Assessment of grass roots irrigation water conflicts through governorates' profiles

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Assessment of Grass Roots Irrigation Water Conflicts Through Governorates' profiles

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Summary. In Egypt, water is increasingly becoming a national stability and security issue. Water disputes today are most evident when it comes to irrigation water which accounts to 84% of all water consumption. Water conflict is commonly taking place at the village, inter-village, regional, and national levels, as well as at the inter/intra institutional and local/institutional level. Some of these have the potential of developing into social and political destabilizing factors.The current research paper is aimed towards addressing these conflicts' issues within the grass roots of water users. Specifically, this study assesses, profoundly, the entire characteristics of irrigation water conflicts in four Egyptian governorates, Fayoum, Sohag, Kafr El-Shiekh, and Aswan, as pilot case studies. The identification of these conflicts' characteristics is performed through comprehensive and detailed governorates' profiles within all four pilot areas. The results of this intensive field research revealed detailed findings about the nature and history of conflicts, effects of conflicts, parties to the conflicts, root causes of the conflicts, dynamic of conflicts, and alternatives to conflict management.

Keywords. Egypt - Water conflict - Grass roots water users.

Evaluation des conflits entre les usagers de l'eau dans de plusieurs gouvernerats

Résumé. *En Egypte, l'eau devient de plus en plus une question de sécurité et de stabilité nationale. Généralement, les conflits d'eau ont lieu au niveau des villages, d'un village à l'autre, au niveau régional et national tout comme au niveau inter/intra institutionnel et local/institutionnel. Certains d'entre eux pourront bien devenir des facteurs politiques et sociaux déstabilisants. La présente contribution vise à aborder les questions des conflits en allant au fond des problèmes des usagers de l'eau. En particulier, elle évalue toutes les caractéristiques des conflits d'eau d'irrigation dans quatre gouvernorats égyptiens : Fayoum, Sohag, Kafr El Shiekh et Aswan, comme étant des études de cas pilotes. L'identification de ces caractéristiques des conflits est faite à travers les profils complets et détaillés des gouvernorats dans les quatre aires pilotes. Les résultats de cette recherche intensive sur le terrain ont mené à des conclusions détaillées sur la nature, l'historique, les effets, les facteurs qui ont déclenché les conflits, les causes premières, la dynamique et les alternatives à la gestion des conflits.*

Mots-clés. Egypte - Conflit de l'eau - Usagers de l'eau.

I - Introduction

Water is considered the main life artery for human, and social stability is a vital aspect of nations' development. Therefore, conflicts over water and especially irrigation water can cause social instability within the society and consequently affects the development wheel of the country. Irrigation water conflicts within the Egyptian society vary from simple conflicts to very harsh ones that can be fatal at times. Farmers suffer from lack of water especially at canal ends mainly due to being exposed to daily violations that hamper them from receiving their share of water. The main problem here is the inadequacy of a legislative structure or the lack of enforcement mechanism that ensures that their rights are maintained and their responsibilities are fulfilled. The excessive violations may be attributed to several reasons, some of which are: the social and economic conditions due to the widening gap between urban and rural Egypt, especially in the services provided to them. With the current booming economy, and the wide agricultural, commercial and industrial development, new policies are evolving for liberating the markets and this affects the life

of farmers and the agronomical economy. Thus, farmers' problems add a new dimension to the agricultural sector in Egypt which needs to be tackled properly for better improvement of current conditions and rural social standards

The Arabic Network for Human Rights Information has published articles about farmers' problems in Egypt in their Annual Earth report 2004, to shed a light on the status of farmers due to the international and regional and local circumstances which are facing new policies of an open trade and market, a situation which resulted in many farmers losing their work in addition to the rise of conflicts and spread of violence among them. The problems were attributed to the negligence in cleaning up canals which causes their blocking and shortage in water in some of each reaches, also due to closing pump stations that were mainly working on reused water, this is in addition to the slow operation of other plants due to mechanical repairs. Sometimes the canals are dry due to a water shortage that is caused by intermediate pumping along the canal. All of these reasons cause hatred and confrontations among farmers. Therefore, the roots of these problems need to be resolved to either eliminate them or at least reduce their level.

