Water Diplomacy:
A Tool for Enhancing Water Peace and Sustainability in the Arab Region

Technical Document
(Draft)

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Presented in preparation for the Second Arab Water Forum
Theme 3: "Sustainable and Fair Solutions for the Trans-boundary Rivers and Groundwater Aquifers" Cairo, 20-23rd November 2011

November 2011
Cairo - Egypt
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PREFACE

Latest developments at the United Nations, in New York, mark the next two years (2012 & 2013) as “The Years of Water and Environment 2012 and “the Year of Water Diplomacy”.

In this regard ‘a Technical Paper’ (TP), on "Water Diplomacy: A Tool for Enhancing Water Peace and Sustainability in the Arab Region", is prepared and designed to be a blueprint for putting water diplomacy in action, and application through an integrated management strategy of shared basins. The paper is to focus on the operational side of implementation, rather than being a mere subject for pedagogic training and capacity building; which needs new thinking and priorities in the framework of an Arab water strategy.

To be more specific, the (TP) is initiating a framework for water diplomacy in action, that takes care of reforms underway, including: developing institutional frameworks for reform; revision of water laws; implementation of a participatory approach; harnessing technology to meet local needs; supporting capacity building and training; and deepening concepts of water diplomacy for actualizing its principles.

I hope this “Technical Paper” would be the basis for opening a candid dialogue among water professionals, diplomats, decision makers and experts on all aspects of water diplomacy. The Second Arab Water Forum, as an open forum, will make it possible for the exchange of ideas and experiences. In this context, ‘the Forum’ is paving the way for meeting such a tremendous challenge.

We at the UNESCO Regional Office in Cairo, highly appreciate the valuable role of the Arab Water Council and encourage their efforts in launching ‘the Technical Paper’ on the occasion of the 2nd the Arab Water Forum.

H.E. Dr. Tarek Shawki

12-10-2011

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ACKNOWLEDGEMENT

I am profoundly grateful to Dr. Tarek Shawki, UNESCO Cairo Office Director, and Dr. Abdelaziz Zaki, Hydrology Programme for their support and advice. Exploring and examining the subject of "Water Diplomacy: A Tool for Enhancing Water Peace and Sustainability in the Arab Region", has been of immense value. Furthermore, I would also like to thank Professor Dr. Mahmoud Abu Zeid for sharing his insights, comments, and sound advice on the subject.

This Technical Paper is primarily based on analyses and years of teaching experience of the ‘Master Degree’ of the Mediterranean Academy for Diplomatic Studies (MEDAC) curricula, as well as discussions with experts from various countries. I am grateful to such experts for their encouragement, as well as their confidence in my ability to develop the report. Their guidance and insights, has been of great help. I am indebted to many of them – such as to Professor Martin Trondalen, Chairman of COMPASS in Geneva, for giving me the opportunity to translate his recent book on Water for Peace for the People in the Middle East, as well as Dr. Stephen Calleya, the director of MEDAC for his support and encouragement.

I am further extending my gratitude to Ms Léna Salamé coordinator of the PCCP program (Potential Conflict to Cooperation Potential) at UNESCO’s Division of Water Sciences, for her advice and insightful remarks to direct the report to be in line with the latest developments at the United Nations to mark the Year 2012 as the Year of Water Diplomacy.

The assessment and careful consideration of ‘the Technical Paper’ is going to be subject to consultations with many experts from the Arab region, during the forthcoming Second Arab Water Forum: Topic 3 "Sustainable and Equitable Use of the Trans-boundary Water and Shared Groundwater in the Arab Region", Cairo, scheduled on the 22nd November 2011.

Magdy Hefny
Cairo, October, 2011
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"2013 International Year of Water Cooperation"

THE MANDATE

UNGA has proclaimed, in its Resolution (A/C.2/65/L.25 and Rev.), "The Year 2013 International Year of Water Cooperation" (Diplomacy), see Annex 1. The preamble of the Resolution recognizes the connection of water to human security and sustainable development as follows:

"Emphasizing that water is critical for sustainable development, including environmental integrity and the eradication of poverty and hunger, indispensable for human health and well-being, central to achieving the Millennium Development Goals and is a powerful incentive for cooperation and dialogue"

In launching preparations for the 2012 World Water Forum, French President Nicolas Sarkozy stressed the centrality of water to all development issues:

"It is time to accord water its rightful place at the forefront of international actions.... Water cuts across all of today's global challenges: demographic growth, urbanization, pollution, climate change, and environmental and financial crises. There can be no development, let alone sustainable development, without addressing the question of water.

"We must meet the challenge of ensuring the responsible and shared management of our water resources. To do so, water must be placed at the centre of politics, of all our policies." Statement by President Sarkozy, Paris June 2, 2010.

The advent of Marseille Sixth World Water Forum, in March 2012, will be an added value that creates momentum for more investigation and action in this area, especially as the year 2013 is proclaimed by the United Nations as the Year of Water Diplomacy.

During the coming two years 2012 & 2013, the United Nations is going to witness important international water and environmental events related to water diplomacy.

The year 2012 marks a number of watershed points in international water and environmental affairs, inter alia:

- The 40th anniversary of the adoption of the Stockholm Declaration,
- The 30th anniversary of the UN World Charter for Nature and
- The UN Convention on the Law of the Sea,
- The 25th anniversary of the Brundtland Report, and the 20th anniversary of both the Rio Declaration, Agenda 21, and
- The UNCED Conventions: the Framework Convention on Climate Change and the Convention on Biological Diversity.

In June 2012 world leaders will gather once again in Rio de Janeiro for the Earth Summit (2012) to secure renewed political commitment to the global agenda of sustainable development. This is an appropriate point in time for reflection on the legal and political social status of nature, how environmental goods and services are valued and taken into account in decision-making, and the implications of the rule of law in this respect.

1 See Resolution (A/C.2/65/L.25 and Rev.), as in annex 1.
The mandate under which "the Technical Paper" is trying to accomplish stems from the following commitments and developments at the United Nations:

- The constitution of UNESCO,
- The mission statement of "the Program for Conflict and Cooperation (PCCP), at UNESCO",
- The valuable work done by UNESCO–IHP technical documents–PCCP Series of reports, used in preparation of 'the A synthesis of studies. This came out as a report, entitled: "WATER SECURITY AND PEACE". The report is compiled by William J. Cosgrove (2003) and,
- The momentum that is going to be created in Marseille Sixth World Water Forum, in March 2012, which will allow for more investigation and action in the area of water diplomacy.

In this context, the line of thought in "the Technical Paper" is developed, on the basis of the mission statement of "the Program for Conflict and Cooperation (PCCP), at UNESCO", which is "to facilitate multi-level and interdisciplinary dialogues in order to foster peace, cooperation and development related to the management of trans-boundary water resources".

Numerous articles and books have given due consideration for water's catalytic role as a medium for enhancing peace rather than conflicts. Most notable is the valuable work done by UNESCO–IHP technical documents–PCCP Series of reports, used in preparation of 'the A synthesis of studies. This came out as a report, entitled: "WATER SECURITY AND PEACE" compiled by William J. Cosgrove (2003).

Here, one must refer to 'the Preamble of the Constitution of UNESCO', as it gives the direction and the mindset for peace to reign everywhere in the world:

'It is in the minds of men that peace must be constructed'.

This is a doctrine and a rule of engagement for humanity. However, if we want to connect water to peace building and sustainability, we have to change the model of thinking, and put water, as a symbol of peace, in the minds of people.

**QUESTIONS THAT MATTER**

Preparation should be underway, to expedite having a platform for enacting water diplomacy. It should be based on past commitments and experiences gained, through the work of scholars and experts, to connect water to peace building, security and sustainability. So, the question that matters in the "Technical Paper" is how to efficiently use the coming two years 2012 & 2013 at the UN water and environmental events, to refresh anew such commitments and recommendations, and to initiate a new phase of enhancing water diplomacy.

Other questions challenging the paper on water diplomacy in action are raised in connection to water security and its sustainable management.

These questions are, inter alia:

- Is diplomacy (bilateral and multilateral) coping with latest developments in the International water arena? Especially, there are emerging new paradigms,
most notably, the world wide adoption and implementation of the concept of Integrated Water Resources Management (IWRM). In this case does water diplomacy, as a discipline of multifaceted nature, need to cope with the new challenging world?

- If so, how will diplomacy, in practice, cope with the emerging trends? Do we need a new language to share, new approaches, methods, new mechanisms and innovative tools to apply? In order to put water diplomacy into action.

- Are legal principles, ultimately, based on moral principles? And they are difficult to apply and do not always lead to sustainable development?

- How best can the UN Convention of 1997 be enhanced for enforcement, to better serve the resolving of Arab international water conflicts?

The main focus in the TP is on dealing with these questions, and as they relate to each other, having in mind that diplomacy and water diplomacy, in the last analysis, is a strategic tool for sustainable water resources management.
EXECUTIVE SUMMARY

The main purpose of the research paper (TP) is to put water diplomacy (WD) in action, focusing on International Waters in the Arab Region, and to use WD as a strategic tool, and not merely as a discipline or a pedagogic material for capacity building of water planners or decision makers and other stakeholders. In this context, the main focus, all over the paper, is on designing innovative tools and approaches, discussing mechanisms for enhancing action on: International Waters of River Basins and Shared Ground Waters.

The main assumption is that management problems rather than scarcity of water resources is the reason why water diplomacy is needed as a strategic tool for enhancing peace and sustainability in the Arab region. The theme of the paper is bringing together world waters, in its complexities, with diplomacy in its theories and practices, and as an art, in the wider sense, of conducting relations among nations.

Review of literature and past experiences, in water diplomacy, shows that most concentration, nowadays, is on the normative side of merely raising an issue, setting the agenda, promoting understanding through capacity building and training, as well as standard setting.

However, the main objective, of the TP, is to go more into the operative side of water diplomacy by:

(a) Discussing the most ambitious and demanding tasks of implementing solutions in the field,
(b) Monitoring situations of conflict and cooperation on regional water conflicts of international river basins and ground water, including the design of an early warning system,
(c) Conducting in-depth studies that leads to ideas of solutions that should be translated into viable projects with its validity for financing.

Water has many uses and users and conflict is inevitable among riparian states. Lundqvist and Falkenmark (2000) suggested that efficiency, equity, and macro-economic policy could be used as tools or criteria for reconciling conflicting interests in the IWRM of river basins, having in mind the trade off relationship among these criteria or principles. One could add here the criteria of environmental protection.

Water Diplomacy could function to realize that. And this would be possible if there is a dialogue conducive to enhance societal strategic frameworks for the implementation of Water Diplomacy. However, it needs to be fully implemented in all Arab countries by applying new tools and techniques based on the participation of relevant stakeholders in decision making, knowledge and experience transfer among water institutions and organizations through bench-marking and bench-learning of best practices and success stories of an integrated river basins management (IRBM).
KEY MESSAGES

First Key Message: We have to follow a water diplomacy strategy in managing the international waters of the Arab countries in order to overcome the existing water conflicts and scarcity and its increasing tensions, arising from such problems, and ultimately to move the region towards water security.

Second Key Message: There is a need for a change in the hydraulic mission and its Approach: "In the hydraulic mission, Integrated Water Resources Management is considered an evolving and recent paradigm, since early 1990’s. It requires a new holistic approach and unprecedented political cooperation" (Allan, 2001). Water Diplomacy is seen here as a strategic tool that could contribute to affect this desired change.

Third Key Message: Despite many excellent initiatives by river basin organizations (Mekong, Rhine, Danube, Senegal, Okavango, etc.) through bilateral agreements and regional efforts (SADC Water Protocol, EU Water Framework Directive), and by international organizations (UNESCO–Green Cross, GEF, GIWA, INBO, WWF, IUCN), much more needs to be done in a more integrated and coordinated way.

Fourth Key Message: Some cases of legal agreements on water sharing, e.g., the Mekong River Commission, talks on the sharing of the Jordan River, the Indus River Commission, framework of Niger River Basin and a framework for the Nile River Basin, have been negotiated and maintained even as conflicts have persisted over other issues. They reflect two important elements of international water resources cooperation: the need for an institution to effectively develop a process of engagement over time; and well-funded third-party support trusted by all factions.

Fifth Key Message: is emanated from reviewing the laborious work done for over some eighteen sessions, on the theme "Water and Peace", coordinated by UNESCO and Green Cross International at the 'Third World Water Forum', in Koyoto (2003-Japan). At the conclusion of their work, a statement adopted by the Ministerial Conference in Koyoto, where the key elements are still valid today, (see Annex No.2, as Annexed for more details on the Ministerial Statement).

These elements are, inter alia:

- “Water for Peace” and “Peace for Water” is essential for achieving sustainable management of the world’s hundreds of regional and international rivers, lakes and, aquifers.
- The vital nature of water makes it a possible cause of tension but, more importantly, a potential source of cooperation.
- Many longstanding water-related disputes still remain unresolved and the growing demand for finite freshwater resources heightens the risk of future conflicts.
- Developing 'Water for Peace' is about:
  (a) Sharing of benefits among nations for regional economic integration rather than polarized claims for water;
  (b) Protecting watercourses and infrastructure during wars and conflicts, and post conflict rehabilitation of water resources;
  (c) Balancing competing uses of basin and aquifer resources in a transparent, participative way;
  (d) Acknowledging that unilateral upstream water development affects downstream uses; and
  (e) Improving our knowledge about the causes of conflicts and potential policy responses.
FRAMEWORK FOR ANALYSIS

Towards Closing the Gap between the Normative and Operational Side of Water Diplomacy

The review of literature and past experiences, in water diplomacy, shows that most concentration is on the normative side of merely raising an issue and setting the agenda and promoting understanding and standard setting.

However, the main objective, in this paper, is to deal with the normative side and to go more into the operative side of water diplomacy by:

(a) Discussing the most ambitious and demanding tasks of implementing solutions in the field,

(b) Monitoring situations of conflict and cooperation on regional water conflicts of international river basins and ground water, including the design of an early warning system,

(c) Conducting in-depth studies that lead to ideas of solutions that could be translated into viable projects with its validity for financing.

A. The Continuum to show the Normative and Operative Sides of the Stages:

Figure 0.1 below was adapted from a study by Helge Ole Bergesen and Leiv Lunde (1999) to show the Normative and Operative Sides of the Stages through which a Strategy Design and Implementation could be done. Dialogue is the motor for progress at all stages:

<table>
<thead>
<tr>
<th>Promoting Understanding</th>
<th>Monitoring</th>
<th>Financing</th>
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<td>Agenda Setting</td>
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B. Action Research is the Methodology Advocated

Action Research or action based on research, in a specific case, is the method, that is advocated here, as it guarantees participation of concerned parties of a conflict, and one believes in what Kurt Lewin (the father of action research), emphasized that good practice is the main source of good theory and vice versa.

Action research as a methodology applied in the TP is examined in more details in ‘Chapter Five: Strategy Building’.
The positive relationship between theory and practice is true with regard to conflict resolution. What we think about conflict and how we act towards it are so mutually influential. Conflict resolution as applied research seeks to help uncover disputants’ core motivations and values and pave a path for peace, through which essential needs and interests may be merged and met (Rothmans, 1997, Fisher, 1997, Burton, 1990, Lederach. 1995).

**Figure 02 "ACTION RESEARCH METHODOLOGY"**

Water diplomacy and normative conflict resolution goals and values are required as it is, e.g., participatory and interactive, empowering, truth seeking and integrative. It is also systemic in its way of inquiry.

The following questions represent three levels of inquiry in order to strive to get goals or reach an outcome that could be agreeable for implementation:

- **Level One of Inquiry:** What do we do in the context of water diplomacy issues: Storytelling phase, and underlining assumptions or reasons why (WD) and why 2012 an International Year of (WD) why we need (WD) in action? and the complexity issue (Chapter One, Two, and Three on application and examples from Arab Region),

- **Level Two of Inquiry:** How we do what we do? The focus here is on values required and on tools used, as well as the critical views with regard to using such tools? (Chapter Four: International Water Law Regime, Chapter Five: Cooperation is imperative, Chapter Six, Seven: Tools for (WD) as public and popular diplomacy, negotiation and communication skills,

- **Level Three of Inquiry:** What is the next step? Chapter Seven: Visionary Perspective on the Strategy Building for promoting and putting (WD) in action, and Chapter Eight: the Way Forward.
Structure of the Report

The main objective of the Research Paper (RP) is to stimulate thinking by constructing a blue print or a design suggesting ideas for a strategy that could be used as a basis for reflection and dialogue on constructing a water diplomacy action plan in the Arab region. It is becoming more than necessary to think collectively to initiate such a proposed strategy. The RP addresses eight chapters; interconnected in logical order:

- **Chapter One**: Starts with Introductory part: on connecting water to peacebuilding and sustainability, defining issues of diplomacy and water diplomacy, then why water diplomacy in action? And the proclamation of 2012 as "International Year of Water Diplomacy": what implications? Then the state of Water Diplomacy in the last 150 years.

- **Chapter Two**: is devoted to studying River Basins, in the context of the Emerging trend of using complexity science in addressing and handling water conflicts. Complexity discipline is based on systemic, nonlinear and dynamic analysis of problems or conflicts. This trend goes in conformity with water diplomacy as a multifaceted tool for realising certain objectives related to State's national interest, as well as mapping of international waters conflict and cooperation, using techniques of systems analysis.

In handling and managing water conflict, the chapter has three dimensions: one is on the global level. The second dimension is dealing with the regional Arab water challenges. The third dimension is adding the non-physical aspects of the soft path approach in deal with water issues, i.e. water ethics, virtual water, the right to water, gender issue and water governance.

- **Chapter Three**: Peacebuilding: challenges and opportunities for cooperation: using case studies approach in handling conflict and cooperation in the Nile and the other international shared basins of the Arab region, as well as water security issues. Benefit sharing instead of water sharing, Hydrosolidarity, Putting water in the mind of people.

- **Chapter Four**: Legal approaches and basic concepts and principles of international water conventions are part of a sound framework against which negotiations to find cooperative mechanisms and solutions may take place. It concentrates on the international water law regime and water diplomacy, and their role in mitigating water crisis. It deals with the legal and quasi-legal instruments, with special attention to the UNs Framework Convention of 1997, the Helsinki Rules of 1966, and the shared Ground Water Convention.

- **Chapter Five**: Towards a strategy building for putting water diplomacy in action. This needs an integrated management of shared basins, as well as there is a need for compliance and implementsability of international water law. And lessons learnt from success stories,
Chapter Six: Tools for Water Diplomacy in Action Design and Implementation of Cooperative Processes. And water diplomacy tools for Communication Skills Building, with special emphasis on dialogue and its tool, as well as the role and qualities of mediator and. tips for gaining success in international waters negotiation; it is stressing the interest based negotiation.

