007. As the holder of an MSc and PhD in Water Resources Management from McMaster University in Canada, Dr Ardakanian is a Faculty member of Sharif University of Technology in Tehran, Iran. Dr Ardakanian's cooperation with the United Nations University began in 2003 when he served as a member of the Advisory Committee of the Institute of Environment and Human Security (UNU-EHS), based in Bonn, Germany.

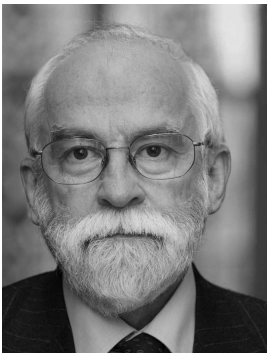




Mr **BALTES**, Marc was appointed to the Organization for Security and Cooperation in Europe (OSCE) Secretariat in March 2000, where he is presently holding the position of Senior Advisor to the Coordinator for OSCE Economic and Environmental Activities. He holds a Masters in Political Science and was appointed Second Secretary at the Luxembourg Mission to the United Nations in New York. Mr Baltes has also worked for the United Nations Conference on Trade and Development (UNCTAD), with postings in Kuala Lumpur, Malaysia and at UNCTAD Headquarters in Geneva. He worked as Adviser to the Luxembourg Representation to the Western European Union (WEU) and NATO.



Associate Prof **BAYRAMIN**, Ilhami is faculty staff at the Soil Science Department of Ankara University. Dr Bayramin successfully completed a PhD study on soil mapping and remote sensing at the Purdue University, Indiana, USA. Dr Bayramin is deeply involved in teaching and research activities in Remote Sensing and Geographic Information Systems Applications, Pertaining to Environment, Environmental Impact Assessment, Land Resource Information, Land Evaluation and Land Use Planning, Soil Survey, Soil Genesis and Soil Classification.



Prof **BOGARDI**, Janos J. has been the Director of the United Nations University Institute for Environment and Human Security (UNU-EHS) since 2003. He is also Vice-Rector a.i. of the UNU Vice Rectorate in Europe. He started his professional career as Assistant Professor at the Institute for Water Resources Management of the Technical University of Budapest. He also became part of the scientific staff in the Federal Institute for Hydraulic Engineering in Karlsruhe, and the University of Karlsruhe. He started his UN career in 1995 with UNESCO in Paris, France.



Dr **BONCOUR**, Philippe is Head of the International Dialogue on Migration Division and the Migration and Environment focal point of the International Organization for Migration (IOM). He holds a Masters degree and a Doctorate from the University of Paris-Sorbonne. Prior to joining IOM, Dr Boncour was the Director of Development and Communication of the Worldwide Network of the Alliance Française. As a French civil servant, Dr Boncour has worked for the Ministry of Cooperation and for the Ministry of Foreign Affairs in various capacities as an Advisor to the Minister of Education in Cameroon and was managing the French technical cooperation.

Mr **BRESSER**, Ton has worked as a senior researcher and lecturer at UNESCO-IHE Institute for Water Education in a part time capacity since 2005. Mr Bresser is responsible for the coordination of the inter-core theme climate change and integrated water resources management (research, education and capacity development). As Director of the small advisory organization 'Bresser-consultancy', Ton is involved in the programme of the Indonesian government on water related impacts of and adaptation to climate change. He gained his Masters degree in civil engineering (hydrogeology and sanitary engineering) from the Technical University of Delft, the Netherlands.



Mr **BURGI**, Ahmed is a reverend minister and is employed with the Fondazzjoni Suret il-Bniedem as the manager of the Marsa Open Refugee Centre. He has worked with refugees and migrants in Europe for over 10 years. His work focuses on providing counseling, pastoral, and relational support to irregular migrants and asylum-seekers in Malta. He has also been involved in various European Union projects regarding asylum-seekers, offering cultural advice and training for Detention Services. He is currently reading for a Doctor of Laws (LL.D.) at the University of Malta and remains active in the formulation of migration policy in Malta.