It is quite clear from what was mentioned previously, that irrigation water conflicts is a very crucial issue that needs to be profoundly investigated towards better water management and eventually social stability. Therefore, the current study is mainly concerned with addressing these water conflicts from the different perspectives in four pilot governorates in Egypt.

II - Research Methodology

Conflict assessment is a process of systematic data collection to determine the scope and dynamics of a conflict. It identifies parties, and issues involved in disputes and suggest options for resolution. The assessment process includes defining the overall context of the subject, i.e., in this case the nature and history of conflicts, their effects, their causes at the roots, involved parties, the dynamics of such conflicts and alternatives to their management.

The data collection process involves holding introductory workshops, semi-structured Interviews, interactive group discussions, field observations, specialised workshops (women, irrigation engineers, arbitrators), official documentation (Human Development Report {HDR}, Ministry of Water Resources and Irrigation {MWRI}, Ministry of Agriculture and Land Reclamation {MALR}), secondary sources, and finally validation workshops.

In this study, four governorates were chosen for profiling (Aswan, Sohag, Fayoum, and Kafr El-shiekh). The selection process was based on the diversity in irrigation water availability; in social composition and tradition; in irrigation systems; in cropping pattern; in local water organizations. For each of these governorates, the status of conflicts was assessed in details.

The adopted strategy in this activity started with specifying locations in each governorate using irrigation networks and administrative boundaries. Irrigation districts were randomly sampled and communities were cluster sampled based on the level of conflicts, cultivated crops and location and population make up. The profiling exercise has resulted in some outputs that were very beneficial in the process:

- Better understanding of the contexts and existing conflicts and/or complaints.
- Building alliances at the governorate level
- Introducing the dimension of conflict into the day-to-day debate over water management
- Deciding on the specific locations for the in-depth study
- Identifying a number of general assumptions or lessons learnt that can be tested in the in-depth study
- Building the team's research skills

III - The Overall Context of Governorates

As mentioned previously, the four governorates enjoy a great deal of diversity in many terms such as irrigation systems, social and economic make up, crop production,…etc. They vary in the level of investment with Fayoum enjoying the highest level. The selected communities are not homogeneous; they enjoy a wide variety of social backgrounds, knowledge, material, wealth and power. However, there are some features that they have in common such as: population growth, high rate of unemployment, land reclamation, land breakup into smaller ownerships, and reduced community solidarity and respect to authority. The context for each governorate is described as follows:

1. Kafr El Sheikh

- Highest number of severely violent conflicts.
- CDAs are least active in water management, although they tend to be very active in other developmental areas (676 CDA).
- 21% of population live under poverty line
- More than 50% of the governorate land is cultivated with rice.
- More activities in irrigation improvement than in any other governorate.
- The second after Fayoum in the number of fish farms.
- The second after Aswan in using night irrigation.
- Largest number of WUAs (40 WUAs on the sub-canals and 1525 on the mesquas).
- Customary Councils and Water Users Associations are the most acceptable conflict management mechanisms.
- Women are negatively affected by conflict through violence and divorce.
- Kafr El Sheikh ranks fourteenth among the 26 Egyptian governorates in UNDP Human Development Report.

2. Sohag

- Highest rate of population density with more than 54 % working in agriculture and highest rate of population growth (2.5 %).
- Highest rate of poverty (34% of the population under poverty line).
- Weakest women status with women representing 8 % of the labor force. Until 10 years ago, girls used to wear boys outfits.
- No WUA in Sohag. Yet, it has the most active CDA in water management followed by Aswan and Fayoum.
- Has the longest irrigation network estimated 2,477 km followed by Kafr El Sheikh 1850 Km?
- The irrigation network Sohag ranks second after Aswan in being vulnerable to weed growth due to high temperature.
- CDA and local leadership are the most acceptable conflict management mechanism.
- Highest rate of outward immigration in Egypt.
- Has a triple alternation irrigation system (5 days on and 10 days off).
- Sohag ranks last among Egyptian governorates in UNDP-HDR.