Chapter Seven: is a concluding chapter, venturing to suggest "a Visionary Perspective on Modalities and Suggesting an Action Plan for putting water diplomacy into action? In this context, there is a need for innovative mechanisms: establishing "A Strategic Center for Water Diplomacy", as well as initiating Water Diplomacy Networks as practical steps for implementing a water diplomacy vision and strategy towards full operationalization. Harvard Law School Model is presented on Water Diplomacy Networks:, and how to avoid wrong actions in managing water networks, and introducing The “Water 2100” Approach Initiated by the Harvard Law School. Then, lastly the conclusions.
1.0 INTRODUCTION:

In view of the importance given to the Year 2013 as "The International Year of Water Cooperation" (Diplomacy), this introductory chapter, will clarify issues related to this process and its related events, and will explain the specific terms used, e.g. diplomacy and water diplomacy. It will also clarify the nature and scope of water diplomacy, why a special UN Year on Water Diplomacy? Why do we need water diplomacy? and what is meant by peace in connection to water diplomacy. The chapter will also describe the state of conflict and cooperation over the last 50 years.

1.1 CLARIFYING ISSUES

A: Peace and Reconciliation

Peace, does not mean the total absence of any conflict (Galtung, 1969). It means the absence of violence in all its forms and the unfolding of conflict in a constructive way. Peace therefore exists where people are interacting non-violently and are managing their conflict positively - with respectful attention to the legitimate needs and interests of all concerned3. Connecting water to peace and peace-building, means that water could be a catalytic for enhancing peace-building processes and could have a transformative aspect, away from conflict, by means of encouraging parties, riparian states, for more cooperation and reconciliation.

In the meantime, reconciliation becomes necessary when negative conflict has occurred and relationships have been damaged. Reconciliation is especially important in situations of high interdependence where a complete physical or emotional barrier between parties in a conflict cannot be maintained. Reconciliation therefore refers to the restoration of relationships to a level where co-operation and trust become possible again. Lederach (1995) stated that reconciliation deals with three specific paradoxes:

- Reconciliation promotes an encounter between the open expression of the painful past and the search for the articulation of a long-term, interdependent future;
- Reconciliation provides a place for truth and mercy to meet; where concern for exposing what happened and letting go in favour of a renewed relationship are validated and embraced;
- Reconciliation recognizes the need to give time and place to justice and peace, where redressing the wrong is held together with the vision of a common, connected future.

3 The distinction is sometimes made between ‘negative peace’ and ‘positive peace. Negative peace refers to the absence of violence. When, for example, a ceasefire is enacted, a negative peace will ensue. It is negative because something undesirable stopped happening (e.g. the violence stopped, the oppression ended). Positive peace is filled with positive content such as the restoration of relationships, the creation of social systems that serve the needs of the whole population and the constructive resolution of conflict.
B: Peace Is Connected To Water

In the words of Kofi Annan, former UN Secretary General, in an address to the international community:
"Fierce national competition over water resources has prompted fears that water issues contain the seeds of violent conflict. If the entire world's peoples work together, a secure and sustainable water future can be ours."

As water quality degrades or available quantity does not meet rising demands over time, competition among water users intensifies. This is nowhere more destabilizing than in river basins that cross political boundaries. But experience shows that in many situations, rather than causing open conflict, the need for water sharing can generate unexpected cooperation.

However, water, as a resource, it is dependent on sustainability. This means that it entails sound socioeconomic development that safeguards the resource base for future generations. And that the concerns on resource use should transcend beyond short term “on-site” gains, and should necessarily be on an environmentally sensitive use of resources including many possible “off-site” implications. (Bandaragode, 2000).

C: What Is Diplomacy

Harold Nicholson’s able work classic book on diplomacy (1939) defined diplomacy as “the art of conducting dialogue between and among states”. It is preferred to use this definition as it brings certain characteristics of benefit to the ongoing analysis, inter alia,

- It expresses the notion of dialogue, with a sense of purpose to achieve, and a process of management. It is among states, which brings here the aspect of sovereignty and independence into the picture,
- It has secretive character in practicing diplomatic relations, and constructive dialogue brings to the picture the personal qualities that diplomats should possess: honesty, perceptiveness, tact, good communication, a flair of entertainment, sense of timing,
- Diplomacy a major activity by governments, and
- It has an institutional aspect of diplomats as a society, and the need for the state system to communicate gives rise to diplomatic dialogue.

States Systems are the product of history, in the sense that they develop over a period of time. The conventions and institutions which facilitate dialogue and help shape an international system and at one stage of development, may impede new and constructive achievements at the next (Hefny, M. 2001). To analyze the influence of diplomacy on the closely knit relations of the independent states which constitute the international society of today requires both an awareness of the nature of politics and an historian's responsiveness to the dilemmas of order and change in the progress of events.

There is a trend among serious researchers and models of those who take the natural sciences, particularly physics, as a framework and try to fit past and present international practice into it. They contributed to diplomacy as a science and recognized it as “complex human and social activity that eludes numerate calculations (Hefny, M. 2001). However, they tend to put more stress on conflict and less on cooperation than does diplomatic reality taken as a whole. It is important here to stress that diplomacy is more and more dependent on practical experience.
1.2 Water Diplomacy Features

Water Diplomacy is a branch of diplomacy, applied to bilateral and multilateral negotiations on water issues between and among states. Water diplomacy is about dialogue, negotiation and reconciling conflicting interests among riparian states. It involves the institutional capacity and power politics of states.

There is a wealth of diplomatic experiences, where the technical and political approaches are integrated within the same negotiation process. Most notable examples are: The negotiation under the UN Convention of 1997, on Non-Navigational Uses of The International Watercourses, and the Madrid formula of a multi track peace process in the Middle East in 1991.

Both examples have proven this integration of political and technical issues in the way to bring about compromises in the question of water distribution and to improve the psych-political setting for resolution of the larger political struggle.

In the last analysis, water diplomacy (Bilateral, Multilateral) is a tool for realizing certain objectives related to State's national interest. It is about dialogue, negotiation and reconciling conflictual interests among riparian states. It has the same characteristics referred to earlier with the aim of concluding water agreements, within the strategy and plans of foreign policy and national security of states.

It also involves the institutional capacity and power politics of states. At the multilateral level decision making process is different and the best example is the International Law Committee (ILC) work over 25 years or more to bring about a text that is acceptable to the United Nations General Assembly on the 1997 Water Convention.

So, water diplomacy tools and techniques, inter alia, dialogue and its tools are needed to deal with the complexity question of water management, and having better leverages in solving its problems. However there are still gaps in its application on the Arab region. Capacity building and training in negotiation theory, and skills are much needed to resolve water conflicts; especially stressing the interest based negotiation, communication skills building and facilitating reaching water agreements, mediation and the role and qualities of mediators. In addition, water diplomacy tips for gaining success in water negotiations could be presented.

Although the literature provides various definitions of water diplomacy, there is general agreement around three fundamental and interrelated characteristics:

- The need to integrate multiple perspectives. Water diplomacy argues that resolving problems over shared water resources requires hydrologists, engineers, politicians, economists, sociologists and all stakeholders to work together to develop a nuanced understanding of the multifaceted nature of water demands and disputes.
- The importance of negotiation, mediation and intercultural communication. Water diplomacy seeks negotiated solutions informed by science and technology to help resolve problems of water allocation and quality and competing water needs.
- Support for the wider diplomatic process. Engaging in water diplomacy is a bilateral or multilateral enterprise that can be important in defining regional and

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4 According to Oxford Dictionary defines diplomacy as “the management of international relations by negotiation”. Webster’s Dictionary has “the conducting relations between nations”. Ernest Satow’s handbook "The guide to Diplomatic Practice" as invaluable work made emphasis on the internal organization of foreign ministries and diplomatic missions or multilateral agencies.
international foreign policy. It offers an opportunity to develop mutual relationships and international partnerships. Cooperation on scientific aspects and capacity building can also provide a route to other forms of political dialogue.

1.2.1 Nature and Scope of (WD)

The conduct of water diplomacy could take different forms: bilateral among two countries or more (e.g., trilateral or quadrilateral) and multilateral as exemplified in the United Nations forums, and its agencies. In the meantime, there are two contexts in which water diplomacy can be useful in the analysis and handling of water conflicts and cooperation (nationally, regionally and on international levels). These are further elaborated in (a) The context of regional transboundary waters (whether in shared river basins or shared groundwater), and (b) the context of development.

A: WD in the Context of Transboundary Rivers issues

William J. Cosgrove (2003) highlighted the debate about the term to be applied to freshwater whose basins are situated within the borders of more than one state, as follows:

- Some use *the word international* for this purpose.
- Others believe this is incorrect as it implies that the waters (as in seas) do not belong to any state, whereas the basin states have rights over such rivers.
- Some others use *Transboundary Rivers or Watercourses*, while others hold that this is confusing because many river channels form international borders without crossing them (although in these cases the river basins themselves will almost certainly be transboundary).
- Transboundary Rivers may be interpreted to include those that cross intra-national (e.g. state) borders, not only international borders. This is the case in countries that are federations of states or provinces (e.g. Canada, India, Germany, Russia, and the United States).
- Others use *the term Shared Rivers*. Yet it might be argued that shared rivers can exist even within a state, because many users share them, upstream and downstream, urban and rural. Others who believe that this term should cover the *full extent of the hydrologic basin* and all its water sources reject this and use *the Term Rivers*.

This research paper uses "*the term international waters*"; hopefully it contains the aspect of *transboundary* and *shared waters*. It deals with freshwater flows (whether surface water or groundwater), and the lakes and wetlands which some of these flows may pass through, derive from, or terminate within, are described by some as *watercourses*. This paper uses the two terms interchangeably, intending that either be interpreted in the broadest sense.

However, International Waters issues are especially complex because they cross political and geographic boundaries and concern stakeholders whose needs can often be competing or even incompatible. In extreme situations, they can lead to political instability and even conflict.

- 48.8 percent of the globe’s surface is covered by transboundary river basins,
- There are more than 270 transboundary basins,
- Almost half of the world’s population lives in transboundary basins.

**How can local, national and international levels of decision-making on shared water resources work together?**

Solutions to water disputes and transboundary problems of water quality, quantity and allocation must incorporate a contextual understanding of the needs and values of the
different cultures and communities that share watersheds and groundwater reserves. Diplomacy based on scientific and engineering input may be able to anticipate, prevent and resolve future water conflicts.

Through water diplomacy, local leaders, water managers and other stakeholders can work with national and international partners to identify and negotiate new, adaptive mechanisms for successful transboundary water management that increase the benefits for all from these shared resources.

The numbers of international river basins is growing with more states sharing transboundary basin. This is because of Internationalization of national basins and better mapping technologies. There was 214 listed in 1978, became 263 listed in 2003, and the number listed today is 276

- **States’ surface within transboundary basins**

  - About one-third of these basins are shared by more than two countries, the maximum being 18 countries sharing a same transboundary river basin (Danube).
  - 148 countries include territory within one or more transboundary river basin.
  - 39 countries have more than 90% of their territory within one or more transboundary river basin, and 21 lie entirely within one or more of these watersheds.
  - Russia shares 30 transboundary river basins with riparian countries, Chile and United States 19, Argentina and China 18, Canada 15, Guinea 14, Guatemala 13, and France 10.

In addition, the Number of International River Basins in each continent is also on the increase, and distributed among continents with Asia and Africa, mostly developing countries, counts a lion share of 124 River Basins out of 267 the total number. See table 1 below.

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5 Source: Transboundary Freshwater Dispute Database, Department of Geosciences, Oregon State University.
Table 1.1.: Number of International River Basins In Each Continent

<table>
<thead>
<tr>
<th>Continent</th>
<th>1978</th>
<th>1999</th>
<th>2008 Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>57</td>
<td>60</td>
<td>64</td>
</tr>
<tr>
<td>Asia</td>
<td>40</td>
<td>53</td>
<td>60</td>
</tr>
<tr>
<td>Europe</td>
<td>48</td>
<td>71</td>
<td>68</td>
</tr>
<tr>
<td>North America</td>
<td>33</td>
<td>39</td>
<td>46</td>
</tr>
<tr>
<td>South America</td>
<td>36</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>214</td>
<td>261</td>
<td>276</td>
</tr>
</tbody>
</table>

Source: Transboundary Freshwater Dispute Database, Department of Geosciences, Oregon State University, 2008.

The message here is indicating that "the significance of these numbers and the distribution of International River Basins shows the magnitude of shared water and the necessity of building up cooperative processes of regional integrated management by using water diplomacy and rules of international water law, as a vehicle to negotiate and conclude agreements, where possible, as a preventive measure. The more agreements concluded among riparian states the more they contribute to peacebuilding regionally and worldwide.

B: WD in the Context of Development

Water affects all aspects of life; from human health and sanitation to the food we eat, the environment, or the industry and energy production that powers our development. It is no coincidence that water cuts across all of the Millennium Development Goals (MDGs)..

Water is a precondition for every aspect of human development, although not every decision related to development takes water into account.

Already some 884 million people – around 13 percent of the world's population – do not have access to sufficient water resources. An estimated 2.6 billion people – almost 40 percent of the world's population – lack access to safe sanitation.
Sustainable water-resources management and the provision of safe drinking water and sanitation are fundamental to economic and social development. Water diplomacy encourages recognition of their importance and can facilitate the creation and negotiation of effective partnerships for global development.

- **Millennium Development Goals**

Sustainable management of water resources is vital for economic growth and achievement of all the Millennium Development Goals (MDGs). It is also central to public health, food security and stable societies. As we approach the year 2015 end-date for achieving the MDGs, recognition of their interdependence is growing. In discussions to structure the post-2015 architecture for sustainable global development, water diplomacy provides a timely tool that promotes a nuanced understanding of water and related development and socio-economic issues.

Water diplomacy is an inclusive process that integrates multiple perspectives and scientific and cultural knowledge. Bringing water into the wider diplomatic process can provide incentives for developing and developed countries to work together to build partnerships and agreements that are mutually beneficial and to find workable, resilient solutions to development problems.

- **Resolution on the Human Right to Water and Sanitation**

On 28 July 2010, the UN General Assembly adopted the Resolution on the Human Right to Water and Sanitation (A/RES/64/292), which formally recognizes that safe and clean drinking water and adequate sanitation are a human right that is essential for the full enjoyment of life and all other human rights. The Resolution has only a recommendatory value; however it provides unprecedented moral weight for future developments and is therefore expected to pave the way for further efforts towards the implementation of these rights by the international community.

**1.2.2 Why Do We Need Water Diplomacy?**

To begin with, *the water scene, in the 21st century*, is confronted with *profound changes*, due to several reasons, most notable is the fast pace of scientific and technological development, the ongoing globalization processes of world production and markets, the climatic changes, the transboundary dependencies, the changing socio-political context in dealing with water challenges. So, the water sector is becoming more sensitive and vulnerable to these changes.

So, the water sector is becoming *more sensitive and vulnerable* to these changes. In the meantime, water resources are planned and managed under a higher degree of *uncertainty*. Apart from being a resource that is vulnerable, water is becoming a more complex issue.

However, *water diplomacy is not a theoretical concept. It is an action, a process* that is essential and necessary to enable current and future generations to access this vital resource in a sustainable manner, and hence water diplomacy is needed for confronting these challenges.

Supporting, encouraging and promoting water diplomacy includes *encouraging the people whose lives are at stake to become involved in decision-making* processes and negotiations and to understand the impact that choices made today can have on their lives and the lives of their children. Such stakeholder involvement is a key element of water diplomacy.
Water diplomacy uses diplomatic techniques of negotiation, mediation and intercultural communication to promote sustainable development of water resources and transform the potential risks of competing demands and even conflict over water into forms of cooperation that extend beyond water and economics:

1.3 The Hydraulic Mission Needs to Change:

In view of these developments, S.P. Simonovic (2008) made the following remark to emphasize that even the hydraulic mission as a whole needs to change:

"Certainly, the profession has been slow to acknowledge these changes, and that fundamentally new approaches will be required to address them. There is a clear need to redefine the education and training of water resource engineers and increase their abilities to: (i) work in an interdisciplinary environment; (ii) develop a new framework for the design, planning and management of water infrastructure that will take into consideration current complex socio-economic conditions; and (iii) provide the context for water management in conditions of uncertainty."

1.3.1 Special Programs Launched on Water Diplomacy:

Recently, special programs are designed to produce Interdisciplinary Water Professionals, who think across boundaries, emphasize integration of explicit and tacit knowledge. These professionals are following WD programs conducted:

- The Arab Water Academy Learning Program for 2010/2011: 3 modules under the theme 'Water Diplomacy: sharing waters, sharing benefits'. Water diplomacy is at the heart of any successful response to a water scarce future of the Arab Region. It provides the ability to maximize the benefits from shared water resources even when those who benefit live on different sides of a border.

- Diplomatic Institutes, most notably is "The Diplomatic Institute in Cairo, Egypt", as well as "Water Institutes belonging to the Ministry of Water Resources in Cairo, Egypt.

- The Mediterranean Academy for Diplomatic Studies at Malta University"(MEDAC),

- The Harvard Law School offered a one week, interdisciplinary train-the-trainer program called The Water Diplomacy Workshop (WDW). The goal is to build an international network of water professionals who share a commitment to a mutual gains approach to water network negotiation and who are ready and able to teach this approach to others.

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6 The author has been part of "the Core Group" that designed three Modules of the Arab Water Academy, as well as teaching "a Module on: Water Diplomacy", at the Mediterranean Academy of Diplomatic Studies (MEDAC, University of Malta), and Institute of Diplomatic Studies in Cairo, Egypt.

7 The Water Diplomacy Workshop (WDW), at Harvard Law School, is a highly interactive, five-day; joint learning experience that enables participants to master important network management tools and gain the skills required to teach these tools to others. It combines the growing body of scientific knowledge of water with the negotiation instruction methodologies developed by the Program on Negotiation at Harvard Law School. Interactive lectures, problem-solving clinics.
1.3.2 WD Programs Lines of Thoughts

These programs on Water Diplomacy recognize the need for change, and introduced their programs for the following reasons, inter alia:

A) Water problems are complex because they cross physical, disciplinary and jurisdictional boundaries,

B) There is an urgent need for water diplomacy – for dialogue and negotiation among decision makers from all levels of government and the private sector, as well as international organizations and NGOs – to address the challenges ahead in a holistic and sustainable manner,

C) **Using systemic views for better management of the complexity question of water issues.** So, decision makers, strategic thinkers, businesses, economists, diplomats and many other stakeholders could benefit from the water diplomacy as a discipline and actionable in practice. It is timely to have a fresh reflection to change the way we think and behave towards water in an action oriented way, i.e. to generate ideas that could be translated into projects, which could contribute to alleviate poverty and enhance development in a sustainable manner in the River Basin countries of the region,

D) **Water, viewed as a fixed resource, lends itself to conflicts over its division.**

E) **Origins of most water problems** may be understood as intricate coupling among natural, societal, and political domains where people and problems interact to shape the framing of the problem.