Prof. **CHENG**, Xiaotao is Vice Chief Engineer of the China Institute of Water Resources and Hydropower Research (IWHR) and Executive Director of the Research Center on Flood and Drought Disaster Reduction of the Ministry of Water Resources of P. R. China. He has more than 20 years research experience in hydraulics and river dynamics; flood risk analysis and assessment; flood control strategies and countermeasures; 2-D urban flood simulation modeling; 2-D unsteady flow and sediment transport simulation modeling; and flood control decision support systems and emergency management.



Ms **CHINWEZE**, Chizoba holds an MSc degree and works as the Chief Consultant and Managing Executive of Chemtek Associates Limited, Nigeria. Currently she is the project coordinator for the consultancy services which review and update the National Water Resources Law (Act 100 of 1999) in Nigeria. Her focus is on environmental projects in the area of environmental challenges and human vulnerability related to oil and gas, water, erosion, deforestation, impact assessment and sustainable development.

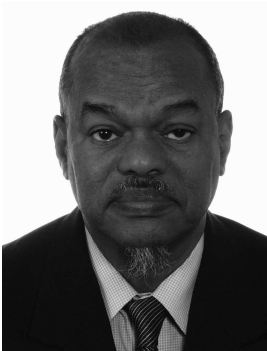




Mr **CLEVERINGA**, Rudolph has been a Senior Technical Adviser in Rural Development (Water Management and Infrastructure) at the International Fund for Agricultural Development (IFAD) since 2003. In the early 90's, he joined the UN as Co-Director and Principal Technical Adviser for Rural Development in Central-America. He has carried out several consultancies and trainings on Participatory Irrigation Management and has over 10 years worth of work experience with bilateral cooperation in Latin America/Caribbean and Africa. He graduated in 1978 from the Wageningen University in Land and Water Development and undertook successive post-graduate studies on Agricultural Extension.



Ms **DANIEL**, Humaira is a Research Associate at United Nation University Institute for Environment and Human Security (UNU-EHS) and has a MSc (H) in Agriculture from NWFP Agricultural University Peshawar, Pakistan. She is also affiliated with the Centre for Development Research, University of Bonn, where she is finalising her PhD thesis on Water Control and Livelihood strategies in Rod Kohi areas of the North West Frontier Province of Pakistan boarding Afghanistan. She has worked on rural development issues with a special focus on social and gender dimensions with non-government organisations and the Swiss Agency for Development and Cooperation-Intercooperation Switzerland in Pakistan.



Mr **DIALLO**, Hama Arba is Chair of the Global Water Partnership (GWP) West Africa. He formerly served as the Executive Secretary of the United Nations Convention to Combat Desertification and prior to this, he was the Special Representative of the Secretary General of the United Nations Conference on Environment and Development (UNCED) during the preparations for the Rio Summit. For 24 years he served as a top official in the state and foreign ministries of Burkina Faso. Mr. Diallo also served as a delegate to the UN General Assembly as well as ECOSOC, UNDP, UNIDO, UNCTAD and UNEP. Mr. Diallo was born in Burkina Faso and holds a B.A. in political science.



Dr **LAHIRI-DUTT**, Kuntala is a Fellow at the Resource Management in Asia Pacific Program at the Research School of Pacific and Asian Studies, The Australian National University (ANU). Dr Lahiri-Dutt has extensive research experience in community issues around the management of water resources in South Asia, and related gender issues. She has been a consultant to the International Atomic Energy Agency and Australian Agency for International Development (AusAID) amongst others. At ANU, Dr Lahiri-Dutt teaches courses on Gender and Development, and on Indigenous Peoples and Resource Projects.

Dr **DZIKUS**, Andre is the Chief of the Water and Sanitation Section II (WSS II), Water, Sanitation and Infrastructure Branch at UN-HABITAT. He has been with UN-HABITAT for the last eighteen years and has helped build up the water and sanitation portfolio in the agency as one of the main six pillars in UN-HABITAT's current Medium Term Strategic Plan (MTSIP). Dr Dzikus studied urban and regional planning at Heidelberg University.



Ms **FAZLIOĞLU**, Aygül is General Coordinator of Human and Social Development Department of GAP Regional Development Administration. She holds a BSc degree of Sociology from the Hacettepe University in 1990 and in 1992 a Master degree of Sociology. Between 1993-94 she took a role in field works as a sociologist about Status of Woman and Development Process Research in GAP Region which was carried out by the Turkey Development Foundation. Since 1994, she has been working in GAP Regional Development Administration. She has experience in woman and gender issues, social development, social impact assessment, rural development and integration of disadvantaged groups (youth, urban poor, children, women) to the development process.