3. Aswan

- Has the smallest area of agricultural land with the lowest number of population (30 % work in agriculture)
- Aswan has the widest demographic mix followed by Fayoum.
- Because of its altitude (82m above sea level), Aswan relies on uplifting stations and therefore suffers consistently of malfunctions of pumps (74 Stations).
- Aswan ranks the second after Kafr El Sheikh in conflict severity where some conflicts lead to death.
- Suffers most of weed growth due to high temperature.
- Highest costs of uplifting water to lands.
- Highest women participation in labor force estimated at 15 %.
- The largest land reclamation (Toshka, Wadi El Saaida and Wadi El Nokra).
- CDAs play an active role in water management.
- The number of active WUAs is very low.
- ALIVE project has invested in the capacity development of Water Engineers.
- Sugar cane occupies almost 60% of the cultivated areas. (Aswan has the highest number of sugar industries).
- Aswan ranks 8th among Egyptian governorates in UNDP HDR.
- The first governorate to have accomplished the integral engineering units system.

4. Fayoum

- It has a unique irrigation and a closed-circuit drainage system. Land levels vary (from+26m above sea level to -46m) requiring more infrastructure.
- Has the least fertile land.
- High rate of illegal rice cultivation (45,000 feddans instead of the authorized area of 15.000 feddans).
- Customary council followed by WUAs are the most acceptable conflict management mechanisms.
- Demographic structure is one of the main factors that affect conflict.
- Fayoum is known for its water wheels while night irrigation has disappeared although still in use in Kafr El Sheikh and Aswan.
- Highest rate of lands fragmentation with 82 % owning less than 3 feddans.
- Is the only governorate that has irrigation policy.
- Lowest rate of students' registration in schools estimated at only 74 % due to children labor in agriculture and protecting irrigation water.
- Highest number of conflicts but the least in violent conflict compared to the three other governorates.

IV - Nature of Conflict

The study highlighted some points on the nature of conflict. It demonstrated that conflict over irrigation water amongst farmers (internal) and between them and water authorities (external) exists in every community studied. However, there is a variation to the problem among the 4

governorates, with Kafer al-Shiekh experiencing the most violent manifestations, followed by Aswan, Sohag and Fayoum. There is a trend showing that the nature of conflict, as well as structures for resolution, has changed due to complex socio-economic and political factors. In general, the level, frequency and intensity of conflict are perceived to have increased since the 1970s. All communities experience fluctuation in level of conflict in accordance with the season, with most conflicts arising in the summer. There is a strong indication that the distance from the water source is the most important factor in determining the level of conflict.

V - Effects of Conflicts

It is well recognized that conflicts have tremendous effects on the society at large. The field study analysis pointed at the impacts of these conflicts and their consequences.

1. Social Effects

- Changes in social cohesion and solidarity.
- Weakens people's faith in traditional mechanisms and leadership structures.
- Causes an increase in outward migration.
- Increases polarisation between 'old' and 'new' communities.
- Boys and girls are increasingly withdrawn from schools to guard irrigation time.
- The wife often ends up at the receiving end when the conflict is amongst relatives.

2. Economic Effects

- Reduced productivity as a result of delay in irrigation and insufficiency in water quality and / or quantity.
- Transgression adds to the ineffectiveness on the network and the cost of its maintenance.
- Adds to the vulnerability of smaller farmers.
- Farmers are less willing to physically or financially participate in the maintenance work.
- The spread of fines and other conflict-related expenses as well as the need to borrow money to compensate for poor productivity results in an accumulation of debt.
- A lot of time is wasted dealing with the effect of conflict.

3. Environmental Effects

- Drives farmers to planting crops with higher yield e.g. rice.
- Adds to the demand on water.
- Adds to the level of water and environmental pollution.
- The need by some to utilise drainage water affects the quality of land.
- Conflict can occasionally cause land flooding such as the case in Fayoum and Sohag.