F) The search for scientific bases, without understanding the societal issues and driving values, to address water issues make these problems complex because the underlying policy issues cannot be definitively described or separated from political context.

F) A synthesis of explicit (scientific water information from natural domain) and tacit (contextual water information from societal domain) knowledge of water is needed to transform fixed water quantity into a flexible resource.

G) **Achieving sustainability.** And sustainable peace interfaces with economics through the social and ecological consequences of economic activity. Sustainability economics involves ecological economics where social, cultural, health-related and monetary/financial aspects are integrated.

H) The concepts of **water footprints and virtual water flows** via international trade are already becoming globally recognized. Encouraging an understanding of the interconnectedness of water issues is a first step in helping governments and others see the possible consequences and risks of their decisions.

I) **Moving towards sustainability** is also a social challenge that entails international and national law, urban planning and transport, local and individual lifestyles and ethical consumerism. Ways of living more sustainably can take many forms from reorganizing living conditions (e.g., ecovillages, eco-municipalities and sustainable cities), reappraising economic sectors (permaculture, green building, sustainable agriculture), or work practices (sustainable architecture), using science to develop new technologies (green technologies, renewable energy), to adjustments in individual lifestyles that conserve natural resources.
J) More recognition of linking knowledge and action from multiple perspectives to help resolve water issues through mutual gains negotiations, see **Figure 1.2**

**Figure 1.1** Demonstrating the interactive relationships among natural, human and economic drivers of development of the water sector.

![Image of interactive relationships among natural, human, and economic drivers](image_url)

**Figure 1.2** Highlights of the multiple perspectives in managing the science, policy and politics of *Water Networks* through negotiation.

![Image of multiple perspectives in managing science, policy, and politics](image_url)

*Source:* the Program on Negotiation at Harvard Law School,

*The Technical Paper* (TP) intended to give an example of applying knowledge management approach, using informative and interactive tools for a candid exchange among the participants. In this case the question that matters is how best we could intervene and have water policies, that could make us walk our talk and make the Arab water vision, strategies and policies of water security a reality?

*The approach, in the TP,* is following these lines of applying a multidisciplinary approach in handling water conflicts. It propagates also social learning, through water networks engagement. It tries to put in place a "bottom-up" education and communication functions, as well as "top down" high level applied research aspects with industry and technology participation in the process of water peace building and preventive diplomacy.

It is based on examining diplomacy in relation to world water developments. It is, also, based on *systemic analysis* of relationships among different components of a system of nation's water resource management. Any strategy must start from an analysis of the coupled "environment-technology-human" system and aim at an improved design of it
Such an endeavour requires the choice of appropriate strategies for an integrated system. The systems metaphor also embraces the mental model scientists hold about crucial system properties, such as controllability and predictability.

1.3.3 Why A UN Year on Water Diplomacy?

An International Year of Water Diplomacy will promote a better understanding of today’s complex water issues and increased stakeholder participation in decisions and actions related to water at the local, national, regional and international levels. An International Year of Water Diplomacy will foster support for the collection and sharing of data and information on our planet’s water resources and how we use and manage them, which is crucial to informed decision making-processes inside and outside the water box at national, regional and international levels.

An International Year of Water Diplomacy will encourage dialogue and the search for common ground to create new development initiatives and overcome resistance to change. The Program on Negotiation at Harvard Law School\(^8\) has aptly put together the reasons why we need water diplomacy.

It is important to draw attention to the serious water challenges we face, and to encourage international action to address developing water issues that have global importance and ramifications. These are the objectives sought by a United Nations International Year. This is why a UN International Year of Water Diplomacy should be designated.

Indeed, there is an urgent need for a water diplomacy which would agree on the balance of the great continental water reserves, the mitigation of potential conflicts over several transboundary basins and on the refinancing of the debt of the poorest countries in favor of water and sanitation. On this last point, the dialogue between bilateral and multilateral donors is essential so that the cancellation and reduction of the debt be granted under the condition that preferential reinvestments be made in the field of water.

1.4 The State of Conflict and Cooperation in International Waters

Despite the complexity of the problems, records show that water disputes can be handled diplomatically. The last 50 years have seen only 37 acute disputes involving violence, compared to 150 treaties that have been signed. Nations value these agreements because they make international relations over water more stable and predictable.

In fact, the history of international water treaties dates as far back as 2500 BC, when the two Sumerian city-states of Lagash and Umma crafted an agreement ending a water dispute along the Tigris River - often said to be the first treaty of any kind. Since then, a large body of water treaties has emerged.

According to the Food and Agricultural Organization, more than 3,600 treaties related to international water resources have been drawn up since 805 AD. The majority of these deal with navigation and boundary demarcation. The focus of negotiation and treaty-making in the last century has shifted away from navigation towards the use, development, protection and conservation of water resources.

Legal agreements on water sharing have been negotiated and maintained even as conflicts have persisted over other issues.

\(^{8}\) Harvard Law School web page gave more details on their summer water diplomacy workshop (June 2011) and the program for Doctor Degree: http://waterdiplomacy.org
Cambodia, Laos, Thailand and Vietnam, have been able to cooperate since 1957 within the framework of the Mekong River Commission, and they had technical exchanges throughout the Vietnam War.

Since 1955 Israel and Jordan, have held regular talks on the sharing of the Jordan River, even as they were until recently in a legal state of war.

The Indus River Commission survived two wars between India and Pakistan.

A framework for the Nile River Basin, home to 160 million people and shared among 10 countries, was agreed in February 1999 in order to fight poverty and spur economic development in the region by promoting equitable use of, and benefits from, common water resources.

The nine Niger River Basin countries have agreed on a framework for a similar partnership.

These cases reflect two important elements of international water resources cooperation: the need for an institution to effectively develop a process of engagement over time; and well-funded third-party support trusted by all factions.

Despite many excellent initiatives by river basin organizations (Mekong, Rhine, Danube, Senegal, Okavango, etc.) through bilateral agreements and regional efforts (SADC Water Protocol, EU Water Framework Directive), and by international organizations (UNESCO–Green Cross, GEF, GIWA, INBO, WWF, IUCN), much more needs to be done in a more integrated and coordinated way.

In this regard, the 'Ministerial Statement' in Koyoto (2003), has called for action for a more water cooperation on international waters, these refer specifically to the following:

- Nations that learn to cooperate on sharing the benefits of water may then cooperate on other issues.
- International law and development support for water cooperation over river basins and aquifers are both currently insufficient to meet these challenges. The vast majority of States have failed to reconfirm their commitment to cooperate over shared water by neither including this goal in the World Summit on Sustainable Development (WSSD) agreements, nor ratifying the UN Convention on the Non-Navigational Uses of International Watercourses.

Let us, reiterate, at the outset, that the line of thoughts in the TP is developed, on the basis of the mission statement of "the Program for Conflict and Cooperation (PCCP), at UNESCO", which is "to facilitate multi-level and interdisciplinary dialogues in order to foster peace, cooperation and development related to the management of transboundary water resources".

To begin with, numerous literature of articles and books have given due consideration for water catalytic role as medium for enhancing peace rather than conflicts. Investigating on the theme of connecting water to peacebuilding and sustainability, there is a valuable work done by UNESCO–IHP technical documents–PCCP Series of reports, used in preparation of 'the A synthesis of studies', came out as a report, entitled: "WATER SECURITY AND PEACE". The report is compiled by William J. Cosgrove (2003).

In this context, one has to review the laborous work done over some eighteen sessions on the theme "Water and Peace", coordinated by UNESCO and Green Cross International at the 'Third World Water Forum', in Koyoto (2003-Japan). At the conclusion of their work,

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9 The report is prepared under the PCCP–Water for Peace process, which is A UNESCO–Green Cross International Initiative.
a statement adopted by the Ministerial Conference in Koyoto, where the key elements still valid are:

- “Water for Peace” and “Peace for Water” are essential for achieving sustainable management of the world’s hundreds of regional and international rivers, lakes and, aquifers.
- The vital nature of water makes it a possible cause of tension but, more importantly, a potential source of cooperation.
- Many longstanding water-related disputes still remain unresolved and the growing demand for finite freshwater resources heightens the risk of future conflicts.

Developing 'Water for Peace' is about:

(a) Sharing of benefits among nations for regional economic integration rather than polarized claims for water;
(b) Protecting watercourses and infrastructure during wars and conflicts, and postconflict rehabilitation of water resources;
(c) Balancing competing uses of basin and aquifer resources in a transparent, participative way;
(d) Acknowledging that unilateral upstream water development affects downstream uses; and
(e) Improving our knowledge about the causes of conflicts and potential policy responses.
Chapter II

COMPLEXITY OF WATER ISSUES:
CONFLICT AND COOPERATION IN THE ARAB REGION

2.0 INTRODUCTION

The chapter focuses, mainly on introducing water peace building challenges and opportunities, through applied case studies from the Arab region. Special attention is given to highlight lessons learnt from the Nile Basin, after more than ten years of dialogue and negotiation.

In this way, the chapter represents a starting point in elaborating the normative side (value system) of water diplomacy, and the analysis of applied case studies will be based on two dimensions as follows:

- Using complexity as a discipline based on systemic, nonlinear and dynamic analysis of conflicts and cooperation in International Waters. This way of analysis is useful for harnessing water diplomacy as a tool for water peaceful settlement of disputes, and as a multifaceted tool for realizing certain objectives of riparian state(s),

- Connectiveness and inter-linkages among the physical (technical) elements and non-physical elements of the soft path approach of water conflict and cooperation in the Arab region. It gives weight to specific issues, e.g., water ethics, gender issue, water governance, as well as virtual water.

In this way of analysis, the chapter introduces an important issue in the agenda setting of water diplomacy, as well as it will pave the way towards finding leverages or what could be nearest to solutions for mitigating such conflicts, and ultimately resolving them. Further details on these dimensions will follow in this chapter and in the next chapter on peace-building.

2.1 TWO DIMENSIONS IN CASE ANALYSIS

A. Using Complexity Approach

Complexity\textsuperscript{10}, as a new science of multifaceted nature, is emerging to cope with the changes in the world of international waters. The techniques used are designed to deal with the higher degree of uncertainty, in which water resources are planned and managed. Indeed, the water sector is becoming more sensitive and vulnerable to these changes.

In this context, the complexity approach touches everything that is common to us and to the nature to which we belong. Influenced by all these, complexity, as a discipline, is of a multi-disciplinary and meta-disciplinary nature. In addition, major works and research in the complexity approach agree that every connection is valid, every analogy acceptable and the nature and human systems are complex dynamic systems, in their interface and interaction, and are becoming more influenced by complexity science.

\textsuperscript{10} This is because the significant paradigmatic changes which have occurred in the second half of the last century in a variety of disciplines: the theory of relativity, Darwin’s theory, quantum mechanics, organic chemistry, computers, informatics, logic, and post modernism.
According to the Prime Minister of Netherlands (Delft University, 2007), complexity is connected to sustainability, in the way that: “Sustainability is about connections. It is about connecting sectors, so that there is one unified agenda instead of separate economic, ecological, and social agendas. It is about connecting today to tomorrow..... And it is about connecting big ideals to small, practical solutions”.

The history of water management shows that water management is a natural evolutionary development, over the years. Figure 2.1 below depicts the History of Water Management over Centuries. The inter-connectiveness and inter-linkages of variables in an interdependent and complex world, is a recent development since the 1990s.

**Figure 2.1 History of Water Management, IHE, DELFT**

- **Complexity in Relation to Water Diplomacy**

Complexity as a discipline, based on systemic, nonlinear and dynamic analysis of problems and conflicts, would be in confirmity with water diplomacy as a multifaceted tool for realising objectives related to State's national interest, as well as mapping of international waters conflict and cooperation, which uses systems view and analysis techniques.

It embodies all aspects: engineering, social, economic, environmental, perceptual, ecological, and organizational, and applies a holistic and comprehensive approach, using the rigorous methodology of complexity as a science, system analysis and water diplomacy as a multi-disciplinary science and art.

**B. Inter-linkages and Connectedness of Issues: Social – Political – Economic – and Environmental**

What is needed in River Basins Integrated Management and development (RBIM), is not only IWRM (holistic approach), but also “a systems view” based on comprehensiveness and interconnectedness. This means that environmental, ecological and social concerns have to be engaged with the traditional hydrologic,
economic, and political concerns. In addition man should be at the center of this complex management problem of the land and water of river basins.

Falkmark, M. (1999) advocated strongly this view and stated in a critique to the Convention on Non-navigational Uses of International Water Systems that: "... what has to be shared between those upstream and those downstream in a river basin is not only the water currently going in the river as the Convention suggests, but rather the rainfall over the river basin". She added that "sustainable water-dependent socio-economic development will simply not be possible without taking an integrated perspective on all water-dependent and water-impacting activities in a river basin and their relative up-stream – downstream relations".

C. Sustainability and the Green View

Sustainability has become a mantra for the 21st century. It embodies the promise of societal evolution towards a more equitable and wealthy world in which the natural environment and our cultural achievements are preserved for generations to come.

This promise touches upon elementary hopes and fears, which have both guided and challenged scores of scholars in the past. The quest for economic growth and social equity has been a major concern for most of the past 150 years. By adding concern for the carrying capacity of natural systems,

Sustainability thus ties together the main challenges facing humanity. While there has been work on all three problem areas over the past four decades it was only the 1992 Earth Summit in Rio that bought about the widespread acceptance of politicians, NGOs, and business leaders, and the realization that none of the three problems can be solved without also solving the other two.

Protection and optimal use of the environment have in recent years moved so rapidly into the mainstream of international affairs that some politicians claim democracy, prosperity, security, international co-operation, and the environment are all interconnected. There is also a consensus that no country acting alone can have a significant effect on global and regional environmental problems and that the failure of collective action will curb any achievement.

The following figure 2.1 shows the inter-relationship amongst the spheres of: human, environment and water systems as part of the whole global system.

**Figure 2.2:**

*Context of the Global System*

![Figure 2.2: Context of the Global System](image)


**Figure 2.2:** The Inter-relationship amongst the spheres of: Human, Environment and Water Systems
2.2 THE STATE OF WATER CRISIS IN THE ARAB REGION

In general, water conflicts occur for many reasons. Reasons for potential conflict include: interdependence of people and responsibilities; jurisdictional ambiguities; functional overlap; competition for scarce resources; differences in organizational status and influence; incompatible objectives and methods; differences in behavioural styles; differences in information; distortions in communications; unmet expectations; unmet needs or interests; unequal power or authority; misperceptions; and others.

Water issues are thus regarded highly as acute conflicts in the Arab region and should be given due attention in analysis and resolution. One important aspect to be looked upon is the interaction between what is global and what is regional regarding water issues, and how these two levels of handling affect the national security of states.

The formulation and re-formulation of foreign policies have to be designed in a way to suit the changing international positions regarding access of the country in concern to replenishing water resources. A detailed analysis of the state of water in the Arab region in its complexities, is given below.

2.2.1 Complexity of Arab Water Crisis

Looking at the resource aspect of the region as a whole, the following Figure 2.3 illustrates the fact that 22 Arab countries with 300 million people representing 0.3 billion of world population, of more than six billion. The Arab countries have three times more oil than the rest of the world.

Figure 2.3 illustrates that the Arab countries share of world total, however is less than 1% of water resources, and 2% of financial resources as a result of oil revenues augmentation.

Figure 2.3 Arab Countries Share of World Total

In addition, water availability is falling to crisis levels: The Arab world draws its water resources from rainwater; rivers and underground water sheets as well as sources that are non-conventional (desalinated water and treated waste water).

The quantities that can be obtained from these sources differ widely from one country to another and from one location to another within a single country: rainfall is inexistent in some countries and heavy in others. Similarly, countries such as Sudan, Egypt, Syria, Iraq, Lebanon, Jordan and Morocco have large and small rivers but other Arab countries have neither rivers nor lakes.

Where water resources are rare and financial resources permit, the abundant water found underground is exploited (the East Al Jazira underground sheet covering 1.6 million sq. km. and the Nubian underground sheet covering 2 million sq. km.).

Other non-conventional sources are being promoted, with the result that the Arab countries are in the forefront of the development of water desalination techniques, producing over 5 million cubic meters a day, that is, over 70% of world production.

Table 2.1: Water Resources in the Arab countries (2003)

<table>
<thead>
<tr>
<th>Country</th>
<th>Conventional water resources, MCM</th>
<th>Non-conventional water resources, MCM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Surface water</td>
<td>Ground water</td>
</tr>
<tr>
<td>Iraq</td>
<td>74220</td>
<td>1200</td>
</tr>
<tr>
<td>Jordan</td>
<td>600</td>
<td>500</td>
</tr>
<tr>
<td>Lebanon</td>
<td>3707</td>
<td>3200</td>
</tr>
<tr>
<td>Syria</td>
<td>24060</td>
<td>4200</td>
</tr>
<tr>
<td>Sub-total</td>
<td><strong>102587</strong></td>
<td><strong>9100</strong></td>
</tr>
<tr>
<td>Bahrain</td>
<td>116</td>
<td>0</td>
</tr>
<tr>
<td>Kuwait</td>
<td>160.1</td>
<td>0</td>
</tr>
<tr>
<td>Oman</td>
<td>930</td>
<td>955</td>
</tr>
<tr>
<td>Qatar</td>
<td>3</td>
<td>50</td>
</tr>
<tr>
<td>KSA</td>
<td>2200</td>
<td>2200</td>
</tr>
<tr>
<td>UAE</td>
<td>150</td>
<td>120</td>
</tr>
<tr>
<td>Yemen</td>
<td>4000</td>
<td>1500</td>
</tr>
<tr>
<td>Sub-total</td>
<td><strong>7559.1</strong></td>
<td><strong>4825</strong></td>
</tr>
<tr>
<td>Djibouti</td>
<td>300</td>
<td>15</td>
</tr>
<tr>
<td>Egypt</td>
<td>57000</td>
<td>1300</td>
</tr>
<tr>
<td>Somalia</td>
<td>14400</td>
<td>3300</td>
</tr>
<tr>
<td>Sudan</td>
<td>62500</td>
<td>7000</td>
</tr>
<tr>
<td>Sub-total</td>
<td><strong>134200</strong></td>
<td><strong>11615</strong></td>
</tr>
<tr>
<td>Algeria</td>
<td>10180</td>
<td>1487</td>
</tr>
<tr>
<td>Libya</td>
<td>200</td>
<td>500</td>
</tr>
<tr>
<td>Mauritania</td>
<td>11100</td>
<td>300</td>
</tr>
<tr>
<td>Morocco</td>
<td>22000</td>
<td>10000</td>
</tr>
<tr>
<td>Tunisia</td>
<td>3500</td>
<td>1495</td>
</tr>
<tr>
<td>Sub-total</td>
<td><strong>46980</strong></td>
<td><strong>13782</strong></td>
</tr>
<tr>
<td>Total</td>
<td><strong>291326.1</strong></td>
<td><strong>39322</strong></td>
</tr>
</tbody>
</table>

2.2.2 The Arab Region Reached the Point of Boiling Water

Reviewing literature, there is a common understanding among scholars and experts that the magnitude of water crisis in the Arab region has reached the point of boiling and that urgency for intervention is required.