Mr **GABUKIA**, Robert is Chief Executive Officer of the Water Service Regulatory Board in Kenya. He held senior positions in the Ministry of Water and Irrigation, before becoming the Director of Water Services. He holds BSc degree in Civil Engineering from University of Nairobi and MSc Sanitary Engineering degree from IHE Delft, Netherlands. He is a corporate member of the Institution of Engineers of Kenya and a Registered Engineer with the Engineering Registration Board of Kenya.



Mr **GNACADJA**, Luc is the Executive Secretary of the United Nations Convention to Combat Desertification. Born in Benin, Mr. Gnacadja is an architect by profession, having graduated from the African School of Architecture and Urbanism in Lome. He was also the successful CEO of a consultancy firm and an accomplished manager, honing his skills at the Harvard University Kennedy School of Government and the World Bank Training Institute. Before taking up his position as UNCCD Executive Secretary, Mr Gnacadja served as Minister of Environment, Housing and Urban Development in Benin from 1999 to 2005.





Prof. **GÖKÇE**, Birsen is currently Head of the Sociological Association in Ankara, Turkey. Since 1990, she has worked as the founder of the Association of Sociology and has also served as a chairman, deputy chair and member in ten other associations directly related to sociology. With a primary focus on conducting research about the social structure of Turkey, Prof. Gökçe has completed over 41 years of academic service. She has written over 60 papers and fifteen books, three of which are co-authored, in the fields of sociology of youth, family, shantytowns and rural sociology, including the book “The Social Structure of Turkey and Social Research” which is covered as a course book in universities.



Mr **HAZAR**, Turan holds an M.Sc. degree and serves as a consultant on land acquisition, resettlement and rural development. With more than 27 years of experience at the General Directorate State Hydraulic Works (DSİ) of Turkey, he retired while he was serving as department head. The focal points of his work experience are the following topics: community development; planning and management of resettlement projects; technical and socio-economic assessment of land acquisition and resettlement issues stemming from development projects; socio-economic analyses; and, planning, executing and supervising the land acquisition and resettlement components of rural and urban development projects.



Mr **KARAHOCAGIL**, Sadrettin is the President of Southeastern Anatolia Project (GAP) Regional Development Administration. He holds a bachelor of political sciences degree from the University of Ankara, a Master of economics degree from the University of Manchester and is currently a Ph.D candidate at the University of Hacettepe, Ankara. Mr Karahocagil. He had worked for Prime Ministry, Undersecretariat for State Planning Organization for 6 years as a Head of Department for EU Educational and Youth Programmes and as an adviser to Undersecretary. He had worked for the Ministry of Interior for 16 years as a governor in various districts and heads of human resources and citizenship departments.



Mr **KASTEN**, Tim is Chief of Natural Resources in the United Nations Environment Programme’s (UNEP’s) Division of Environmental Policy Implementation. Mr Kasten joined UNEP in 1998 after 12 years with the U.S. Environmental Protection Agency Office of Water in Washington, DC. His first UNEP posting was to the Caribbean Regional Seas Programme in Kingston, Jamaica, focusing on marine pollution where he also served as the Acting Deputy Coordinator. Five years later, he joined UNEP at its headquarters in Nairobi as Chief of Policy Development and since 2005 serves as Chief of Natural Resources, responsible for coordinating UNEP’s freshwater programme. He also oversees technical projects in the area of forests, biodiversity, and the urban environment.

Dr **KOOHAFKAN**, Parviz of Iranian nationality is the Director of the Land and Water Division in the Natural Resources Management and Environment Department of the Food and Agricultural Organisation (FAO), Rome. He has longstanding professional experience in Latin America, Asia and Africa. He holds an engineering degree in Agronomy and Natural Resources Management from the University of Tehran and a PhD in Terrestrial Ecology from the University of Sciences and Techniques of Montpellier, France.



Mr **LENKA**, Jacob Mabusetsa is a lobbying and advocacy trainer at the Transformation Resource Centre in Lesotho. He is an activist on water and dams issues in Lesotho and is interested in public participation in Environmental Impact Assessment processes. His work involves monitoring social and environmental impacts of the Lesotho Highlands Water Project (LHWP) and other large scale projects. He is a member of Lesotho Water Partnership and Survivors of the Lesotho Dams (SOLD).