4. Political Effects

- Increases farmers' scepticism about the Government's ability to deliver on promises.
- Unresolved conflicts weaken decentralisation and delays privatization.
- Adds to the challenge of implementing integrated water management's agenda.
- Disenfranchises people from political participation.

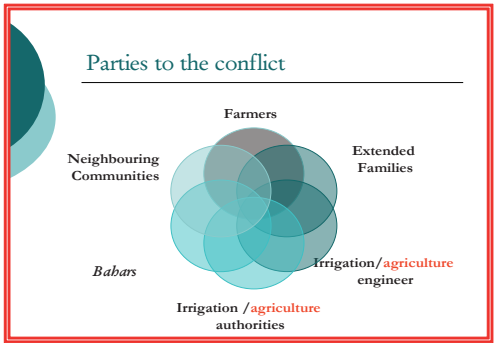
- Can be manipulated by some 'elites' to win local elections.
- Revives tribal and family allegiances.

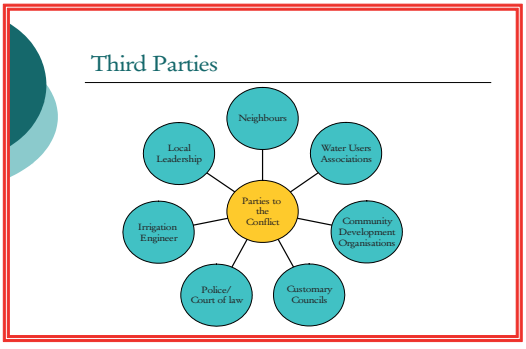
5. Other Effects

- Procedural justice is not operating fairly to all.
- Retributive justice can result in imprisonment and therefore have negative effect on all concerned.
- Restorative justice is difficult to implement.
- Psychological pressure often reflected at family members back at home.
- General feel of insecurity.
- Wasted opportunities.
- Women end up taking up more responsibilities.

VI - Parties to Conflicts

One of the most important outcomes of the assessment process is defining the parties that are involved in this course of action. The following figures show the different parties and the third parties in a separate profile.





It is probably worth mentioning here that Water Users Associations are specific organizations that MWRI forms among farmers with the participation of irrigation engineers along specific canal to participatory manage the allocation of water for such a canal (MWRI documents). Specifically, Irrigation Advisory Services (IAS) is the authority within MWRI that supervise the establishment of such associations along farmers' canals.

VII - Root Causes of Conflicts

The study was able to detect the underlying causes of conflicts. Data analysis allowed for a detailed specification of the roots of these conflicts. A general configuration of the underlying causes is described in the following points:

- Inequality and unfairness in water distribution is at the heart of water conflict.
- Disputes over irrigation water are often entangled in complex layers of social, economic, political and technical *factors* between individual community members, families, and various other social and administrative groups.

- When it comes to external conflict between farmers and water authorities, the perception of the factors by the farmers is very different from that by the water authorities. Each tends to blame the other.
- Agriculture driven conflicts add another direction to water.

Specific attributes to the roots of conflicts are classified into:

1. Farmers' perception

- Low water levels.
- The low capacity of the irrigation network and its inability to absorb any additional allocations (capacity constraint).
- Poor maintenance of the network.
- Unlined of watercourses and leakage/seepage.
- Insufficiency of water intakes.
- Incompetent and unaccountable water engineers (poor management).
- Power and dominance of powerful owners of the new land areas.
- Bribery and nepotism for the *Bahars.*
- Brevity of irrigation time allowed per feddan (*mutarfa* –Fayoum).
- Ineffectiveness of the fines imposed on unauthorized rice-growing.
- Transgression by the fountainheads farmers against irrigation water.