Common features of the crisis include:

- The Arab Region is experiencing one of the fastest growing water deficits in the world. Natural water scarcity, uneven geographical and seasonal distribution, incomplete access to water and sanitation services in remote rural areas, as well as pollution and degradation of aquatic ecosystems have had severely limiting impacts on development options in the Region. Increasing competition between different uses and users over access to water resources sometimes leads to public unrest and inter-state tensions.

- The majority of the countries in the Region have been consuming more water than their renewable supply for quite some time. However, this is no longer an option due to high costs and negative environmental consequences, which has led to a vicious cycle, linking deteriorating status of water resources, in terms of quantity and quality, to deteriorating livelihoods throughout the Region.

- On the other hand, current sectoral approaches to water resources management are limiting the capacity of societies in the Arab Region to comprehensively address water resources issues. As a matter of fact, most societies in the Region have been suffering, for a long time, from serious capacity gaps that hinder their ability to face social, economic, and political challenges facing the management of their water resources.

- The lack of familiarity with participatory and integrated management approaches; fragmented institutional structures and conflicting mandates; inadequate water valuation and pricing; and imbalanced sectoral water allocation are some of the problems facing water management in the Arab Region. Moreover, inadequate investment in the needed infrastructure and capacity development has worsened the situation. It is therefore critical to expedite the adoption of integrated water resources management approaches in order to defuse the ongoing water crisis in the Arab Region.

- In the Arab Region, water scarcity, uneven geographical and seasonal distribution, incomplete access to water and sanitation services in remote areas, as well as pollution and degradation of aquatic ecosystems have in some cases had severely limiting effects on development options for poor communities and other marginalized groups.

- About 45 million of the region's population (16 percent) is lacking safe water, and more than 80 million lacking safe sanitation. The most recent figures indicate that poverty affects around 10 per cent of the population in Jordan and Tunisia, about 20 per cent in Algeria, Egypt and Morocco, 40 per cent in Yemen and 46 per cent in Mauritania.
Figure 2.4 shows that poverty is on the rise in some Arab countries as follows (Yellow refers to rural areas, blue refers to rural areas):

- In addition to being water deficit, there is a rampant food deficit as well. The region is one of the largest food importers. Forecasts under numerous scenarios indicate that the region will remain in a permanent food deficit for a long time in the future.

- In the Arab region, access to water has always been a key environmental factor in the politics of the region. In this context, policy proposals were made by Arab countries in the last three decades; environmental considerations have deeply influenced both domestic and foreign policies within the region.

- While the resource geopolitics of the region has been dominated by oil - the most plentiful natural resource of the region and one which affects international relations throughout the world - water, the scarcest natural resource of the region, affects relations between Arab countries even more than oil does.

The above key crisis elements represent the root causes of conflicts in the region and especially on shared international waters. Such conflicts are at its highest anywhere in the world.

2.2.3 Proliferation of Water Disputes in the Arab Region

The picture with regard to conflicts in the Arab region could be highlighted as follows, inter alia:

- The Arab region is among the areas around the world where water resources are both limited and disputed. Together with the stumbling peace process, disputes relating to accessibility to replenishing clean water resources have caused uncertainty and instability in the region.

- Dispute related to water issues spread as far as Anatolia incorporating Turkey, Syria, and Iraq in a severe dispute around the appropriation of the Euphrates water supply among the three neighbouring countries. Among Israel, Occupied Palestine, Syria and Jordan another dispute relating to Lake Tiberius and the Jordan River Basin, together with the disputed water resources in the Aquifers
that are supposed to be shared by Israel and the Palestinian territories in the West Bank and The Gaza Strip.

- Another dispute that is however less in severity and intensity runs along the River Nile between the ten countries that share the river, whether upstream or downstream. However, The Nile Basin Initiative (NBI) launched in 1999 is progressing, but recently it is confronted with differences and disagreement within the upstream and downstream countries, hindering progress towards more collaborative actions among Nile riparian countries.

- The progress made could be seen in establishing the Nile Basin Secretariat in Entebbe, Uganda and putting into operation “The Strategic Action Plan” with a basin-wide “Shared Vision Program and “A Subsidiary Action Program” to work with projects that have a real impact at the community level.

- What lessons can we learn from this ongoing progress, together with differences erupted over concluding 'the Legal Framework Agreement'?

### 2.2.4 Climate Changes (CC)

Climate changes are of concern from an environmental viewpoint, and in regard to regional water supply”. CC has “social ramifications in countries of the Arab region, and could result to politically destabilize the region, by causing waves of environmental refugees from several countries, and this has happened in the tragic case of Darfur, Sudan.

The expected damage to the economic base and to the residential areas of hundreds of thousands of people in the Arab region could lead to grave political implications.”
Figure No 2.5 the Complexity of Water Issues In the Arab Region
2.3 IN THE DECISION MAKING AREA

Munasinghe et al, (2007) has done a major work in this area entitled "Making Development More Sustainable" (MDMS). He presented it in "an e-book of the Encyclopaedia of Earth" the sustainable development triangle and balanced treatment of economic, social and environmental aspects. Chapter 12 of his book explores the question of how to make water resource management more sustainable?

Sustainomics is introduced as a new language to explain the trans-disciplinary integrative comprehensive balanced heuristic and practical framework for making development more sustainable.

Figure 2.6 illustrates the trade off relationship amongst the three "Es": economic Efficiency, social Equity and Environmental sustainability. There must be a balance among the three, for guaranteeing viable decision making in water management.

2.4 A Soft Path Approach for Addressing Water Conflicts

Such inequalities need to be addressed in order to allow communal cooperation and mutual benefits. One way to address asymmetric capacities is to allocate project resources in favour of the party with the greatest needs. In addition, SOFT factors as result of the interface with human being.

Nowadays, there is a consensus that reliance on physical solutions, although still continuing to dominate the traditional planning approach, failed in satisfying basic water requirements for human activities, and above all, it gave origin to several social, economic, and environmental problems.

Indeed, there are changes in the way of thinking and approaches in managing water resources. Many countries are redirecting their approaches towards the soft path approach through developing new methods to meet the demands of growing population without requiring major new constructions or new large scale water transfer.
According to a recent report (Abuzeid and Hamdy, 2004), many countries are changing the way of thinking, and particularly those in arid and semi-arid regions. They are beginning to shift their focus and explore the possibility for efficiency improvements, to implement options for managing demand, reallocating water among users to reduce projected gaps and meet future needs. They concur that such a change is facing strong internal opposition and is not yet universally agreed upon.

The author concurs with this policy approach of demand management as illustrated in the Figure below:

![Figure 2.7: Demand Water Management Approach: Main Policy Measures](source: Abuzeid and Hamdy, 2004)

### 2.4.1 Water Ethics and Culture

Water ethics, as a specific and distinct philosophical field, is still emerging in academic arenas, professional discussions, and dialogues on water governance. Concerns of water conservation, as well as adequate access to basic needs of water and sanitation and the deprivation of poor and marginalized communities throughout the world of such a fundamental human right, mostly due to the lack of empowerment and the inability to pay for the service, pose difficult ethical dilemma that needs to be solved based on societal ethical frameworks.

These frameworks are also necessary to address issues such as the allocation of limited water resources and its relationship to efficiency, productivity, valuation, as well as equity and social justice. This is especially significant for consideration of environmental conservation and sustainability for future generations within integrated water resources management contexts.

The situation analysis of the Arab Region shows that soft factors of human nature and social learning need attention for change and development of the water sector in the Region. It is becoming an absolute necessity to have a cultural approach to actualize water
ethics. Access to freshwater has increasingly been identified as a major potential threat to world peace in this century\textsuperscript{11}.

The ethical issues relating to water mirror broader debates on social ethics and relate to a number of ethical principles. The COMEST\textsuperscript{12} Sub-Commission resolved that rather than analyze once more the ethical issues of water management, it should promote best ethical practice. Some fundamental principles were identified as essential components (Brelet, 2004). See below Box No 2.1

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**Box 2.1**

Basic Water Ethical Principles (Brelet, 2004):

- **Human Rights and Dignity**, for there is no life without water and those to whom it is denied are denied life.
- **Human Equality**, for all persons ought to be provided with what is needed on an equitable basis.
- **Solidarity**, for water continually confronts humans with their upstream and downstream interdependence, and initiatives for integrated water management may be seen as a direct response to this realization.
- **Stewardship**, which respects wise use of water.
- **Defining Water** as a Common Good, for water by almost everyone's definition is a common good, and without proper water management human potential and dignity diminishes.
- **Transparency** and universal access to information, for if data is not accessible in a form that can be understood, there will be an opportunity for one interested party to disadvantage others.
- **Participation**, for all individuals, especially the poor, must be involved in water planning and management with gender and poverty issues recognized in fostering this process.
- **Inclusiveness**, for water management policies must address the interests of all who live in a water catchment’s area. Minority interests must be protected as well as those of the poor and other disadvantaged sectors. In the past few years the concept of Integrated Water Resource Management (IWRM) has come to the fore as the means to ensure equitable, economically sound and environmentally sustainable management of water resources.
- **Empowerment**, for the requirement to facilitate participation in planning and management means much more than to allow an opportunity for consultation. Best ethical practice will enable stakeholders to influence management.

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\textsuperscript{11} The first meeting of the UNESCO's COMEST Sub-Commission on freshwater ethics was held in Aswan in October 1999.

\textsuperscript{12} UNESCO created the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) in 1998, whose duty is to adopt ethical principles of all practices related to scientific research, and as such seeks to motivate and advise scientists to include ethics within their intellectual endeavors.
2.4.2 Water Governance Issue

Water governance refers to the range of political, social, economic, and administrative systems that are in place to allocate, develop and manage water resources and the delivery of water services for a society. In the meantime, civil society can be considered to be composed of all non-governmental organizations such as professional societies, labour unions, interest groups, trade groups, political parties, and other freely formed clubs and associations. In contemplating water governance, the broadest definition of civil society should be used.

2.4.3 Gender Issue

Asha Elkaribi, et al, (2002), produced 'an Advocacy Manual for Gender and Water Ambassadors”, Gender and Water Alliance (GWA), The Netherlands. The manual referred to the international conferences throughout the 1990s, that have consistently highlighted the importance of increasing women’s participation in water-related initiatives, drawing on women’s knowledge and increasing women’s involvement as managers and decision-makers. The key question is how this policy and commitments to promoting women’s increased participation can be put into practice.

Gender is an issue that concerns both women and men, and achieving it will involve working with men to bring about changes in attitudes, behaviour, roles and responsibilities at home, in the workplace, in the community, and in national, donor and international institutions.

Conflicts over water, too much, too little or too polluted, harm people, food production and the environment. Research and practical experience demonstrate that effective, efficient and equitable management of water resources is only achieved when both women and men are involved in consultation processes, and in the management and implementation of water-related services.

2.4.4 Women Participation in Water Diplomacy is advocated:

It is advocated in order to strike a gender balance that ensures the following factors, inter alia:

- **The roles** and responsibilities of women and men are mobilized to best effect.
- **The creativity**, energy and knowledge of both sexes contribute to making water schemes and eco-systems work better.
- **The benefits and costs** of water use accrue equitably to all groups.
- **Effective solutions**: because, as the largest category of water users in the world, women have centuries of experience in managing community water resources and are a huge potential resource for the planning and implementation of water projects. The value they place on water is a vital resource in searching for the most cost-effective solutions.
- **Efficient solutions**: because, when women and men share the costs, burdens and benefits of water resource management, this results in deepened community involvement and optimum use of time, money and resources.

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13 The term gender refers to women’s and men’s different roles, resources, and experiences, aspects of culture that all of us learn in our own societies as we grow up. Gender roles and resources are different in different societies, and they change over the course of time even within the same societies (A, Karibi, 2002).
- **Equitable solutions:** because gender-sensitive water projects offer opportunities to address inequalities between women and men in access to resources, services and influence, and to promote the empowerment of women.

### 2.4.5 Virtual Water (Water Related to Trade)

Virtual water refers to the water needed for the production of the product. Producing goods and services generally requires water (Allan, 1993; 1994). The water used in the production process of an agricultural or industrial product is called the 'virtual water' contained in the product, not in real sense, but in virtual sense. For example, in order to produce 1 kg of grain we need 1-2 m$^3$ of water. Producing 1 kg of cheese requires 5 m$^3$ of water and for 1 kg of beef we need 16 m$^3$ of water on average.

The virtual water concept is claimed to have basically two major areas of practical use:

- Virtual water trade as an instrument to achieve water security and efficient water use
- Making the link between consumption patterns and the impacts on water (Water Footprint Concept)

If one country exports a water-intensive product, it exports water in virtual form. Trade of real water between water-rich and water-poor regions is generally impossible, but trade in water-intensive products (virtual water trade) is realistic. If the importing country is already facing water scarcity, this represents real water savings and less pressure on its water resources. If the water-exporting country has abundant resources, the entire flow becomes an efficient instrument in improving global water use efficiency. The second practical use of the virtual water concept lies in the fact that the virtual water content of a product tells something about the environmental impact of consuming this product. Knowing the virtual water content of products creates awareness of the water volumes needed to produce the various goods, thus providing an idea of which goods impact most on the water system and where water savings could be achieved. Hoekstra and Hung, 2002 have introduced the concept of the **water footprint**, being the cumulative virtual water content of all goods and services consumed by one individual or by the individuals of one country. The water footprint can be a strong tool to show people their impact on natural resources. Water footprint is quite simply the volume of water used. The water footprint of a nation is equal to the use of domestic water resources, minus the virtual water export flows, plus the virtual water import flow.

### 2.5 Partners and Third Party Engagement

The PCCP Programs for capacity building together with other partner institutions, e.g., IHE, Delft in Netherlands have made great substantive contributions in this regard. There are programs enriched with exercises that have identified several tools and mechanisms suitable to develop trust and build institutions that secure cooperation. Some of these are related to developing shared values that support justice and equity. Some are related to improving processes of conflict avoidance and resolution. They include mixtures of building human skills and using the latest engineering and management technologies.

The credibility and impartiality of the institutions that intervene in these roles is most important. However the quality of the individuals selected is also important. Negotiators, facilitators and mediators must acquire the skills and learn the techniques required by
their roles. First and foremost they need communication skills (active listening, talking clearly and precisely, and understanding and perception). Some of the techniques associated with using these skills include reframing positions as interests, using open questions, and separating the persons from the problem. These same skills and techniques are basic requirements for mediators too.

In addition they should have the following desirable traits: ability to create trust among the parties - ability to define the issues of the dispute - patience, endurance, perseverance - thoughtfulness, empathy, flexibility - common sense, rational thinking - likeable personality - experience - neutrality, impartiality - problem-solving skills, creativity.

Among the techniques and strategies that may contribute to building consensus are:

Strategies based on interest-based negotiation.

The facilitative/passive strategy: the mediator acts as a facilitator of the process, and does not evaluate or suggest solutions. Strategies and techniques of facilitating and assisting the parties to understand their situation encourage the parties to communicate, and help them to reach an agreement.

The intervening/active strategy: the mediator evaluates the case and suggests solutions and options. Use of experts and expertise in the disputed issues and seeking guidance for resolution of the dispute, based on law, industry practice, etc.

Mediators meet first with all parties in joint meetings, sometimes with each party in private caucus, and assist the parties in understanding their own underlying interests, and those of the opposing side. During mediation the focus is on the future, but it does not ignore the past, which provides information about the issues and the causes of the conflict.

Mediators elicit ideas from each side for possible resolution, and assist the parties to develop a negotiated settlement, an agreement, which is usually put into writing, and can be ratified by the court. Some of the above traits are part of the personality of the individual, and would be difficult to learn. However most of the skills can be learned through training and practice, as can the useful strategies and techniques.
Chapter III

PEACEBUILDING: CHALLENGES AND OPPORTUNITIES

3.0 INTRODUCTION

The third chapter represents a continued investigation into the normative side of water diplomacy. It serves to capture on peace building (challenges and opportunities), in the Arab region. It is intended to give applied case studies from the region. Special attention will be on lessons learnt from the Nile Basin of more than ten years of dialogue and negotiation. The chapter elaborates on the link between security, peace and access to water in the regional context and whether it is to be considered a strategy and policy related to geopolitics, and hydrohegemony or hydrosolidarity, and benefit sharing rather than water sharing.

3.1 Defining Issues Related to Geopolitics

A: Geopolitics, Hegemony and Hydrosolidarity

Geopolitics, hegemony, hydro-hegemony, and hydro-solidarity are emerging concepts in international relations among riparian states (Zeitoun and Warner 2006). The geopolitical situation and its related hydro-hegemony and hydro-solidarity as concepts are due to their casual geographical location, some actors have far better access to water than others. And infrastructure, technology and institutions enable control and even capture of the resource, inducing scarcity for some and abundance for others.

Zeitun and Warner expanded on the concept by giving an example of Turkey’s strategy with respect to the Euphrates &Tigris; they looked at the layered nature of water related political strategies at different levels. However, the common understanding introduces hegemony as a layered phenomenon whose multi-level interactions impinge on each other. Warner in an article looked at the layered nature of water-related political strategies at different levels. An example is given and focused on Turkish hegemony in its hydraulic control and security strategies, and the international repercussions of that strategy.

B: Hydro-Hegemony as a Source of Conflicts

Regional hegemony and hydro-hegemony could be a source of conflict in international shared waters and is already contested and constrained from different sides. Its water projects are a flashpoint of domestic, basin as well as global politics. This is well illustrated by the internationalized counter-hegemonic moves against Turkey’s dam projects in Southeast Anatolia, notably the ongoing Ilisu dam on the Tigris.

In a Special Issue – Hydro-Hegemony Theory of "Water Policy" Anders Jagerskog (2008) attempts to get to grips with these concerns. He stated that:

"This is indeed welcome from an academic as well as policy perspective. In essence the framework outlined in this Special Issue deals with the multidimensional concept (including coercive, economic, political, cultural and discursive) of power and how it affects and indeed determines outcomes in trans-boundary water relations".