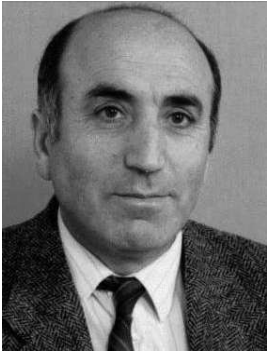


Mr **LUBOYERA**, Festus has a Masters degree in Climate Change from the University of East Anglia in the UK and also holds B.Sc. (Hons) in Physics from Makerere University in Uganda and a B.Sc. (Hons) in Meteorology from the University of Pretoria in South Africa. His first job was at Entebbe Airport where he worked as an aviation meteorologist and worked as a senior meteorologist at Mmabatho International Airport in South Africa. In 1994, he joined the South African Weather Bureau and later became the Director for the Climate Change in the Ministry of Environment. He joined the UNFCCC secretariat (Bonn, Germany) in 2003 where he is working as as a Programme Officer in the Implementation Programme.



Mr **LUEGE TAMARGO**, José Luis leads the National Water Commission of Mexico. He was Minister of the Environment and Natural Resources from June 2005 to November 2006. He previously served as Federal Attorney for the Protection of the Environment, from September 2003 to June 2005. Having studied chemical metallurgic engineering at the National Autonomous University (UNAM), Mr Luege has two specialities in iron and steel processes: one at UNAM, and the other at the Metallurgic Research National Center in Madrid, Spain.





Prof. **MERMUT**, Ahmed Nuri (FellowCSS, FellowASA, FellowSSSA) is a professor of soil science and is currently the Chair of Division I of the International Union of Soil Science. Prof. Mermut was with the Department of Soil Science, Ankara University 1968-1982, University of Saskatchewan from 1982-2002, and Harran University from 2004-2009. Prof Mermut has served as the associate editor and the editor of the Canadian Society of Soil Science. He has also served as associate editor of Clays and Clay minerals and been a guest editor for Geoderma special issues. Over many years Professor Mermut has committed his expertise and large amounts of his time to projects throughout the world (Asia, South America, Middle East, Africa, Europe). He advocates for the application of the principles of soil science to solve local land management problems.



Prof. **SALEM**, Boshra is a professor in the Department of Environmental Sciences at the University of Alexandria, Egypt and is currently acting as the chair Madame of the department. Prof Salem is a member of the national SCOPE (Scientific Committee of Problems of the Environment) committee and the reporter of the national UNESCO/MAB (Man and Biosphere) committee. Regionally, she is the Executive Director of the ArabMAB network. Internationally, she is a member of the international Advisory committee of Biosphere reserves, UNESCO-HQ, as well as a member of the International Jury for the Jawad Hussein Prize and UNESCO Science Prize.

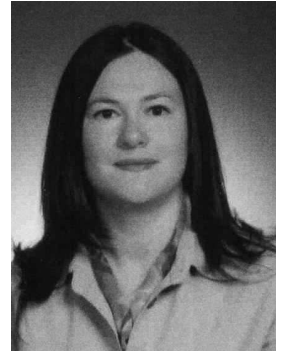


Dr **SANCHEZ-COHEN**, Ignacio is an agricultural engineer and serves as a researcher in the National Institute for Forestry Agricultural and Animal Husbandry Research in Mexico. He is the national coordinator of the soil and water research network within this institute. His research focuses on integrated water management which involves water balance at watershed level and the impacts of extreme events on social variables. He holds a PhD on Physical Aspects of Arid Lands from the University of Arizona, USA and has 27 years of research experience, especially in projects related to watershed management. His publications involve several research fields around water: hydrology, climate, soils, and the social dimension of water scarcity which links hard science to decision taking.



Dr **STULINA**, Galina is a Senior Scientist leading many international research projects for the Scientific Information Center of Interstate Coordination Water Commission (SIC ICWC) of Central Asia. Dr Stulina graduated from Moscow State University biological-soil department and has been dealing with issues related to the water sector issues for 30 years through her association with the Central Asian Irrigation Research Institute. Dr Stulina is the leader and coordinator of the Gender and Water Network in Central Asia. She has produced reports on gender aspects of integrated water resources management, has successfully completed a NATO Fellowship, and has over 50 scientific publications.