2. Authority Perception

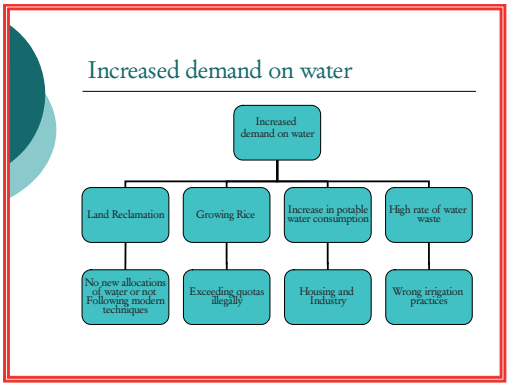
- Acts of transgression by the farmers.
- High rate of water waste by farmers.
- Lack of awareness amongst farmers about availability of water and allocation systems and pollution control.
- Rapidly increasing rice-growing (illegal).
- Fragmentation of properties, increasing the number of stakeholders.
- Change in farmers' life styles (rather watch satellite channels instead of irrigating their land during the night).
- Building bricks factories.
- Waste disposal into canals and water contamination.
- Increased reclamation of land area, uncoupled with parallel water allocations.
- Use of unauthorized water-pumping machines.
- Passage of watercourses into the inhabitants' blocks.
- Need for more efforts and involvement of the agriculture cooperative societies.

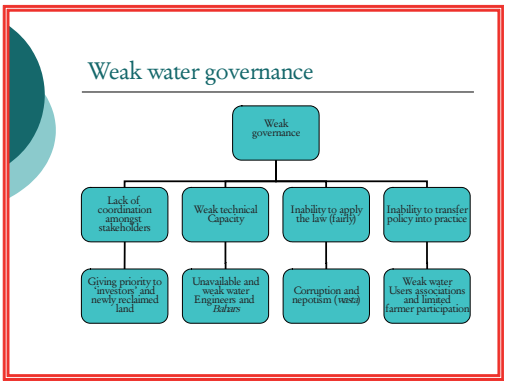
3. Objective and Subjective causes of conflicts

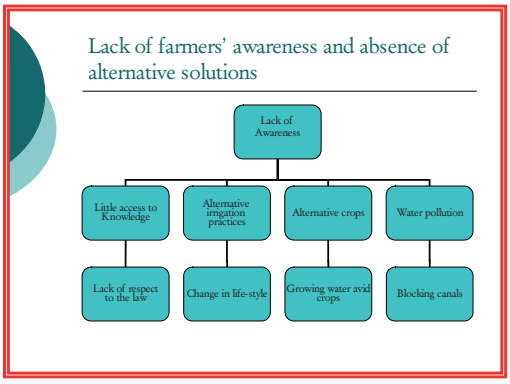
The study analysis indicated that some of the root causes maybe attributed to *objective* reasons and some to *subjective* reasons, which are the result of internal human relations in society. These can over time be transformed into perceptions of difference, so that the conflict is subjectively 'reconstructed' – or manipulated – to become a class conflict, us and them, etc.

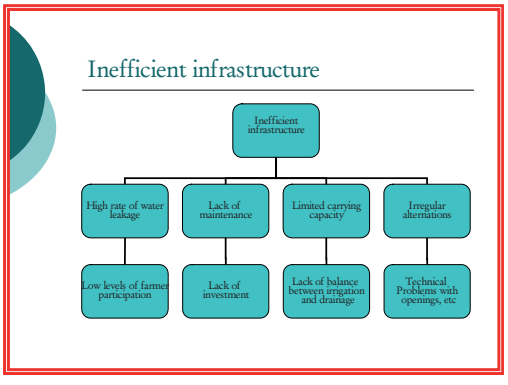
A. Objective causes

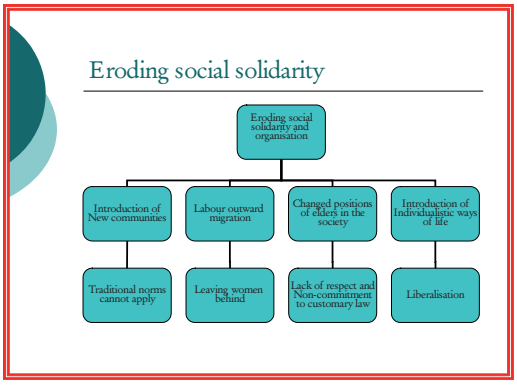
These are due to increased demand on water, weak water governance, inefficient infrastructure, lack of awareness and ill practices by farmers, eroding social solidarity and community organisation, missing roles of other stakeholders, namely MALR, civil Societies, NGOs….etc. The following figures show a schematic of the specifics of each one of the mentioned points separately.