15 ibid
16 For more details see "Water Policy" 10 Supplement 2 (2008) 1–2
"In many trans-boundary river basins, political power is asymmetrically distributed. According to the hydro-hegemony framework, where a particular riparian maintains a dominating position within a basin, it often receives more than an equitable share of the available water resources. The power position of the basin hegemonic (i.e. the stronger state(s) in a shared basin) implies that it can manipulate and steer outcomes on issues pertaining to their shared waters (and indeed other issue areas as well)".

"The power of the hegemonic in this regard is relating to factors such as economic, military as well as discursive power but also to the level of human resource capacity in the specific sector. The authors in this Special Issue try to measure the effects of power in terms of outcome, not simply in the existence of a treaty or a discourse of cooperation. Indeed, they aim to deconstruct the power relations as they relate to trans-boundary waters and show how the powerful often succeed in obscuring the role power plays".

"Usefully, the authors in this Special Issue advice the reader to view the cooperation that takes place on shared waters through a hydro-hegemony perspective which helps understand the underlying power structures and the fact that what may seem like genuine co-operation is rather a "coercive" function".

"In the case of shared river basins it can be noted that basin hegemonics tend to dominate and may 'hijack' the prevailing discourse (be it on 'benefit sharing' as in the Nile case or something else) so as to make it suit their interests."

The last observation sited above does not take the issue of geographical fact that a down stream country like Egypt is almost dependent on the Nile water (97% of its water resources). However, other concerns sited are in conformity with the assumption that "The likelihood of conflict rises as the rate of change within the basin exceeds the institutional capacity to absorb that change."17 So, it is important to look at the quality of cooperation..

However, the potential for water conflicts over trans-boundary waters18 is evident, especially in times of scarcity. Is the upstream State entitled to use all of the water that originates on its territory? Are the prior use and developments of downstream States protected against subsequent uses of their upstream neighbours? How can conflicts of uses be resolved? The stress here is on examples of disputes over water, in the Arab Region.

3.2 Multiple Level of Hegemony

The developing literature on basin level hegemony is a new addition to the hegemony debate. The basin as a hydro-political security unit as first suggested in Ohlsson (1995), comes from the competing claims as well as need for coordination that are both inherent

17 See www.unesco.org/water/wwap/pccp
18 World-wide, there are more than 300 major river basins, covering about 50% of the total land area. Many of these river basins straddle country borders, even more so today. Examples of river basins straddling more than one state include the Nile River, with ten countries sharing the basin, and the Danube River, shared by seventeen countries.
in the interdependence of the resource. Upstream and downstream position with respect to a river or a channel means a natural but unequal interdependency\(^{19}\).

![Diagram of hydrosolidarity and policy parameters]

**Figure 3.1:** Illustrates the Level of Hegemony vis-a-vis Hydrosolidarity, along certain policy parameters, as highlighted above.

The figure depicts the following parameters:

- **(a)** *Hydro-solidarity* is a result of promotion of cooperation,
- **(b)** *Hydro-hegemony* is a result of the priority given to economic efficiency over other parameters of *hydro-ecology* (consideration of environment), as well as other terms of
- **(c)** *hydro-egoism*, and
- **(d)** *hydroicide*.

### 3.2.1 Example from the Euphrates - Tigris basin

The Euphrates-Tigris basin is a especially interesting case. The basin does not present a picture of acute resource scarcity and, despite dire and influential predictions (e.g. Starr, 1991), there has never been a theatre of water wars. Yet, Syria and Iraq went head to head over the river after the filling of the Tabqa dam, and each time Turkey subsequently filled

\(^{19}\) Warner: Hydrohegemony in Turkey Page | 273 Water Alternatives - 2008 Volume 1 | Issue 2
a major dam (the Atatürk, Birecik, Izmit and Ilisu dams) the Euphrates - Tigris basin has been presented with some frequency as a key arena for potential 'water wars' itself a hegemonic discourse that gained prominence in the 1990s and "widely contributed to shaping the perceptions of many present international situations" (Trottier, n.d.; see also Warner, 2000 on environmental security as global hegemonic discourse).

Yet, the widely predicted 'water wars' have not happened and despite downstream protest and international NGO campaigns, the dams continue to be built. Despite gloomy assessments of chaos and disorder, the countries are meeting and a tripartite cooperative initiative was launched in 2006. Has Turkey, as the ancient Chinese master Sun Tzu (1988) would call it, won the war without fighting the battle?

This article first seeks to develop a better understanding of hegemony as a control strategy that is qualitatively different from dominance. While dominance is based on 'hard power', 'soft power' promises "a way to get what you want through attraction rather than coercion". It is a form of power and control that can be exercised through influence and legitimacy: "cultural values, ideals,

Applying those ideas to the case of Turkey and its hydraulic aspirations, I proceed to ask: when Turkey is depicted as the hegemony for the Euphrates-Tigris basin, what exactly does it mean? Is Turkey's hegemonic strategy successful? What is the role of the GAP (the 22-megadam development project being built in Turkey's Southeast) project in all this?

The present contribution suggests that the accusations of Turkish hegemonic behaviour seem correct, but that Turkey’s basin and regional hegemony is contested and constrained from different sides, not least at home. The Turkish state is not only involved in a regional hegemonic strategy, but also in a struggle for control on the domestic front.

It introduces hegemony as a layered, multi-level phenomenon global hegemony, regional hegemony, river basin hegemony, state-society relations whose interactions at various levels impinge on each other. While the concept of hegemony is probably best known at the global level, accounts of regional hegemony are frequent in realist (e.g. Mearsheimer 2001) and more constructivist-leaning security studies (e.g Buzan 1991). Zeitoun and Warner (2006) and several authors in a recent Special Issue of the Water Policy journal (2008 Vol. 20, Supplement 2) have drawn on both strands, but their analysis was mostly limited to the interstate level. In the critical tradition, however, Gramsci (1971) himself analysed hegemony at the national level, while critical scholarship inspired by his work takes the analysis to the transnational, global level (e.g. van der Pijl, 1992). The present

After exploring the meaning of hegemony, the following section delves into the different evaluations of hegemony at different scales. Applying the building blocks developed in the earlier sections, the final section analyses Turkish hydraulic control and security strategy in a "rough neighbourhood" the internationalised counter-hegemonic moves against Turkey's hydro-political ambitions, in their 'hard' and 'soft power' manifestations.

3.2.2 Nile Basin Profile and the State of Regional Cooperation: A Systems View

A: Setting the Scene for the Hydro-Political Process

There are several determining features of the Nile from a water policymaker’s Perspective: These are inter alia, as follows:

- The Nile is a relatively small river in terms of volume of runoff.
- The Nile is the only significant source of water for the downstream riparian
• The upstream riparian states have large rural populations that depend on subsistence agriculture.

Characterization of the Nile Basin (Profile) shows that it is very complex. Although, ten countries (riparian) share the Nile, there is limited economic integration between the upstream and downstream Nile regions, due to geography and history. There is little that links the ten states as a group, as well as direct common interests among riparian states is limited.

B: Complexity of Issues and Inter-Connectedness

Here is a bird view of inter-linkages of the physical (hard) factors and non-physical (soft) factors to show complexity of issues and inter-connectedness amongst physical and non-physical factors. Here is a brief and quick profile of the Nile Basin.

Hydro-physical

- One of the longest Rivers (6695 km), covers 10% of African Continent (3m.square km), 2.3% of the world. For length it ranks the six in world rivers,
- Discharge: quantities of water the Nile carries is low in comparison to other rivers (it ranks no. 24), Amazon 35times, Mississippi 7times,
- Annual flow: 84 bcm (1900-1959),
- Nile as a system: contribution of Sobat (%14), Atbara (%13), Blue Nile (%59)
- Enormous evaporation losses: (1400-1700mm a year), vast marches of Southern Sudan (The Sudd). Yearly losses estimated at 36 bcm
- Parties contribution: Ethiopian Plateau (84 bcm of the flow), Equatorial Plateau (14 bcm)

Socio-political

- Population (230m), expected in 2025 (360m) & Urbanization and socio-economic political development of riparian countries
- Civil wars, ethnicity problems.

Environmental

- Growing number black spots at industrial affluent disposal sites needs monitoring
- Erosion / sedimentation → watershed management
- Drainage water quality is less acceptable due to the excessive use of agricultural chemicals.
- Sewage and industrial waste are disposed to drain as well as threaten the possibility.

3.2.3 The Status of Negotiation:

The main question here is where are the most important gaps and open questions in negotiations for Nile regional cooperation? Here is an assessment of the case:

- Ten years of Nile negotiations are mired down in a near zero-sum game. It seems that whatever the outcome, somebody feels defeated.
- The upstream countries fear that they may jeopardize their future development potential by conceding the freedom to use the river without encumbrance, while those downstream perceive that their historic rights and livelihoods are being compromised.
- There are still open questions, pending for solution, these are: a) Existing agreements are questioned by upper Nile countries. b) Prior notification and consultation. c) Natural and historic right, as Egypt is vulnerable for its almost
total dependency on the Nile water. d) The operationalization of the principle of equitable utilization. The principle of causing no significant harm has to be balanced with equitable utilization.

3.2.4 The Nile Basin Case: What needs to be done?

There is a need for scenario thinking for discovering common ground on these opened questions? Dialogue and negotiation based processes are of great value in this regard. And continued dialogue and negotiation is inevitable. W. Brian Arthur put it quite right as stated that: “What gives us power as humans is not our minds, but our ability to share our minds”.

Hilhorst et al (2010) made a remarkable advance for this argument, as they pointed out that dialogue based processes like scenario thinking have demonstrated their value by contributing to the solution of highly complex problems and to building a level of trust in protracted and polarized conflicts, and they gave an account of the “Food for Thought” (F4T) scenario exercise started in late 2006 as initiated by the Food and Agriculture Organization (FAO) Nile project in collaboration with the Global Water Partnership (GWP) Eastern Africa.

A group of some 25 decision makers and stakeholders from all Nile countries engaged in a joint scenario building exercise to examine the uncertain future of the dominant driver of water use in the basin – demand for agricultural produce.

3.2.5 Lessons Learnt

The assessment of hydro-political processes suggests that the case of the Nile Basin is a confidence building case, and needs measures on three levels to erase fears and misconceptions, as well as specific steps in the general and on the technical level as confidence building measures. These are, inter alia, as follows:

(A) On the General Level:

- River Nile is a common heritage of all riparians,
- Water is a human right issue of priority,
- Access to water is legitimate for every individual community and country, and especially for the poor,
- Collaborative action under the NBI, Challenge Program Water for Food (CPWF) , and others is the only way to face the challenges and complexities of future water demand,
- The case of the Nile is a case of enhancing confidence building,
- Through negotiation of international agreement it is possible to get satisfactory win-win benefits,
- The water data availability principle should be respected by all riparian countries,
- There is no fresh water security without a major shift in thinking,
- Changing behaviour through changing structures: cultures, education and models of thinking, will bring about better understandings and appreciation of each others problems,
- Creating a learning environment on the Nile is essential.

(B) Measures could be:

- Removing fears and misconceptions
- Building trust through dialogue and reflective conversation
- Eastern Nile Technical Regional Office offers an important example in building confidence among parties
Interregional trade and joint projects for sustainable development
Raising awareness among the public through mass media and the creation of images of positive cooperation
Two basic rules gained universal acceptance: exchange of data and consultation prior to the construction of water works, that which may cause harm to other riparian states.
It is essential to affect major shift in thinking in order to change behaviour.

(C) On the Technical Level:

Population nexus water is a detrimental factor – sustainable development or eliminating poverty is dependent on the integrated development and management of the basin as well as looking for increasing the existing resources.
Interdependence among elements of water, land and human needs.
The NBI and CPWF are bringing together a larger picture of comprehensiveness and inter-connectedness.
Step by step approach in accomplishing the SVP and the SAP in the Nile Basin through intensifying work at the community level, implementing joint projects and on a win-win basis so as to guarantee benefits for all.
The question is how to strengthen the relations between the stakeholders and to conduct the participatory approach
The most important lesson is how to deepen the Nile values, heritage, culture history? And how to make benefits from the water great potential of hydro-power as well as to maximize trade and better efficient communication among riparian countries.

3.3 An Early Warning System as a Preventive Diplomacy Measure

UNESCO, PCCP Program has identified certain indicators for water conflicts and cooperation, these are: (a) Uncoordinated development: a major project in the absence of a treaty or commission (b) Internationalized basins” (Aral Sea case) and (c) the general animosity. Such indicators could constitute the generic basis for establishing an early warning system to alert policy makers of the point of intervention and/or point of exit.

In addition, a measurement of the degree of violence could be detected from events related to trans-boundary waters (Surface Waters or Ground Waters). If this measurement is monitored well, it is possible to have an early warning system to predict whether such events are going to invigorate into more violence or more cooperation? This could be followed on like a thermometer of the degree of conflict on water: Is it boiling or more peace-building measures are taking place.
Up until recently it was believed that trans-boundary waters would lead to violent conflict and war. However it has been shown that if such waters are managed and dealt with in a co-operative manner they are more likely to be a stabilising factor for those countries sharing it.

The Oregon State University’s database on all the agreements on shared waters in the world (http://www.transboundarywaters.orst.edu/), points to the fact that states sharing a river or aquifer system usually are far more likely to reach agreement on their waters than to engage in violent conflict over it.

Drawing on these findings as well as on research by others, the discourse has shifted from 'water wars' paradigm to a 'water co-operation' paradigm. However, if the new water co-operation perspective is analyzed, it has yet to address the questions of why and under what conditions such cooperation occurs. Also the quality of that cooperation is seldom thoroughly addressed. The framework that is presented in this Special Issue–Hydro-Hegemony Theory–attempts to get to grips with these concerns.

However, the quality of cooperation is dependent on erasing fears of related human threats. This necessitates addressing the question of human security and human rights in their relationship to basic human needs. So, here is the main generic idea of human security dimensions in their links, for more clarification on what is negotiable and not negotiable.

### 3.4 Human Rights and Conflict Management

#### 3.4.1 Human Related Threats

On the other hand, there are other sources of conflicts related to human threats. All of the following elements could provide good opportunities for change (natural or anthropogenic) or to be very destructive. They include, inter alia:
(a) Inappropriate governance and institutional arrangements in managing national and transnational water basins;
(b) Depletion of water resources through pollution,
(c) Environmental protection and “development”;
(d) Unsustainable financing of investments in water supply and sanitation;
(e) Population pressure;
(f) Political misalignment,
(g) Unwillingness to share,
(h) High incidences of conflicts in most countries on the continent.
(i) Poverty,
(j) Unwillingness to live with risks,
(k) Poor technologies & over-reliance on rain-fed systems,
(l) Customs and traditions,
(m) Many players, no referee,
(n) Poor monitoring networks (calibration of satellite data).

3.4.2 Human Security Dimensions in their Links:

Based on these human related threats, there is a relationship between these threats and human rights, which raises the issue of human security. It is possible to examine such threats in their link with water security, health, food security and environmental security, as well as to link these dimensions in their cause and effect. There is a cause-and-effect relationship between conflict and human rights that consists of two dimensions, as in Table 3.1: Human Security Dimensions

- Gross human rights violations occur as a consequence of (destructive) conflict, and
- The (sustained) denial of political, civil, economic, social, cultural, and other human rights is a core cause of destructive conflict.
<table>
<thead>
<tr>
<th>Dimension 1</th>
<th>Dimension 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross human rights violations as consequence of destructive conflict</td>
<td>Conflict as a consequence of sustained denial of human rights</td>
</tr>
<tr>
<td>Problem to be resolved</td>
<td>Protecting people from human rights violations</td>
</tr>
<tr>
<td>Time frame</td>
<td>Short to medium term</td>
</tr>
<tr>
<td>Activities to be undertaken</td>
<td>Dispute resolution</td>
</tr>
<tr>
<td></td>
<td>Peacemaking and peacekeeping</td>
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<tr>
<td></td>
<td>Peace-enforcement</td>
</tr>
<tr>
<td></td>
<td>Human rights monitoring and investigation</td>
</tr>
<tr>
<td>Desired outcomes</td>
<td>Cessation of hostilities</td>
</tr>
<tr>
<td></td>
<td>End/prevention of abuses</td>
</tr>
<tr>
<td></td>
<td>Negotiated settlement =&gt; NEGATIVE PEACE</td>
</tr>
</tbody>
</table>


Thus, the table above shows clearly that destructive conflict may not only result in human rights violations (first dimension), but it can also result from violations of human rights when such rights are insufficiently respected and protected over a period of time (second dimension). The sustained denial of human rights can create conditions of social and political unrest as it infringes on the dignity and integrity of human beings and undermines their wellbeing, welfare, and participation in public life.

The two dimensions of the relationship between human rights and conflict are connected to each other in a number of ways:

- Violent confrontations (dimension 1) are largely symptoms of structural conflict (dimension 2). As structural conflict is left unaddressed, the frustration, anger and dissatisfaction may rise to such an extent that groups may mobilize to confront perceived injustice.
- Activities undertaken as part of conflict regulation and resolution during potentially violent confrontations (dimension 1) can impact on the prospects for longer term reconciliation and conflict management efforts. If mechanisms are used to constructively address destructive conflict in the short term, they can lay a foundation of trust and help the parties better manage future conflict.
- The desired outcomes for each dimension influence the other. While creating negative peace is the focus of dimension 1, any agreement negotiated within this dimension needs to include agreements on future processes to address peace and justice, reconciliation and institution-building, in order to make the agreement sustainable.
Efforts towards achieving positive peace are fundamentally tied to the ability of parties to end the hostilities and to prevent violations of human rights so that longer-term peacemaking and peace-building processes have sufficient time to meet their objectives.

Thus, considering this cause-and-effect relationship between human rights and conflict, it follows that the protection and promotion of human rights is essential to the management of conflict as it lessens the potential for conflict. This can further be clarified by considering how human rights and human needs are linked together.

Manfred Max Neef\(^{20}\) conducted research across the globe in various cultures and concluded that there are nine basic needs that all people of all times share. These are:

- Subsistence (to have the necessary food and shelter in order to survive),
- Identity (to belong),
- Freedom (to have control over one's own destiny),
- Security (to feel safe),
- Affection (to feel valued, respected and loved by ‘significant others’),
- Understanding (to attach meaning to events and life in general),
- Participation (to be part of decisions and events that shape one’s life),
- Creativity (to express oneself in various ways, e.g. work, art, music, etc.)

The two dimensions of this relationship pose different challenges to human rights and conflict management practitioners and policy makers because the problems they seek to address differ from one dimension to the other.

This also applies to the time frame for intervention, the primary activities called for and the desired outcomes, as Box 4 shows 'basic human needs', which are not negotiable.