Ass. Prof. **TAMER**, Nilgün Görer is based at the City and Regional Planning Department, Gazi University, Turkey. Her research focuses on urban planning and water issues from different dimensions. Her focal points are the following topics: access to and affordability of water services; indicators of urban water use; and, integration of water plans into land use planning. She holds a PhD in Urban and Environmental Science from the Department of Political Science and Public Administration of Ankara University. Her dissertation title is “Evaluation of the Policies on Urban Infrastructure: the Case of Water Supply and Sewerage Sectors”. She has published several articles which discuss the impact of urban infrastructure policies on water services.



Prof. **TAZI SADEQ**, Houria has been co-chair of two university programs as Holder of the Interdisciplinary UNESCO Chair for Sustainable Management of Water since 2001. Over the past 19 years she has been Professor of Higher Education in Administrative Law and, subsequently, Environmental Law and holder of the Interdisciplinary UNESCO Chair for Sustainable Management of Water (held since 1998) at Hassania School of Civil Engineering (EHTP), Casablanca. Prof. Tazi Sadeq gained her PhD (Doctorat d’Etat) (option: Political Science) in Environmental Law specialising in law, water and sustainable development in 1998.



Dr **TEJADA-GUIBERT**, José Alberto is Deputy Secretary of the International Hydrological Programme (IHP) of UNESCO. His major specializations are hydrology and water resources systems analysis and planning. He has been in charge of the Urban Water Management Programme of IHP since 1996. He is a Civil Engineer from the National Engineering University of Lima, and holds MSc degrees in Engineering-Economic Planning from Stanford University and in Hydrological Engineering from IHE of Delft, Netherlands. He obtained a PhD degree in Water Resource Systems.

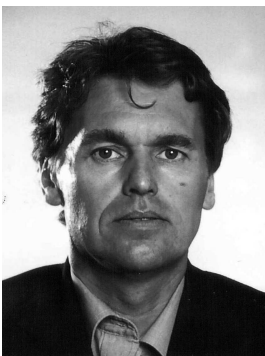


Mr **TEPE**, Emre is an Urban Planning Masters Program candidate enrolled at the Institute of Science and Technology at Istanbul Technical University (ITU). He is conducting research for his thesis on “Mass Housing Area Development and Its Effects on Metropolitan Spatial Development, Dynamics and Planning System”. He graduated from the Department of Urban and Regional Planning Program, ITU in 2007 and since 2006 has also been working on academic research under the supervision of Professor Lale Berköz.





Prof. **TEZER**, Azime, an Urban and Regional Planning faculty member at Istanbul Technical University, primarily focuses on ecological spatial planning applications and disaster mitigation efforts in urban areas. She spent two years as a visiting scholar and UNESCO Fellow with the Ecological Cities Project at the University of Massachusetts in Amherst, USA. She received certificates related to disaster management and mitigation planning from FEMA – USA and JICA – Japan. Currently, she is promoting the designation of Omerli Watershed, one of Istanbul’s primary water sources, as an “Urban Biosphere Reserve” by UNESCO, and conducting the URBAN-IST Project to develop an integrated watershed management plan to enhance the interaction of ecosystem services and spatial planning in the watershed.



Prof. **TRONDALEN**, Jon Martin has chaired multilateral negotiations on water disputes in the Middle East; assisted governments and the United Nations in resolving environmental and water resource disputes; and trained diplomats and technical delegates in enhancing negotiation skills. He was granted Special Fellow status by the UN several times for work on international environmental conflict resolution and preventive diplomacy and action. He has worked for the Norwegian Church Aid and the World Bank, with the Norwegian Research Council, and has worked for 13 years at the University of Oslo as full professor in resource geography. He is founding director of the CESAR Foundation (Oslo), Compass Foundation (Geneva), and one of the founders of the International Water Academy.