B. Subjective or Proximate causes

As for the subjective causes they were attributed to the following:

- The uneven (unfair) distribution of water amongst farmers and villages.
- Lack of trust.
- No perception of shared interest.
- Acts of transgression by the farmers.
- Water/Economic insecurity.
- The gradual disappearance of al-Saqya and increased independence on individual pumps.
- Increase ineffectiveness of local and traditional conflict resolution mechanisms.
- Some farmers' inability to 'dialogue' constructively and 'negotiate' effectively increases the opportunities for misunderstanding and thus conflict.

VIII -Dynamics of Conflicts

The study has been able to figure out the consecutive steps starting at the point of facing a problem and leading to the emergence of conflicts.

All studied communities possess ways of resolving or managing disputes. These mechanisms may be formal or informal, customary or state-legality based, equitable or not. Communities that are more homogeneous tend to have more effective ways of managing 'internal' conflicts. Farmers involved in disputes take courses of action based on their knowledge about the options available to them, their perceived likelihood of success, and their relationship with their opponents.

Farmers often appeal to multiple layered 'legal order' system, some rooted in the state law, religion, traditions, or other entity. These legal orders are not discrete or closed systems, however, they may overlap or they may be complementary or competitive and contradictory. While specific mechanisms vary, communities rely to varying extents on the same basic procedural modes to handle disputes: The common reactive ones are: avoidance, coercion, negotiation, mediation, arbitration, and adjudication, and the pro-active ones are known to be: fostering productive communication, collaboration amongst diverse interests, and addressing underlying causes of conflict.

A strength-weakness analysis was performed to investigate the involvements of third parties in conflict's management. This profound analysis revealed several findings that can be outlined as follows according to the third parties category.

Neighbors

Strengths	Weaknesses
• Readily available. • Most accepted. • Intervene to Prevent violence. • Able to seek help elsewhere. • Proven effective.	• Likely to have an interest in the contested issue. • Does not necessarily have the required skills to intervene objectively. • Does not work in complex conflicts particularly those where people have been attacked.

Local Leaders

Strengths	Weaknesses
• Available. • Most accepted. • Does not waste too much time: tends to resolve problems fast. • Prevent complications. • Low cost. • Proven effective	• Does not follow a specific system. • Not effective in complex conflicts particularly those where people have been attacked. • Has little weight when the conflict is beyond the boundaries of the community. • The process may end up costing the leader. Not all leaders are willing to engage.

Customary Councils (Arbitration)

Strengths	Weaknesses
• Accepted by the community. • Effective in most cases. • Follows an established process and system. • The outcome is recognised by Police. • Judgement often ends up more effective as it allows for compensation while avoiding lengthy legal procedures and does not result in the imprisonment of one party or the other. • Voluntary.	• Respect to awards varies from one community to another. • Water-conflict is only one type of conflict they address • Lack technical knowledge. • Relies on the practical experience of a number of individuals. • Transfer of knowledge to the next generation is challenging. • Major cost involved.

Water Users Associations

Strengths	Weaknesses
• Elected members. • Has the potential of real representation (e.g. women). • Have a good knowledge of water system (especially those who have been trained). • Recognised by the Ministry of Water. • Has the potential for early intervention. • Relies on reaching consensus amongst parties.	• Relies on the individual skill of members. • Require further training in conflict management. • Some members may be excluded (social barriers). • Require stronger recognition from Government. • Has no authority to see through the outcome. • Not sustainable as institutions.