---

**Box: 4**

**What are Basic Human Needs?**

Basic human needs are universal. All people of all times, races and cultures share the same basic needs. They are an integral part of human beings. They are associated with the fundamental drive in human beings to survive, sustain and develop themselves – they form motivations for behaviour. When these needs are not met, a sense of deep frustration results coupled with a strong drive towards meeting the need. Some of these needs are biological (food, shelter, water), others can be psychological, or relate to personal growth and development (identity, autonomy, recognition). Needs are not negotiable and cannot be compromised. They are inherent drives for survival and development. It is therefore not possible to negotiate a settlement to a conflict that requires one of the parties to compromise a basic need such as, for example, the need for security. The manner in which the need for security will be met or satisfied is indeed open to negotiation and compromise, but not the fact that people need security.

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3.5 Historical Perspective of Water Diplomacy: The Madrid 1991 Multilateral Negotiation for Peace in the Middle East

3.5.1 INTRODUCTION

Two arenas were arranged for the negotiations: multilateral and bilateral. There were five multilateral groups that emerged from the multilateral conference in Moscow in January 1992, on: water, environment, refugees, regional security and arms control, and regional economic development; a Steering Committee oversaw the works of these five committees. In each of the five multilateral groups there were representatives of the core parties (with the exception of Syria and Lebanon) and of several countries who wished to be involved as facilitators, sponsors and potential donors.

These meetings served to promote bilateral negotiations, discuss projects that could be implemented when peace is achieved, to acquaint the parties’ teams with the issues and positions that would constitute the essence of the negotiations.

The Gavel Holder (Chair) of the multilateral group on water was the US delegate, and the group met several times (Moscow, January 1992; Vienna, May 1992; Washington, September 1992; Geneva, April 1993; Beijing, October 1993; Muscat, April 1994; Athens, November 1994; Amman, June 1995); its work was discontinued in 1996. A proposal to establish the Middle East Desalination Research Centre (MEDRC) was endorsed by the group at its Beijing meeting, and this centre has been operating in Muscat, Oman, with full Israeli participation among the other regional parties.

While the bilateral negotiations were under way, there were a few instances of mismatch and conflict between the two arenas, in the sense that what was presented in the multilateral talks to be the purview of the bilaterals and was sent there for discussion was not accepted in the bilaterals as a legitimate item on the agenda by one party or another. As one of the principal participants in the water multilateral talks, Haddadin concluded that “Those multilateral talks, as their objective stated, were not meant to resolve disputes, but were meant to enhance the environment of the bilateral, and were, in fact, ineffective and almost unproductive”.

Still, the multilaterals may have served to clarify interests and positions and prepare some of the background for the bilaterals. It remains for a historian to review in perspective the operation of the two parallel arenas and conclude whether this mechanism was, or at least could have been, useful in this particular case, and then to draw lessons for other situations.

The concept itself seems attractive enough to be explored more and with potential sponsors and donors, and a parallel bilateral arena in which the “hard negotiations” are conducted. But maybe what seems to be reasonable and convincing in the multilateral arena creates a stumbling block in the bilateral forum, as happened at least once in the negotiations between the Israeli and Palestinian delegations that convened in parallel with the Israel–Jordan meetings. Better coordination between the two arenas might have improved the efficacy of the two-arena mechanism. In any case, the entire water agreement of the 1994 Peace Treaty was developed in the bilateral arena.

The bilateral arena itself was not a single and permanent structure. It changed dynamically, from meetings of the water groups sitting opposite each other across the table, to corridor meetings of the leaders of the groups and informal chats among members, then back to formal meetings of the entire group. A combined group on several topics – water, energy, and environment – was convened, in an attempt to modify the dynamics of the discussions at a point when they seemed to stall.
3.5.2 The Madrid Negotiations: Venues and Environment:

Following the Madrid Conference Accord in October 1991, negotiations on water took place in a series of rounds, in Washington, D.C., and later in the region. The United States and Russia acted as sponsors of the peace process, and the water negotiations within it. We will use the terms “sponsors,” “hosts,” and “facilitators” interchangeably, to describe the role that the two powers played. The talks took place at the US State Department in Washington, so the presence of the Americans was quite evident, but the Russians were also there.

From time to time, one or both sides sought informal help from the sponsors. Overall, however, the attitude of the two parties was that they wished to deal with each other directly. Indeed, the talks took place in closed rooms, with only the delegates of the two parties present, except for informal discussions that took place during coffee/tea breaks at which Americans and/or Russians were present, or on those occasions when the sides went separately or jointly to consult with the sponsors.

The process can be characterized as direct negotiations between two parties with some involvement of a facilitator. The role of the facilitators was to help overcome rough spots in the process, to offer some advice, but to always refrain from imposing or expressing an opinion or position with regard to the substance of the negotiations. The facilitators sought to remain “honest brokers,” maintaining a balanced non-interfering position. One side or the other may have felt at times that the facilitators were not even handed, but in the final analysis it seems that this was merely a momentary concern, and overall the parties were satisfied with the manner in which the facilitators held their neutral position.

The hosts provided a pleasant and comfortable environment for the meetings. In addition to the meeting rooms, there was always a place for informal meetings, where heads or members of the delegations could chat informally. Coffee breaks were sometimes devoted to the exchange of stories and jokes. Personal relations developed, even if the atmosphere in the meeting rooms was sometimes tense and antagonistic. It is fair to say that, while the negotiators used negotiation tactics they deemed to be to their best advantage, the overall tenor of the talks was one of mutual respect.

3.6 Final Remarks: Upstreamers-Downstreamers

As a cardinal environmental issue, the lack of water has critically shaped the foreign policy of Arab countries in their mutual relationships. This is what is known as water diplomacy. Since the most serious water conflicts in the region have centred on control of the tributaries, and groundwater reservoirs of the Jordan-Yarmouk River basin and since its water resources are still an integral part both of the on-going conflict and of the current peace process, this paper focuses on water politics in the basin and deals only with Israel and its neighbours. The aim of the paper is to introduce a new interpretation of water diplomacy in which water is seen as an important factor in determining a country’s foreign policy, one which has caused war and featured peace, but which is unlikely to cause a new war.
Chapter IV
INTERNATIONAL WATERS: LEGAL REGIME

4.0 INTRODUCTION

Chapter four is part and parcel of the previous analysis on the normative side. It serves, also, the theory side of water diplomacy aspects, as it brings together basic concepts and general principles of International Water Law. These concepts and principles are developed over the years to constitute a system of values for sharing water and setting traditions for water management. So, water diplomacy can rule for concluding water agreements, on the basis of fair and equitable water share, within a coherent and viable Global Water Law.

The chapter will follow on the development and progress made in principles of the international conventions, their key concepts, and legal implications on the national water legislation and policy. Many bilateral and regional agreements have contributed to this development. However, there is no framework multilateral treaty in force yet, that deals with the conservation and management of water resources.

There are more than 3,600 agreements and treaties signed. They are an achievement in themselves, but a closer look at them still reveals significant weaknesses. What is needed is: (a) workable monitoring provisions, (b) enforcement mechanisms, and (c) specific water allocation provisions that address variations in water flow and changing needs.

The 1997 United Nations Convention on Non-Navigational Uses of International Watercourses is one international instrument that specifically focuses on shared water resources. It established two key principles to guide the conduct of nations regarding shared watercourses: "equitable and reasonable use" and "the obligation not to cause significant harm" to neighbours. However, it is up to countries themselves to spell out precisely what these terms mean in their watersheds.

There is a consensus among experts that international watercourse agreements need to be more concrete, setting out measures to enforce treaties made and incorporating detailed conflict resolution mechanisms in case disputes erupt. Better cooperation also entails identifying clear yet flexible water allocations and water quality standards, taking into account hydrological events, changing basin dynamics and societal values.

4.1 Water Governance: From Principles to Concepts and Law

DELFT (IHE) illustrates this process of water governance as follows:

- Modern international law is developed through an initiated idea, which is put forward as a result of research, then,
- The idea is taken in the form of a principle, if its validity stays for longer time in application then,
- It has its logic to be soft law, then
- Over time it becomes a rule and constitutes with other principles what we call a treaty,
- Developed treaties constitute what we call customary law. However, in the future, critique may take place to such principles, and then
- We turn once more to research to look for a new idea.
Figure 4.1 Shows the Process of Developing the Modern International Law from Principles to Concepts and Law.

4.2 The International Water Law Regime:

The regime refers to "a Compendium" of sources of International Law". It brings together the legal and quasi-legal instruments of trans-boundary waters (surface and ground water). Most notable in International Water Law Regime, as legal instruments, are: (a) multilateral agreements, e.g. the Helsinki Rules of 1966, (b) the 1997 UN Convention on the Law of the Non-Navigational Uses of Water Courses, and (c) the Kyoto Treaty on “Climate Change”, as well as (d) the numerous bilateral agreements, that are concluded between two or three riparian states.

As for the quasi-legal instruments, they came out of wide shared consensus of World Water Forums and governments stating their positions, e.g. La Hague Netherlands, 2000, World Water Forum, Kyoto, Japan, 2003, Mexico 2006, and Istanbul 2009. In addition strategies, policies actions and statements (positions) are considered part of these mandated authoritative documents.

The Following Figure 4.2 shows these sources of International Law Regime:
4.3 Other Relevant Developments

Many of these principles have been raised in a consistent way and put in a broader context at several international water meetings (and processes) commencing with the United Nations Water Conference in Mar del Plata (1977), the International Conference on Water and the Environment in Dublin (1992), the UN Conference on Environment and Development (1992), the World Commission on Dams (2000 Report), and the International Conference on Freshwater in Bonn (2001).

In its Recommendations for Action, the Bonn Freshwater Conference specifically addressed the areas of governance, financial resources, capacity building and knowledge sharing. Among these areas, many issues have been raised such as:

- The importance of including within water governance systems, mechanisms for the protection of ecosystems and other ecological services, and the preservation of groundwater, rivers, lakes, wetlands and associated coastal zones;
- The need to link water resource policies with climate change, wetlands, dams, desertification and marine policies;
- The role of law in ensuring equitable and sustainable allocation of water for the proper functioning and integrity of the ecosystems, recognizing the link between surface and groundwater, inland and coastal water; and
- The development of institutional and participatory mechanisms at all levels (watershed, river basin, lakes and aquifers).

In addition, the UN Secretary General in his report on the Implementation of Agenda 21 emphasised the need to strike a balance among the increasing and competing demands for water for many uses, and stressed the necessity to establish “mechanisms for cooperation, negotiation and conflict resolution...for achieving integrated water resources management”.

In this regard, an important observation is that water diplomats in their negotiations have to base themselves not only on the legal instruments (Bi-multi Lateral treaties), but also the quasi-legal instruments as highlighted earlier.

4.3.1 Helsinki Rules (ILA 1966)

The International Law Association approved in its meeting in Helsinki in 1966 what is known as the "Helsinki Rules" on the Uses of the Waters of International Rivers. These rules are viewed as the cornerstone of the existing rules of International Law regarding international rivers. The Helsinki Rules are applicable to the use of the waters of an international river except as may be provided otherwise by convention, agreement or binding custom among basin states.

The Helsinki Rules regulate the principle of reasonable and equitable sharing of the water of international rivers and deems it as one of the cornerstones of customary international law that should be taken into consideration when the waters of the river are being shared. This principle of the reasonable and equitable sharing of water requires the implementation of another principle that is: The No Harm Rule. The Helsinki Rules put both principles on equal footing.

The 1966 Helsinki Rules on the Uses of the Waters of International Rivers first signalled the shift in emphasis from water allocation to the distribution of benefits, stating, "Each basin State is entitled, within its territory, to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin." More recently, a focus on
benefits, rather than physical allocations, was supported by the World Commission on Dams in its report "Dams and Development" (2000), and the approach has been successfully employed in facilitating dialogue on the Nile river basin.

An understanding of the magnitude of benefits associated with cooperative management of international waters will provide critical information for negotiating agreements and joint investments.

The Helsinki rules state that each basin state is entitled, within its territory, to a “reasonable and equitable share in the beneficial uses of the waters of an international drainage basin” (Article IV). It then lists (in Article V) eleven factors that are to be considered in determining what is “a reasonable and equitable share,” including geography, hydrology, climate, past utilization, economic and social needs, population dependent on the basin’s water, comparative cost of alternative means of satisfying the economic and social needs, the availability of other sources, and avoidance of unnecessary waste.

Article V (III) states that the weights to be given to each factor are to be determined “by its importance in comparison with that of other relevant factors.” And that “in determining what is a reasonable and equitable share, all relevant factors are to be considered together and a conclusion be reached on the basis of the whole.”

4.3.2 Towards the UN Convention 1997

The Convention took about twenty-seven years of discussions and negotiations to conclude. The present Convention applies to uses of international watercourses and of their waters for purposes other than navigation and to measures of protection, preservation and management related to the uses of those watercourses and their waters. Here are details on the provisions of the Convention and its general principles:

**Article 5: Equitable and reasonable utilization and participation:**

- Watercourse States shall in their respective territories utilize an international watercourse in an equitable and reasonable manner.
- Watercourse States shall participate in the use, development and protection of an international watercourse in an equitable and reasonable manner. Such participation includes both the right to utilize the watercourse and the duty to cooperate in the protection and development thereof, as provided in the present Convention.

**Article 7: Obligation not to cause significant harm:**

- Watercourse States shall, in utilizing an international watercourse in their territories, take all appropriate measures to prevent the causing of significant harm to other watercourse States.
- Where significant harm nevertheless is caused to another watercourse State, the States whose use causes such harm shall, in the absence of agreement to such use, take all appropriate measures, having due regard for the provisions of articles 5 and 6, in consultation with the affected State, to eliminate or mitigate such harm and, where appropriate, to discuss the question of compensation.

**Article 8: General obligation to cooperate:**

- Watercourse States shall cooperate on the basis of sovereign equality, territorial integrity, mutual benefit and good faith in order to attain optimal utilization and adequate protection of an international watercourse.
In determining the manner of such cooperation, watercourse States may consider the establishment of joint mechanisms or commissions, as deemed necessary by them, to facilitate cooperation on relevant measures and procedures in the light of experience gained through cooperation in existing joint mechanisms and commissions in various regions.

However, there are reservations and lack of consensus, as follows:

- The Assembly took that action through its adoption, of a resolution to which the text will be attached, by 103 votes in favour to 3 against (Turkey, China, Burundi) with 27 abstentions,
- A number of States who abstained or voted against the text drew attention to a lack of consensus on several of its key provisions, such as those governing dispute settlements.
- A number of speakers said there was a lack of balance in its provisions between the rights and obligations of the upstream and downstream riparian States. Concern was also expressed that the Convention had deviated from the aim of being a framework agreement.

So, development of the convention is not encouraging, because of the status of voting, as 'the Convention' is not yet in force after so many years of negotiation. Here is an update on the voting processes:

**Box 5: Update on the Status of Voting**

<table>
<thead>
<tr>
<th>Voting</th>
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**4.4 EXPERIENCES FROM THE ARAB REGION**

**4.4.1 INTRODUCTION**

Not less than 60% of Arab potable surface water comes from outside the Arab Region. The non-Arab countries that share surface water resources with Arab States are Ethiopia, Eritrea, Kenya, Uganda, Tanzania, Burundi, Rwanda and the DR Congo who share the River Nile. As for the Jordan River, it is shared by Israel. The Tigris and Euphrates Rivers and Shatt Al-Arab are shared by Turkey and Iran.

Aquifers penetrate the sandstone rocks underneath the Egyptian, Libyan and Sudanese soils and some sections extend to the Chadian soil. Some experts estimate the capacity of such reservoirs as being twenty times the amount of annually renewed water in the Arab Region. Nevertheless, these aquifers lack sufficient water supply since the rate of water renewal does not exceed 2.5%.
Moreover, some of the Arab waters are under Israeli occupation in the Occupied Syrian Golan and the Occupied Palestinian Territories.

### 4.4.2 The Current Legal and Institutional Frameworks for Managing Shared Water Resources for the Arab Region:

A close look at the legal systems governing shared surface water resources by Arab and Non-Arab countries clearly reveals the fact that most of these systems are partial and incomplete, and that almost all of the shared River Basins if not all of them suffer from the lack of comprehensive international agreements.

#### A. The River Nile Basin

Concerning the River Nile, the most significant agreement concluded is the Agreement between Egypt and Sudan signed on 8th of November 1959, in addition to other agreements, accords and exchanged letters that were concluded and exchanged between the countries that were colonizing some of the States of the River Nile Basin and Egypt, or the United Kingdom as the then representative of Egypt and Sudan.

Article Twelve of the Vienna Convention 1978 offered a regulation for the treaties that were traditionally known for their "in kind" nature. The Successor State, according to this Article, should abide by the treaties concluded by the Predecessor State directly relating to the Region, including International Rivers Treaties.

The International Court of Justice emphasized in one of its recent rulings concerning international rivers (Its ruling on the dispute between Hungary and Slovakia over the Gabcikovo-Nagymaros Project) the fact that regional treaties, including international rivers treaties (whether the water of such rivers is used for navigation or non-navigation uses) are binding treaties by virtue of the succession of States. This means the Successor State inherits international treaties from the Predecessor State and cannot for any reason renounce those treaties. The Court decided that Article 12 of the Vienna Convention 1978 concerning the succession of States in respect of treaties shall be deemed as one of the rules of international norms, meaning that it shall be binding and not be subject to nullification or violation.

Egypt and Sudan were keen on establishing constructive dialogue with other Nile riparian States through the Council of Ministers of Water Affairs of the Nile Basin States within the framework of the Techo-Nile Coalition. An action plan among the Nile riparian States was approved including a number of projects that aim at both achieving co-operation among the Co-basin States and maximizing the benefits from the River. Among these projects was the D.3 project that aims at establishing a legal and institutional platform for co-operation acceptable by the Basin States.

The Council of Ministers of Water Affairs of the Nile Basin States agreed to form a Panel of Experts (POE) with different specialties. The POE commenced its work in January 1997 and concluded by preparing a project. This project was met with some reservations by some countries.

A transitional committee was formed to address these reservations, followed by a negotiation committee among the Nile riparian States. The latter managed to reach a consensus on most of the reservations. However, some matters remained pending and were put forward to the Heads of States and Governments to settle.

Now, the road is paved or almost ready to conclude a comprehensive international agreement for co-operation among the Nile riparian States for the first time in their
history. Such an arrangement opens a new chapter in the relations among the Nile riparian States.

B. The Jordan River Basin

The dispute over the Jordan River is one of the significant aspects that characterize the Arab Israeli Conflict. It was one of the reasons for the 1967 War and the Israeli aggression which aimed at destroying all Arab projects designed at that time to divert the watercourse of the Jordan River. This aggression hindered until today the conclusion of a comprehensive regional agreement among the Jordan River riparian States.