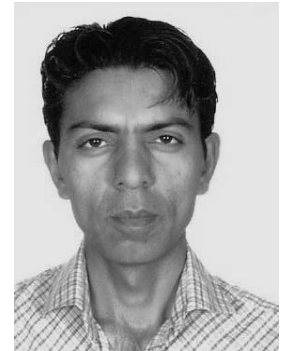


Prof. **VAIRAVAMOORTHY**, Kalanithy is the Scientific Director of SWITCH an EU Integrated Project for Sustainable Urban Water Management and is Chair of Water Engineering at the University of Birmingham in the UK. He also holds a Chair appointment at UNESCO-IHE (20%), where he jointly coordinates the Integrated Urban Water Programme, and at the Technical University of Delft (zero-appointment). Prof. Vairavamoorthy has a PhD and MSc in Environmental and Water Resources Engineering from Imperial College, University of London. He is also a Chartered Engineer and a Fellow of the Institution of Civil Engineers (UK).



Prof. **VAN DER ZAAG**, Pieter is professor of water resources management at the UNESCO IHE Institute for Water Education in Delft, The Netherlands, and also holds a professorship at Delft University of Technology. He has been involved in several multidisciplinary research and capacity building projects in Ethiopia, Ghana, Mexico, Mozambique, Peru, Senegal, Tanzania, Uganda, South Africa and Zimbabwe. Prof. van der Zaag studied irrigation engineering at Wageningen University, The Netherlands. He gained his PhD degree from the same university on a study of irrigation management in Mexico.

Mr **WAGHA**, Wasim currently serves as Programme Manager (Research and Advocacy) and Executive Officer with DAMAAN Development Organization in Pakistan. He is an advocate and pioneer for the indigenous peoples affected by the water development projects on the Indus river and tribes of Suleiman Mountains. He is active amongst the various civil society networks such as the Pakistan NGOs Forum and Pakistan Network on Rivers, Dams and Peoples. His research includes the right to citizenship, livelihoods and identity of the indigenous peoples of Indus; conservation of biological and cultural identity; and, women parliamentarians. Apart from his work with DAMAAN's Centre for Indigenous Peoples of Indus, he is currently a student of MPhil-leading-to- PhD in Pakistani language.



Ms **WAHLSTROM**, Margareta works as an Assistant Secretary-General for Disaster Risk Reduction and Special Representative of the Secretary-General for the implementation of the Hyogo Framework for Action in the Secretariat for the International Strategy for Disaster Reduction. She served in the United Nations Assistance Mission in Afghanistan (UNAMA) as Deputy Special Representative of the Secretary-General responsible for relief, reconstruction and development. Prior to that appointment, she had served in the same Mission as Chief of Staff of the Special Representative of the Secretary-General. She also worked at the International Federation of the Red Cross and Red Crescent Societies in Geneva.



Mr **ZELAYA-BONILLA**, Sergio works for the United Nations Convention to Combat Desertification (UNCCD) on Policy and Advocacy on Global Issues and Platforms. He is an environmental economist, involved in economic and environmental research, especially in policy design and implementation, particularly on global, regional and national policy-oriented factors that influence sustainable management, protection and management of natural resources and the environment. He is well known in Latin America and the Caribbean, particularly for his work as vice minister of the environment of Honduras, for his performance in the Office of the Honduras Clean Development Mechanism.



Annex: Biographies of Rapporteurs



Ms **DUN**, Olivia is a research associate and joint PhD candidate with United Nations University Institute for Environment and Human Security (UNU-EHS) in Bonn, Germany and the University of Sydney, Australia. Her PhD research is about the role of the environment in prompting people to migrate and the level of protection, aid and assistance provided to such migrants. Olivia has obtained a Master of Arts (Forced Migration, Asylum and Refugees) degree from Charles Sturt University, Australia and a Bachelor of Science (Environmental) from the University of Sydney, Australia.



Mr **EROGAN**, Tolga serves as Coordinator at the Southeastern Anatolia Project (GAP) Regional Development Administration, Turkey. He is responsible for promotion of GAP nationally and internationally. Mr Erogan holds a Bachelor of Architecture degree from Middle East Technical University of Ankara and a Master of Architecture, degree from University of Liverpool, England. Before Erogan joined GAP, he was working for TUSTAS, a major engineering consulting firm of Turkey. He has also, participated and presented in previous meetings of IWRA and WWC. He has made water related study visits to Syria, Ethiopia, Egypt, and Germany.