Community Development Organisations

Strengths	Weaknesses
• Accepted locally. • Have a clear and strong legal recognition. • Provide a wide range of services to the community which strengthens its ability to manage conflict. • Have established links to local government. • Have resources that can be invested. • Well represented across the community.	• Requires further training in terms of conflict management. • Irrigation Departments has yet to realise the potential offered by CDO. • Its real impact is limited to education, health and agriculture and not irrigation.

Police and the Court of Law

Strengths	Weaknesses
• Fayoum is unique in having Irrigation Police. • Enjoys a clear authority. • Has the ability to document conflict and procedures. • Employs the law.	• Takes much longer to deal with conflict. • Not very acceptable by the community as their intervention affects social cohesion. • Arresting people over irrigation conflict reflects negatively on people's dignity and pride. • Imprisonment leads to negative impact on all parties (no compensation is paid). • Low capacity.

Irrigation Engineer

Strengths	Weaknesses
• Enjoys good technical knowledge of the irrigation system • Presents a form of official intervention • Often able to document conflict and procedures • Has direct links to Water User Associations • Willing to play a role in conflict management	• The effectiveness of intervention relies on the nature of the relationship between the Engineer and the farmers • The Engineer maybe part of the problem • May lack the ability to manage conflict • The Engineer issues fines and penalties which affects his neutrality to mediate conflict. • Has little free time • Low degree of acceptance by the community

IX - Conclusion

The comprehensive study, presented in the current manuscript, has drawn a large number of conclusions that are very helpful to the course of work. The main points can be summarized as follows:

- The existing mechanisms are not effective. They need to be strengthened.
- Water based disputes are largely handled through formal or informal means that are open to addressing other forms of disputes.
- Some local systems appear unable to respond effectively to the type or scale of contemporary conflicts now. Yet, many customary procedures remain.
- Judicial mechanisms for resolving conflict result in a win-lose situations or zero-sum outcomes. They rely on the 'water law', take long time to reach and are difficult to apply.
- The task of addressing root causes for the purpose of resolving conflicts can be time-consuming and difficult. In many cases it even seems impossible considering the long-term and structural nature of some of these causes.
- That is why communities are focused on resolving immediate disputes.
- Not all people have equal access to all options; class, gender, age, and other factors may restrict which avenues are open to certain individuals or groups.
- Seasonality, through its influence on labour patterns, income flow, and so on, can affect the ability of people to act on disputes.
- When describing their positions, farmers tend to exaggerate the scale of their problems, while at the same time, government officials tend to promise too much.
- There is an obvious contradiction between people's religious and customary beliefs on the importance of water conservation and their attitude with wasting it (ethics).
- Women play multiple roles in conflict, but overall they tend to be at the receiving end both as parties to the conflict or as relatives to a party to the conflict.

X - Recommendations

At this stage, based on the drawn conclusions and study results, some recommendations have been suggested in anticipation to better end results/ outcomes:

- There is a real need for empowering the existing organisations / associations/ mechanisms.
- The diverse nature of the issue requires that we think of tailor made approaches. A "one size fits all" approach will not work.
- The capacity of the water engineer is pivotal. His/her abilities need to extend beyond the technical aspect of the job to include conflict management at a certain level.
- We need to plan at both local and Governorate levels. There is a need for a proactive coordination mechanism at the Governorate level (Gov. Task Force).
- We may have to distinguish between building up effective 'reactive' mechanisms and proactive solutions of underlying causes.
- Careful structured reporting system, from bottom up, for complaint management will help to address conflicts/complaints at the right level and time to the appropriate authority.
- Broaden the scope of involvement of related governmental and non-governmental entities to share responsibilities with MWRI.
- There is a need for an " Integrated Complaint Management System " that categorizes complaints; prioritizes their degree of importance; and finds the most effective resolution mechanism for each case.

References

Ministry of Water Resources and Irrigation Documents.
Ministry of Agriculture and Land Reclamation Documents.
Human Development Reports, UNDP.
www.lchr-eg.org Land Center for Human Rights
www.hrinfo.net/egypt Arabic Network for Human Rights Information