The Peace Treaty between Israel and Jordan in 1994 included clauses related to water. In the Oslo agreement between the Palestine authority and Israel, there is a vague reference to water which was considered as one of the issues to be negotiated at the final stage of negotiation with other substantial issues. However there are two Arab States, Syria and Lebanon that remain until now far from any arrangements related to the Jordan River. Like Palestine and Jordan, these two countries are victims of the Israeli aggression and illegal exploitation of the water resources of the Jordan River.

Hence, there is a dire need to reach a just settlement so that a reasonable and equitable utilization of the water resources of the Jordan River among all parties be reached. Such solution should constitute one of the bases of any comprehensive settlement of the Arab Israeli Conflict that would ultimately lead to a just and lasting peace in the Arab Region.

C. The Tigris and Euphrates Rivers

Although there is no comprehensive international treaty concluded between Turkey, Syria and Iraq with regard to sharing the water resources of the Tigris and Euphrates Rivers, there are various agreements which address aspects of utilizing the waters of the two Rivers among these States. These Agreements include The French British Agreement, on the terms and conditions of the British Mandate over Iraq and Palestine concluded on 23rd of December 1920; The French -Turkish Agreement on the Terms of Peace signed on 20th of October 1921; the Multilateral Peace Treaty, signed in Luzon on 24th of July 1923; The French-Turkish Agreement for Friendship and Neighborliness, signed on 30th of May 1926; and the French-Turkish Protocol on the Border Demarcation between Syria and Turkey signed in Aleppo on 3rd of May, 1930.

An Iraqi Turkish Protocol to control the flow of water between the two States was also concluded on 29th of March 1946. Yet since the 1970s, Turkey did not sufficiently abide by the Fifth Article of the Protocol which addresses the obligation of notifying Iraq with any Turkish plans to establish water projects over the two Rivers. Turkish Authorities embarked on a number of huge projects over the Euphrates River without the prior notification of Turkey's Arab neighbors or exchanging information with them, particularly Iraq, although it was legally bound to do so.

In 1982, Iraq and Turkey agreed to establish a Joint Committee. Its mandate included information exchange and technical consultation with respect to climate changes and the over-vaporization of water. Syria adhered to the agreement in 1983. Numerous meetings of the Committee were held until (June) 1990. The Committee did not meet again until (September) 1992. Meetings of the Committee since then were irregular. The Committee
was unable to verify the implementation of adopted recommendations. The Committee resumed its meetings on a regular basis lately. This might be a serious step towards concluding a comprehensive agreement between the three states that would preserve the rights of Syria and Iraq to the water of the two Rivers and establish a base for future dispute settlement.

Iraq has disapproved for a long time of measures taken by the Iranian side to individually exploit the waters of shared rivers and valleys. Iraq submitted a number of objections and demanded that the problems relating to the shared Rivers are solved, and that quotas should be determined allocating the water resources of these rivers to the two riparian States. Iraq, in calling for an equitable share of the shared rivers, relied on rules of international law regulating the utilization of the water of international rivers.

These rules allow each riparian State that shares an international river, to use a reasonable and equitable share of the water of the river without causing harm to the interests and rights of other riparian States sharing the same river basin. Moreover, the geography of the shared river basins that extend through the territories of both Iraq and Iran make it imperative that Iraq shares the water of these rivers pursuant to the mentioned rules.

D. The Shared Arab Groundwater with Non-Arab Countries

The shared Arab groundwater with non-Arab countries is not covered by any arrangements or legal frameworks. This raises concern particularly when it comes to Palestinian groundwater usurped by all possible means by Israel. In so doing, Israel was so indifferent to the simplest principles of justice and law, only aiming at usurping the groundwater resources and thus depriving the Palestinians of their unalienable right to these resources. It is imperative to note that the course of the Wall which Israel continues to construct on the Occupied Palestinian Territories to separate between Israelis and Palestinians on a racist basis is designed to allow Israel to usurp what is left of the Palestinian groundwater lying behind the Wall.

Though it is clear that the Palestinian groundwater in the West Bank is genuinely Palestinian water, there are some groundwater basins in the West Bank and Gaza strip that are viewed as shared basins. In all cases, the Palestinian water or the shared Palestinian water, whether surface or groundwater, must be protected against the continuous Israeli aggression which deprives the Palestinians of their resources. This issue shall be addressed in Part 4 of the present Chapter.

4.4.3 The Effectiveness of International Law in Protecting Arab Rights and Interests:

There is a set of principles which regulate the utilization of international rivers. International customary law views such principles as being principles that must be respected.

- **First:** Whatever was agreed formerly by a riparian State should be respected.
- **Second:** Each State has the right to obtain the same share of water it usually obtained before.
- **Third:** the equitable distribution of the river water.
- **Fourth:** the obligation of not causing any harm for other riparian States.
- **Fifth:** the State wishing to readjust its share of the river water, through the construction of dams or diverting the river course, should enter into negotiations with other riparian States sharing the same river.
Sixth: the principle of co-operation among riparian States and protecting and preserving the environment of the river.

Although International Law on water offers a general and solid platform for protecting Arab rights and interests in both shared surface and ground waters, there is a dire need for a set of legal and institutional mechanisms to manage and protect Arab interests in shared water for each river basin, i.e. on a case by case basis. This is not only because the conditions of basins and aquifers largely differ in terms of the existing legal systems and institutional mechanisms, but also because of the geographic, hydrologic, hydraulic and demographic characteristics of each basin or aquifer.

Undoubtedly, the existence of a legal framework that is approved by the Co-basin States is an indispensable and essential prerequisite for realizing stability and protecting the rights of the Co-basin States.

4.5 The Need for A Global Clear Cut Specific Legal Framework

There is a consensus by most of the countries that share surface water resources on the need for clear-cut and specific legal frameworks. Such frameworks should help develop institutional arrangements for co-operation, measures to implement what was agreed upon, arrangements for the management and protection of water resources and the relevant environmental systems, taking into account the hydrological considerations and the dynamic and social changes that take place in and around the basin. Moreover, the legal frameworks need to include a dispute settlement mechanism, clear and flexible criteria and methods for water sharing, water quality standards, standards for reasonable and equitable use of the water by the Co-basin States.

The legal frameworks should also include provisions on information exchange, public participation and mutual assistance among countries in severe cases such as floods. Such frameworks should also include provisions on hazards such as climate change so as to assimilate all these changes. Finally, such legal frameworks must include provisions that encourage co-basin States to implement some developmental activities related to water resources with cost sharing arrangements or any other aspect of economic co-operation in general.

The International Community should bear the legal, moral and human responsibilities to lift the injustice done to the rights of Palestinians on their surface and groundwater. Arab States sharing groundwater with non-Arab countries, such as Egypt, Sudan and Libya, which share the Nubian sandstone aquifer with Chad, are invited to regulate the conditions of these shared aquifers, to protect Arab rights, today more than any time ago.

Arab water resources shared with non-Arab countries constitute the principal water sources for some Arab States at a time where scarcity of fresh water is looming. This issue merits considerable attention at the national and regional level and is at the core of Arab security.

Consequently, the following recommendations require utmost attention:

- Intensifying the efforts towards the conclusion of comprehensive international agreements that include all the States of a particular river basin in terms of shared surface water (or shared aquifers). Such agreements should be based on the established principles, and rules of the International Law on Water. Most important of all is the No-Harm Rule, in addition to the reasonable and equitable utilization of water resources, international co-operation, prior notification of
planned measures and the peaceful settlement of disputes arising between the Co-basin States.

- Rejecting any form of aggression waged by non-Arab countries on Arab rights and interests in shared surface or groundwater.

- Stressing the need for co-operation among Co-basin States. Such co-operation should be based on the principles of International Law on Water and other two essential principles; "Benefits for All" and "Win-Win Situation". This shall provide the Upper Riparian States and the Lower Riparian States with real incentives for realizing constructive co-operation.

- Generating broader common interests in shared surface water with non-Arab countries through the establishment of joint projects, for example, for the generation of hydroelectric power or other types of water utilization in a way that realizes the interests of the Upper Riparian States and at the same time does not impede the flow of water towards the Lower Riparian States and the States of the Estuary. Thus, the interests and rights of these countries are secured and broader and more comprehensive opportunities for economic co-operation among them are realized.

4.6 How Best the UNs Convention 1997 to be Enhanced and Enforced to Better Serve in Solving Arab Water Conflicts.

One tends to value the UN Framework Convention, in the last analysis, as consistent with state practice. It comprises earlier efforts of codification, adopted equitable utilization as leading principles of international water law, with a list of factors to be used for determination of equitability of share, and adopted the principle of “no significant harm”.

This framework convention is positive for several reasons, including: a) it lays down the obligations and duties of the States sharing a basin; b) it guides States in negotiating agreements on specific watercourses; and c) the principles included in the Convention are consistent with other international statements including the Helsinki Rules and the pronouncements of advisory bodies, private organisations and international courts and arbitral tribunals.

However, the definition of an international watercourse in the UN Convention might appear to be insufficiently comprehensive in an ecosystem perspective. Such a perspective entails that one must “view [a river or lake basin] not merely as a unit in which water resources are interlinked, but as a unit in which many elements of the environment (freshwater, salt water, air, land and all forms of life) interact within the confines of the drainage area”.

The Convention has only attracted 104 signatures and 20 ratifications since it was open for signature in 1997, and it looks unlikely that it will ever reach the required number of ratifications to enter into force. (It will enter into force 90 days following the deposit of the thirty-fifth instrument of ratification, acceptance, approval or accession.)

So, the UNs Year of Water Diplomacy will take this situation in the agenda setting to enhance the ratification process. This would be the case if it continues to lack the necessary number for 'the Convention', to be in force until the Year 2013.
4.7 Latest Developments of The UNs Convention on Shared Ground Water

4.7.1 INTRODUCTION

Groundwater represents a large percentage of fresh water in the world. The importance of this resource is recognized and regimes are being developed for the maintenance and protection of shared aquifers. The generally accepted customary rules applicable to other shared resources are being applied in this context as well. These principles include the obligation not to cause appreciable harm, the duty of equitable and reasonable use, the obligation of prior notification, and the duty to negotiate. There are multiple examples of the successful application of these principles to shared aquifers.

The discussion started in the International Law Commission on Groundwater in 1991. The subject was introduced by S. McCaffrey, and the ILC agreed to include in the Convention groundwater related to surface water. In 1992 R. Rosenstock suggests to include all groundwater in the scope of the Convention and the proposal was not accepted.

However, the Convention on the law of non-navigational uses of international watercourses (21 May 1997) defines a watercourse as: A system of surface and groundwater constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus (article 2a).

4.7.2 Drafting the UN Convention of Groundwater

There is an evolutionary process of drafting and redrafting in the ILC, and the development of a convention could be followed in reports of meetings which took place on the level of the ILC and also on the regional level, 2003, 2004, 2005, supported by UNESCO-IHP. In these meetings scientific as well as policy studies have taken place to identify the scope. Here are the salient developments in this regard:

- Definitions: “Groundwater « that is shared by more than two States but is not covered by article 2(a)… » of the UN Watercourse Convention,
- The scope, definitions, and draft articles of: the obligation not to cause harm, the general obligation to cooperate, the regular exchange of data and information, and the relationship between different kind of uses, until a complete set of draft articles on the law of trans-boundary aquifers is prepared after thorough discussion in 2005.
- In 2006, the ILC adopts at first reading 19 draft articles on the law of trans-boundary aquifers.
- The draft articles are transmitted to Governments for comments and observations, by 1 January 2008.

UNESCO-IHP plays a central role in this field and is the global intergovernmental scientific programme of the United Nations system responding to the specific national and regional needs and demands of its Member States.

4.7.3 Up date and the Next Steps on the Negotiation of the GW Convention

Here is a brief summary on the progress made in the negotiation over "the Draft Framework Convention on Ground Water"

- 2003, the UN International Law Commission (ILC) started its work on the topic of trans-boundary groundwater.

- Five years later, in July 2008 the UN ILC completed its work by adopting nineteen draft articles on the law of trans-boundary aquifers with their commentaries. And during these years the UN ILC had benefited from a unique cooperation on the science of hydrogeology from UNESCO’s International Hydrological Program (IHP).

- The draft articles were then deferred to the UN General Assembly (GA) which adopted in December 2008 Resolution A/RES/63/124 on the law of trans-boundary aquifers including the draft articles in annex.
In the Resolution, the UNGA “encourages the States concerned to make appropriate bilateral or regional arrangements for the proper management of their trans-boundary aquifers, taking into account the provisions of these draft articles”. The Resolution recognizes also the valuable scientific and technical assistance provided by UNESCO-IHP during the preparatory phase.

The topic of “the law of trans-boundary aquifers” is again being discussed at the current session of the UN General Assembly with the view of examining, inter alia, the final form of the draft articles.

This framework Convention on Ground Water is positive for several reasons, inter alia:

- It lays down the obligations and duties of the States sharing a basin;
- It guides States in negotiating agreements on specific watercourses; and
- The principles included in the Convention are consistent with other international statements including the Helsinki Rules and the pronouncements of advisory bodies, private organisations and international courts and arbitral tribunals.
Chapter V
STRATEGY BUILDING
PUTTING WATER DIPLOMACY INTO ACTION

5.0 INTRODUCTION:

The previous chapters, in their inquiry, concentrated on the question of what is water diplomacy (its nature and scope), the state of conflict and cooperation in International waters: Is it in a state of crisis? Can it threaten world peace and security in the 21st Century? with special reference to the Arab region. The enquiry went further to thoroughly analyze the complexity issue of shared international Waters (surface and groundwater). On the normative side, the sharing principles and rules of International Law have been examined. The analysis brought about certain key messages that would give guidance on the strategy building for putting water diplomacy in action. And what could be the way forward.

In this chapter, the objective is to articulate, on the operational side how diplomacy in practice is going to cope with the emerging trends of the new world water developments? Do we need a strategy with new language to share, new approaches, methods, new mechanisms and innovative tools to apply? To put water diplomacy into action.

If so, what could be the impact on diplomacy in theory and practice? having in mind that the United Nations (General Assembly Resolution) has declared that the year 2012 and 2013 are going to witness important events on water and the environment. It is an International Year of Water Cooperation and Diplomacy.

This would be possible if there is a dialogue conducive to enhance societal strategic frameworks for the implementation of Water Diplomacy. However, it needs to be fully implemented in all Arab countries by applying new tools and techniques based on participation of relevant stakeholders in decision making, knowledge and experience transfer among water institutions and organizations through bench-marking and bench-learning of best practices and success stories of an integrated river basins management (IRBM). This will introduce water diplomacy as a tool for averting the Arab water conflicts and crisis.

5.1 The Importance of Cooperation

There is a consensus among academic and policy makers, government and non-government agencies alike to consider that water cooperation and not conflict and violence is the strategic tool for bringing about stability and sustainability in international river basins management. In this regard, Traondalen M. (2011), in a recent study applied to the SADC region ’has given four messages on the benefits of trans-boundary water cooperation both in terms of conflict prevention and in terms of outlining the ‘costs of doing nothing’ as opposed to ‘the benefits of water cooperation’.
The essence of his findings is expressed through the following four key messages:

- **1st key message:** To lay the foundation for converging views on conflict and instability versus regional stability and opportunities. The challenge is to foster sustainable trans-boundary water cooperation.
- **2nd key message:** International cooperation is not only ‘good’ for the sound stewardship of trans-boundary water resources, but also an important conflict-prevention tool.
- **3rd key message:** Multi-level water cooperation is not only significant at the international level, but is also extremely important in terms of preventing spill-over effects locally across borders.
- **4th key message:** The effectiveness quotient and benefits associated with investment in Trans-boundary Water Management Programs is presumed to be extraordinarily high, the program costs’ being minimal compared to the potentially high costs of ‘hostilities’ as a result of no cooperation at all.

In addition, the study concluded that the effectiveness of cooperation is seen from a peace-dividends perspective: If a ‘peace-dividends analysis’ is performed - that is to say by measuring the ‘cost of doing nothing’ (with possible hostilities) against the ‘cost of the programme’ – then applied by the Southern African Development Community (SADC), surely, the effectiveness quotient would have to be assessed as extraordinarily high.

Also, seen from such a perspective, the program costs are minimal compared to the potentially high costs of ‘hostilities’. The study shows the relationship between the costs and benefits related to cooperation in contrast to non-cooperation which could under certain circumstances, be exponential.

### 5.1.1 Cooperation as a Preventive Policy

Trondalen M. (2011) stated, in the study, that "At present, international observers appear to have a common understanding that water scarcity has not yet reached levels that are likely to cause international conflicts. There are, however, intra-national water disputes that might fuel such conflict. He advocated an outline of the various prerequisites for successful conflict prevention, as an integral part of a sustainable regional programme, as follows:

1. If trans-boundary water resources are not managed jointly, the resources are likely to be more unsustainable and sudden, and negative changes may occur.
2. Lack of trans-boundary water-management arrangements increases the conflict potential in the long run.
3. Trans-boundary water management is first and foremost a political decision.
4. Decisions will not be made unless awareness is raised among national leaders about the necessity and benefits of trans-boundary water management, as well as the consequences of doing nothing.
5. Trans-boundary water management in the SADC region is an extraordinarily complex challenge, and ready-made models cannot be applied directly.
6. Reform decisions are inherently political. Hence, reforms will need political as well as technical ‘promoters’.
7. Non-water policies are crucial to the water sector. Consequently, there is a need to involve non-water decision-makers in water-policy reforms.
8. Improve the accountability of government agencies to the public. National leaders must see clear consequences for ‘action’ and ‘inaction’ on trans-boundary water management.
To achieve this, transparency is essential so that the public knows why decisions are made and specifically by which authority; what outcomes they can expect; and what is actually achieved.

It seems clear that international organizations have many important institutional resources that could be called upon to prevent and resolve such disputes. Some international organizations, such as SADC, are suited to the prevention and avoidance of disputes, rather than to the settlement and resolution of them.