Dr **HARE**, Matt is senior programme officer at the UN-Water Decade Programme on Capacity Development (UNW-DPC). He specialises in training of trainer courses and curriculum development, and works thematically in the areas of participatory water resources management and adaptation to climate change. He worked for a number of years in applied research at the Swiss Federal Institute of Aquatic Science and Technology (EAWAG). Dr Hare co-founded Seecon Deutschland GmbH, a company to promote and support the practical application of participatory water management within local- and river basin-scale planning processes, for water management projects across Europe.



Ms **GÜLMEZ**, Füsün serves as Coordinator of the Project Development and Fund Raising Department and Deputy General Coordinator of International Affairs at Southeastern Anatolia Project (GAP) Regional Development Administration. She is also Coordinator of the EU-funded “Mitigating Flood Risk in the Flooded Areas in GAP Region Project”. She has more than 12 years of experience in sustainable development, regional development, spatial planning, environmental, and cultural heritage projects. She holds a BSc degree of Urban and Regional Planning from Middle East Technical University, Ankara, and a Master of economics degree from Hacettepe University, Ankara.

Dr **MARTIN BORDES**, José Luis is programme officer at the UN-Water Decade Programme on Capacity Development (UNW-DPC) in Bonn, Germany. He has a PhD in Civil and Urban Engineering from the University of Marne-la-Vallée, France. From 2004 to 2008 he worked as a consultant for the International Hydrological Programme (IHP) within UNESCO's Division of Water Sciences, in the areas of groundwater resources management and urban water management.



Ms **SHEN**, Xiaomeng serves as an Associate Academic Officer at the United Nations University Institute for Environment and Human Security (UNU-EHS) assisting the Munich Re Foundation (MRF) Chair-holders on Social Vulnerability. She serves as focal points for the following topics: cultural and socio-economic dimensions of social vulnerability; comparative cultural perception of social vulnerabilities; and culture-sensitive bottom-up approaches to enhance social resilience, especially in developing countries. Her PhD research focuses on flood risk management in different cultural settings and institutional vulnerabilities.



Dr **VAN DER SCHAAF**, Charlotte is programme officer at the UN-Water Decade Programme on Capacity Development (UNW-DPC) in Bonn, Germany. She works thematically in the areas of transboundary water cooperation and management, water for food, and adaptation to climate change. Dr van der Schaaf worked as an International Water Policy Advisor for the German Agency for Technical Cooperation (GTZ), while advising the German Federal Ministry of Economic Cooperation and Development (BMZ) on several water-related topics. She was a research fellow at the Center for Development Research (ZEF) in Bonn and has a MSc degree from Wageningen University the Netherlands.



Annex: List of Participants

Name	Institution
Dr ADEEL, Zafar	United Nations University-International Network on Water, Environment and Health (UNU-INWEH)
Mr AIT KADI, Mohamed	General Council of Agricultural Development, Turkey
Dr ALAVIAN, Vahid	The World Bank
Dr ARDAKANIAN, Reza	UN-Water Decade Programme on Capacity Development (UNW-DPC)
Mr BALTES, Marc	The Organization for Security and Co-operation in Europe (OSCE)
Assoc. Prof BAYRAMİN, İlhami	Soil Science Department, Agricultural Faculty, Ankara University
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Mr DIALLO, Hama Arba	Global Water Partnership (GWP)
Ms DUN, Olivia	United Nations University, Institute for Environment and Human Security (UNU-EHS)
Dr LAHIRI-DUTT, Kuntala	Research School of Pacific and Asian Studies, The Australian National University, Australia
Dr DZIKUS, André	United Nations Human Settlements Programme (UN-HABITAT)
Mr EROGAN, Tolga	Southeastern Anatolia Project Regional Development Administration (GAP Administration)
Mr FAZLIOĞLU, Aygül	Southeastern Anatolia Project Regional Development Administration (GAP Administration)
Mr GABUKIA, Robert	Water Services Regulatory Board, Kenya
Mr GNACADJA, Luc	United Nations Convention to Combat Desertification (UNCCD)
Prof. GOKCE, Birsen	Sociological Association Ankara, Turkey