5.1.2 Criteria for Successful Cooperation as a Preventive Tool

There appears to be several criteria for ‘success’ Trondalen M. (2011) and although some of the following play a key role at just one particular stage, others are important for every stage of the process:

- Legitimacy is an important criterion for success at all stages. SADC is considered to have high legitimacy among its member nations.
- Credibility, which is closely related to legitimacy, has been achieved by having multiple ICPs and by maintaining a neutral forum for discussing matters within SADC’s jurisdiction.
- A clear, specific mandate, which explicitly stresses water management, can assist in problem-solving with regard to water; however, organizations with broad mandates often function as vehicles for political expression rather than as effective mechanisms for conflict resolution (for example, SADC and OAU).
- Membership commitment is important, particularly in southern Africa, and member states must realize that they have the most to gain when the organizations function effectively, and when agreements are reached and implemented.
- Access to sound scientific water information and expertise is crucial for the prevention of water disputes, as well as for the pre-negotiation stage. Accurate, up-to-date information is necessary for determining both the scope of the problem and the direction of the solution.
- Standard setting and co-ordination are important for long-lasting solutions. At a time when global frameworks are in their infancy, national and regional organizations frequently devise their own standards, which may conflict with

5.2 COOPERATION IS INEVITABLE: THE CASE OF THE NILE BASIN

5.2.1 Elements of A Strategy Building

In order to alleviate, and ultimately eliminate, the root causes of the International Arab water conflicts, it is not enough to highlight the magnitude of such conflicts and its implications. It is of utmost importance for the region to act individually and collectively within an overall strategy, using tools and techniques emanated from the framework of integrated water resources management.

In this regard, elements of "a Strategy for Arab Water Diplomacy in Action" have to be seen within the framework of IWRM, and in a more coordinated and harmonized way. These elements, as illustrated below, indicate the intricacies, and the inter-linkages among them. Indeed, the complexity issues involved in International Waters sustainable
management needs strategy building in this way, and using water diplomacy as a policy to enhance implementation.

**Figure 5.1 Elements of a Strategy for Putting Water Diplomacy into Action in the Arab Region**

However, putting Water diplomacy in Action should be part of reforms taking place, in the Arab region. We need to change human behavior to work together and think together, among departments of the same country and along International River or Groundwater Basins in the regional context. This would have great impact for more efficient water utilization by users. Interagency and inter-states should cooperate together in building such a strategy.

In our view, in order to change behavior, we need to change structures (education curriculum) and the systemic structures in the society, e.g. laws, principles, and rules, and have team work functions among water users. In this way, it is possible to achieve progress on a wider basis, in this regard we need:

1. to change behavior for team learning among riparian states, and create a team spirit for an integrated approach for sharing benefits on international river basins,
2. to enhance the very rich values of team spirit as inherited in the Arab society, using cultural approaches to embody them into our behavior, and
3. to monitor progress on the basis of developing the set of principles and rules of right water diplomacy conduct.

*A shared vision* for the management of international rivers can be described as a common understanding between relevant decision makers from each of the riparian states on the projection of a desired future situation with regard to the common and sustainable utilization of natural resources in the entire river basin. This understanding is reached after consideration of the challenges, opportunities and bottlenecks with regard to management of the basin’s resources. The vision is developed in close consultation with platforms of relevant stakeholders and interested parties.

The platform of decision makers is supported by technical experts and trainers from the respective riparian countries. The vision is accompanied by policy guidelines, institutional and financial arrangements for implementation and by an extensive program of capacity building. As an example of how theory can be brought in to practice the Nile Basin Initiative is described in its endeavors of platform creation, institutional arrangements and shared vision development processes as well as in modalities of assistance in financing and capacity building.

### 5.2.2 Developing a Shared Vision

The following figure represents the way the Research Paper is designs Strategy Building for putting water diplomacy into action. The main elements of the strategy are: 'the Vision', as the first element comes to our mind to articulate. In this case the vision is: for "Arab region to head for initiating sustainable societies based on water peace and sustainability".

Then 'the Challenges', with its complexity question as indicated in chapter 2. These Challenges needs to be investigated in a systemic way of analysis using system's thinking and system dynamics for modeling.

This would allow finding leverages (the best nearest to solution for intervention) *The more we assess such leverages through sharing minds in a candid dialogue amongst the partners (riparian states), the more these challenges would be tackled over a period of time described in a plan of action*. In this way Vision would be implemented within such period of time.
In order to improve global water security, much is expected from institutional development processes to facilitate the articulation of a shared vision for the management of international river basins. In this part, some background information is provided on recent efforts that facilitate the shared vision development for international river basins. It identifies the intimate connection of water conflict prevention and the application of integrated water resources management. Figure No. 16 below shows the element of the shared vision program of the Nile Basin.

5.2.3 Action Research as a Methodology for Strategy Building

We can illustrate more specifically the methodology of Action Research as follows:

- **Action research**: is a process by which change and understanding can be pursued at the one time. It is usually described as cyclic, with action and critical reflection taking place in turn. The reflection is used to review the previous action and plan the next one.

- **When we are acting, we often don't have the time to deliberate about what we are doing.** The "theories" we draw on are intuitive theories. In review and planning our theories can be made explicit. In other words, action is informed by intuitive theories. Critical review and planning are informed by conscious theories and assumptions. These theories are derived deliberately from recent experience, and used to plan the next experience.

As stated in the introductory part of the TP, "Action Research” is undertaken as a methodology for designing “A Strategy Framework on Water Diplomacy”. The Figure 0.2 in the introductory part, page 11, illustrates clearly, the three levels of analysis and enquiry according to the chapters in The Research Paper (RP) on "Water Diplomacy in Action":

- (Level 1 & 2) for Chapters: 1-4 on "the Normative Side", and
- (Level 3) for Chapters 5-8 on "the Operational Side" of the RP.

Investigation and inquiry is the basis for action research methodology. The inquiry is on three levels:

1. On the level of value system (traditions, norms, law, regulations)
2. On the level of Reason Why and theory building. This represents the basis for our conviction of any action to be done by an individual, or a team, or an institution, or a community
3. On the level of Action, based on the previous two inquiries. On this level we ask three questions: One: What do we do at the present? Two: How we do what we do, and critical analysis is important? Three: Next step to be taken, which means action in the future based on reflection.

5.2.4 The Need for a Strategy Implementation Monitor

There is tension and stress between challenges and vision as long as the vision is not realized and both are far apart. However, tension is dwindled if we initiate policies and take action. In this way, we will be able to take the vision rather than challenges as our main direction to measure progress. A matrix to that effect could be used to fill gaps. A figure could be designed to illustrate that challenges and visions can be bridged over the span of time until 2025. If we would consider having a monitor that could guide the process and evaluate its progress clearly, tension is more released if progress is made towards actualizing the vision of putting Water Diplomacy into Action.
5.2.5 Benchmarking of Best Practices

Benchmarking is defined as a process by which water resources management can be used as a model in developing best practices. This involves determining critical points that need improvement, finding a water organization that is exceptional in this area, then studying the organization and applying its best practices in other organizations. Benchmarking systematically studies the best organizations, then uses their best practices as the standard of comparison, a standard to meet or even surpass.

Benchmarking recognizes that no water authority is exceptional at everything. That is why it is an ongoing process involving various water organizations from any country. It is not a one-shot event and there is no room for complacency. Benchmarking requires that you constantly search for better solutions.

A: The Rationale:

The rationale is, if you continuously search for best practices in the best organizations around the world, you should become an exceptional institution. The procedure is described as follows:

i. Identify your problem areas.
ii. Identify organizations that are leaders in these areas.
iii. Study their best practices.
iv. Implement the best practices.
v. Repeat - Benchmarking is an ongoing process. Best practices can always be made better.

B: Singapore Strategy and Policy for Water Self Sufficiency As Best Practice:

An example of best practices is Singapore strategy and policy with a vision of self sufficiency relying on its water in the future, Singapore Leaders Summit (2011). She is an exception. It has been relying on not-always-friendly Malaysia for much of its water under a treaty that expires in 2061. During the intervening 50 years, Singapore plans to do whatever is necessary to become water self-sufficient. Singapore’s Prime Minister, Lee Hsien Loong, told this water summit’s attendees that: “water is a strategic necessity for Singapore” and so the country had “mobilized our machinery” in a holistic approach that includes investing in new technology and educating the public about water conservation”.

5.2.6 Constituting the platform

Any process of shared vision development will be preceded by a stage in which international partners are invited to express their interests and to establish a platform to identify challenges, opportunities, bottlenecks and to formulate the required policies, strategies and approaches. The platform should have decisive authority and it should reflect the interests of the various groups of stakeholders in the riparian states. Preferably a mechanism is created to sound the interests of the stakeholders directly. To constitute such a platform with a balanced political representation is probably the most difficult stage Frank G.W. Jaspers (2002).

A precondition for a group of states to be willing to establish a platform is the perception of a clear self-interest, the acknowledgement of a common problem or common opportunity. Full representation of riparian states is of prime importance. The absence of vital (upstream) partners in the platform might heavily jeopardize the process of developing an effective shared vision. The Mekong River Commission (1995) and its predecessor the Mekong Committee (1957) is still heavily hampered by the fact that the upstream states of China and Myanmar are not a member of the platform. These upstream
states never saw the need to boost co-operation potential through this platform (Mekong Commission, 1999).

The process of the water ministers of the Nile riparian countries to agree to come together and to discuss important issues was probably the most difficult stage in the process of establishment of a Nile Basin Initiative (Nile Basin Initiative, 2000).

Sometimes a disaster like a drought or a flood and the subsequent building up of international pressure can be an extra incentive or trigger to opt for co-operation potential rather than for potential conflict. The establishment of the International Rhine Commission and the enlargement of its mandate took place after a series of serious environmental disasters (Mostert, 1998), which really influenced public opinion.

An existing and unresolved water dispute on the other hand, may heavily jeopardize the process of establishing and developing a shared vision. An exercise in resolving water conflicts first before a shared vision is formulated may precede the process of establishing a platform. Reference is made to the normal procedures of settlement of disputes (United Nations Convention, 1997): facilitation, negotiation, fact finding, mediation, arbitration, litigation for the International Court of Justice (Article 33).

The process of formulating a shared vision based upon identification of opportunities, challenges and bottlenecks might de facto contribute to settle or avoid water disputes peacefully, but it is certainly not designed for that purpose. It is more designed for fostering co-operation potential and capitalizing on that. Crucial in the process of establishing a platform is to convince the partners that the issue is not only sharing scarce water resources but also really sharing benefits from these scarce water resources and other natural resources, e.g. power trade against water. Thus, the discussion about trade-offs is opened.

If states still have reservations against participation in a platform for decision making they may opt for an observer capacity first. That gives them the time to get familiar with the procedure, build up confidence and garner internal political support and mandate.

The choice for the creation of a transitional institutional arrangement was a very deliberate one. A process of setting up a final appropriate legal and institutional framework to structure the Initiative beforehand would have taken several years. It involves the harmonization of the national legislation of all the riparian countries. To wait for the lawyers to agree on such a complex operation could jeopardize any initiative. It goes without saying that during the implementation of the shared vision legal foundation should be established.

5.2.7 Dialogue & Shared Vision and Action on the Ground

Water Diplomacy, as a multifaceted discipline, and its networks for International waters of the Arab Region could take place in a coordinated manner with the Integrated Water Resources Management (IWRM). This requires a comprehensive systems view that takes care of the inter-connectivity among environmental, ecological, and social concerns together with the traditional hydraulic, economic and political concerns. Dr. Mahmoud Abu-Zeid emphasized, during the dialogue in the 2002 Nile Conferences (1993-2002) and on many occasions that: “the idea behind the interdisciplinary system approach is a reminder of what is forgotten and to clear the ambiguity of what is not understood”.

In our view, the Nile 2002 Conferences have taken a systematic approach, that each conference is connected to the other in a series of themes focused enough to bring about specific outcomes in a process of consensus building. The way the themes were defined,
throughout the process brings together a design of a process that is goal-oriented. It is characterized by complementarities to each other, in a spectrum ranging from:

- “Getting Started” in Aswan (Egypt) in 1993 to
- “The Vision Ahead” in Khartoum (Sudan) in 1994, then
- “Taking Off” in Arusha (Tanzania) in 1995, then
- “An Action Plan”, which was presented in Kampala (Uganda) in 1996, then
- “Basis for Cooperation” in Addis Ababa (Ethiopia) in 1997, and
- The culmination of this process was in Cairo (Egypt) in 1999, when the Conference agreed on “A Shared Vision for the year 2025”.
- 2002 Conference in Nairobi, Kenya's theme emphasized local community Action on the ground.

Apart from these complementarities, it seems that each theme played a function in a sequence. It is based on the assumption that each function corresponds to a distinct phase in the riparian policy making process: either for collaborative action or for water resources management and sustainable development.

5.3 Implementing Conventions and Protocols

Institutional, political and legal measures for implementing International Law: Measures have to be incited and enforced on a supra-national level (regional on basins level or on international level), inter alia: Ratification; consistency and conformity of national legislations and policies to the existing International Law; applicability on the regional Level; regional agreements, conventions and protocols. Recently, most interesting that the Security Council of the United Nations took up in its deliberations the subject of peaceful settlement of water disputes.

5.4 The Need for Watercourse Institutions and the Process of their Creation.

5.4.1 Introduction

The term institution is used here to mean more than organizations. It consists of all the formal and informal practices that determine ones behaviour. They exist from the community to the national and international level. They reflect the ethics that are shared at each level. Changing institutions means changing value systems which takes time, perhaps generations. Some of the problems we face cry out for faster solutions. Institutions change is becoming everybody’s concern.

In general sociology, institution is a social order or pattern that has attained a certain state or property. The notion implies that institutions serve the purpose of shaping and stabilizing human actions (Bandaragode, 2000). The key characteristics of institutions are that “they are patterns of norms and behaviours which persist because they are valued and useful”. Primacy of institutions in sociology was seen when Durkheim called sociology - the science of institutions”.

The terminology used in practice indicates that the institutions are a combination of: “Policies and objectives, laws, rules and regulations, organizations, their bylaws and core values, operational plans and procedures, incentive mechanism, accountability mechanisms, norms, traditions, practices and customs”. Institutions and organizations are
serving to shape and stabilize human actions. In the last analysis, our water institutions reflect the philosophical, ethical, and religious views of our societies.

However, the stabilizing effect of institutions does, also, include Institutional change on the basis of identified needs and often based on their own interests. As society and its priorities change, institutions (conventions, codes of conduct, norms of behaviour, law, contract) seem to evolve and continually alter the choices available to the individual (Bandaragode, 2000)

5.4.2 Institutional Change is Needed

Our concern here is on International River Basins examples of institutional change, and how they are coping with new trends and complexities of water management in the 21st Century. One example is the process of the Nile Basin Initiative“that has taken more than fifteen years, and still looks as unfinished business, and lots have to be done to build up the necessary permanent institutional mechanism' that drive all riparians of the Basin to a higher stage of achieving the vision of alleviating poverty and sustainable development.

One sees now better the critical role of "the River Basins and Groundwater Institutions", and how important 'the UN Year of Water Diplomacy' is going to focus more on strengthening the institutional mechanisms and to create new, where there are no mechanisms for basins wide cooperation.

The existing institutions have to adjust their response to changing situations. In this context, the pace and direction of institutional adaptation need to be quickened, in order to face to the challenge of the sharp increases in the magnitude of the current problems and the ever-increasing stresses in freshwater management. Our behavior as individuals is included in that, and so is the functioning of national and international parts of the water management system.

5.5 Implement ability of International Water Law

*International law* and development support for water cooperation over river basins and aquifers are both currently insufficient to meet these challenges. The vast majority of States have failed to reconfirm their commitment to cooperate over shared water by neither including this goal in the World Summit on Sustainable Development (WSSD) agreements, nor ratifying the UN Convention on the Non-Navigational Uses of International Watercourses.

*International law* should become a more powerful tool in transboundary water conflict prevention and arbitration. Efforts should be increased across the world to reach integrated and effective basin-wide and shared aquifer management agreements among all states in each international basin. States should immediately ratify the 1997 UN Convention on the Non-Navigational Uses of International Watercourses.

Additional measures are needed to clarify and strengthen the protection of water systems during times of armed conflict and from terrorist attacks.
5.6 Monitoring compliance of International Water Law

Monitoring compliance of international Law needs first to enhance the process of ratification of the UN Framework Convention of 1997 on Trans-boundary Rivers, and second to refresh calling for initiating the global Convention on water resources. The Green Cross International have recently joined forces with UNESCO to initiate such a move, but the value of such an undertaking is debatable, bearing in mind that compliance with international obligations may require capacities that certain countries may lack. This is in part from the difficulty of multiplicity of conflicts that arise when trying to find a global solution to issues that are, in essence, influenced by their regional and local nature.

To overcome such difficulty, an option here, is to find a practical way to link all the existing instruments and initiatives in a coherent way to clearly and simply articulate common approaches and principles that can be adapted and applied to the uniqueness of each basin. Universal guiding principles are now well known and the real and immediate challenge is to deliver on existing global commitments by implementing these guiding principles at the regional and local levels.

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CHAPTER VI
TOOLS FOR WATER DIPLOMACY IN ACTION

6.0 Introduction:
This chapter is a continuation of the last chapter in the process of building a strategy, and following the detailed examination on 'Water Diplomacy in Action Design and Implementation'. Various strategy elements of the proposed strategy entailed: visioning and identifying strategic objectives to follow in the process. The focus in this chapter is on diplomatic tools to be used for intervention in the process of initiating and Implementing cooperative in the integrated management of shared basins.

The chapter is focusing on 'Water diplomacy tools for Negotiation and Communication Skills Building'. Special emphasis here is on dialogue and its tools, as well as lessons learnt or tips for gaining success in international waters negotiation; it is stressing the interest based negotiation.

The objective, here, is to articulate, on the operational side how diplomacy in practice is going to cope with the emerging trends of the new world water developments? There is a need for applying innovative tools, new approaches, methods, new mechanisms and for putting water diplomacy into action. Special attention should be given to tools in the process of preparation of the UNGA, important events on water and the environment, and in launching 'the International Year of Water Cooperation (Diplomacy).

The success of the Year will be valued if there is a dialogue conducive to enhance societal strategic frameworks for the implementation of Water Diplomacy. However, it needs to be fully implemented in all Arab countries by applying new tools and techniques based on participation of relevant stakeholders in decision making, knowledge and experience transfer among water institutions and organizations through bench-marking and bench-learning of best practices and success stories of an integrated river basins management (IRBM). This will introduce water diplomacy as a tool for averting the Arab water conflicts and crisis.

6.1 Strengthening Public and Popular Water Diplomacy

Public and popular participation in water governance is part of emerging trends in the 21st Century. It came to be one of the top agenda of the international community on all levels, especially in managing international River and groundwater basins. This is because that, within the high politics of international water negotiations, the concerns of local people and the need to involve the public in the process of arriving at basin management strategies and agreements are often overlooked.

The achievement of cooperation and resolution of conflicts over the world’s international basins would bring major benefits, including stability and security, the strengthening of democracy and human rights, reduction of environmental degradation, and improving access to drinking water and sanitation. But without the participation of citizens and the involvement of civil society partners at all levels, none of these benefits will be secured on the ground.

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22 According to the United Nations Development Programme, Water governance is “the range of political, social, economic, and administrative systems that are in place to develop and manage water resources, and the delivery of water services, at different levels of society”