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Mr HAZAR, Turan	Consultant, Turkey
Mr KARAHOCAGIL, Sadrettin	Southeastern Anatolia Project Regional Development Administration (GAP Administration)
Mr KASTEN, Tim	United Nations Environment Programme (UNEP)
Dr KOOHAFKAN, Parviz	Land and Water Division, Food and Agriculture Organisation (FAO)
Mr LENKA, Jacob Mabusetsa	Transformation Resource Centre, Lesotho
Mr LUBOYERA, Festus	United Nations Framework Convention on Climate Change (UNFCCC)
Mr LUEGE TAMARGO, José Luis	National Water Commission of Mexico (Comision Nacional del Agua)
Dr MARTIN BORDES, José Luis	UN-Water Decade Programme on Capacity Development (UNW-DPC)
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Ms SHEN, Xiaomeng	United Nations University, Institute for Environment and Human Security (UNU-EHS)
Dr STULINA, Galina	Scientific Information Center of Interstate Commission for Water Coordination of Central Asia (SIC ICWC)
Asst. Prof. TAMER, Nilgun Goror	Gazi University, Faculty of Engineering and Architecture, City and Regional Planning Department, Ankara, Turkey
Prof. TAZI SADEQ, Houria	UNESCO Interdisciplinary Chair for Sustainable Management of Water (Ecole Hassania des Travaux Publics)
Dr TEJADA-GUIBERT, Alberto	UNESCO International Hydrological Programme (UNESCO-IHP)
Mr TEPE, Emre	Istanbul Technical University (ITU), Turkey
Asst. Prof. TEZER, Azime	Istanbul Technical University (ITU), Faculty of Architecture, Urban and Regional Planning Department, Turkey
Prof. TRONDALEN, Jon Martin	COMPASS, Switzerland
Prof. VAIRAVAMOORTHY, Kalanithy	University of Birmingham
Dr VAN DER SCHAAF, Charlotte	United Nations University–UN-Water Decade Programme on Capacity Development (UNW-DPC)
Prof. VAN DER ZAAG, Pieter	UNESCO Institute for Water Education (UNESCO - IHE)
Mr WAGHA, Wasim	DAMAAN Development Organization, Pakistan

Ms WAHLSTROM, Margareta	United Nations International Strategy for Disaster Reduction (UN/ISDR)
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Mr ZELAYA-BONILLA, Sergio	United Nations Convention to Combat Desertification (UNCCD)
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Annex: List of Abbreviations

EACH-FOR	Environmental Change and Forced Migration Scenarios
EHTP	Hassania School of Civil Engineering
FAO	Food and Agriculture Organization
GAP	Southeastern Anatolia Project Regional Development Administration
GWA	Gender and Water Alliance
GWP	Global Water Partnership
IFAD	International Fund for Agricultural Development
IFI	International Flood Initiative
INIFAP	National Institute of Forestry, Agriculture and Animal Husbandry Research
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
ITU	Istanbul Technical University
IWHR	Institute of Water Resources and Hydropower Research
MDG	Millennium Development Goals
OSCE	Organization for Security and Co-operation in Europe
SIC ICWC	Scientific-Information Center of the Interstate Coordination Water Commission of Central Asia
UNCCD	United Nations Convention to Combat Desertification
UNEP	United Nations Environment Programme
UNESCO-IHE	United Nations Education, Science and Cultural Organization – Institute for Water Education
UNESCO-IHP	United Nations Education, Science and Cultural Organization – International Hydrological Programme
UNFCCC	United Nations Framework Convention on Climate Change
UN/ISDR	United Nations International Strategy for Disaster Reduction
UN-HABITAT	United Nations Human Settlement Programme
UNU-EHS	United Nations University Institute for Environment and Human Security

UNU-INWEH International Network on Water, Environment and Health

UNW-DPC UN-Water Decade Programme on Capacity Development

The UN-Water Decade Programme on Capacity Development (UNW-DPC) is a joint programme of UN agencies and programmes cooperating within the framework of UN-Water.

Adding Value in Water-Related Capacity Development

The broad mission of the UN-Water Decade Programme on Capacity Development (UNW-DPC) is to enhance the coherence and integrated effectiveness of the capacity development activities of the more than two dozen UN organizations and programmes already cooperating within the interagency mechanism known as UN-Water and thereby support them in their efforts to achieve the Millennium Development Goals (MDGs) related to water and sanitation.

